COVID-19

Virtual Press conference

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Speaker key:

MA	Margaret
TAG	Dr Tedros Adhanom Ghebreyesus
CH	Christine
BA	Professor Benedetta Allegranzi
MK	Dr Maria Van Kerkhove
JE	Jeremy
TR	Translator
SS	Dr Soumya Swaminathan
BI	Bianca
MR	Dr Michael Ryan
IM	Imogen
KA	Kai

00:00:00

MA Hello, everybody, and welcome to our regular press briefing on COVID-19 coming from Geneva, World Health Organization. Thank you very much for your patience. As usual we will be providing simultaneous translation in all six UN languages plus Portuguese and Hindi. If you prefer to ask your questions in those languages please do. You may also listen in Hindi but cannot ask your question in Hindi.

Note, owing to the way Zoom is set up you will need to go to the button marked Korean to access Arabic. As you were informed yesterday, we're moving the COVID-19 press schedule to two times per week. This week evidently we're having the first briefing today and the second briefing is scheduled for Friday.

Today joining our Director-General, Dr Tedros, will be our other regular speakers, Dr Mike Ryan, Executive Director, Emergencies and Dr Maria Van Kerkhove, our Technical Lead for COVID-19 as well as Dr Soumya Swaminathan, our Chief Scientist and Dr Benedetta Allegranzi, our Specialist in Infection Prevention and Control. They will, as ever, provide answers to all your questions. I will now give the floor to Dr Tedros for his opening remarks. Dr Tedros, you have the floor.

TAG Thank you. Thank you, Margaret, and good morning, good afternoon and good evening. It took 12 weeks for the world to reach 400,000 cases of COVID. Over the weekend there were more than 400,000 cases across the globe.

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There have now been 11.4 million cases of COVID-19 and more than 535,000 lives have been lost. The outbreak is accelerating and we have clearly not reached the peak of the pandemic. While the number of cases appears to have levelled off globally in reality some countries have made significant progress in reducing the number of deaths while in other countries deaths are still on the rise.

Where there has been progress in reducing deaths countries have implemented targeted actions towards the most vulnerable groups, for example those people living in long-term care facilities. Over the past few months there has been a lot of discussion about the origins of COVID-19. All preparations have been finalised and WHO experts will be travelling to China this weekend to prepare scientific plans with their Chinese counterparts for identifying the zoonotic sources of the disease.

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The experts will develop the scope and terms of reference for a WHO-led international mission. The mission objective is to advance the understanding of animal hosts for COVID-19 and ascertain how the disease jumped between animals and humans.

WHO will continue to communicate the latest scientific advances to the media and general public as we have done. In this vein WHO continues to work with technology companies to make sure people have access to accurate health information and resources on COVID-19.

Today I'm pleased to announce that we have partnered with Facebook and preklet.org [?] to provide WHO's COVID-19 information in free basics and discovered in a mobile-friendly

format. Through this collaboration we will reach some of the most vulnerable people who will be able to access life-saving health information without any data charges in more than 50 countries. We have launched this project in English, French, Spanish and Arabic and other languages will follow in the coming weeks.

Furthermore I want to thank Google for its continued support and dedication to keep the global community safe and informed and for its recently increased ad grant to WHO. This support enables us to catch trending falsehoods early, respond to them quickly and give people better access to life-saving information when they need it most, wherever they are in the world.

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This pandemic has shown the importance of being able to see each other online while being physically apart and 20 years on from the Durban AIDS conference, a game-changing moment in the fight against HIV, leaders, policymakers, scientists, activists and civil society are assembling visually this week for AIDS 2020.

WHO is deeply concerned about the impact of COVID-19 on the global response to HIV. A new WHO survey showed access to HIV medicines has been significantly curtailed as a result of the pandemic. 73 countries have reported that they're at risk of stock outs of antiretroviral medicines, ARVs.

To mitigate the impact of the pandemic on treatment access WHO recommends all countries prescribe ARVs for longer periods of time, up to six months while supply chains for all medicines are fully functioning.

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Similarly shortages of condoms and pre-exposure prophylaxis can prove costly and WHO calls for countries to ensure uninterrupted prevention, testing and treatment services for HIV. The disruptions in access to life-saving commodities and services come at a critical moment as progress in the global response to HIV stalls.

Over the last two years numbers of new HIV infections stabilised at 1.7 million annually and there was only a modest reduction in AIDS-related deaths. More than 25 million people now have access to ARVs but global targets for prevention, testing and treatment are off-target. Progress is stalling because HIV prevention and testing services are not reaching the groups that need them most.

The lack of optimal HIV medicines with suitable paediatric formulations has been a long-standing barrier to improving health incomes for children living with HIV. Going forward access to services for vulnerable groups must be expanded through stronger community engagement, improved service delivery and tackling stigma and discrimination.

20 years ago Nelson Mandela closed the AIDS conference by saying - I quote - this is, as I understand it, a gathering of human beings concerned about turning around one of the greatest threats humankind has faced. I will repeat - I quote - this is, as I understand it, a gathering of human beings concerned about turning around one of the greatest threats humankind has faced - end of quote.

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Those words from Madiba echoed through a generation of activists and policymakers alike and I say them today as a message to the world. More than six months in the case for national unity and global solidarity is undeniable. To beat the COVID-19 pandemic and ensure that essential health services for businesses like HIV continue we cannot afford any divisions.

I will say it again; national unity and global solidarity are important, more than ever before to defeat a common enemy; a virus that has taken the world hostage. This is our only road out of this pandemic; I repeat, national unity and solidarity. I thank you.

MA Thank you very much, Dr Tedros. We'll now open the floor to the questions. There are hundreds, many, many of you with your hands up so I'll remind you, one question each, please keep it short, say your name and where you've from and when I call on you please remember to unmute yourself, then go ahead.

00:10:06

Our first question is from Christine Theodorou from ABC network, USA. Christine, you have the floor. Please go ahead.

CH Hi. I wanted to ask about the New York Times report previewing an open letter to be published by 239 scientists from around the world calling for the WHO to give greater acknowledgement to the risk of an airborne spread of COVID-19. First of all I wanted to get your reaction to those reports and to see where WHO's research stands in terms of where they are.

BA Thank you for your question. We have discussed and collaborated with many of the signatories of the articles that you

have mentioned over the last few months and indeed we discussed the available evidence that has been discussed in these pieces. Also we received contributions from many of the signatories of these pieces.

We acknowledge that there is emerging evidence in this field, as in all other fields regarding the COVID-19 virus and pandemic and therefore we believe that we have to be open to this evidence and understand its implications regarding the modes of transmission and also regarding the precautions that need to be taken.

00:12:02

MA Would you like to add something, Maria?

MA Just to say - thank you, Benedetta - that, yes, we have been engaged with this group since April when they first wrote to us on April 1st and we've had an active engagement with them and with many of the signatories on this through different networks.

As we have said previously, we welcome the interaction from scientists all over the world from many different disciplines. Many of the signatories are engineers, which is a wonderful area of expertise, which adds to growing knowledge about the importance of ventilation, which we feel also is very important.

We have been talking about the possibility of airborne transmission and aerosol transmission as one of the modes of transmission of COVID-19 as well as droplet. We've looked at fomites, we look at faecal-oral, we look at mother-to-child, we look at animal to human of course as well.

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So we are producing a scientific brief on summarising where we are. We've been working on this for several weeks now and we've engaged with a large number of groups, epidemiologists and clinicians, IPC specialists, engineers, mathematical modellers to try to consolidate the growing knowledge around transmission.

But we have spoken about the importance of all of the different potential modes of transmission. This is a respiratory pathogen and so it is important that what we know fits into the guidance that we have, which is why a comprehensive package of interventions are required to be able to stop transmission.

This includes not only physical distancing; it includes the use of masks where appropriate in certain settings, specifically when

you can't do physical distancing and especially for healthcare workers. So our focus on the use of masks of course is for healthcare workers and to use airborne precautions where you have those aerosol-generating procedures.

But we're also looking at the possible role of airborne transmission in other settings, particularly close settings where you have poor ventilation. So we will be issuing our brief in the coming days and that will outline everything that we have in this area.

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MA Thank you, Drs Allegranzi and Van Kerkhove. The next journalist with a question is Jeremy Launch of RFE. Jeremy, please go ahead.

JE Yes, thank you so much. Can you hear me?

MA Yes, please go ahead.

JE Thanks. I will ask my question in French if I may. It's a follow up to the previous question.

TR On the study that's talking about aerosol transmission by air, shouldn't we be worried at the fact that the WHO has suspended its tests on hydrochloricoxid after the Lancet tests and then back-pedalled on that. The WHO went out on a limb on that but the subject of transmission by air; WHO also gave recommendations here very quickly and we know that it's the summer and we have air-conditioning running full-blast in many places.

MA Dr Allegranzi will answer your question.

00:15:25

BA I'll answer in English if it's okay. First of all I would like to highlight that we encouraged and supported research in this field as well. You highlighted the hydroxychloroquine or the treatments field of research but we have supported research in this field as well and indeed last week, as you may remember, we held an international research meeting where there were active discussions on infection prevention and control and modes of transmission.

Our group together with the experts who are part of it really highlighted the importance of research in the field of different transmission rules and in particular through droplets of different sizes and understanding really what is the relative importance of this and also understanding the dose of the virus that is needed

in particular in this route of transmission, the aerosol or airborne transmission.

These are fields of research that are really growing and for which there is some evidence emerging but it is not definitive and therefore the possibility of airborne transmission in public settings, especially in very specific conditions - crowded, closed, poorly-ventilated settings that have been described cannot be ruled out.

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However the evidence needs to be gathered and interpreted and we continue to support this. Regarding the measures that you were talking about, yes, indeed we do recommend a number of measures like those mentioned by my colleague before which take into consideration this possibility.

In several of our guidance documents we do recommend as much as possible avoiding closed settings and crowded situations. We do recommend appropriate and optimal ventilation of indoor environments and also physical distancing, as you know, and when this is not possible in areas with community transmission of the virus we recommend the use of face masks, in particular fabric, non-medical masks for the public.

So all of this is taken into consideration in our recommendations, as we've previously said.

SS If I could just add to that, just to say a few words about how WHO does its normative work, the guidelines and the standards and the recommendations that we make are based on a process that we've had now well established and of course we're constantly improving that process, we're constantly looking for innovations and how we can do better.

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When you're in an emergency situation like we are and when the science is constantly changing on a daily basis almost - we review some days up to 1,000 publications; the average is about 500 new publications a day so there's a huge amount of new data that's being put out. Not all of it is of good quality. It needs to go through peer review and that takes time but we look at pre-prints and we look at peer-review publications.

We do what's called a systematic review of the evidence; it's also sometimes called a meta-analysis, when you have a large number of studies. We put them together and have a statistical

method of trying to see where the evidence is pointing, in which direction. As you know, every study that comes out is not always in agreement with the previous one.

That's how science evolves, until you get a body of data so you have bioengineers and experts in physics who do experiments in laboratories and come out with that kind of data. Whether that exactly reflects what happens in day-to-day settings, in clinical settings we cannot extrapolate.

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So then you have to take ecologically descriptive data sometimes from outbreaks that happen in different settings which may point in a certain direction but then you cannot always rule out... For example it may point to the fact that there could have been limited airborne transmission.

But it could also be through fomites or other means and so the body of evidence continues to grow and we adapt and so we do what's called a living systematic review. Every week we update the review based on the latest and there are hundreds of publications now in the area of transmission.

Then we have what's called a guideline development group that considers all of this evidence and many of the scientists or some of the scientists who are authors on that letter are part of our expert groups and guideline development groups.

They then look at the evidence and then they have to make a considered recommendation and we take this very seriously. We are of course focused on public health guidance and so any guidance that we put out has implications of course for billions of people around the world so it has to be carefully considered before it is done.

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So we want to be as fast as possible and adaptive and responding to the new evidence and at the same time we have to consider the weight of the evidence. You mentioned hydroxychloroquine so very quickly, I think, because we don't want to...

The reason that we interrupted that trial was because safety of participants was in question because of a publication which later was withdrawn but we cannot take a chance, we cannot take a risk with safety of people who are in a clinical trial. So within a week when it was clear that there wasn't that evidence the study then restarted and as you may know we completed the

hydroxychloroquine arm because there's enough evidence now to show that it does not have any impact on mortality in hospitalised patients with COVID.

I just wanted to give you an idea of how WHO actually makes guidance. It's not impulsive, it's not done on a day-to-day basis but it's a process that continues and will continue, I'm sure, with COVID for the weeks and months to come.

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MA Thank you very much for those comprehensive answers. We now have a question from Bianca Rauthier from Globo, Brazil. Bianca, please go ahead.

BI Hi, Margaret. Can you hear me?

MA Very well. Please go ahead.

BI Thanks a lot. The Brazilian President, Jair Bolsonaro, just announced that he tested positive for coronavirus and, as you know, in the last months we have seen him calling COVID-19 a small flu, ignoring the use of masks and also criticising social distancing measures.

We would like to hear from the WHO, how important is it that leaders set an example to the population in the fight against the pandemic and how dangerous is it that Brazilians feel lost in the middle of a crisis like this one?

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MR I'm sure Dr Tedros will speak to this but we certainly wish Mr Bolsonaro very well, we wish him a speedy, full recovery from this disease. Other leaders around the world have had similar experiences. I think it brings home for us all the reality of this virus and no-one is special in that regard. We're all potentially exposed to this virus.

The virus doesn't really know who we are, whether we're prince or pauper. We're equally vulnerable and I think what it really highlights is our collective vulnerability to this disease so we wish Mr Bolsonaro and his family the best in this regard.

It is a time in any... Brazil is a great nation; it faces a difficult task and a difficult time. The numbers in Brazil have stabilised over the last number of days and certainly the reproductive number across many of the states, while it still hovers above one, has moved down.

However the hospital system still remains under some pressure and while it is still coping and again with great regard to the skill and commitment of health workers all over Brazil but hospital occupancy and ICU bed occupancy is still coping but it's in many cases near critical so Brazil faces many of those challenges.

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We hope, as I've said here previously, that Brazil can continue to develop and deliver the response at federal, state and at local level, that we see the unity of purpose and the sustained application of the comprehensive strategy that we have advocated for a very, very long time and we trust that if Brazil can bring all of its health system, public health system and its communities together that Brazil can continue to make progress in the face of this disease.

But I think the message to us all is that we are all vulnerable to this virus.

TAG Yes, thank you. I think Mike has said it all. We have been saying for a long time now, including at the early stages of the pandemic, that this virus is very dangerous and we called it many times public enemy number one since the early days.

It has two dangerous combinations; one, it moves fast; and also it's a killer. That's why we were worried and warning the world continuously. As Mike said, I think we're all vulnerable and that's why we also said this is an enemy against humanity, that humanity should stand in unison to fight and defeat it.

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This happens once in a century. It's a dangerous virus. None like this has been seen since 1918 and national unity - I said it in my speech - and global solidarity are the most important and without which I don't think we can defeat this virus. The divisions actually will be an advantage to the virus.

Not only Brazil; the whole of Latin America doesn't look good. Cases are on the rise, deaths are on the rise and even North America, Meso-America - except Canada; Canada is doing better - we're concerned.

In the rest of the world, although I said the deaths are levelling off because some countries are showing some progress but many countries are actually having more cases and deaths are on the rise.

So it's very important to understand the seriousness of this virus and to be really serious. No country is immune and no country is safe and no individual can be safe but, having said this, we wish His Excellency, the President well and we wish him a fast recovery. I hope the symptoms will be mild and His Excellency will be back to office as soon as possible to support his country. Thank you.

MA Thank you, Dr Tedros, for those supportive words. We do know we're all vulnerable. We have a journalist on the line trying to get through, Kamran Kazimov, who has been trying to call us from his hospital bed because he in Azerbaijan has also been diagnosed with COVID. Everyone is vulnerable. I will ask his question for him later if he can't get through.

00:30:17

We will now go to Imogen Foulkes from the BBC. Imogen, please unmute yourself and go ahead.

IM Thanks for taking my question. Is it to do with the death rate because I think on Friday, Dr Tedros, you said that the death rate peaked in April. Since then we've had millions more cases and I know you said the death rate is still rising in some countries but it isn't in others which still have a heavy burden of cases.

Could you break down a bit more for is what you attribute that to? Is it the age of the people who're getting the virus, is it that clinicians have developed a better way of treating, what [inaudible]?

MA Imogen, you broke up. Can you repeat the last...? It was okay.

IM Just if clinicians have developed a better way of treating it, they know more about it. I'm interested in a breakdown of why the death rate isn't rising as fast as the cases.

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MA Thank you.

TAG Thank you. About the deaths I will give it to my colleagues to say more but when I said last time about the peak in April, it was about Sweden actually; it peaked the week of April 20th and ever since the number of deaths in Sweden actually has been on the decline.

Of course the number of cases has been on the increase even until the week of June 22nd in Sweden and I said, of course we worry about the increased number of cases but more important

is watching the number of deaths. Even if the number of cases increases, if we manage to reduce the number of deaths that will be very important.

That's why I cited Sweden as an example and there are other countries whose death rate is actually on the decline and that's why overall number of deaths globally has actually levelled off but that doesn't mean that it's a success because the levelling-off of the number of deaths globally is because of some countries but in many countries it's on the rise.

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That's why we said, even if the number of cases is increasing we have to focus specially on the number of deaths and we need to have a targeted approach to reduce the number of deaths. Many countries have found that the deaths are disproportionately higher in older age groups and other vulnerable groups.

When they started their targeted approach, especially in long-term facilities, the deaths started to decline so that focused approach will be very important and that's what we're suggesting based on the experience from countries that managed to lower deaths, like Sweden.

But another example is - I think we have said it before - Japan. Even though the number of cases was high, especially at the initial stage of the pandemic, the number of deaths was kept really low and this was because Japan was focused on targeted intervention to save lives and many countries can follow that targeted approach, which can help to keep the death rates low.

The April peak which I said was about Sweden which ever since has declined in Sweden. Thank you.

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MR Just as a general rule of thumb, if you go back to April we were probably on average around 6,000 deaths a day globally and that stayed pretty steady and it dropped in mid-May to around 5,000 deaths per day. It's gone up and down slightly around that number and it's stayed very steady, as the DG has said, overall.

Within that there are countries with increasing deaths and countries with decreasing deaths. What has happened though at the same time - if you imagine again back in April we were around 80,000 cases a day, 6,000 deaths; in March about 80 to 100,000 cases and again around five to 6,000 deaths; then in May into the beginning of June very similar.

But what we've seen in the month of June is an acceleration in the number of cases and what hasn't accelerated with that yet is the number of deaths but we know it takes time and there is a lag phase in that.

So some of this may be lag. We may see deaths start to climb again because we've only really experienced this rapid increase in cases over the last five to six weeks so we may see that so I don't think it should be a surprise if the deaths start to rise again. It would be very unfortunate but it may happen.

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There is an element certainly of better care and again doctors and nurses and physicians have really learned how to better manage this case; simple stuff from oxygen therapy to prone therapy, managing patients, picking out those patients who are likely to deteriorate more rapidly by looking at oxygen levels in the blood so essentially managing the clinical pathway so the patients most likely to get very sick get into the highest form of care quickly. So the clinical pathway's been managed more effectively and has probably had an impact on the overall number of deaths.

Certainly some of the therapies that have become available may also have reduced death rates so we've seen the likes of dexamethasone and others that have reduced the number of deaths in very severe patients and a number of those factors.

There's also the testing factor; as testing has increased the proportion of people maybe in younger age groups who are being detected that were not detected before has increased so the overall number of fatalities is a smaller proportion of the overall number of cases. That certainly has some impact on that but we would expect the proportion of positive cases of the total number of cases to drop at the same time, which has happened in many places.

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So you're right, Imogen; it is a complex series of factors. What's good is that the test rate is stable. It may increase. We would hope to be able to collectively drive that down. What is a concern is the fact that the disease numbers are increasing day by day and if you imagine that somewhere in April and May we were dealing with 100,000 cases a day, today we're dealing with 200,000 cases a day and that is not purely as a result of testing.

This epidemic is accelerating and we're lucky. I hope part of it is that we've become better and there is a difference between being good and being lucky. I would prefer to be both good and lucky but I do think some of this at least is down to some excellent front-line doctors and nurses and their ability to detect and treat patients early and we hope we can continue to provide them with the support they need to keep pushing that curve down.

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Some of it is also due to shielding and protection of older populations. I think all of us collectively have learnt that underlying conditions, that people in long-term care facilities are particularly at risk and therefore shielding and protecting more vulnerable people and ensuring that they're not infected or don't get infected may also result in a reduction in the overall number of deaths.

MK Just a quick note to say that while we're talking about this in general there are quite some differences by countries and we've spoken many times about the challenges of comparing mortality between countries because there are so many factors that could be associated with these differences.

Just calculating mortality; we're looking at reported deaths over time and if you look at deaths by million population or if you look at a crude case fatality ratio there are challenges with all of these estimates which could have to do with the surveillance strategies and testing strategies of finding cases; have to do with access to early care, access to oxygen, etc.

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Of course we are learning and front-line workers are learning how to care better for patients but it also is affected by the populations that are affected. We've seen in some countries the majority of the deaths are due to cases that are identified in long-term living facilities. This has been a tragic aspect of this pandemic and something that can be tackled and something that we can focus on to make sure we reduce, we prevent the opportunity to enter into these vulnerable populations.

Then just to add that some countries will be revising the deaths as they go forward and looking at attributing deaths to COVID, directly, indirectly and whatnot. There are systems in place; in Europe for example the Euromomo programme which is looking at excess mortality across Europe and there're other systems in place in other parts.

So it will take us some time to really understand mortality but, having said that, there are many things that we can do now to prevent infections and by preventing infections we are ultimately preventing the opportunity for someone to advance to severe disease and death.

So this is a major focus of ours and all of the member states', to do as much as we can as quickly as we can to reduce mortality where possible. DG.

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TAG Thank you. I just wanted to add a few things. One; what we're saying is the number of cases is on the increase; it's actually accelerating very, very fast and I have already provided the figures. But it's still possible by using the comprehensive approach to minimise transmission and we have to focus on that.

But what we're saying is we have to be even more focused and we have to do more to save lives, to minimise mortality and many countries are doing that and that's why it's levelling off and we have to invest on that.

But one more thing I would like to say is on the Americas that especially the Caribbean countries are doing very well both in terms of suppressing transmission and also in terms of saving lives but not only the Caribbean; the Pacific countries are also doing well and there is some positive or good progress in some parts of the world too. But overall we're really concerned, as I said earlier.

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MA Thank you very much. That question stimulated a really rich discussion. We're running out of time, I'm sorry. There are so many of you on the line but we've only got time for two more questions so I'll now go to Kai Kupferschmidt.

KA Thanks for taking my question. I was wondering, just to go back to the announcement of the scouting team to go to China to look at zoonotic transmission, could you give an idea of what are the kind of things that you would hope to achieve there, what are the kind of things that you would hope you can look at, would you be trying to go to industrialised farming, really try to get a sense of the animal/human interface that might exist or are you going to concentrate on Wuhan where the first cases were?

I realise all of this is part of what you want to decide in that advance mission but I'm just curious what you hope to get out of it.

MR Thanks, Kai. I know you follow these issues quite closely over time. I think first of all you and many scientific journalists know that the answers on these questions are sometimes elusive and that it's quite a detective story to find the source and the intermediate pathways by which the virus can breach that barrier to humans.

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We've spent decades trying to do that in Ebola; we've spent years trying to do that with MERS and SARS. It takes time and it does take a meticulous, multi-sectoral approach to this. So there is the wild animal kingdom, there is the farmed animal kingdom, then there are the interfaces with humans.

Those interfaces with humans can occur in wild animals, they can occur on farms, they can occur in markets and we don't know where that species barrier was actually breached. I think our colleagues in China and our scientific colleagues are equally anxious to find answers to that.

This is very important because unless we understand - like anything, if the walls of your castle are breached you need to know where the breach is because you can fix and repair that breach; you can make sure that that is strengthened for the future.

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So we need to understand what was the track of this virus from the wild animal kingdom directly into humans, directly through farmed animals, directly into a market - one market, two, how many? So understanding that story, understanding the narrative and the pathway by which this virus entered the human population is extremely important.

But it's not always a straightforward process of being able to get that answer. I know that sounds obtuse but there are many dead ends when you study these things and we've seen that. As I said, we've spent many years trying to look at the source for Ebola and the intermediate hosts and we still, even in Ebola, have difficulties with the intermediate hosts.

We understand that the primary host is in bats but then there are many potential intermediate hosts that have been... Maria can speak to MERS and SARS and many other diseases for which she has deep experience.

I do think though - and we will be working very closely, as we did in previous missions, with Chinese colleagues. Number one, both

the Ministry of Science and Technology and the Ministry of Health will be involved in this and we look forward to a deep engagement with them and with the scientific community in China first of all to set out what the approach will be; what investigations need to be carried out, where do these investigations need to be carried out, what data should be collected and what data is already available.

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Because very often in these situations some of the data is there already. You need to look at that data, what's available and you need to decide, is that enough data to make a determination - both epidemiologic data, laboratory data, animal data.

Then you decide based on that data whether further investigations are needed and where those investigations are needed. Tedros has often said to me, those sorts of investigations lead where they lead, there is a trail and we have to follow that.

But the best place to start is clearly in where the disease emerged in humans first and where the disease emerged in humans first, where the first clusters of atypical pneumonia occurred were in Wuhan so that is the best starting point for an investigation of the animal origin.

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But after that think we have to keep an open mind; science must stay open to all possibilities and therefore we need to lay out a series of investigations that will get the answers that I'm sure the Chinese Government, governments around the world and ourselves really need in order to manage the risk going forward into the future.

TAG Thank you, Mike. By the way, when we say a team is going for the preparations to China, it doesn't mean that China has not been researching on this; it doesn't mean that we will be starting from scratch because there is capacity actually in China to do research.

So, as Mike said, we will pick up from what's already done and the planning of this team that's going to be going for the planning with its counterparts will of course consider what has been done so far.

So we shouldn't consider as if there was no movement or no activity until now. Thank you.

MA Thank you very much. As I said, we were trying to get through to Kamran Kazimov but unfortunately we have not been able to get him so we wish him well and wish him, as everyone else who's fighting this virus... There is also an important press conference on HIV starting now so I'll just hand it over to Dr Tedros for final words.

TAG Thank you, Margaret, and thank you also to all those who have joined online. I look forward to seeing you on Friday. Thank you so much.

00:49:24