COVID-19

Virtual Press conference

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DA	David
JI	Jim

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TJ A very warm welcome to everyone from Geneva, WHO headquarters. Welcome to our regular COVID-19 press briefing. We have journalists watching us on Zoom. We also have people watching us on a number of WHO social media platforms. Today with us we have our regular speakers, WHO Director-General, Dr Tedros, Dr Maria Van Kerkhove, Dr Mike Ryan but also we have today with us Dr Janet Diaz, who's the Head of Clinical Care within the WHO Programme for Emergencies.

Journalists who are watching us on Zoom can listen to us in six UN languages plus Portuguese and Hindi thanks to our interpreters who are here with us, whom we thank for making this possible. You can also ask your questions in those six UN

languages plus Portuguese when we arrive at the question-and-answer session. I will give the floor to Dr Tedros for his opening remarks.

TAG Thank you. Thank you, Tarik. Good morning, good afternoon and good evening. More than 9.1 million cases of COVID-19 have now been reported to WHO and more than 470,000 deaths. In the first month of this outbreak fewer than 10,000 cases were reported to WHO. In the last month almost four million cases have been reported. We expect to reach a total of ten million cases within the next week.

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This is a sobering reminder that even as we continue research into vaccines and therapeutics we have an urgent responsibility to do everything we can with the tools we have now to suppress transmission and save lives. One of the most effective ways of saving lives is providing oxygen to patients who need it. Several news reports published today have highlighted the vital role of oxygen in treating patients with severe and critical COVID-19.

This has been an area of intense focus for WHO since the beginning of the pandemic. Patients with severe and critical COVID-19 can not get enough oxygen into their blood by breathing normally. They need higher concentrations of oxygen and support to get it into their lungs. Left untreated severe COVID-19 deprives cells and organs of the oxygen they need which ultimately leads to organ failure and death.

Medical oxygen is produced using oxygen concentrators which extract and purify oxygen from the air. WHO estimates that at the current rate of about one million new cases a week the world needs about 620,000m^3 of oxygen a day, which is about 88,000 large cylinders.

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However many countries are now experiencing difficulties in obtaining oxygen concentrators. 80% of the market is owned by just a few companies and demand is currently outstripping supply. WHO and the UN partners are working with manufacturers across the world through a variety of private-sector methods to buy oxygen concentrators for countries that need them most.

Ongoing talks with suppliers in recent weeks have enabled WHO to buy 14,000 oxygen concentrators, which will be sent to 120 countries in the coming weeks. WHO has identified a further

170,000 concentrators that can be available over the next six months with a value of US$100 million.

In addition WHO has bought 9,800 pulse oximeters, a simple device used to monitor oxygen in patients' blood, which are being prepared for shipment. Another challenge is that many patients with critical disease need a higher flow rate of oxygen than is produced by most commercially available concentrators.

To address this challenge WHO is supporting several countries to buy equipment that will enable them to generate their own concentrated oxygen in larger amounts. This is a sustainable solution for COVID-19 and beyond but requires technical expertise for maintenance.

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WHO has also published technical specifications for the design of this equipment as well as guidance for countries on oxygen sources and distribution. This is just one way in which WHO is continuing to support countries with science, solidarity and solutions.

As some countries start to reopen their societies and economies questions about how to hold gatherings of large numbers of people safely have become increasingly important. This is especially true of one of the world's largest mass gatherings, the annual Hajj pilgrimage.

Earlier this week the Government of the Kingdom of Saudi Arabia announced that this year's Hajj will proceed with a limited number of immigrants of different nationalities who live within the Kingdom. This decision was made based on a risk assessment and analysis of different scenarios in accordance with WHO's guidance to protect the safety of pilgrims and minimise the risk of transmission.

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WHO supports this decision. We understand that it was not an easy decision to make and we also understand it is a major disappointment for many Muslims who were looking forward to making their pilgrimage this year. This is another example of the hard choices that all countries must make to put health first.

Finally tomorrow the Government of the Democratic Republic of the Congo is planning to announce the end of the Ebola outbreak in the east of the country after almost two years of struggle. In total there have been almost 3,500 cases, almost 2,300 deaths and almost 1,200 survivors. WHO is proud to have worked under

the leadership of the Government of the DRC to bring this outbreak under control.

This has only been possible thanks to the service and sacrifice of thousands of Congolese health workers working side-by-side with colleagues from WHO and many other partners. I salute them all. Many of the public health measures that have been successful in stopping Ebola are the same measures that are now essential for suppressing COVID-19; finding every case, isolating every case, testing every case, caring for every case and relentless contact tracing.

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These are the measures that must remain the backbone of the response in every country. There are no shortcuts but Ebola and COVID-19 are only two of the health threats facing the people of DRC and many other low and middle-income countries. That's why WHO is committed to continuing to work with the people and Government of DRC to strengthen its health system and support it on the road towards universal health coverage. I thank you.

TJ Thank you, Dr Tedros, for these opening remarks. We will open the floor for questions now. We wish to remind you, if possible, to be short and have one question per person and again you can ask your question in six UN languages plus Portuguese if you wish to do so. We will start with Peter Kenny, who works for Anadolu Today. Peter, do you hear us?

PE Yes, do you hear me?

TJ Yes.

PE Thank you. I would like to ask my question about research on vaccines in Nigeria, at Adeleke University in Nigeria's Ede state [sic]. They have discovered a vaccine. I would like to know about what type of research is going on in Nigeria and in other African countries. Thank you.

00:10:24

MK Thank you for the question. I can't answer specifically about the vaccine that you mention in Nigeria but I can tell you that we are working with researchers all over the world including many researchers across Africa across a number of technical areas, whether this is through epidemiologic studies and seroepidemiologic studies, whether it's clinical research, whether it's the development of vaccines.

So while I don't have anything specific on your specific question I can tell you that we are deeply engaged with academics, with public health professionals across Africa who participate in our international networks and who also participate in our R&D networks where we accelerate the advancements of research for COVID-19.

TJ Thank you, Dr Van Kerkhove. Peter, if you send us an email we may try to look for particular information on this through our regional office as well. Let's now turn to Antonio Umberto from FA news agency. Antonio. Antonio, can you just unmute yourself?

00:11:46

TR Good afternoon. Thank you for giving me the floor to ask this question. I would like to look into the situation right now in Latin America; what are the characteristics in the clusters of the epidemic there compared to other parts of the world and could you confirm or not the figure, the statistic that says there will be more than 100,000 deaths in Latin America; is that correct or not?

MR I can begin; Maria will follow. I think it's difficult when we want to predict the number of deaths per see but the epidemic in the Americas in general is still intense. It's particularly intense in Central and South America and it's across a range of countries and you've seen a steady and worrying continuation of trend with many countries experiencing between 25 and 50% rise in cases over the last week, which means many, many countries in Central and South America and in the Americas in general are still suffering sustained community transmission.

As such the journey for them is unfortunately - the pandemic for many countries in the Americas has not peaked. They are not reaching a low level of transmission within which we can achieve a sustainable exit from extreme public health and social measures.

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So I would characterise the situation in the Americas in general and in Central and Latin America in general as still evolving, not having reached its peak yet and likely to result in a sustained number of cases and continued deaths in the coming weeks.

The extent of those deaths and trying to predict those numbers, I think, is not helpful at this point but again we would really stress to governments in the Americas that there needs to be an all-of-

government approach, there needs to be very clear communication with citizens around the measures that are to be taken for self-protection, for community response.

There needs to be a very sustained investment in public health infrastructure and the capacity to isolate or test and trace and isolate and capacity to quarantine contacts. It is very difficult to take the sting out of this pandemic or out of this epidemic in the country unless you're able to successfully isolate cases and quarantine contacts.

In the absence of a capacity to do that then the spectre of further lock-downs cannot be excluded and I don't think anybody wants to go back to population-wide, society-wide lock-downs but the only way in some circumstances to avoid that now is a very, very, very aggressive investment in our capacity to detect cases, confirm cases, quarantine contacts and keep our communities on board and willing, able without coercion to support clear messaging and clear instructions and requests from government in a trusting environment. I can't stress that enough.

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MK Only to add, I fully endorse everything Mike has just said. The only thing to add is a worrying trend we're seeing in the number of positive cases for COVID that's coming from the respiratory diseases surveillance system, the ILI or the SARI surveillance system in PAHO, in Americas. The positivity rate is between 30 and 40% of those samples that are tested for ILI or influenza-like illness or SARI, severe acute respiratory illness so this is outside of the active case-finding for COVID-19.

That means that the virus is circulating and in many countries in the southern hemisphere in the Americas they're entering their flu season, they're in their flu season so you will see an increase in respiratory disease, which will complicate the ability to care for them because you may not know if somebody has influenza or if they have COVID-19.

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So that will make the picture even more difficult to understand, which is why it's so important that surveillance systems, as Mike has outlined, are in place for COVID-19 but also that systems are also testing for influenza.

So it is difficult to give one summary of a large region with many countries and many different climatic zones in which some are dealing with influenza and others are not.

TJ Many thanks. We will now come to Maya Plantz from the UN Brief. Maya. Let's just try one more time with Maya if possible. If not then let's move on to Reuters. We have Emma Farge. Emma, can you hear us?

EM Good afternoon; a question for Mike Ryan, if I may. Dr Ryan, in the past you used the term driving blindly to describe some countries' moving out of lock-downs. I'm wondering, given the concerns raised by the medical community in the UK does that description apply there? Thank you.

00:17:46

MR It's difficult to make specific comments on individual governments but I would say the United Kingdom has been very much guided by a very steady, slow, stepwise exit from lock-down conditions. The Government did set out some very specific parameters or metrics for how they would do that and I think they've communicated those to populations, certainly to us.

In the different four home regions there - you have England, Wales, Scotland and Northern Ireland - the Chief Medical Officers and the Governments in those four entities have worked together in a consistent way to implement that, if some slight modifications of that.

So from that perspective testing in the UK has increased. I believe the surveillance system is capable of understanding where the disease is. I think the question we ask now for many countries is, is the public health system not just doing testing but is it actually detecting cases as soon as possible after those cases become unwell, are we immediately identifying their contacts, are we in a position to quarantine contacts, in other words the contacts are either at home or quarantined in a third place or a second place and are contacts supported in that quarantine and traced over that time with or without the support of electronic tools or apps.

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I think this is a question that's facing many countries now because countries have fought hard, including the United Kingdom and populations have sacrificed a lot to drive transmission down. It's taken time, it's taken its toll on people personally, it's taken its toll on communities, it's taken its toll on the economy.

The rewards for that are low levels of transmission across society but as we've seen, the risk of that jumping back up in particular

circumstances, in crowded situations, super-spreading events. So we must be able to reap the harvest as such of such a sacrifice to shut down and lock down and drive transmission down to a low level.

That transmission needs to be kept at that low level and driven even further down. That is going to require extreme vigilance. It's going to require communities staying on board, individuals understanding their responsibility, their contribution to their own protection, to the protection of others.

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That communities are involved in this process and taking ownership and feeling empowered and supported by the authorities and that the authorities are able to react quickly to each and every case, confirm the presence of the disease or not as quickly as possible, turn around testing very quickly and isolate cases when confirmed and identify all their contacts and quarantine those contacts.

I'm sorry for continuing to repeat this but there are no silver bullets, there are no easy answers and each government, including the UK, needs to examine itself at every level and say, are we capable of doing that, is every part of the system able to keep its promise, I as an individual promise to keep myself safe and I promise to do everything to keep other people safe.

Communities promise themselves that they will keep each other safe; governments promise citizens that they will keep their citizens safe. Everyone has got to now live up to the promises they make, the commitments they make and people, everyone at every level, need to follow through.

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Because what we've seen in countries that have implemented comprehensive strategies, that have reacted quickly, that have operated across multiple levels of strategy, implemented all of the things that I've just previously mentioned; they've done reasonably well and they've avoided the worst of the lock-downs.

I think we've all collectively learnt a lot. The issue now - and the Director-General is leading a process inside our house right now really looking at this; what have we learnt in the last six months, what have we learned through all of these sacrifices, what have we learned about the virus, what have we learnt about how to control the virus, what have we learnt about our capacity at community and government level to sustain response in a

coherent way, in a co-ordinated way, what have we learnt about that?

Are we willing now to learn those lessons and face the next six months with the resources we have? We have the tools to suppress the transmission of this virus. We hope dearly we will get an effective vaccine but we cannot count on that and the Director-General has challenged us internally and we'll challenge our partners to have that discussion in the coming weeks so that we can face into the summer and into the autumn and into the rest of the year using the tools that we have in the best possible way.

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So in summary I would say, yes, the UK has taken a stepwise approach, the UK is listening to science. The science is still driving decision-making and, yes, every government, every level there are setbacks, there are surprises but the stepwise approach in the UK is the right way to go and we just hope that all systems including the UK can put in place the necessary surveillance to support this going forward.

MK Just briefly to add some of the things that we are learning because it is important that we look and learn from any others, one of the things as countries are lifting the lock-down in this slow and staggered way that we've been talking about is the ones that are seeing some success are doing this in a data-driven way, they're using indicators, they're using values of transmission, not only the numbers of cases that are declining but the numbers of deaths, what do those trends look like, looking at the reproduction number over time, looking at their testing; are they seeing a large proportion of those tests that are carried out positive or is it at a low level?

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They're looking at their bed occupancy; how full are the hospitals in terms of dealing with minor patients or even severe patients needing ICU. The other isolation and quarantine facilities; are they full? How many contacts are traced, how many cases are coming from contact lists? These are helpful indicators to know where you are in your transmission scenario.

While doing this we're seeing countries take this phased approach; you've seen phase one, two, three, four and the slow movement of those phases; periodic, looking at it after a few weeks; can we move to the next phase, are we seeing that low level of transmission?

And all the while having this direct engagement with the populations and with their neighbours, the populations either in a neighbouring province or in a neighbouring state or in a neighbouring country; are they seeing the same low levels, suppression of transmission?

All of this is quite helpful in terms of helping others to see, how is it working in your country, so that we can learn from each other but this is what we mean by a data-driven approach; constantly looking at the epidemiology, constantly looking at the data that is being collected to determine, what is that next step, can we lift even further or do we actually have to implement again, and keeping the population engaged so that they know exactly what they need to do in each phase.

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TJ Many thanks. We will now go to Mexico. We have Paulina Encadena. Paulina, can you hear us?

TR Thank you, Tarik. Thank you for listening to my question. We have a doubt; what recommendation could you give healthcare institutions or recommendations to patients who have give up on treatment, whether it's cardiovascular treatments or cancer treatments, because we don't have specific hospitals right now and we have hospital occupancy at 30% in Cancun.

JD Thank you. It's actually an incredibly important question, to understand how to keep essential health services going. There are chronic conditions that continue and those patients need to continue to have their care continued. In this type of situation you consider alternate delivery platforms such as telemedicine, nursing calls, telephone calls, other ways to ensure that the patients can get the medical care that they need for their chronic conditions.

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In addition when you consider even prescriptions, if you usually give one month of prescriptions then the alternative would be to give three months of prescriptions or six months of prescriptions in order to ensure that those patients can continue their medications.

I will refer you to our colleagues here who have published operational guidance on how to maintain essential health services with very easy-to-use check-lists and other essential information looking at these different types of patients that may have more limited access during the COVID pandemic.

TJ Thank you very much. This was Dr Janet Diaz, our Head of Clinical Care. Now we will go to Brazil; Bianca Gaultier from Globo. Bianca.

BI Hi, Tarik. Can you hear me?

TJ Yes.

BI Thanks a lot for taking my question. Dr Ryan said that Latin America has not yet reached the peak. I would like to ask you, Dr Ryan, could you comment specifically about Brazil; how far is Brazil from reaching the peak? Some say July, August. Do you have something in mind?

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MR Again thank you for the question but it's very difficult to predict peaks. If you look across Europe, you look across the rest of the world, you look across the Americas the peak has an awful lot to do with what you do. What you do affects the peak; it affects the height of the peak, it affects the length of the peak and it affects the trajectory downwards.

That is everything to do with the Government's intervention to respond, the community's co-operation with that intervention and the healthcare and public healthcare system's capacity to act.

The virus doesn't act alone. The virus exploits weak surveillance. The virus exploits weak health systems. The virus exploits poor governance. The virus exploits a lack of education and a lack of empowerment of communities. Those are the things we need to address. If we address those things systematically the numbers will go down. That is what's happened. That is the reality of this pandemic.

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The numbers respond to response and there are no magic answers, there are no spells here. You can't divine this away. We have to act at every level. We have to use the resources at our disposal and we know from many, many country examples - not from WHO; just look around the world, look at the countries that have taken action, look at the countries that have contained and controlled this disease and you'll find your answers.

MK I just want to add that again I fully endorse what Mike has just said, that transmission is completely in our hands and it's not only in our individual hands in what we do as individuals to prevent ourselves from getting infected, to prevent our families,

our communities, our populations and we have outlined steps that need to be taken at each level of transmission.

We've just published an update of this guidance today which is focused on critical preparedness, readiness and response actions based on if you're in a situation of no cases - either you haven't had cases yet or you've actually brought those cases down to zero - or you have sporadic cases or you have clusters of cases or you have community transmission.

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In this document it outlines actions, detailed actions that need to be taken for everything from your emergency response mechanisms, risk communication, surveillance, IPC, clinical care, public health measures and there's a link to every additional guidance that WHO and our partners have put out.

It's the closest thing we have to an actual action check-list that's online and just to highlight, there are so many thing that we can do and we need to highlight this. We have tools right now in our toolbox to be able to suppress transmission and so it relates to your question about the peak. We get a lot of questions about the peak in this country or that country or globally.

The one thing we shouldn't do is predict but we need to do everything we can do to suppress this transmission and make any of these predictions that have come up from these models not be a reality.

So I encourage you to find this on our site and we can send this to the list but this is the closest thing we have to an actual check-list of what we need to do, what all countries need to do to suppress transmission and to save lives.

TJ Thank you. The next question is from Health Policy Watch. We have Gracie with us. Hello, Gracie. Can you...?

00:32:20

GR Hi, thank you so much for taking my question. Can you guys hear me okay?

TJ Yes.

GR Hi. We've heard reports of coughing, shortness of breath, normal COVID sometimes persisting in patients who have recovered but we also know that the virus can infect organ systems outside the lungs like the nervous system and cardiovascular system as recent studies, even organ models have shown.

There have also been reports of people experiencing severe neurological symptoms while infected by COVID so can you speak a little bit about what is known about the long-term effects of the virus on organ systems outside the respiratory system? Thank you.

JD Thanks again. A big priority now is for us to better understand the patients who have recovered from COVID and what kind of potential deficits they may have. As you've described already, the different types of deficits can be neurological, they can be respiratory, some impaired lung function, they can be physical if someone has been in the ICU for example for four to six weeks; a lot of deconditioning, immobility; those can really impact the physical functionality of patients in the mid or long term.

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So right now one of the priorities of the WHO clinical research working group - and we actually had our meeting today - was presenting the findings of the studies researchers are doing now to understand this and what we're trying to do is to create standardised data capturing systems or case record systems to be able to capture this information globally to better understand the disease, characterise the disease - not the disease; the recovery phase of the disease.

So I can say this is definitely a priority topic that we are working with international experts around the world to facilitate and to accelerate our understanding.

TJ Thank you, Dr Diaz. We will now go to Jamie Keaton from Associated Press. Jamie.

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JA Can you hear me?

TJ Yes.

JA Nice to speak with you again. This is for Mike and Maria. We have noticed the epicentre [sic] appears to be lasting longer in the Americas than it did in China or in Europe. What accounts for the longer epidemic in the Americas? Thanks.

MR Thanks, Jamie. Nice to hear from you. I think again it's very much depending on the country, on the arrival of the disease. It also depends on just the natural connectivity in countries and it may take longer for a disease to spread around

the country where connections and infrastructure does not allow disease to spread as quickly.

There are other countries in which the disease can move extremely fast within a given country because of public transport, air and other links so there are natural factors that might drive transmission.

There are also obviously factors to do with how densely populations are packed and having mega-cities or pockets of poverty in which disease can potentially spread undetected. If you have a situation where you're not able to detect all your cases then obviously the disease can burn on in areas undetected and then pop up again in other places and then the epidemic can extend.

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But if you look at the epidemic in Europe it lasted quite a while; you're talking about the first cases in January in some European countries and it's only in the last couple of weeks that we begin to see the disease going down.

If you look more broadly at Europe - and we tend to be biased and we look at western Europe or we look at the European Union but actually if you go further east and you go to the western Balkans, if you go to some countries in central Europe, if you go to the Russian Federation, if you go to Moldova and other countries there is still a rising incidence in some of those countries.

Certainly in some central Asian republics which are part of the European continent as such the epidemic still goes on at higher levels so it really depends how you define a continent. I would say that the disease has come under control in western Europe.

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It is not certainly under control in general in Central and South America but there are factors that would allow a disease to sustain itself for longer in a given community and in the end, as I said in a previous statement, it also depends on the comprehensiveness, the speed and investment in a comprehensive response and really sustaining a response over a period of weeks and months that allows you to bring the disease under control and that's obviously the final factor that you need to shorten any given epidemic.

TJ Many thanks. Indeed we have most of the questions coming from North and South America. We now have David Waldstein from the New York Times. David.

DA Hi. Thanks very much. I'm wondering in terms of the oxygen if there's any sense that if dexamethasone proves effective that could alter the long-term projections for the need for oxygen.

JD Thanks. That's an excellent question. I think we will have to see. The preliminary results of the Recovery trial are quite remarkable, that this could be - this is a life-saving intervention in severe and critical illness. What you're asking is whether or not that will reduce progression of disease and that will reduce the general estimates of need of oxygen so we'll have to see.

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I think we're working with many different experts on how to best model this, how to best forecast the oxygen need and also understand the capacity at country level in order to make that gap assessment more accurate.

So this is ongoing work and I think as we continue we'll refine our tools and also take into account potential treatments that may impact that estimate.

MR If I could add on this, we tend to get positive information on remdesivir and we all chase that for a while and then we get stuff on dexamethasone and then we have a discussion about oxygen and then we have a discussion about other things.

I think we need to really start seeing this as how do we optimise the clinical management of all patients who become sick; from the very moment that someone feels sick, getting an early diagnosis, being able to see a qualified physician or nurse and understanding, that physician or nurse being able to understand your underlying conditions, your likely risk and being able to put you into a pathway to see and seek and have the right care available.

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Because it's not just about having oxygen in a country or having a drug in a country. It's about making sure that the right patient gets access to that intervention at the appropriate time during the course of their illness. When you put all those small interventions together - rapid diagnosis, early hospitalisation of those patients who may have risk factors, early oxygen therapy when needed and the the use of other drugs and other

supportive care including ventilation, dexamethasone; if we're capable of putting all of those interventions together and ensuring even in least developed situations, even in humanitarian situations we can deliver a basic standard of care to every person who gets COVID-19 then we will save a lot of lives.

When we look at dexamethasone it reduces death rates by one-fifth in people who are already on oxygen. That's great but by itself it's not a solution. If we look at remdesivir it reduces the length of illness in a proportion of patients. That's great but it's not enough.

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But if we put different therapies together, different interventions together and we deliver them in a fair and equitable way then I believe we can do much more so I think we need to look at - and again Dr Tedros has challenged us on this over the last number of days; how can we put together all that we have learned to reduce mortality? Reduction of mortality starts at protecting those people most at risk, shielding people first and foremost from the infection so they never get it.

That's how you reduce mortality and you start there and work your way forward. We need a really comprehensive look at what is affecting mortality and what's affecting mortality is not always just the fact that a drug exists or an intervention exists.

There's no point knowing that oxygen works if you're in a refugee camp in Somalia and you have no access to oxygen. That's no good. Knowledge is no good without the actual resource available to the doctor or nurse so we have to turn knowledge into know-how and know-how into how-to and we need to turn the how-to into the materials and resources that are needed in order to affect the mortality outcomes from this disease.

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So I think it's really important and Janet and her team are really looking at how we can put that system of - you were saying yesterday, Janet - the structures, the supplies, the system, the security and all of the elements of an effective clinical management system.

We've learned so much about how to do that better. We just need to apply it now in a much more systematic way, especially for those people who live in fragile, conflict-affected, vulnerable

settings who may not have access to healthcare as others around the world may do.

TJ Many thanks. For our last question tonight we will stay in the United States. We have Jim Rope calling us from the west coast radio network, Westwood One. Jim.

JI Hi, thank you very much and good evening to everyone. One of the problems that I'm seeing is competing science - quote, unquote - meaning we hear you talk and we hear the public health officials talk and yet - I'm sure you've heard this too and maybe you've seen it on television or radio - you can find someone that will claim they have science that can fill the narrative of whatever it is you believe.

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I think that's part of the problem that I'm seeing with people refusing to wear face masks or face coverings or physical distancing; how do you convince people that the pseudoscience or fake science or twisted-data science is something they should not pay attention to and understand where the real science is and where the real messages are? I hope I articulated that well enough.

TJ You certainly did.

MK That's really a fantastic question. We are living in a time right now where there're so many different groups that are carrying out really incredible research, real-time research right now for a new virus that we didn't know anything about six months ago.

We are learning about severity, we're learning about transmission, we're learning about treatments, we're learning about every aspect of this virus and it's happening at an incredibly rapid pace so that's very positive. We're seeing innovation in areas that we hadn't seen before. You've mentioned the use of masks and we talk about different types of fabrics. That didn't exist a few months ago.

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We're seeing innovation in therapeutics and in vaccines and this is really incredible. We're seeing real-time evaluation of full genome sequences and it's happening at an incredibly rapid pace.

Papers through science; when people are doing research normally what happens is they carry out a specific piece of work

with a collaborative group of individuals, they write this up, they write it up as a report, they submit it to a peer-reviewed journal, the paper goes through a robust analysis and review critiquing every single line and every single word of that paper and then the authors respond and then it gets published and that takes some time.

What we're seeing right now is because we need these answers so quickly we're seeing a lot of answers come out in the form of a press release or we're seeing the answers come out in the form of pre-prints; these online platforms where you can post your paper and it hasn't gone through peer review.

On the one hand that's incredible because we're seeing these results in real time. On the other it still needs to go through that rigorous review and so WHO, we commission a lot of research, a lot of reviews that are done by independent groups on a variety of topics.

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We have more than 50 reviews that are currently underway on a variety of topics and this helps us to better understand the state of a better topic - transmission for example. Then what we do is we work with our international networks; we have the clinical management group which Janet leads; for virology, for infection prevention and control, for risk communication, for epidemiology and modelling and I can go on and on.

We debate that research and that research is constructive and that's not a negative term when I say debate. It's a constructive discussion that we have to say, what does this mean, how well was this study done, because not all studies are done well.

We evaluate what this means in terms of our advice that we give for guidance and that also takes some time. We're accelerating that as quickly as possible but it's an important process to go through where you have that debate and you discuss how each individual piece of knowledge fits into the broader context.

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Normally one paper that comes out doesn't change our perception of everything. However there could be situations - dexamethasone is a good example where we're learning something quite quickly and that may modify how we go forward.

But with regard to epidemiology and virology we put all of that research together, we evaluate it together and then we come up

with a position on, what do we know about this at the present time.

The other thing that I need to mention is that science - although it's not static we need to articulate the uncertainty around what we know so not only are we trying to put out all of the information that we're learning, we need to caveat that because it's a new virus with some uncertainty.

Nothing is for sure right now and so when we give advice and when we give an answer - especially us sitting up here - when we give those answers we try to nuance that in a way that says, here's what we know right now, here's what we don't know and here's what we're doing to better understand this.

It was a very long answer because we feel quite passionate about this but just to end by saying we're really grateful to all of the researchers that are carrying out very carefully-conducted research, that are doing it so thoughtfully really to advance science going forward.

TJ Thank you very much, Dr Van Kerkhove, for this very important explanation and this very good question from Jim. We will conclude our press briefing here with the audio file being sent shortly and the transcript being posted tomorrow. From my side I wish you a very nice evening.

TAG Thank you. Thank you, Tarik, and thank you all for joining and see you in our next session. Thank you.

00:48:36