



World Health Organization

WHO Emergencies Coronavirus Press Conference -- Dr Bruce Aylward

25 February 2020

Speaker Key:

MH Margaret Harris
BA Dr Bruce Aylward
SH Shane
ST Stephanie
JU Jung
HB Helen Branswell
JG Jason Gale
TA Tammy
JA Jamey
UF Unidentified Female
NL Nina Larson
UM Unidentified Male
GA Gabriela

00:00:03

MH Welcome, everybody, to this press conference to hear the findings from the joint mission, the WHO led international expert joint mission with the Chinese government to investigate and look at all the issues around the coronavirus outbreak in China. We have, and he needs no introduction, Dr Bruce Aylward, who led the mission and is fresh off the plane. You wouldn't believe it, but he is. Just a little bit of housekeeping. For the people on the line, if you dialled in, when you ask your question, dial star, nine. Or if you came in via Zoom, raise your hand. We'll have questions after Dr Aylward gives a preliminary presentation and then we'll go into questions. Over to you, Dr Aylward.

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BA Thank you very much, Margaret. Again, apologies for keeping you all waiting, but I've just got off the plane and it's been a rather frantic bit of time, trying to get a few things finalised before I spoke with you. What I wanted to do today was, as you saw yesterday, I gave a press briefing in China and it was rather long. It would have taken you a little time to

listen through. I'm not sure everyone saw it, so what I'd like to do is summarise some of the big points a little more quickly than I did yesterday. But if there are specific points that people want us to dig into after, I'm happy to do that.

But what I thought might be most useful for the press today is if I spoke to three big questions, which are around the issue of what has China actually done, in term of the response, and how have they done it? Which is extremely important to where we go next with this, let's say. The second thing I want to talk a little bit about is what the impact of their approach has been. And then finally, to some of the implications as we go forwards. So, I'm going to touch those three big questions; I might spend a bit of time on each.

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Just before jumping into that, I think, as most of you know, the genesis of the mission was a request, or a decision, actually, by the President of China in a meeting with Dr Tedros, there was a joint feeling that China had done a huge amount of work and it could inform, let's say, both the global response, as well as China's own response, to have an independent mission come in and have a review and assessment of what had been done and lessons for the way forward. So, we put the team together and in the end, it constituted 25 people. There were 13 internationals, headed by me, and then there was a team from China.

I shouldn't say a team, there was a group from China that was part of the team, because it was very much an integrated team. So, 12 from the China side. I know there's been a lot of interest in who was actually on the team. In addition to myself, from the side of China, leading the response, was Dr Nyang [?] Huan Yan [?], who, anybody involved in the response out there will know is the head of what's called the expert group in China for the coronavirus response, so he was my counterpart. And then we had, from the international side, we had Tim Eckmanns, who's with the Robert Koch Institute in Germany.

We had Dale Fisher, who is the chair of the GOARN group right now and is a professor at the National University of Singapore. We had Chikwe Ihekweazu, who many of you will know is the Director-General of the Nigerian CDC. Cliff Lane, who's a clinical director at NIH in the US. We had Jung-Koo Lee from the Seoul National University College of Medicine. And Dr Li, some of you may remember from the MERS outbreak in Seoul, he actually led that response. Then we had Gabriel Leung, the Dean of Medicine from the University of Hong Kong in China.

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We had two participants from Russia, Aleksandr Semenov who is the deputy director of St Petersburg Pasteur Institute, and Natalia Pschenichnaia, who is the head of the international department and infectious diseases in the National Medical Research Centre in Moscow. I'm reading from this, to make sure I don't forget anyone. Hitoshi Takahashi from the National Institute of Infectious Disease in Japan. Maria van Kerkhove, who many of you know, usually sits to the left of Dr Tedros during the briefings that WHO does on the evolving epidemic.

And then we have, from the international side, Wei Gong Zhu from the Centre for Disease Control in Atlanta. And, if I remember correctly, that was it from the international side. And we'll put the list up of the internationals, as well as the national experts from the China side,

so that everyone has access to those. Just a couple of words about what we did. As you may have seen in the press conference yesterday, we started in Beijing. I was there for a week beforehand, arranging the mission, looking at a lot of the preliminary data, etc. And then the full team arrived on Saturday. We spent Sunday getting ready and then kicked off Sunday evening.

Just to give you a sense of how the work is being done in China right now, much of the team and the ministries we needed to work with were very, very engaged on Sunday, so the meeting actually kicked off at seven at night and we worked until just after midnight with multiple ministries. We had Wuhan on a video conference for a couple of hours of that as well. That was quite typical of the working days, quite frankly. If I ramble a little bit in various directions, folks, it's because of some pretty severe sleep deprivation right now, so apologies for that.

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So, we started there and then we spent about a day in Beijing, meeting with some of the national institutions, as well as the Beijing municipality, to understand how they worked. We looked not only at the national level and the municipality level, but they went right down to the community level, to try and understand how things actually operated, in terms of case finding, contact tracing. And also, to speak to a lot of physicians, contact tracers, really to get a feel for what was working and what wasn't working, and how things had evolved over the last six or seven weeks.

From there, the team went in two different directions. One part of the team went to Guangdong province. That's a very large industrial province, you may know, just bordering Hong Kong. Then another part of the group went to Sichuan, and then from Sichuan, joined the Guangdong group. And then part went to Wuhan, myself included, for a day and a half towards the end of the mission prior to the wrap-up, and then the press conference in Beijing. So, we actually covered a fair amount of territory. In every place, we saw facilities, we saw contact tracing, we even saw markets in a couple of places, we saw the railway stations, the airports. Gosh, what didn't we see! Clinics.

But really, it was quite an exhaustive and exhausting schedule. And as I go through this, I really want to pay tribute to the people in all of those places. Because we asked hundreds and hundreds of people probably thousands of questions, and often, the same ones, again and again, from different directions to try and triangulate a lot of information to really understand how robust it was. And this is really important in a crisis like this one, because as you'll understand, we're only, when I started there, six weeks into this, so they'd been moving very, very fast. People were exhausted. Huge amounts of things had been done.

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Things were changing very, very fast, so trying to accurately build what had happened and how, and what it looked like, took a fair amount of time. I just want to pay a tribute to the team, yes, but especially to the people who spent so much time in the middle of this, doing it, because they were really shattered and had the important, life-saving work of running a crisis response. I also want to clarify, by the way, just as we kick off, and I'll get into the issues right now, I promise, I'm speaking for the mission here as the team lead for a mission that was independent of WHO.

I've actually not briefed Dr Tedros; he's not seen the report. This report is from the team and represents work done by the team together. The last couple of days was the Chinese, our Chinese counterparts, and internationals, working very, very closely together in small groups on a lot of different issues to nail a lot of this down. So, the report has just been submitted. I had to do some final edits, and that's what took me late now, it's just being submitted right now. So, let me run through those three big issues that I said.

The first was what has China actually done? What they've done, as I mentioned in the press conference yesterday, they've approached a brand new virus that's never been seen before that was, as you know, escalating and quite frightening in January. And they have taken very standard, and what some people think of as old fashioned, public health tools, very basic public health tools, and applied these with a rigour and innovation of approach on a scale that we've never seen in history. Basically, they have taken case finding, contact tracing, social distancing, movement restriction, and used that approach to try and stop a new emergent respiratory borne pathogen.

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As most of you know, for flu planning, etc., most of your thinking is buying enough time to get your vaccine rolled out to try and reduce morbidity and mortality. And here, there was no vaccine, there was no therapeutic, and the Chinese took a very pragmatic approach and decided, we are going to go after containment of this virus using that set of tools. And a lot of people in the world and, I have to admit, myself included, and certainly a lot of people on the team, would have been very cynical is the wrong word, but maybe concerned as to whether or not you can truly stop that kind of a pathogen, because it runs counter to thinking, a respiratory pathogen, you could actually find the cases, isolate the cases, do the contact tracing, and achieve that kind of an outcome.

But what China did, as we dug into this, and it took some time to understand it properly, they took a very systematic approach and there were five key things they did in applying this, some of them different, but all of them impressive and critical to making it work. The first thing they did was they took a differentiated approach because they realised immediately that if you try and do... when you think of China, people often think about the lockdown in Wuhan, which is a giant city of 15 million people. But that was just Wuhan. In other parts of the country, the fundamentals were always the same, but the degree of application was different and it was tailored to the context, setting, the intensity of transmission, etc.

So, the first key thing was this differentiated approach. If there were zero cases, sporadic cases, clusters of cases, or community transmission like they had in Wuhan, the approach was differentiated. And that was important because a lot of people say, you can't do this at scale because you will exhaust your response. And I've heard that a number of times, people saying we have to switch to another mitigation approach, because you'll exhaust. But the Chinese pragmatically said, not if you tailor this properly.

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The second thing that they did was they mobilised a phenomenal collective action and cooperation by the people of China to this response. And the interesting thing is people have commented on that and say, that's easy in a society or a political system like China. It isn't.

It's never easy to get the kind of passion, commitment, interest, and an individual sense of duty that it's our duty to help stop this virus. We spoke to hundreds of people in hotels, on trains and planes, who are quite outside the system, and they all shared this sense of responsibility, accountability, to be part of this.

And the most stunning demonstration of it was when we pulled into the train station at night, and it was a special train. Because right now, it's the saddest thing, in Wuhan, the trains roar right through the station. Continually now for a month, the big intercity trains roar right through with the blinds down. And if you're living in the buildings surrounding and watching them, and people accept that there. But we were the only train that stopped, so that six of us could get off that train and be part of this. And as I got off, by the way, another group got off and I said, hang on a minute, I thought we were the only people allowed to get off in Wuhan.

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And this was a group, they had these little jackets on and a flag, it was a medical team coming in from Guangdong to be part of the 40,000 healthcare workers from other parts of China that have come in, many of whom volunteered to go into Wuhan and help with the response. But the level of collective action, and the striking part, when you pull in is you pull into the city of skyscrapers and massive boulevards, and this is not a village, this is a city of 15 million people, a modern city. And as you drive into the city in the dead of night with the lights on, it's a ghost town. But behind every window and every skyscraper, there are people cooperating with this response.

And people said, but there's a big presence forcing them. There's not. It's invisible. It's staggering. And every person you talk to there has a sense that they're mobilised, like in a war, against this virus. And they're organised. So, that's the second big thing, just collective action. The third big thing is they've repurposed the machinery of government. And I often hear people talk about an all out government approach, and I never know what that means. But then when you see and you hear from China, they have repurposed, transportation does this. They run the trains this way, they manage the roads that way, as part of the response, the toll booths and the checkpoints, etc.

The agriculture does this, the forestry folks do that, but everyone has a role and it's been repurposed to fit into this machinery. And it works through a prevention and control taskforce that answers straight to the state council and president to run the whole machinery of government in support.

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The fourth thing was it's a technology, what's the phrase, turbo-charged response. They are using big data and AI in places. People have got a sense in China, nobody uses money. I couldn't pay for anything. I took money out and it was difficult to pay, because everybody pays with WeChat on their phones, they pay for everything. And life is lived online, big chunks of it.

And from a distance, I hadn't appreciated that. But what they've done is when it came to the response, they had to manage massive amounts of data, massive numbers of contacts, because remember, they're trying to find every case, trace every contact of 70,000 cases across vast

areas and know where they were, follow them and manage all of that data. And then you've got to be able to map that, link it to other sources of data, etc. So, that was one piece of it. But the second thing they had to do was because of the sheer numbers, you had to take whole hospitals and take the out of general service and make them basically response hospitals for COVID-19 cases, which means you've taken major hospitals in a city and you've repurposed them, multiple ones, for this response because there are so many cases.

And people would then ask, well, what about all the regular patients? So, they kept some designated patient hospitals, obviously, for regular services. They delayed a lot of things, like elective surgeries, etc. But then a whole chunk of work, and someone in one place said that 50% of their consultations are now done online, they just moved a whole bunch of what was normally done physically online to be able to keep the regular health services going, prescriptions turned over, etc., in a very orderly manner.

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And then the final piece was just everyday life. You have to feed 15 million people. You've got to keep the food moving, all done through deliveries, all made online, etc. I talked to some people and said, how does that work? And they said that every now and again, there's something missing from a package, but I haven't lost any weight. That's what she actually said to me, one of the people I asked in Wuhan. Then the last piece of this, which was equally impressive, was how science driven the response is there as well.

Because remember, we've known of COVID, and it sounds like we've been living this forever, but this is eight weeks, we're eight weeks into this, and the science has evolved so fast that China, while we were there, they issued the sixth set of clinical guidance, how to take care of the cases. Imagine that, you know how long it takes for WHO to generate a guideline, then you try to get it out and get people using these things, and it's the same in every country. Here, they had turned over the national guidelines, how to take care of these severely sick patients, six times by six weeks.

Every single one of the places we went to, when we asked them how they were managing patients, were using the sixth guideline. How is that? It came out yesterday. So, there's this speed of turnover to try and stay on top of the learnings on this. So, it's a science driven, very agile response as well at a phenomenal scale. So, what they did, again, it sounds so easy, they did case finding and contact tracing, they did this in an extraordinary way with an extraordinary rigour of application and discipline. And differentiated approach, incredible collective action, repurpose the machinery of government to make it work, technologically powered and science driven.

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And they applied that then to what was an escalating... remember, the exponential growth of the disease that you were seeing, in paces, and remember, every place it's hitting these days, you're seeing exponential growth again. And most people, you keep hearing the debate on TV and everywhere, which fascinates me, is this a pandemic or not? Folks, this is a rapidly escalating epidemic in different places that we have got to tackle super fast to prevent a pandemic. What China demonstrates is where this goes is within the control of our decisions to apply this kind of rigour and approach to this disease and its outbreak.

And you saw yesterday, some of you will have seen this and I've brought it along again today, because we get to the second question of, great, we understand the approach now and that took some time to understand it and understand how it actually works at each level. And that was another big learning. I mentioned it in the differentiation part, but what was interesting, as they went through this, was that there was a lot of latitude. The big rules of the game were in place, but provinces, counties, towns, they could adapt it as they needed to be able to make it work for them.

So, as you went from one to another, the fundamentals were always the same. You're tracing contacts not cats. The fundamentals are the same, but they were adapted to be able to work for that specific area. By the way, someone asked me once, they said we've seen the big cities, but what about the rural areas? What's happening there. And while we were in Sichuan, we looked at that, and this comes back to the technology part, we went to the operations centre and said, well how is that working? So, they had teams out there, all over the place, that were doing the case finding, investigations, contact tracing. Well, that's great, but how do you know how it's working, etc.?

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And they have standard indicators to trace all that stuff. But they said, we made a decision in Chengdu right at the beginning, the governor explained this to me, that as we rolled out our 5G platform, we were not going to prioritise Chengdu, we were going to use this to make the connectivity with the rural areas work, so we could run the COVID response, basically, in real time. And so, when we were in one of these places, we went to the operations centre and they'd had a new cluster and had mapped out... they had one big screen on the wall that had the transmission chains mapped out.

And there was a problem with it, and I asked something about that, and they said we could speak to them. And they pulled up, on the other side, the operations centre in this county. So, we talked to them about what they were finding, which took a while, and then again, there was a question. So, they said, hang on a minute, and then they pulled up another screen and there was the team that was out in the field actually trying to do this. But the whole thing is linked up and they're in constant contact, trying to make sure that together, they solve the problems of trying to sort out the transmission.

So, the question then was, what's the impact of this? Because obviously, this is happening elsewhere, this exponential growth. And as I said yesterday, it's the unanimous assessment of the team that they have changed the course of this outbreak, what was a rapidly escalating outbreak has plateaued and then come down faster than one would have expected, if we had looked at the natural dynamics of an outbreak like this. And that's striking. So, what I showed yesterday was this graphic here, which I think is really helpful.

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Because what you can see here, notwithstanding this reporting spike here, but what you're looking at here is what you'd call an exponential growth rate, here at the beginning of this curve, going up like that. And if you look at this side, you can see it's actually coming down more slowly, because what would happen with the exponential growth is it goes up and up and up, like that, and then you would see a normal distribution, and then it would come down

like that. But that's a normal... you've seen these normal distributions, that's what would happen if it runs through community.

But when you start doing all of this, which are the interventions, then you can, ideally, try and change the shape of that. And that's what China has actually done. To my surprise, it was one of those things that when you've spent 20, 30 years in this business, it's, like, seriously? Are you going to try and change that with those tactics? And yes, it was successful, or it is being successful, because look where the cases are driven right now. And one of the things we looked at was, well, if that curve would go like that, big question mark, how many cases have been prevented, or at least delayed, as a result of this action?

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And rough back of the envelope, look at it, it's hundreds of thousands of people in China did not get COVID-19 because of this aggressive response. And any time you pull down the force of infection from the epicentre in an outbreak like that, you are going to reduce the probability of it going elsewhere, as well. And that was the other big thing we heard again and again from anyone in China, it's our responsibility to do this for the world, not just for them. So, we heard that quite a number of times. So, the question then became, because we'd heard before getting there, of course, is this real?

And one of the comments I made yesterday was, we know the numbers have bounced around, as they've gone down, and people have asked questions, what's going on today? How come the numbers have gone up, etc.? And what we, as epidemiologists are interested in, it's not the exact number on an exact day, we're intrusted in the trend. And you want to know, is that trend real? Is this going down, is it stable, or is it going up? Because there are questions about things aren't being shared, etc. So, when we dug into that, there are multiple different ways you can try and get a sense of where the trend is going.

And one thing you can do is talk to doctors who are seeing patients who are running these massive hospitals, and everywhere, you're hearing the same thing, that we have open beds. And in Wuhan, it was we have open beds. We can get people out of isolation centres and into a proper hospital bed. The system is opening up because the number of cases are going down. One indication. Another one we looked at was they've established what they call fever clinics, and these are places where, if you have a fever, you go and they assess you. They do a CT scan very quickly to see whether or not you've got the tell-tale marks of COVID-19 disease, which is amazing story in itself.

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And then at these fever hospitals, a decision is made. They do the test, whether or not you need the test, and then whether or not you need to be isolated in a facility, etc. Another thing we looked at was how many people are getting tested? Because what's happened is that as this mobilisation of the community has happened, there has been more and more people who want to be tested, quite frankly. And so, they've been going and getting tested and the numbers have been going up and up and up, in terms of people getting tested. And at one point, it peaked at about 46,000 people were being tested almost daily across the country. Huge numbers. And that is down, when we looked at it about a week and a half ago, to 13,000 and was going down like that.

And when we went to talk to the people at the fever clinic, they were sitting there, not scanning or testing people, and they said, this is a change. We had lines and they aren't there anymore. That's the second indicator that that is real and it's coming down. And then a third indicator, which was interesting, I spoke to, and again, I mentioned this yesterday, so sorry to be redundant, a fantastic researcher, a man called Cao Bin, who is running a remdesivir trial on severe and mild cases in Wuhan. And it's being done in Wuhan, of course, because that's where you have the highest number of cases, you get the fastest enrolment, and we try and get an answer on this interesting drug as quickly as possible.

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So, when I was talking to him, I asked how is enrolment going? And he said, it's a challenge. It's slowing down. It has slowed down because there are not enough new patients that we can actually recruit into the trial. So, this all comes back to that question of is this real? What I've described to you, there's extraordinary mobilisation to implement fundamental public health principles and approach in the absence of a vaccine or drugs, in the presence of a respiratory disease, can this bring this down? And it can. And that's the core message. We're getting new reports daily of new outbreaks in new areas and people have a sense of, oh, we can't do anything and people are arguing, is it a pandemic or not?

Well, sorry, why don't you go and look at have you got 100 beds where you can isolate people, if you have to? Have you got a wing of a hospital that you're going to close off? Have you got a wing of a hospital that you're going to close off? Have you got 30 ventilators, because you're going to have to help keep the severe cases alive. They'll recover, but they're going to need to be ventilated for four or five days or a week. Do you have those pieces? Do you know who your 1,000 contact tracers are? There are really practical things you can do to be ready to be able to respond to this, and that's where the focus will need to be.

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So, we looked at this and said, okay, that first question I told you about, what was done? The second, what was the impact? And the impact was striking. I showed yesterday another graphic, which might just be useful for people, because in some ways, this is more striking than the national one. So, what you see here, this is the same as the one you just saw. These are the data for all of China, so going up fast, fast, fast, like that, abrupt plateau, then the skewing as it goes down. Rather than up lie that, a bell curve, and down like this. But then if you look at, and you can see, this is Wuhan right here, which was really driving the main shape of that, and these are the other areas of Hubei, and this is China outside of Hubei.

And remember, there are a lot more people who live outside of the province of Hubei than live in Hubei, but this is a much smaller curve, number one, and the shape, it's a very flat curve as well. Part of it is a scale, but this is not the shape of a normal epidemic, and that happens when you do something to try and change it, which is what China has managed to do. And what's striking is how far down they've got. Yesterday, someone told me, I've heard so many figures, I think I've heard more figures than there are people in China over the last two weeks, but one of the figures I heard yesterday was that 24 provinces had reported zero cases for a day. And remember, there were 31 provinces infected only three weeks ago.

Again, evidence. And all of these are as big as any one of the countries that have been in the news recently with their outbreaks. And that's a very hopeful thing, which brings us to the third thing we were looking at; where do you go next with China? Where do you go next with this, in terms of the global response? And one thing to mention first is that China was not acting from scratch. China had had the SARS outbreak in 2003, and they realised they had to set up surveillance for atypical pneumonias and other surveillance systems, that they needed to be able to do case finding and contact tracing at a much larger scale, etc.

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So, they had had time and experience to build a system. But in terms of where they go next in China, and having seen so much of what they had done, it was a little bit humbling to be asked for opinions about, where do we go next? And a lot of it was really reinforcing what China is already doing, and the first piece of it is the vigilance. Cases are down, but they're not zero. There is still a lot of disease in the country that's got to be dealt with. And remember, the people who get sick remain in hospital or an isolation centre from anywhere from two to six weeks. So, it's a long period of time.

So, if you have all of these people, let's go back a few weeks, so if we go back two or three weeks, so you're back here, if you have all of these people who were sick at that time, and you've got to add some of the ones who are sick, because that's just who was sick on that day or that week, remember, so then you've got to add the ones before. An awful lot of those people are still in hospital or isolation centres. So, right now the number, if I remember correctly, yesterday was just over 50,000 people who are still recovering from COVID-19 across China.

But one of the other things we learnt, though, is the spectrum of the disease. There's been a lot of question about what is really the spectrum of disease this causes? What's the natural history of it? And we got a lot of information there just because of the sheer numbers now. And as the outbreak goes forward and they start to get control, there's time to analyse a lot of that information more clearly. So, now they can generate, and this, I take absolutely no credit for, this nice piece of work, but this was done by the Centre for Disease Control for the report.

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And what they've done here is to try to help people be able to visualise what proportion are mild or common when they're found? What proportion are severe? And what proportion are critically ill patients? And I think you have a sense now, the mild cases may just have a fever and a cough, but by the time you get to the common, they usually have pneumonia and are a bit sicker, but they're still mobile and in good shape. The severe ones, the simplest way to say it is the next step is they usually have respiratory insufficiency of some sort. Their oxygen saturation is going down and they're breathing rate is going up, etc.

And then the criticals usually have, by then, often multiorgan failure. And what you're able to see from this is what proportion fall into each group? And you can see that 80% are mild. And of those, and a really important insight from China is how many of those will go on to severe disease or even death? And you can see from the milds and the commons, a very small proportion. This is very mild pneumonia. With severe or larger, and the worst

outcomes, and the critical, but now we're getting the to the sheer weight of numbers that help us understand that. And that's really important because you've to plan.

How many beds might you need? How long are you going to need them for? What are the outcome going to be like? How many are going to become severe and you're possibly going to need ventilation, etc.? These are really important things to be able to plan that. Also, if you want to plan a clinical trial, you need to understand, will they get worse without the drug or not? Would they go forward? So, this kind of information is so important. And China, right now, are the only ones who have been able to generate, with the kind of numbers, to be able to help us understand that.

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But what it means is they still have 50,000 cases, as we mentioned. The thing is, any new cases now, they generally know where they've come from. They can link them epidemiologically or link them to a contact, and that's when you know, as you've heard from Ebola, that that's when you know you're getting control of a situation. You're not getting cases from out of the blue and you can't link them back, which is what's sometimes so concerning. So, that's the first thing.

The second big thing, which is a really important message from China, every governor we talked to, most of them had an epidemic curve that was going down like that, and what were they doing in response? Building hospital beds, buying ventilators, and being prepared. That's what they were doing. They were saying, we've just repurposed hospitals that should be giving general care. If these cases go back up again, and that was always what they came back to, we don't know this virus. People are talking about SARS or they're talking about flu, and as soon as we get stuck with that binary approach and ways of thinking, we're not preparing for the novel coronavirus.

We're preparing for that or preparing for this, but we're not using all the evidence that we have. And one of their key points they made again and again was we don't know what's going to happen next in China. We think we can manage and there will not be another Wuhan; we know how to manage this disease now in all the parts of the country. If it went to zero and disappeared, that would be great, but that's not what they're planning for. What they're planning for is this could remain for some time, maybe some time until there's a vaccine, so we will have the capacity to be able to manage it and run society and the economy, and everything else, the way we need to and not lock people down to try and manage this.

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So, that's the second big thing they're doing, but it's a good message for the world. How many countries are planning hospital beds, planning ventilators, planning O₂ supplies, and the lab capacity to be able to manage this? Then the third thing that we asked of China, at this point, the world needs the experience of China. China has dealt with the most disease in the world. 31 provinces have managed this. Everyone we spoke to, they knew what they were doing and they have clinically managed huge numbers of cases now.

And one of the points you heard me mention yesterday is countries are building barriers between themselves and China, and new barriers are going up in the last days, at a time when

the cases and the risk from China are going down and you need access to that expertise that much more. You also need China, and it's getting its productivity going, as you've heard, they're doing a phased restart of everything, so they're getting the factories going, then eventually, they'll get the schools going. But they're taking a phased approach to try and manage the start up now as they go forward.

So, for China, there were a number of suggestions about how to move forward, and a lot of it was reinforcing some things that were already happening. But then for the rest of the world, and those were the bigger things you heard me speak about yesterday, perhaps, but the first thing in the response is there has to be a shift in mindsets. Again, around the world, people are thinking, oh, gosh, how do we live with this and manage all this disaster, etc.? Instead of, gosh, this virus is going to come, it's going to show up in our country. We're going to find it within the first week, we're going to find every case, we're going to go after every contact, we're going to make sure that we can isolate them and keep these people alive, so they survive the case.

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This is the way we've got to be thinking. It takes a real shift in mindset. And it's not a preparedness mindset that usually thinks about how you prepare for eventual disasters. This is going to come soon, potentially. You've got to be shifting to a readiness, rapid response thinking. And in China, one of the interesting things was not only did they designate a whole hospital, and these are big, modern facilities, hundreds of beds, as okay, that one's going to manage it. When you think about how do you actually do that in practise? How do you keep it safe?

You go to a ward, you know if you go to Hug here or to La Tour, I'm sure most of you have, unfortunately, had a visit to one of those places, you've got your wards with some doors at the beginning of the ward. What China has done is rather than have some beds that are isolation beds, at the start of that ward, they've built a wall with a window on it, they sealed the whole thing and said, the whole ward, that whole 40 beds, 100 beds, is now an isolation unit. Everything at scale, very, very fast. They've taken a stadium, which I saw, and put 1,000 beds up, 72 hours.

You've seen these hospitals being built over a week, but they would convert a training centre or stadium between 24 and 72 hours, that was the timeframe they took in Wuhan to increase, by 1,000, their capacity. And it was such a disciplined approach to put that in place. But again, a good lesson. Okay, we're going to try and not have to deal with Wuhan's, obviously, but you may have to deal with sporadic cases definitely. We're seeing that in many places, they get sporadic cases. And we're also seeing clusters of cases.

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And as soon as you start seeing that in places, you have to be ready to manage this at a larger scale. You have to be ready, in your mind, to stop the transmission change. You have to be thinking that way. And so, there has to be the mindset shift, number one, and there's got to be the readiness planning and capacity building. And it has to be done fast. So, yesterday when I said that the second big conclusion for the world is it's simply not ready. It could get ready very fast, but the big shift has got to be in the mindset about how we're going to manage the disease. The third big thing, the rest of the world and probably this is the first one, you've

got to get your population ready and bring your population with you. And your populations, they should be washing their hands now, they should have proper hygiene now.

Those things that we should be doing anyway should be at scale in countries, because they will make a difference to the spread of a respiratory borne disease. But you've got to bring your population with you and your population, you want to bring with you early, because things are going to change rapidly and you have to have a trust, and a way, and a machinery to keep people up-to-date. Yes, we said that, we have new information, now we do it this way. Because we have known this virus for seven weeks, so we are going to have to adapt as we get the strategy rolled out.

00:44:28

The fourth thing I would say, as we look at the rest of the world, would be access to the expertise of China. They've done this at scale; they know what they're doing. And they're really, really good at it and they're really keen to help, even though they are still working in their own areas. And this was another message that you heard all the time in China, it was a fantastic story of the human side. It was always about the people and the individuals, everywhere you went from anyone you spoke to. There was this sense of responsibility and sense of collective action and this war footing to get things done.

But the other thing that was striking was the solidarity between provinces. Remember, every province in China has been hit by an unknown pathogen that started to do this in the province. And their response was to get on top of it in their own provinces, but to send medical teams, PPE, everything, into Wuhan. When I met with the governors, they said, we've just sent 2,000 people into Wuhan to work. And you wonder, how does that even work?

So, you go to the stadium and ask, how does that work? And one of the physicians says, I'm from Hunan, or Guangdong, or wherever it was, and he said, that one I told you about that was boarded off, they run that one. They just bring a whole team and they run the whole thing. They bring all their own PPE, all their own equipment, they pull it out of that province. And remember, what we're seeing in the rest of the world is, we better build up our stocks and keep it over here. We better keep this here.

00:46:12

We better keep our whatever. But there's this sense of you get the resources where they're needed, it's in our common interest to get this down. And you saw all the provinces operating that way, it was really fascinating. So, those are the big findings. You know what China did, the real impact that it had? The implications are you can actually affect the course of this disease. You can change the shape of this, but it takes a very aggressive and tough programme. It was a striking thing to see. In 30 years of doing this business, I've not seen this before and nor was I sure it would work.

We saw a bunch of other things as well. As I mentioned, there were a number of technical things we learnt about disease severity, the natural history of the disease, how it's transmitted, by the way, even some of the work being done on the animal origin; very interesting. But then also, operationally, how do you run a response like that? Talking that through with top leaders, how do you set up a stadium in 72 hours? And then how do you

run these kinds of containment measures at this scale? So, a lot of really good learnings that will inform other parts of what we're trying to do with this response.

00:47:42

I would say one point, because I know there will be questions, and I'll stay as long as we need to try and help with any of those, but one of the big questions that we keep hearing about is how much transmission is going on in communities? And you keep hearing the tip of the iceberg, we can't see this thing, there are millions of people infected, etc. So, we tried to look at those kinds of questions as well. Again, you're at war here and there's a huge fog in any war. You're trying to find those little bits of information that can add up and give you some confidence in what you're saying.

We tried to look at where was there sampling of people in the population that might give us a sense of how widely this virus was spreading? And again, this is where it's great to look at these things in China because the numbers are so big. But you've probably heard that there's something called an influenza like illness surveillance system that runs around the world with many sentinel sites that collect 20 samples every month and we get them analysed. But this happens in multiple places in China, and what you can do is look at those data and they can show you, here's our data, our sampling, here's all the flu cases that are coming up, in November, December of last year, they all went back to look.

Because once we had a COVID-19 test and they went back to test all of these, nobody found it. It wasn't there. They found lots of flu. But then in January, they did find it, it comes up in the first couple of weeks in January. But outside of Hubei, very rare. One might be positive here or one there, it wasn't like all of these samples were positive, like there was a lot of it circulating. And then another thing we did was in places that were heavily infected, more and more people were coming to fever clinics and wanted to get tested.

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And in one place, it might have been Guangdong, they had tested 320,000 samples for the COVID virus. 320,000 is going to give you some sense of what's going on. And when they started the sampling of those, about 0.49% of them were positive, so less than 05%. And in the recent period, it's something like 0.02%. So, I know everybody has been out there saying, this thing is spreading everywhere and we just can't see it, tip of the iceberg. But the data that we do have don't support that. What it supports is sure, there may be a few asymptomatic cases, and that probably is a real issue, but there's not huge transmission beyond what you can actually see clinically.

And that's really important. If you're in a war, you'll need to be able to see your enemy to know what you're dealing with. Another important development in China, just while we were there, was they had just licensed a couple of zero assays that will let them test antibodies in a whole bunch of people to try and get a sense of if they have antibodies, but they weren't sick, you know the virus was circulating. So, maybe I'll be sitting here next week and saying, guess what? Those data didn't tell us the story, these ones do. But that zero survey should help us understand that.

00:51:08

And that'll be important, for example, you want to reopen your schools. You know that kids have not got very sick, or very few have. Have a lot of them been infected? Are they part of the driver of this outbreak? It doesn't look like it. It looks like the main driver is not widespread community infection, it looks like it's household level infection. That may be part of the reason that China's strategy, find the case, because the close contacts are families and people you usually know, and you're going to be able to find them and be more successful.

And remember, you don't have to find every single one, because you never will. You want to find enough to break the big chains of transmission, slow this thing down, and get a grip on it. So, that's why we went, what we saw was being done, the impact that we believe it had, and how we think it can inform the global response. I want to highlight again, I am not speaking for WHO, because someone may be going, what? But that's what the evidence says. And when you're in a war like this, we had a big debate with some of our Chinese colleagues about whether this is a dangerous virus, is it a serious virus, or whatever?

00:52:19

But the bottom line is this virus kills people, you've seen that. And it kills vulnerable people, it kills our elderly. And what we think of as society is how we care for the vulnerable in our populations, not just... And I hear people say, yes, but the young survive and all is good. Seriously. And that's not always the case either. Young people do die of this disease, as you have seen as well, and they die in industrialised countries. And I think people were also looking sometimes at this and saying, but in China, they don't have this, they don't have that. If I had COVID-19 I'd want to be treated in China.

We'd go into these hospitals and how many ventilators do you have? 50, 60. Just a scale we're not used to thinking of. And then you'd ask how many ECMO systems do you have? And I thought, seriously, you're going to ask about ECMO? Extracorporeal membrane oxygenation, when the lungs simply, even if you ventilate, aren't going to get enough oxygen. And the place would say five. And I remember being with Tim from the Robert Koch Institute, five in one hospital? We don't have that in Europe. And we're using three of them to... And we said, do people come on them? Yes.

So, when we look at how dangerous this disease is, I think we have to be careful looking at the China data, because China knows how to keep people alive from COVID, they're super committed to it, and they're making a massive investment in it as well. That's not going to be the case everywhere in the world. And as you've seen, we have tragically lost people, people in G7 countries are dying of this disease. So, it is a serious disease and I worry sometimes that if we look at the China numbers, people are going to get a false sense of security. These people know and they care about keeping these people alive, and they do it successfully. They're really good at it.

00:54:14

So, folks, that what we saw, what we've heard, what we think to help inform the global response. It's never black and white, but sometimes, we'll present our reportings a little bit more black and white in the hope that it will drive the discussion about where we go next with the global response. So, Margaret, no one looks interested. Call it a day?

MH They look hugely interested. They're all raring to go.

BA Bernhard, I think a lot of you guys know Bernhard Schwartländer, Chef de Cabinet here, and he said, let's try and add up how many hours you've slept in the last 14 days. It barely gets into double digits. Again, sorry to run on so long, but we saw a lot and it's a complicated story, so I wanted to make sure you heard it, before I hear what it would be helpful to clarify.

MH Thank you very much, Dr Aylward. I'd like to be treated in China, too. Just to remind everybody, those of you online, if you want to ask a question, dial star, nine. Or if you're using Zoom, put your hand up on the icon on the screen on your right. We'll start with questions from the room.

00:55:21

BA While she's trying to choose who she's going to take a question from, I also want to thank those of you who tried to contact me. I thought Jamie's hand went up first. Because people phoned me and called me in China. And those of you who know me, running many crises, I try to be extremely available to the press, because I just think you're so important to managing a crisis. It's in my interest. On this occasion, we went to a complete blackout, because we really had to focus on this.

We were trying to inform a global response at the danger of escalating disease. And people might call and say, this happened here or that happened there. It gets you off track. We just had to focus on what we were doing. So, thanks for the patience for those of you who were frustrated about that.

MH I'm going to be very geometric. We've got four microphones, one, two, three, four. So, I'll take a question from over here, from the correspondent from CCTN.

SH Shane [?] from China Central Television, CCTV. I have a question that is about you mentioned China has been successful in containing the virus and the disease.

BA It's showing success. They're not putting the cart before the horse. If they said, I said they'd contained the disease, they'd have a fit.

00:56:48

SH Thanks for being precise and clear. You suggest that there are many things other countries can learn from China. However, do you think there will be some difficulty for them to accept and adopt all of these measures? And why are there such difficulties for them?

BA I'm going to jump in on the questions. It's a little bit like I said, this is a respiratory borne pathogen, and when we think of things like flu, we think that we need a vaccine to manage that. Because you can't get ahead of the transmission of it. So, part of it is a mindset shift that this can actually slow this thing down. And frankly, I think the mindset shift is the hardest part. It's really hard work, too. It's easy to stick a vaccine in someone's arm. Really hard to find every single case and you've got to find them super-fast, find every contact, get them isolated.

So, there's going to be a range of challenges. One is going to be that mindset shift. The second is the communities and populations coming with it. Because to accept quarantine, where it's needed, to accept the rapid isolation, these are going to be challenges for people as well. And materially, are we ready to isolate that number of people, to support that number of people? So, there's a combination of mindset issues, community engagement issues, and just material issues. But we've got to overcome them, it's as simple as that.

00:58:26

SH And you were saying it's necessary because right now, this seems to be the way, accept for the public [overtalking].

BA It's a good way. It works.

SH And for the other medicines, so that seems we don't have that. So, this might be the China's [overtalking].

BA Let me say a word about that. With Ebola, we have a vaccine, but it's not going to replace case finding and contact tracing. I don't know what the vaccine for this might look like. We have SARS, we have MERS, we don't have vaccines out. We've got great candidates, but they're not out there working. They're coronaviruses. Remember, there are the six human coronaviruses right now. There are those two and then there are four that cause common colds and things you've heard about. We're not great at coronavirus vaccines.

The whole world, people of the world with a corona virus vaccine will slaughter me because they are going to say, we are great, we're just not using them. But we don't have the experience we do with flu and with other diseases. And China is very pragmatic; I don't know if we're going to get it. We're going to work on it, but we're going to move this way, that's we heard again and again. Let's keep moving.

00:59:29

MH Another question from Stephanie.

BA It's been two years. I can't remember which agency, I'm sorry.

ST Reuters. Thanks. I wondered if I could draw you, please, on infections among healthcare workers. What you're seeing in hospitals you went to, provinces. Two parts, do they have enough equipment in the training? And then secondly, are you seeing transmission still in healthcare settings? There was a peak in January but is it still under control given the scale of [inaudible]?

BA Super-important question Stephanie asked about healthcare workers because if your health system goes down, you can't run your response. 30 days of Ebola in West Africa, it was one of the big, big challenges we had, and it's a common thing when emerging disease nobody knows hits...

It enters through the healthcare system, remember. That's where a virus is going to enter often because they come in looking for care. And all of a sudden, boom, it blows up. And if I remember correctly Italy had an issue with that.

So in terms of China first, on the numbers of healthcare workers, and this is a rough... We always have to be careful and differentiate healthcare worker infections from nosocomial outbreaks.

So a nosocomial outbreak is an outbreak in a healthcare facility and that can be patients infecting healthcare workers, patients infecting other patients, there can be different ways it works.

When you look at healthcare workers, people often think that's an outbreak there. Most healthcare workers got infected in the community, not in the healthcare work... When you get in there and you talk to people who actually did that, they can tell you.

01:01:22

They say, well... People often knew where they got infected. And the ones that are in the press, and rightfully so, are ones where it may have happened in a healthcare facility. But the majority hadn't.

So there had to be a two-pronged approach to this. First was making sure that you run your COVID facilities safe and frankly that was being addressed relatively early on. But then remember I told you, so that's your COVID hospital, right, and this is your hospital for regular care.

So I'm pregnant, don't feel great, I'll go into the regular care hospital, or I had chest pain and I'm having problems breathing, I'll go there. And you go into the regular hospital and in fact you've got COVID.

So a number of the ones that were happening were actually happening not in the COVID facilities but they were happening in the regular facilities, Stephanie.

So the first thing you always have to do in these is try and figure out who's getting infected, how are they getting infected, where are they getting infected and then try and fix it.

Again, everywhere we went this was a top priority, and when you went in and looked at, okay, how are you managing infection, prevention, control, all the basics about clean channels, dirty channels were in place.

01:02:46

The supplies now are largely in place. We never found anywhere, and there may still be some, that were... People did say it was really tight and there were periods where this was a real problem. But again, when you look at the distribution of the healthcare worker infections, most of them were much earlier in the outbreak.

And that's the other thing; that's what we're seeing. You've seen in the countries that get re-infected, boom, you get these outbreaks because they're not used to dealing with the disease.

But are they taking it seriously? Absolutely. Are they good at it? Absolutely. Are their numbers coming down? Absolutely, in terms of healthcare worker infections. That's a good news story within it.

But it also highlights something that's a little bit different because again we think SARS, flu, right, but this doesn't cause... We haven't seen big nosocomial outbreaks like we have with the other diseases.

So something is a bit different. We're not seeing a lot of disease in kids. Look at flu. All the kids get sick, which is a problem because remember, one of the big problems with flu is all the kids are getting sick and all the parents have to stay home and then you lose billions of dollars from your economy. That's how it works.

01:03:58

That doesn't happen with this disease. And by the way, when we talk to people, we couldn't find an example where a child was the index case in a transmission chain or had led to an infection of an adult.

Now, that might just be people's recall or bias or whatever but it was an interesting insight because remember, a lot of things that we test in science comes from someone's observation and then you say, okay, why is that?

Did I cover that well enough, Stephanie? I'm sorry, I'm kind of rambling because it's such an important issue.

One other thing, a nugget, so we're in Wuhan and we couldn't go into the fever clinic because you put yourself at risk, and I was going to come talk to you guys and I wasn't going to put my family at risk, and there was no need to.

But anyway, we could see where they started and went in and got Galland [?] and the rest to go in. And we met this woman there who explained the different stages and the mirrors for how they check the Galland [?] properly, etc, and she really knew... She was so impressive.

So I said, so you're like an IPC expert, and she's like, no, God, I do something completely different but I've learned all of this stuff. This is the most important part of what we do. You found this passion everywhere.

01:05:14

So Stephanie, that was important because you wonder, are people getting sent into the line of fire without the proper equipment? Early in this people were caught in a war without the right equipment. That's what sounds like happened but then...

Because if you were coming in from another province you had to bring all your PPE, so these guys that sent in a team from Jiangxi [?] or one of these other provinces, they came with tons of equipment. You had to be self-sufficient.

And that was one of the issues with me going in there and I was told that. They said, look, we have a principle; no-one goes in without their own gear. Fortunately we brought a bunch of gear which was all sitting in Beijing which I told our rep on the phone; guess what, that's all going to the Ministry tomorrow. But that's how it worked. You found that discipline in everything.

MH Okay, we'll take one more from this side. Go ahead.

JU It's Jung [?] with Xinhua News Agency. With great efforts to the control and prevention of the disease China is also trying to resume the economic activities. So a large number of people go back to the places where they work, so is there any special aspects or any parts that people should pay special attention to when they go back to work and resume their economic activities?

01:06:44

BA Again, the question Jung is asking is so important. So you get this thing under control and then you get massive numbers of people moving again, because remember they've all been stopped, and then they carry the virus into these areas.

So a couple of things have changed. Number one, these areas are prepared. They know how to deal with this disease when it springs up, etc.

The second is that they've done a phased reopening of the factories, the industries, etc, and in phasing that they've been able to manage the risk as they've opened more and more of the economy.

It depends a little bit on the province because a lot of them have done it a little bit differently. So some went, like the week of 8th February I think it was, others went the following week, so it's been rolled out temporarily a little bit different as well.

But the other thing that they've done, and this was interesting in Sichuan when we met with the Governor, he said, can we show you a video, he said this is really cool, so we said, sure, we will look at everything.

He showed this video that they'd made and again all of the migrant workers, what they did... It was this video that you play on your phone and it gave you all this information.

01:07:53

If you're a migrant working from Sichuan and you want to go back somewhere, you have got to do X, Y and Z and go one of these facilities, get screened, you will get a certificate that's valid for three days and you show up in the next city and then you will have to show that and it can be scanned and uploaded, etc.

But there's a whole effort to manage it at the community population level but also at the individual level. And they had five million people, migrant workers that they were going to run through this system. That was one province.

So it is a risk and they know it's a risk but the economy has got to work. People have got to work. It's not life has got to go on; it's got to power the response as well.

MH I'm going to go online now and ask Helen Branswell, she can have her question. Helen, are you there?

HB Hi Bruce. I would ask you right off the top why you're not wearing a mask, if you don't mind, but I would also ask you to go into what you were saying about not finding much undetected mild cases.

01:09:10

A bunch of us were hoping that there would be more of the iceberg to be uncovered to drive down the severity of this outbreak, and I think you're suggesting that that is not true.

BA So first, don't misquote me please. This is a serious disease. There's a lot of disease when you get a lot of community transmission going on, tens of thousands of cases in this place. So that's a lot.

But what I've heard people say is there's a whole bunch more of transmission, there's not a lot of evidence of that. Now, we're going to do serologic surveys, sero assay, and we may find that a lot more people were positive, a lot more people were infected than we thought, because remember with flu, it's ten, 20, 30, 40% of the population may have antibodies suggesting that they've been exposed in a flu season.

I'm not a flu expert so if I've got the numbers wrong, but they're quite high. All of the sources of information that we looked at, Helen, for example we were very, very interested in any kind of sampling that had been done at a population level and in multiple provinces we could find, okay, we've sampled 10,000 people or we've sampled 50,000 people in, let's say, regular hospital clinics or something like that.

So this is convenience sampling; it's not a study, but in those they were finding a very low proportion of people actually had the virus. Now, there could be reasons for that because people are really restricted to their homes, they've closed restaurants, closed cinemas, etc.

01:11:05

There are all those things which means... And the goal was to break that transmission, but as things resume that's going to be a really important thing to look at.

But for that to happen, Helen, remember there would have to be a whole lot of mild cases that you wouldn't find and in Wuhan these people don't want any more transmission. They want everybody isolated and break the transmission chain and they're going house to house to check temperatures, etc.

They're probably not missing a huge amount, definitely not orders of magnitude. And then with asymptomatics, again it doesn't look like that's a big part of the picture. There was just no data that supports that.

So I have to make a judgement, Helen, between what are the data that I have and what are the speculations that I can make in worst case scenarios, and the data doesn't say, the bits of data we have.

I may be wrong as we generate more data but all the data that we have suggests that there isn't this massive... The iceberg is you've got critical cases, you've got severe cases, you've got mild cases and a bit of asymptomatic transmission probably at the bottom. That seems to be what it looks like.

01:12:24

But remember, we've known this disease for seven days or seven weeks, sorry. I haven't slept in seven days. Helen, does that help?

MH We can go onto Jason Gale.

BA But also by the way, would you be able to do that to the curve if this thing was going around everywhere like that and you couldn't see it? It's hard to believe. So I have to go with what I can see.

MH Okay, we'll go onto Jason Gale.

BA Oh, she asked why I wasn't wearing a mask.

MH Sorry.

BA Sorry, I don't have COVID-19. I'm very low risk. I had an hour-long grilling before I did this when I came back. Anyone coming back from travel has to on the WHO side. But also I never had any exposures. We are careful and we run careful.

We have no contact with patients. We have no contact with, close contacts. We have no contacts with contacts. We wash our hands every three seconds. We wore masks all the time because we had to wear masks. It's the government policy in the country.

01:13:35

We were socially distant. I told you we were on trains and cars and everything, one person in a row everywhere. That's why I'm so hoarse because you had to shout at everybody. When we had meals our meals were eaten in the hotel rooms, all the restaurants were closed, so we weren't even interacting with our group.

And then when we... Sometimes we were working and, like when we went to the CDC, it was between meetings, we went to the CDC cafeteria for lunch. They had a table like this and then another table like this, one person at a table and there was one setting at each table, and you weren't allowed to... You had to shout at each other.

And then I told you, the last day, the last couple of days we were working on the report so Margaret would be on that table, you'd be on one table, you on the next table, and we had to use microphones to run the meeting. But everything was distanced two metres apart.

It runs that way there. Any of the hospitals we went to, we'd go into the clean section and we would go nowhere near... There was a dirty section and there was also a grey zone. We didn't go anywhere near those things.

I'll try and give some other examples because I had to go right through all of this. And because I was going out through Beijing to do the press conference, and Beijing, as you know, you asked about people returning to work; Beijing put in place a policy.

01:15:02

Anyone coming back from any province is automatically in a two week quarantine in Beijing, and that applies to us as well, unless we're in transit on the way out.

So what they said, there was a lot of negotiation about this. When I got off the train from Wuhan into Guangdong, I had a swab yesterday and they said we will test you, you've been in the country for two weeks, you're coming through Beijing, and negotiated for how me how we managed this, and it was negative.

But it comes back to a science and evidence based approach to what we're doing. If the evidence changes and there was any reason that I was at risk, I wouldn't be wearing a mask. I wouldn't be sitting here. I'm not going to put a mask between me and you guys if there's any kind of risk. That doesn't make sense.

MH I'm still taking another question from online. Jason Gale, are you there with your question?

JG Hey Bruce, there's lots of feedback so I will push ahead. You mentioned learning more about the natural history of this disease. How do you think it typically starts and manifests?

BA That's a good question but as one speaks to people, what they remember is the fever of course and in 88%... Now China is 55,000 cases and data on every single one of them at the time of onset.

01:16:32

And what they report is 88% say we had fever, 68% say they had a dry cough, and those are important numbers because what percent have a runny nose? Throw a guess out there. Because you always see people going around sniffing and the rest and you think, oh, do they have COVID-19? 4%. It's not an upper respiratory tract infection.

But Jason, sorry, back to your question; they report that or they report just a couple of days before having what we call prodromal-like syndromes. They feel fatigued, they feel a myalgia, they feel unwell, it's just a general un-wellness.

So part of this is having a high index of suspicion if you think you've been exposed to someone because they either present with that fever, a dry cough or that prodromal non-specific malaise, aches and fatigue.

Does that cover it, Jason?

JG Actually I wanted to ask you, what's causing the pneumonia to progress to acute respiratory distress syndrome and multi-organ failure? What do we know about that?

01:17:44

BA So that was interesting because a couple of places had documented the data fairly well. It's not published yet, but what it looks like is about 80% of these are, as I mentioned, mild at time of detection, about 13% severe and about 6% in critical condition.

Then if you look at the percent that progress from one to another, about 15% seem to progress from mild to severe, and then from severe to critical, because I thought it was a higher percent, but it's about 15 to 20% again, Jason. That's what those numbers look like.

And then if you look at the survival rates per group, that's pretty well published, extremely high in the milds and then... I'd have to pull the numbers out but the high mortality obviously is in the severes and especially the criticals.

And here you have to be careful because people say, well, what proportion of severe and critical survive? Say it's 80% in the Chinese facilities or 90%. That's not what it's going to be in other places. They're really good at managing really complicated disease on big scale right now. So I would not have a false sense of security in the numbers.

MH Okay, one more online. Tammy, BBC, I have.

TA I would like to know, what is your response to Miles Guo telling Steve Bannon that millions of people are infected and that 250,000 are in fact really dead?

01:19:37

MH We didn't quite get your question. Was that something about 250,000 really bad or... Could you kindly repeat that one?

TA What is your response to Miles Guo telling Steve Bannon that millions are infected and 250,000 are actually dead in China?

BA Tammy, I've not seen whatever you've just referred to so again, not dodging your question but I simply don't know what I'm responding to. I heard two people, one of them said there are a million cases and 250,000 dead and being hidden in China or something like that.

I didn't go to every single place and every corner of China but I think we have a pretty good sense of what the epidemic looks like and I think these numbers are reflective of that. But I don't know where their information comes from.

And again, this comes back... I get asked a lot of questions, what about this and what about that? I've got to go with the data that we see and anything that I told you, we tried to use multiple data points to try, and observations to try and corroborate it. We didn't say oh, we heard that from someone, let's go with it.

01:20:51

Everything... And the team, I remember I told you who was on this team, CDC, NIH, Robert Koch, Japan's top institutes, etc, and they all sign off on these things so they're pretty rigorous.

MH Okay, questions from the room.

BA You've got to let Jamie ask a question. He was the first one with his hand up.

JA Thank you. No echo on this one hopefully. A couple of things if I could; you mentioned that the science is evolving very fast in China. One of the things that have come out recently is that there may be an oral vaccine in preparation in China. What do you know about that?

If you could also tell us about how the two treatment trials are going and particularly the HIV combo drugs with remdesivir.

And then just also in the numbers that you've come up with, Director-General Tedros yesterday mentioned to us that there seemed to be a disparity in the mortality rate between Wuhan and the rest of China; could you try to explain why that is? Thanks.

BA First was the question about the oral vaccine. I don't have information on that, but there were parts of the team that really dug into some of the science that was being done so we may be able to find something on that, so apologies.

01:22:35

In terms of the treatment trials, in terms of how they're going, of course these are blinded trials, etc, so I remember somebody asked me, oh, great, you talked to Cao Bin, how's it looking for remdesivir? It's a double blind trial so I don't know.

But what I was interested in talking to him, Jamie, was how are you doing on enrolment, what's the timeline to get to your interim numbers where you could actually look at this and the results?

And as I say, the enrolment had slowed down. There are two different remdesivir trials and it slows down, but they're still enrolling because it's urgent. We've got to get answers to outstanding questions super-fast because if this drug saves lives we need to know that.

So one of the conversations we had in China was, well, how do we prioritise enrolment for the trials that are the most promising and then how do you make that decision, because there are corporate interests and everything else behind these.

But it's going well. The amazing thing... Remember as well, you've seen the pictures of Wuhan and folks are in there running multiple clinical trials, and similarly on the HIV ones, if I remember correctly some groups have already released some information.

01:23:49

But they're very careful as well. These trials are designed to get answers as quickly as they can and if we meddle and ask the wrong questions, etc... We want to know is there any way we can help you get to the answers you want faster, and clearly recruitment was one area.

It's a great story. Less people are getting sick but on the other hand we may not get this answer.

Your second question was...

JA Wuhan...

BA Oh yes, Wuhan's higher mortality rate; so there are a couple of things that probably contribute to that. One is... Well, three things would contribute to the difference that we see.

The first is it happened at a different time; Wuhan started fast and early. People didn't know what we were dealing with, we were learning how to treat this, and remember they'd been through six different treatment guidelines. So some of that high mortality you're seeing is the first couple of treatment guidelines when we were learning how to do this.

The second thing was just the sheer scale of the numbers, and this is specialised care. So that could have been a challenge. But the third thing, and this goes back to the point that Helen was making, that at the beginning of this outbreak, remember people were finding severe disease and that's why the alarm bells went off.

01:25:12

So we're sometimes looking at... Because we are getting more mild cases now as knowledge of the disease goes up and we're trying together and people are understanding you've got to isolate the mild disease as well. They can't stay home. That's what's fuelling... That's the fuel that's keeping this thing going.

So you have the mild cases in and you've got more sight on those and that's broadening your denominator.

But one important thing I want to highlight, folks, is I've heard it say the mortality rate is not so bad because there are actually way more mild cases. Sorry, the same number of people that were dying still die, and if that was a problem and a concern, that is still a big problem and a concern.

So we have to be careful how we interpret these numbers sometimes.

MH One more from the room, this lady here.

UF [Inaudible] Spanish News Agency. After all you have found in China, which appears to be very aggressive, how do you explain for example what is happening in Europe, the rapid spread of disease in northern Italy?

01:26:35

Was it after one month of the declaration by WHO they were not ready to manage a situation like this? And what are... Because at one moment you said that the world is not really prepared for this. What did you mean by that?

And if you should advise five steps to countries about what they would have to have for this situation, what would you say about that?

BA So first I want to be very careful. I have not been in any other country that has been managing this and I don't want to make judgement calls. Again, I really want to stick to where we've got data and what I know happens.

So I don't know the circumstance of other countries but I think there are really important lessons from it already, and this is happening in northern Italy where we've got good systems, and you saw the action that they took. They're acting on scale to try and manage this. I don't know the details of it so I don't want to go beyond that.

This tells you what this virus can do and I think... I keep saying well, this happens on that boat and this happens in Korea or that happens there, and I keep hearing people saying, yes, but that was because of this or oh, yes, but that was because of this.

This virus will show up. You have to think... So in terms of the steps, number one, think the virus is going to show up tomorrow.

01:28:24

Italy didn't know they were going to find it that day. Think it's going to be there tomorrow. You're an incredibly interconnected world. A fantastic paper came out a couple of weeks ago which showed the spread of this virus in China compared with, if I remember correctly, the 2009 flu pandemic, which was only ten years ago.

And if I remember correctly every province with this virus had been hit in 23 days with... Just ten years ago it took 120 days or something like that for all of the provinces. So we're just so much more connected, so you've got to think it's going to be here tomorrow.

If you don't think that way you're not going to be ready. So the first thing is that mindset shift. And the thing you've got to think is, if it hits us we're going to stop it. You have to think that way.

And I keep hearing this, oh, if it hits us we just have to accept and it's going to spread and... Why? You've lost before you've started. So there's that mindset shift.

The second thing is if you're planning to be ready, you know you're going to need beds to isolate people; you're going to need to be able to quarantine the really close contacts because we know that 10% of those are going to get disease and we know that they may not even know it at the beginning.

01:29:42

So you've got to be able to accommodate those people. You have got to have enough ventilators for the serious cases. You have got to know how you're going to transport people to those places because you don't want to be managing this in many, many different areas.

You've got to have oxygenation or ventilators as I've mentioned. You've got to have the lab capacity to be able to do this. China is testing tens of thousands of people every day still for this thing. So it's big time lab capacity and it's not an x-ray.

They don't do x-rays of these people in China; they CT scan them because on a CT scan you can find disease that you can't find on x-ray. How many of our countries have got CT scanning capacity? How many people can we get through a CT scanner? Ten in a day? China put 200 people through a CT scanner in a day.

They have systems to make it work. So you've got to be ready. Hopefully you'll never use that but if you're ready to do that, you're going to be ready for an awful lot of things. But it's readiness and rapid response capacity.

So then someone's got to know how to investigate one of these cases. So do you have 100 people who know how to fill out a case investigation form, or 1,000? Or is it going to be looking at that case form the day that they get that first case? Do you know where they're going to send that form? Do you know who you're going to go and talk to and try and contact trace, because that's really hard?

01:31:06

That's readiness for a rapid response. But when you break it down, every one of those are super-doable. The other thing is talk to your population. Folks, we have to be ready as if this hits us tomorrow, so everybody, wash your hands all the time.

Don't make a run on the masks because you know what, it probably doesn't make a difference. That may change over time but we need them for the response. We need them for the infected areas. You've got to get your gear where you need it.

And you've got to get your population... They've got to know you're going to take care of them otherwise... It's a huge, big piece. So for me that would be number three.

And the fourth thing is talk to people who have done it. China has done it and we're building barriers to the people who know how to do this. That's four. I'm sure there's more.

MH Okay, I'm going to take two online and then we'll go back...

BA Age stratified seroepidemiologic surveys, China know that as well better than I do. And what you're trying to do there is understand for each segment of your population, what do the antibody levels look like?

01:32:21

That gives you a sense of how much the virus may have been circulating there. And for some areas this becomes really important to help you think for example about opening your schools.

So are children all sero positive, suggesting that they played a big role in transmission and we missed it and Helen's right and I'm wrong? And as a result you should be more careful or take your time on opening the schools, etc. That would help understand that.

So there are a number of ways you would use it. I don't know how China plans... It's not something that we discussed to roll it out, but I would expect that they're going to want to look at a high intensity transmission area like Wuhan to try and understand, okay, because that's where you're going to get the most information about the extent of it in that setting.

And then you look at it in a lower intensity transmission area. And the way they see the country is places that have no disease, places that have sporadic cases, clusters and community transmission.

And I would anticipate, Ann, if I got your first name right, that they would look in each one of those and try and see. But the reality is in China, as much as people envisage a highly centralised system, the provinces make a lot of decisions. The provincial CDCs make a lot of decisions about what studies they want to do and when.

01:33:45

So I would imagine once this is out there will be a lot of... A lot of it will be at the provincial level. But again, I'm speculating because I heard that and I think the best thing to say is Bruce said he thinks maybe there are, and then we try and get the right answer, because I've spent the last day on aeroplanes.

So hopefully that helped, Ann.

MH Given the feedback problems I think we'll just take two more from the room and then everybody has the rest. Nina has been sitting here quietly.

NL Hi Bruce, it's Nina Larson from AFP. I was wondering, on your mention of the mortality rate in China, that it might be higher outside of China, if you could say a bit more on if there's any evidence of that and how bad do you think it could be.

And also on different parts of the population, you mentioned children don't seem to be affected, but you said there are young people dying. Do you have some overview of how many young people are dying from this and do you think that would be worse outside of China with a different type of response?

BA So on the first question, and it's good to hear back "you said this" because sometimes I didn't communicate it as clearly as I would have liked to.

01:35:24

So in terms of why the disease, there could be more mortality associated with it, if I got the question right first of all, outside of these areas of China, is China have gotten really good at managing the disease.

And what happens, as you've seen in some of the areas that have been hit more recently, the early cases, you're getting a lot of the severe cases are coming in, so you get this artificially high rate because it's severe cases and the mild cases aren't getting found.

So for example in Italy we know it has been horrific. I think eight people have died, I'd heard, something like that and people will immediately start doing the numbers. But what's happened is it's been these severe cases that are really getting the attention, and so you have that phenomenon.

The second phenomenon is people are coming much later as well to facilities, so even if you're severe, early severe versus late severe is a different ballgame. So people are coming quite late when they're really in serious respiratory distress and then it can be more difficult.

One of the other things that concerns me is we have an older population remember as well and this hits older populations and populations with a lot of comorbidity. We have a lot of heart disease, we have a lot of hypertension, we have a lot of those diseases that we know are associated with higher mortality.

01:36:58

So there are a number of things that suggest you could have bad outcomes initially with this until you really get the hang of it, how to manage these.

The other thing I worry as well about is... It's a question you were asking earlier; are we ready to manage these people? Are we thinking, have we studied this, do we know the disease? This is not flu. This is a more SARS-like pathophysiology it looks like. So are we ready to manage that?

Those are the things that concern me. One of the big things that I want to come back with was really that message of go after the transmission of this thing, don't accept this sense of inevitability that you cannot control or contain this virus.

I think Dr Tedros, because I heard him saying this a lot when we were going, and I think he had an intuitive sense that this was the right thing to be doing and certainly what we saw would definitely support that.

I also worry when this gets into lower capacity, lower income countries that don't have ventilators, don't have isolation capacity, don't have oxygen supplies; those are the things that you need to keep people alive.

So on the question of young people and how many are dying; it's very low single digit stuff. But what worries me on that a little bit is, and I talked to a lot of clinicians and said, okay, we know about the older population, we know about the comorbidities; this population between 30 and 60, and especially the younger ones, when we see people die, what's your gut feeling, why are some of these progressing?

01:39:03

I said we have a lot of smoking in China; are these heavy smokers or have they got this, have they got that? No, they didn't seem to. And they couldn't identify things, and that's what makes you uncomfortable because you don't know. Where is that needle in the haystack?

So you've got to manage the whole thing both to keep the community safe but also to be able to try and predict. It really seems the comorbidities and age are the big predictors, but it's a really important question and you even have very, very young people die of this.

By the way, I mentioned something earlier about the human side of this. I remember the Mayor of Guangzhou, 25 million people in the city or something, it's unbelievable, this giant city, he was presenting what they were doing in the city and he was going through slide after slide after slide, and a phenomenal understanding.

He talked around all the issues. The political leaders knew the disease. And then he popped up one and he said, and this was our youngest survivor, a two month old who actually survived this disease, and it's important to remember it does hit all ages and can.

And then he went onto the next slide and he said... He went back and he said, actually I wanted to tell you about this. He said this was a family where, if I remember correctly, the whole family, all the adults had become infected and there was this child, this two month old, and they rapidly go and they isolate people.

01:40:33

And here's this two month old child, because the grandparents were also infected. And when they took the child to the hospital, because it was a close contact and they had to observe, the assessment was separate from the mother, the nurses found a note inside saying, this is my child, she's two months old and please make sure she survives this, or something. It was just the most heart-wrenching thing.

There are so many stories like that. And this team of nurses took care of this little child and she survived.

MH On that note, I think the last question but will you be...

BA No, I'm happy to take more questions. People have waited a long time.

MH I'm just worried about people's deadlines but if you're happy to take them we'll keep going.

UM [Inaudible].

BA Folks, I'm not a contact. I have not contacted anybody or been near anybody with this disease, COVID, so you don't isolate.

01:42:14

You isolate cases. Let me be really clear, right? Case isolation, contact quarantine, or self monitoring if they were low risk. But it has to be differentiated. Sorry, I just want to make sure...

UM [Inaudible].

BA There's a bunch of work going on in China and elsewhere to develop rapid diagnostics for the disease. I guess people have... Is that what the question is? Yes.

There are a number of challenges to it. There are four or five different approaches being taken and... Because the PCR takes time, it takes sophisticated lab, etc, and if you've got a rapidly moving outbreak, it's a good question, it's a bit labour-intensive, it takes a bit of time, etc.

We've seen lab capacity even in China where they now can process huge amounts of this as a problem. So right now there is not a rapid diagnostic but it is one of the priority development areas.

UM I found a word that said China was too aggressive in this sickness. Do you suggest this as a method to other countries?

01:43:49

BA Folks, time is everything in this disease. You've seen the doubling time of the cases, the exponential growth. I remember someone said, there was a study that said some of the big population restrictions movements in China had delayed some areas and spread by three days, and I saw some kind of cynical comment on that or by a week at most.

But again, when you look at these curves, if you can slow something down by three days and then affect it like that, by the time you get to a fifth generation of cases you can cut the size of that by 90%. Days make a difference with a disease like this.

MH Okay, these two ladies. You first and then you.

BA I'm sorry; I'm taking too long with my answers.

GA Thank you very much for taking my question. I'm Gabriela Sotomayor, a Mexican journalist, Proceso. This is not an Ebola outbreak, you know that, but is there any special recommendation on the handling of the dead bodies? Do you have something to say about that? Thank you.

BA I'm not an expert in that piece of it but if I remember correctly, in the technical guidance we actually have, that's part of the technical guidance series that's available on our website. There's a specific recommendation about how one actually goes about that.

01:45:20

Again, it's not Ebola, you're absolutely right, and we always look, for everything like that, is there evidence that mishandling bodies have resulted in transmission change, etc? It wasn't something we were specifically asking about but I haven't heard that. So it's a different level of risk compared to...

But I want to be careful because again it's not something I've looked at and I'm not an expert on that area yet. I will be tomorrow.

UF Thank you. Shing [?] from Xinhua News Agency. Dr Aylward, you mentioned yesterday that China has adopted an all of government, all of society approach to fight the virus, so could you elaborate on this approach?

To your knowledge, which part of it or to what extent should this approach be replicated or can be replicated in other countries with different health governing systems and with different capacities and response to this disease?

And could you also... How do you view the effectiveness of the TCM, the traditional Chinese medicines on the virus please? Thank you.

BA Let me take the second one first because, again not having worked in China for 25 years and I don't know traditional Chinese medicine well, it was a striking thing for me just how prevalent the use of TCM is but also how organised an awful lot of it is as well and regimented.

01:46:59

I can't speak to the efficacy of it because we didn't see trial results and there weren't randomised trials with it. So most of the use of it was observation, like they took all the patients, everybody got TCM because it's part, frankly, of the treatment. I think 90% of treatments are patients get some TCM.

So it's used a lot. The physicians have a lot of confidence that it helps particularly in the mild cases. They think that a lot of that is possibly the anti-inflammatory effects of it or maybe antipyretic, it helps to bring down a fever.

Again, I don't know what's in the compounds, but that's what we heard a lot. But again it was observational data, not randomised, so it was not possible to make a judgement one way or the other in that regard.

But very popular and... The other thing, a couple of physicians said to us that taking TCM helped with a lot of the anxiety around the disease for people because it was just part of what they were familiar with, etc. So we heard a lot of positives about it and it's very much part

of... I think it may even be in one of the treatment guidelines. I can't remember about how one could use it. But I may be wrong about that.

01:48:25

So in terms of the all of government, all of society, I didn't say that and I never do. If I said it yesterday then I was very, very tired because I never know what that means. It's like okay, everybody should do stuff, everyone should...

That's why I will try to be careful with my language today and say it was a repurposing of the machinery of government to run this response. When we say all of government everybody should be involved; okay, I normally do agriculture but I'll do more agriculture. I normally do transport but I'll do more transport.

I think it's a great term but we use it a lot and I hear it a lot in responses that don't look much like this, let's say that.

So what I saw in China was they had a taskforce, things had to get done, which Ministry have actually got that kind of machinery or have got that kind of transport capacity or have got this kind of capacity? So it was really, and where it had to be, I use the term repurposed, actually to do that.

And then in terms of the all of society, again I struggle with what that means. I'm going to get slaughtered by another part of WHO I'm sure. They're great terms but you've got to define, okay, what part of society is actually doing what? And in China it's really clear.

Everybody has to do this, we need folks doing this, but everyone has to be involved because if everyone is not taking the procedures, if everyone is not cooperating in the lockdowns, if everyone is not doing this, it's not going to work. Now, of course there's going to be slippage in places.

01:50:04

In terms of can that be replicated elsewhere, again it comes back to the whole point of this conversation, is there's this disease spreading, people are desperately concerned about it, there's evidence from a part of the world that you can be masters of your own fate here, because I'm getting this sense that we've lost that ability with this virus, and China wouldn't accept that and hasn't.

That was the big message. Can it be replicated? Why not? What people say is, oh well, we can't do this here. China did it. Well sorry, yesterday you said there was no answer so you had to throw your hands up. Come on, that's... Try.

Because nothing on that list that you asked me, how to get ready, well do one, two, three, four, there's nothing on that list that countries can't do.

MH That is a great place to end I think. Oh, you've got one more. Last one, and I have to apologise to people online, we've not been able to maintain the line. There was a question about the report, whether it will be available and when.

01:51:22

BA So my job is to write the report. Well, actually the team wrote the report, and again it's a little embarrassing because I've said I did this or we did that and people have said, well I thought...

I want to be really clear. Everything that's in the report and everything that we're saying are things that were carefully discussed with 25 people and a consensus view on. So it is not me as an individual providing a perspective.

The other thing was we kept this completely separate of WHO and the government of China and of the people who were on the mission from their institutions. They were serving their capacities as deep experts.

I have to say it was the journalists that we were looking for more than... My own organisation was badgering me and I appreciated that as did the team members, but it was just so important. This is 25 people who know this business and different parts of it came to this conclusion collectively.

And there are things that aren't in the report, and now you're going to ask me what. I'm sure there are lots of areas where we didn't think there was enough evidence that supported it and it's not there.

01:52:35

But most people were struck by the big picture. The curve doesn't have to include all those people that we talked about.

MH Which reminded me of the other ask online which is can people get your curves? Can we post them or do we have to wait for the report?

BA These belong to the government of China. We'll try to make sure of that. When the report comes out... Oh, someone asked about the report. So the report goes to Dr Tedros, it goes to the government of China, it's going to them tonight, and then they will be in charge of a release.

I would anticipate that they're going to want to read it and absorb it, because I'm not speaking for WHO, I'm speaking for an independent team of experts. I will brief WHO tomorrow and then they will make their decision about if and how they want to act on this.

MH The last question.

UF My first question was about the report as well but you have already answered it so I will move to the second one. The outbreak of COVID-19 has been going on for some time so

people may enter a period of psychological fatigue. In your opinion, how do you better soothe the anxiety of people and mean well from what you have seen? Do you think that in the face of this epidemic China, WHO and the whole world have more experience and preparation? Thank you.

01:54:23

BA So the second question is easier. There is a lot more experience. I did have a couple of people on my team from WHO including the technical lead from WHO and we do have a country office there of course, a regional office which is rotating people through, so there's an increasing knowledge and experience of what China has done and how that can be used.

Part of my role is to say here's what we said and try and get this out to others. But again it's still a very new disease and we're all learning and we need to be very careful. This is what we know today. Tomorrow can look a bit different.

But this looks pretty robust. They've been doing this for four weeks now. And the first question was...

MH It was about the report.

UF [Inaudible].

BA Oh, yes, the anxiety, really important. Interestingly, and a number of people in the team commented on this to me. All of the clinicians that we talked to and the people running these big facilities, whether a stadium or hospital or whatever, they all talked about how they take care of the patients, the medical needs and the rest, and how they take care of the psychological needs of the patient.

01:55:39

And then there was also a lot of discussion about the people who were in quarantine, the very close contacts who were at the high risk, a lot of talk about the psychological support for them and then they were also running hotlines. This was as big as the medical part of the response, was the impression that one got.

At a general public level they want to know, is there anything that we can do? Yes. Are we ready to do this? That's what they want to hear from the leadership in their countries and that's why we want to get the message out and hopefully help that.

Because again, I come back to that point that concerned me a little bit, that sense of helplessness in the face of a virus. It's the 21st Century and science is incredible. We've seen a country take a war footing to try and use really fundamental principles in the absence of a vaccine, in the absence of drugs and turn this around.

But it isn't going to work as well unless the population is highly sensitised and... because you've got to find those early cases fast and if you wait for them to come to a hospital, remember people are asking about Wuhan, I think you were asking earlier, but the average

time from onset of symptoms to when they were admitted and hit the hospital when this started, in the first period, if I remember correctly it was something like 15 days.

01:57:12

So for 15 days that person is out there with a reproductive rate of two with this virus interacting with people, getting sicker and sicker and interacting with more and more people, so this thing is spreading and moving. So you've got to cut that rate down, and in China it's three days now from when someone starts to get sick to when they get them isolated and in a hospital bed.

So they're cutting down the number of people that are getting exposed and that's why the cases are dropping fast, because at a certain point you choke off the ability of this thing to find susceptibles.

So coming back to your issue about the anxiety, people want to know what is this thing, they want to know... I have a family. They want to know what is this thing, is there anything we can do about it? Are we ready to do it?

Each of those questions, there are more and more answers. The big question that remains is are we ready? No. Someone will ask me, okay, when will we be ready? You'll never be ready. The day that you think I'm ready now, you're not ready because you've got to have that sense of it's going to come here today, okay, have I got this in place, that in place, that in place?

You never feel completely ready. Me getting on a plane to go to China to do that, are you ready? I don't know how to spell it. No, not quite. And that's the reality. But you've got to be as ready as possible and we're not as ready as we could be, first psychologically, our mindset, and then in the materials and then the population has got to be with us.

01:58:47

MH There was one other question that I missed; is that okay with you?

BA Yes, of course.

UF [Inaudible] I would like to know if there is a spread of the coronavirus in conflict affected areas, even in developing countries, how can states, civil society, NGOs, international organisations respond? Thank you.

BA It's a great question. This is what... I'm not speaking as a WHO person, it's what I know of Tedros. This is what keeps Dr Tedros awake at night is when these things hit low income countries. He knows the reality of Africa.

And for those of you who know Dr Tedros, he's an incredibly human person and he worries about this and he feels a tremendous responsibility that okay, what's our first and second level line of defence while we try and get better prepared to be able to deal with this in places that don't have the capacity.

That's why he went to China. In China you've got to be the first wall of defence against this thing, and they took it seriously, very seriously. And now it's in Europe. We've got escalating outbreaks in industrialised countries.

02:00:24

Again, you're the second level of defence here. You've got to try to respond. And then at the same time the work on the vaccine, the work on the therapeutics has got to continue really at pace, the rapid diagnostics so you can get these people isolated, like you were asking, earlier and faster.

And by the way, in the report that's one of the recommendations. I didn't go through them all but we had four big observations about China which was about the... The four big things were there about the strategy, the impact that it had and the next steps, and then there was one other big piece.

And then on the other side about the rest of the world, it was about the virus, and my first point on the virus is this is not SARS or flu, don't get stuck thinking one way or the other. You've got to keep your options open here. I could be wrong but I won't be.

The second big piece and third big piece is as we've talked about but the fourth piece was about collaboration. What you're trying to do is get ready and try and buy more time, but the next piece is to use the time you buy really, really well.

So I said we're not ready but the other thing is we're not using the time we're trying to gain well enough either. Okay, this is the time for the Manhattan Projects, right? This is the time when, okay, you want to vaccine against this, you get the countries organised, together you run multi-country trials if you have to, because you haven't got enough patients in any one trial.

02:02:05

But you want a Manhattan Project on your top vaccine candidates. You want a similar approach on your top therapeutics. You should not be struggling to get patients into trials because, to your question and thanks for asking it, those are the things that are going to help in those settings.

Some of the traditional strategies can be applied anyway but it's going to be easier with better tools. Use the time well. Get ready; get the right diagnostics and therapeutics. The other thing is do the right studies.

When you ask people about... When people heard I was going to China, I got lists of studies as long as my arm, I got them from everybody in the world and people you know well. It's just this bewildering array to somebody...

I work in this area and I'm bewildered by it all, like why are we doing that one, what about this one? Get organised. There are three or four you have to answer. You need household

studies to understand the secondary spread. You need sero assays to understand the immunity in the population.

02:03:09

So there are three or four have to haves. Get organised. Use the time that you're trying to buy well because it's going to save lives.

The last point, despite what people think sometimes, research saves lives. You've got to do that as well.

MH Thank you very much. That is an excellent last point. Apologies again to all the people online that we couldn't get to but also because of the feedback, the technical difficulties so it was impossible.

If you've got more questions you know to come to Media Inquiries and as you know, Dr Aylward is extremely generous with his time and his thinking, so I hope we'll be able to answer anything that's been left behind. Thank you all again for attending.

02:03:50