Thursday, 15 June 2023

(10.00 am)

LADY HALLETT: Good morning.

MS BLACKWELL: Good morning, my Lady. The gentleman in the witness box is Professor David Heymann CBE. May he be sworn, please.

PROFESSOR DAVID HEYMANN (sworn)

Questions from COUNSEL TO THE INQUIRY

MS BLACKWELL: Thank you, Professor.

I'd like to begin by thanking you for all of the assistance that you've given so far to this Inquiry.

During the course of my questioning this morning, please keep your voice up and speak into the microphones so that the stenographers can hear you clearly. They're preparing a transcript of your evidence.

If I say something that you don't understand or you can't hear, please ask me to repeat it, and I'll do the same for you.

There will be breaks during the course of your evidence, but if at any time you require a break, please just say so.

A. Thank you.

Q. Professor, you have provided a report during the course of preparation for this Inquiry.

Could we please put it up on the screen. Thank you very much. It's, for the record, INQ000195846.

This is the first page of your report. We can see, Professor Heymann, that it's signed by you on 19 May of this year, and you have signed the author statement confirming that it's your own work and that it's true to the best of your knowledge and belief. Is that still the case?

A. It's still the case, yes.

Q. Thank you very much. We can take that down.

Dealing next with your qualifications and extensive career history, and I'm only going to concentrate for the time being on the highlights as they are relevant to this Inquiry, you are a trained medical doctor, obtaining your BA and MD in the United States, and you have a diploma in medical epidemiology from the London School of Hygiene and Tropical Medicine.

In 1976 you worked for the US Centers for Disease Control investigating the first Ebola outbreak in the Democratic Republic of the Congo in 1976. You then worked in your first stint for the World Health Organisation between 1989 and 2009, and during that 20-year period you headed the World Health Organisation global response to SARS-CoV-1, the Severe Acute Respiratory Syndrome.

Then in 2009 you worked for the United Kingdom Health Protection Agency as a non-executive chair, working closely with the chief executive during the response to the H1N1 influenza pandemic that we know as swine flu. You then transferred to Public Health England in 2013, again as a non-executive chair, and during your stint there you accompanied the PHE team in 2014 to the Kingdom of Saudi Arabia to discuss and review the data on the Middle East Respiratory Syndrome CoV outbreak, we know that as MERS, and to offer technical support during that investigation.

You have more recently been working again with the World Health Organisation, and from 2017 you have been the chair of the Strategic and Technical Advisory Group on Infectious Hazards and you are currently Professor of Infectious Disease Epidemiology at the London School of Hygiene and Tropical Medicine. That brings us up to date, thank you.

Over the course of your career you've published over 275 peer reviewed articles and book chapters on communicable diseases, and you are the editor of the Control of Communicable Diseases Manual.

In preparing your report for us, Professor, you have also provided at the end of the report a bibliography and list of references, we don't need to go to that now, but you have also been good enough to consider additional material which the Inquiry has obtained during its preparation for these hearings, a list of which has been provided to core participants and some of which I will take you through during your evidence this morning.

In terms of the scope of your report, that is set out in a series of instructions which appears at annex 2. Again, we don't need to go to it now, but in summary you have been asked to assist in the following areas: the virology of coronavirus viruses and an explanation of the difference between SARS type viruses and other viruses, including influenza; the epidemiology of Covid-19, that's SARS-CoV-2 virus, including its zoonotic origin and its first detection; and an explanation of the method by which Covid-19 is transmitted and how our understanding of that has changed over the course of time.

You have also been able to identify and provide descriptions of some of the UK bodies concerned with threats, and some international organisations dealing with the global assessment of public health emergencies.

All right. Well, having dealt with all of that, let's start with the basics, please, Professor Heymann.

What are coronaviruses?

A. Well, coronaviruses are viruses, and viruses, unlike

bacteria, cannot be seen under a routine examination with a light microscope, they need an electron microscope. They're very tiny particles that can only be visualised that way.

A coronavirus is like a sphere surrounded by fatty material, and inside that sphere is the genetic material of the virus, the RNA, ribonucleic acid.

Q. Yes.

A. On the surface of that fatty material ball, there are spikes, which are protein, and those are the spike protein of the coronavirus, and those spikes are what hooks on to a receptor on a human cell. To reproduce, a virus has to use that receptor -- shall I continue?

Q. Yes, please.

A. To reproduce, a virus must enter the cell through the receptor.

Q. Yes.

A. Then it takes over the mechanism of the cell and reproduces itself using the cell's reproductive mechanisms.

Q. All right. And the spikes that you have described, do they have the appearance of a crown, and is that the reason why it's called coronavirus --

A. That's exactly right, yes.

Q. -- "corona" being that of a crown? Right, thank you.

How many types of coronavirus are there in animals?

A. Well, it's not known exactly, but there are probably over 200 coronaviruses that are around the world. It's a very common virus in the animal kingdom.

Q. We heard yesterday from Dr Charlotte Hammer and Professor Jimmy Whitworth that, so far as animals are concerned, coronaviruses appear to be common in bats and cats and camels; is that right?

A. That's right. They're in many, many animals, including -- even whales, for example, also have coronaviruses. So they're a very common virus in the animal kingdom.

Q. Are they common in domesticated animals?

A. They have been shown to be able to infect domesticated animals. It's not believed that they are common in domesticated animals, except for animals that are raised in animal farms where there isn't proper sanitation.

Q. All right. Well, we'll come to deal with those farms and wet markets in a moment.

A. Okay, yes.

Q. For how long have coronaviruses been present in animals?

A. Well, it's really not known. They were first identified in humans, for example, back in the 1960s.

Q. Yes.

A. And it's known before then that they were in animals and

that sometimes they caused outbreaks of infection in animals. But it's only recently, since the coronaviruses of the 21st century, SARS, for example -- SARS coronavirus 1 --

Q. Yes.

A. -- that it's really been intensively studied in animals.

Q. All right. How easily do they transmit between animals and between species of animals?

A. They transmit fairly easily between animals in the same family. We know that from studies that have been done with camels, for example, studies that have been done that showed that minks were able to transfer coronaviruses to each other, and it's known that they can transmit fairly easily in the animal kingdom.

Q. Is the transmissibility between animals any indication of the ability or likelihood that a coronavirus can jump the species barrier between animals and humans?

A. Well, jumping the species barrier is a very complex issue, really. There have to be a series of risk factors that line up in such a way that this jumps the species barrier.

So coronaviruses do, from time to time, jump the species barrier, and when they do -- other viruses as well -- it's not known what they will do in humans. Sometimes a virus enters humans and goes no further.

Rabies is a good example. From a dog to a human.

Other times a virus can enter humans, like the Ebola virus, or some other virus, cause a small outbreak, disappear and then re-emerge.

Finally, some, like HIV in the last century, emerge from animals into humans and then they become endemic, a regular virus within humans.

Q. Right.

A. In fact, all infections in humans are thought to have come at one time or another from an animal, including tuberculosis, including many common diseases.

Q. So what are the common risk factors that need to align in order to cause a spillover, or a zoonosis, into humans?

A. Well, those risk factors depend on many different situations, really. The risk factor may be that the animal is infected, that it's been intensively raised in animal farms --

Q. Right.

A. -- and then people who are working on those farms could become infected, or if the animals that are sent to a live market, then people who purchase those animals could be infected.

It's not known what all the risk factors are, but what is known is that the animal and human kingdoms have

to be maintained separate as well as possible.
Q. All right, thank you.
One of the documents that you've been good enough to look at is a witness statement that has been provided to the Inquiry by Professor Mark Woolhouse. In his book *The Year the World Went Mad*, he says that new human viruses usually come from animals and most of them don't spread well between humans. Do you agree with that?
A. Yes, I do.
Q. All right. He also says that coronaviruses are generally more transmissible amongst humans compared with other zoonotic viruses, and that is why they were high on the list of viruses to worry about; do you agree with that?
A. They do transmit fairly easily in some instances, but some coronaviruses don't transmit easily from human to human.
It depends where they reproduce in the human. If they reproduce low in the lungs, then it takes a deep cough or a medical procedure that causes droplets to transmit. If they reproduce in the upper nasal passages, then it's very easy to transmit. So they're not all the same.
Q. Right, so there is a variance.
Could you explain to us, please, the process by

which a virus becomes endemic in humans?
A. A virus becomes endemic when it spreads throughout human populations and is able to sustain its transmission from human to human.
Q. Yes, okay. What factors might contribute to a virus becoming endemic?
A. It's a characteristic of the virus, for one thing --
Q. Yes.
A. -- that virus, its transmissibility, its ability to transmit. It's also the population which is infected: if it's receptive to the virus and doesn't have protection against it, it can transmit. If there's a population that has solid immunity against a virus, then it can't transmit further.
Q. Right.
You were good enough in the course of your report to describe to us the four coronaviruses which are endemic in humans. For the record, they are 229E, NL63, OC43, and HKU1.
What do those letters and numbers mean? Is there any format behind the nomenclature?
A. There is clearly a format behind them, and it depends on when they were named what that format was.
Q. Right.
A. There is an international taxonomy group which does name

viruses and they have altered the way they do that periodically. So I can't exactly what each one means, but they do have a name and that name is with them today.
Q. All right, thank you.
How severe or how mild with the upper respiratory infections caused by those coronaviruses?
A. Those coronaviruses generally cause a common cold.
Q. Right.
A. They're common cold viruses.
Q. So fairly mild?
A. They're fairly mild, except in some people who might have comorbidities or the elderly, who are debilitated because their immune system is not responding the way to should.
Q. What about young children, are they more at risk?
A. Young children are not considered to be at great risk from human coronaviruses but they do get common colds and those common colds are coronavirus sometimes.
Q. All right. What treatments or vaccines are available for those four coronaviruses?
A. Well, there are no vaccines available. In fact they're considered to be very mild viruses.
Q. Yes.
A. So the usual remedies that are used to treat a common

cold are used to treat them.
Q. What are the routes of transmission for them?
A. The routes of transmission are from the nose or the nasal passages through a sneeze or a cough onto another person, droplets and particles, aerosolised particles.
Q. How long would it take for there to be long-term immunity from those four coronaviruses?
A. Well, long-term -- I'd rather talk about population immunity. Population immunity is when the majority of the population has had infection, has developed antibody or response to that.
Q. Is that also sometimes known as herd immunity?
A. They're different. Herd immunity is an immunity which protects against reinfection.
Q. Yes?
A. Or it's a vaccine that protects against infection. And with the SARS Coronavirus 2, we don't have either of those factors available. So in fact herd immunity at present cannot be established from the SARS Coronavirus 2.
Q. What's the difference between that and population immunity?
A. Population immunity is general understanding of all the population immune systems of the virus, with a response with antibody usually, and therefore that population

immunity, in the case of the SARS Coronavirus 2, prevents serious illness and death in most people.

Q. Right.

I'd like to ask you some questions now about the procedure that you set out in paragraphs 18 and 19 of your report. We don't need to look at them, but it's the molecular clock analysis that was taken of coronavirus OC43.

First of all, Professor, can you explain to us what the molecular clock analysis is.

A. Yes. Molecular clock analysis is an attempt to understand the rate of mutation of a virus.

Q. So from the animal into the human?

A. No, the rate of the mutation in a human or --

Q. Within a human, right, okay.

A. Yes. Now, what was done in 2004, and which was very important to note, is the fact that a group of molecular biologists calculated a rate of mutation of human coronavirus, the SARS coronavirus -- no, I'm sorry, human coronavirus OC43.

Q. Yes.

A. They calculated that rate of mutation by taking all the known specimens that they could find of OC43 virus from 1950s onward, they genetically sequenced them, and each one had a slight difference in its genetic structure,

and that's a mutation.

Q. Yes.

A. So they calculated a rate of mutation of that virus going forward to 2003.

Q. Yes.

A. They did the same thing with the virus that comes from cattle, because cattle were the source, or the expected source, of OC43 --

Q. Originally?

A. -- in humans -- yes.

Q. Yes.

A. So they calculated a rate of mutation in cattle as well. Then they took those rates of mutation and worked them backwards from the present time --

Q. Yes.

A. -- to where both of those viruses would have looked the same, where they wouldn't have mutated, and that occurred between 1850 and 1890.

In 1888/1889 there was a pandemic called the Russia influenza, and these molecular biologists hypothesised that this was the emergence of OC43 because the pandemic that occurred was not exactly what occurs with influenza. There were many deaths, a million deaths in a very small world, but it caused neurological symptoms in most persons.

Q. Right.

A. So they hypothesised that this was the emergence of OC43, which then became a virus which causes the common cold today, because of population immunity, which is protecting against serious illness and death.

Q. So by using the molecular clock analysis they were confident, to within a certain time period, of when the disease jumped into the human population?

A. That's correct. They used three different methods, and they came out with the same with each of these methods.

Q. Right. Has that procedure been undertaken in relation to what we now know as Covid-19?

A. There was an attempt by some molecular biologists in the US to calculate -- to do a molecular clock analysis of SARS Coronavirus 2.

Q. Yes.

A. In doing their analysis, they went backwards from the time when it was first identified to where it might have been very close to the virus that's similar in bats, and they came to about a period of October 2019.

But this is just one of many hypotheses, as you know.

Q. Yes. Thank you.

I'm now going to ask you a series of questions about 20th century coronaviruses, so we'll start with SARS,

move on to MERS and then finish with Covid-19.

At paragraph 21 in your report you tell us that SARS is thought to have emerged from an animal, likely to be a civet cat, in a live animal market in the Guangdong Province of China sometime late in 2002; is that right?

A. That's correct, yes.

Q. Is it thought to have resulted from a one-time mutation of the virus, reproduced either in the animal host before transmission to humans or in humans after the emergence had occurred?

A. That's correct, yes.

Q. Is it right that the presence of antibodies in the blood of workers in live animal markets suggests that they had previously been infected with other coronaviruses which had not gone on to transmit human to human?

A. That's correct. That comes from a study which was done by Chinese after the SARS outbreak in 2003.

Q. Right. From the live animal market in Guangdong, SARS went on to spread amongst health workers in provincial a health facilities, through a combination of close physical contact with infected patients and medical procedures that cause pulmonary aerosols; is that right?

A. Yes, that's correct. The Chinese were never forthcoming at the beginning with their information, but this is the assumption.

Q. Right. What sort of medical procedures produce pulmonary aerosol?
A. When there's a severe respiratory infection such as SARS coronavirus, there is a lot of mucus that builds up in the lungs.
Q. Yes.
A. To get that mucus out, to help the patient breathe easier, there is an infusion through the nose and a tube of saline, which is salt water, a --
Q. Yes.
A. -- body salt water, and then the lungs are flushed out, the water is pulled out, and along with that is the mucus that's been softened and absorbed by the water, and droplets are many times caused as a result of that.
Q. Are the aerosols generated by that procedure the same or smaller or lighter than aerosols generated by normal voice projections, such as speaking loudly or singing?
A. I think it's useful to look at an aerosol as being on a spectrum of droplets which are heavy and fall, to lighter particles which are carried by the air, to very light particles. So it's a whole range of things. And these particles contain virus.
Q. Right. What stops the virus from spreading?
A. The virus is able to transmit and cause infection as long as the surrounding material, which is, many times,

mucus, is moist.
Q. Right.
A. If it dries out, the virus can no longer infect.
Q. So is that why ventilation assists in preventing transmission, because the air flow will assist in drying out the particles?
A. That's correct.
Q. All right.

At paragraph 21 in your report you say that there was "substandard infection prevention and control" in the Guangdong health facilities. How so?
A. Well, all we know is that the graph that the Chinese finally produced for this outbreak shows that health workers became infected very early in the outbreak, and those health workers then continued to become infected, and it's assumed that they infected their family members and other patients. One of those health workers actually came out of Guangdong Province into Hong Kong in February of 2003, and from him the virus was spread to people staying in the same hotel and it spread around the world. So health workers are very important, always, in emerging infections, because they don't recognise that they're a new disease oftentimes.
Q. Yes. Do you know, for instance, Professor, whether or not those health workers were routinely wearing PPE such

as face masks or shields?
A. I think it can be assumed that early on they weren't, because what the Chinese indicated, when they finally opened up to providing information, is they thought that this was influenza --
Q. Right.
A. -- and they therefore were not worried that it was a new infection.
Q. Okay, thank you.

So SARS-CoV-1 was first identified as a novel coronavirus by genetic sequencing in March of 2003, which was about three months after its emergence. Do you have any comment to make on the length of time that it took to identify as a novel coronavirus?
A. Well, the virus was first isolated from a patient in February --
Q. Yes.
A. -- in late February, and so it was very rapid, in fact --
Q. Yes.
A. -- that it was understood that it was a coronavirus.
Q. Which countries were affected by SARS?
A. Well, initially there were -- about seven countries were infected, because these were people who were stayed on the same hotel.

Q. Yes.
A. I think in my testimony I've said it went to 21 or 22 different countries. That included countries around the world. The good -- if there was good in this outbreak -- was that it didn't appear to make its way into Africa, where surveillance might not have detected it and it might have spread even further than it did.
Q. Yes. You have described the virus reproducing deep in the lungs, which would require deep coughing or pulmonary procedures to create the droplets or aerosols that you've described.

Was that a major factor in the control of SARS?
A. I believe it was, yes. There were several factors that were important. Number one, SARS Coronavirus 1 is not transmissible, or highly transmissible, until two or three days after the onset of signs and symptoms.
Q. Right.
A. Unlike SARS Coronavirus 2.
Q. Okay. Is that the incubation period?
A. That's the period from -- no, the incubation period is the period from infection to onset --
Q. To onset of symptoms, yes.
A. Yes. So that was one of the factors. It wasn't transmissible early, after --
Q. Right.

A. It was only transmissible after signs and symptoms developed.
Q. Right.
A. The second thing, it reproduced deep in the lungs, and therefore was very difficult to transmit. There had to be really deep coughing and close contact with others. Finally, there was a willingness of the world at that time to work together, and so countries agreed not to travel to places where there were uncontrolled outbreaks of SARS Coronavirus 1, which included Singapore, Hong Kong --
Q. Yes.
A. -- and Canada.
So the outbreak was one that was contained rapidly, and I think you could say that that virus now is gone from human populations. It's been eradicated.
Q. Thank you.
During the evidence of Professor Whitworth and Dr Hammer yesterday, we heard about something called the case fatality rate.
A. Yes.
Q. Is that the number of confirmed deaths caused by a virus in relation to the number of confirmed infections?
A. No. Confirmed cases.
Q. Confirmed cases, sorry.

A. Yes. Yes.
Q. The infection fatality rate is less certain because there are those who may be infected asymptomatically, et cetera?
A. That's correct, yes.
Q. So that is not based upon confirmed cases?
A. That's correct, yes.
Q. All right. Now, the case fatality rate of SARS was, you tell us in your report, close to 10%.
A. That's correct.
Q. In comparison to case fatality rates for MERS, which we're going to move on to in a moment, which was about 35%, and the case fatality rate for Covid-19, which is around about the 1% mark.
A. Mm.
Q. Can you explain to us what danger lies in the phenomenon of under-reporting and how that has to be factored in, in determining either the case fatality rate or the infection fatality rate, please.
A. Yes. Well, in infection fatality rate, it's very difficult to know all the infections unless you test the entire population.
Q. Yes.
A. So the infection rate -- case fatality rate would be the number of deaths from that infection based on the whole

population that has infection. Case fatality rates are based on a case definition, and a case definition describes what a disease is thought to look like by the persons who develop that case definition, usually the public health community.
Then all cases that fit that case definition must be tested --
Q. Yes.
A. -- and must be shown to have had infectious agent.
Q. Is that a laboratory test?
A. That is a laboratory test, yes. Then the case -- the death rate is those people who were shown to be infected who died. So they're included in the case number --
Q. Yes.
A. -- but they're a separate number there, the fatality number as well.
Q. All right. Now, you've described there a case description. Is that the symptoms that have to be present in order for a case to warrant the description?
A. That's right. In an outbreak investigation, or whenever there's a new disease, a case definition is rapidly developed based on what's known at that time.
Q. But that would change over time, would it not?
A. Absolutely, it can change over time, and it generally does change over time.

Q. All right.
Could we display, please, INQ000198953.
I think you've had an opportunity of looking at this before, Professor Heymann. This is a table which has been taken from a video lecture that Professor Chris Whitty gave to Gresham College, London, on how to control a pandemic, in 2018.
Now, if we just familiarise ourselves with what we have. The vertical axis shows the level of transmission and the horizontal axis shows the level of mortality.
If we start from the least serious moving up to the most serious. Bottom left-hand corner, low transmission and low mortality, the box in green, Professor Whitty has said "Not worth worrying about". So that is the least serious part of the table, isn't it? If a pandemic is thought to have low transmission and low mortality, that's the least serious of the four that we see here.
The next in seriousness is the box above, so the yellow box above, which is high transmission but low mortality rate; do you agree with that?
A. Yes.
Q. The example that's been given here is the H1N1 2009 swine flu, which we see, according to this table, has a mortality rate of 0.3%, but between 10 and 200 million

cases, so very high transmission?
A. Yes.
Q. Next in line, if we go to the bottom right-hand corner, we can see the pandemic with low transmission but high mortality. In that box the example given is the H7N9 avian flu from 2013 to 2018, with 30% mortality but around 2,000 confirmed cases. So very low transmission there?
A. Yes. I wouldn't call this a pandemic, though. This is not a pandemic. This is outbreaks of this disease which occur occasionally. The disease is not pandemic as such in humans, but it is -- it appears to be in birds.
Q. Right, thank you.

Then finally, top right-hand corner, we can see, in the pink box, the pandemic with high transmission and high mortality rate, the example given there is the H1N1 1918 Spanish flu, with around 3% mortality. Do you have any comment to make about that box?
A. Yes. It's always been interesting to me to see how virologists and others like to compare the current situation to 1918, which was a pandemic of influenza but which also was an era where there were no antibiotics, and although antibiotics will not clear influenza, they will clear superficial bacterial infections that occur in the lungs when they've been robbed of their lining by

influenza virus. So the mortality was high, much of that mortality was likely due to superficial bacterial infections.

So we don't really know the mortality from H1N1 Spanish flu directly from the virus. We only know that on top of that there were bacterial --
Q. Okay, so it could have been a combination of the virus and then the bacteria --
A. That's generally --
Q. -- effect on top of it?
A. -- the thinking, yes.
Q. All right, thank you.

Just before we leave this table, are you able to assess where Covid-19 might appear in relation to the level of transmission and mortality?
A. I would place the coronavirus, SARS Coronavirus 2, on this table -- let's see, I need to think a bit. I will.

I would place this virus, I believe, on the high mortality end, and so I would place it high transmission, high mortality.
Q. Right. So top right-hand corner in the pink box?
A. Yes.
Q. Thank you. We can take that down, thank you.

What are the symptoms and clinical outcomes of SARS, or what were the symptoms and clinical outcomes?

A. SARS was a very severe respiratory infection which caused respiratory failure. People could no longer breathe.
Q. Yes.
A. The outcome of that was that there was a high case fatality rate of 10%, and in addition many people who recovered had what's called pulmonary fibrosis.
Q. Right?
A. Which means that their lungs were replaced -- the breathing -- the area where oxygen exchange in the lungs occurs was replaced with fibres which didn't permit exchange of oxygen, and so some of those people still today have severe consequences from having had this infection.
Q. Are you able to say how the ongoing outcomes of SARS compare to those of Covid-19?
A. It's too early yet to say the long-term effects of this, but certainly, like other viruses including, for example, the virus that causes mononucleosis, there is a period afterwards where people are still fatigued, still sick, and in Covid-19 it appears that there are many, many more symptoms that are occurring in these people.

Remember, this is an animal virus that had adapted itself to animals and now it's in humans.

Q. Right, okay.

Could you explain to us, please, the difference between asymptomatic transmission and asymptomatic infection.
A. Asymptomatic infection is people who become infected with an organism and never show signs and symptoms. That's asymptomatic infection.
Q. So never any development of any signs --
A. Never developed signs and symptoms from that virus.
Q. Yes.
A. Asymptomatic transmission is when a virus or bacterium, in this case a virus, when a virus is being shed by the person before onset of signs and symptoms, and that can then transmit to others. We know that occurs, for example, with measles, which is a respiratory infection, it occurs two to three days beforehand, and many virus infections are thought to transmit before the onset of signs and symptoms.
Q. Right, so asymptomatic transmission is the transmission before any signs or symptoms, but after which the person may well develop signs and symptoms?
A. That's correct, yes.
Q. Thank you.
A. They will develop signs and symptoms.
Q. They will.

Just to complete this part of your evidence, what then is pre-symptomatic transmission? Is that the same as asymptomatic transmission?
A. I would say they're the same, yes.
Q. All right.
At paragraph 29 in your report, you say that:
"SARS-CoV-1 was transmitted primarily, but not exclusively, in health care and hospital settings ..."
And that:
"The majority of [patients] were adults between 25-70 years of age."
And that:
"The investigations did not identify groups at [greater] risk of serious outcomes after infection ..."
Is that right?
A. **(Witness nods)**
Q. Why do you think there were so few suspected or confirmed cases of infection in children under the age of 15?
A. As we understand this, it was transmitted in hospital settings by procedures such as cleaning out of the lungs, and therefore it was in adult patient care areas. The nurses who became infected or the health workers who became infected and transmitted it to others were transmitting it in adult patient wards, not in

children's wards.
Q. With SARS, did infection provide immunity against reinfection?
A. It's not known, it's not known. And there were too few cases to really study that.
Q. So what factors led to its containment after the period of about six months, I think you said?
A. Well, those factors I reviewed earlier, was the fact that it was very difficult to transmit from human to human, it required very close contact with droplet spread. The world worked together to limit travel to where outbreaks were occurring --
Q. Yes.
A. -- and it didn't get into countries where there was poor surveillance which might not have detected it, and permitted it to spread further.
Q. That was the reference to Africa?
A. That's correct, yes.
Q. So it didn't become endemic in humans?
A. It did not become endemic in --
LADY HALLETT: Professor Heymann, sorry, going back to something you said just now, you said transmission was thought to be in hospital settings, so it was by treating adult patients that the hospital workers got infected, and then they were dealing with adult wards.

But why weren't the hospital workers then going home where there were children so children would get infected that way?
A. They did go home and they did transmit it in the household, and some children were infected, but the majority of people who were infected were adults.
MS BLACKWELL: When did the last known human infection occur, and how did it occur?
A. The last known human infections of SARS Coronavirus 2 --
Q. No, SARS Coronavirus 1.
A. SARS Coronavirus 1, sorry. The last human infections of SARS Coronavirus 1 occurred in laboratory accidents: one in Singapore, one in Taiwan, and several outbreaks caused by laboratory accidents in China.
Q. Right. Let's move on to MERS, please.
First identified in the Kingdom of Saudi Arabia in June of 2012, humans became infected from close contact with camels, as we heard yesterday.
Was the route of transmission between the species through droplets or bodily secretions or faeces or the combination of all three?
A. Between humans?
Q. Yes.
A. Yes, in MERS coronavirus there is transmission from person to person by body secretions or by droplets, or

similar close contact. It occurs in hospital settings, called nosocomial infection, when health workers don't practice washing of their hands or when they're using equipment which has not been properly sterilised between patients. That's the major means in which MERS coronavirus transmits from person-to-person.
Q. How many cases were there in the United Kingdom?
A. There have been five cases known in the United Kingdom, but three importations of the virus. So the virus was first imported in 2012.
Q. Yes?
A. Then since then there have been two other importations, and one of those importations was transmitted to a person who had accompanied the patient, and also to a visitor of the patient.
Q. Right.
There was then a second major outbreak in the Republic of Korea in 2015, when an infected person returned home from the Middle East, so brought it from the Middle East, and became ill and was seen at various health facilities.
A. Yes.
Q. Is that right? Again, substandard infection control at those facilities which led to the infection there?
A. That's correct. There were many factors that were

thought to have caused this to spread so rapidly. One of those was the fact that the patient went to three different health facilities, and the infection prevention and control measures in all of those facilities was substandard.

Q. Were poor, yes. We're going to come to that in a moment.

A. Okay.

Q. But in total, your report tells us that there were 185 cases in this outbreak, with 38 deaths, so that's a case fatality rate of 20% or thereabouts, in the South Korea outbreak.

There were, you tell us in your report, a series of factors causing the infection to spread, and you've begun to tell us about that. There was weak hospital infection control, weak patient isolation procedures; is that right?

A. Yes.

Q. Leading to infection of other patients and family members. And also a nursing shortage. So that led to a dependence on private, less well trained caregivers; is that right?

A. That's correct.

Q. Yes. And extremely crowded emergency departments without any isolation beds.

But it was rapidly contained, was it not, Professor Heymann, within a couple of months?

A. That's correct.

Q. Was that containment down to a change in policies in the hospital setting and an improvement in the infection controls?

A. That's correct. There was an improvement in infection control after retraining of hospital staff. There was also an increase in ventilation in hospitals, which dried out those virus particles.

Q. As we've already discussed?

A. Yes.

Q. Yes.

A. And there was also an understanding by the population, because of good communication, what this virus was doing and how to prevent infection. So there was a major effort at communication, which is always important --

Q. Right.

A. -- in outbreaks.

Q. Does it follow from what you've just said that the main or the primary route of transmission of MERS was through droplets or aerosols --

A. That's correct.

Q. -- in the same way that we've described in SARS, with SARS?

A. Yes.

Q. Were there any superspreading events in relation to MERS? And can you describe to us what a superspreading event is, please.

A. Yes, there were superspreading events -- in which virus, in MERS?

Q. In MERS, yes.

A. In MERS there have been some superspreading events. This was one in South Korea, for example.

Q. Yes.

A. And there have been events where there have been several different cases in hospitals where one person was admitted. But it's been very patchwork, the understanding of this virus, because there hasn't been clear and transparent sharing of information in many instances.

Q. Right. What is a superspreading event, in scientific terms?

A. A superspreading event is when a person who is infected for some reason or another is able to infect many, many other people. So it may be due to the fact that there are many people in a very small closed space and the person is able to transmit because he or she is at the right phase of transmission and then transmit.

Superspreading events are events that occur when the

risk factors line up in such a way that they can occur.

Q. All right. So what we have described happening in the hospital setting in South Korea, that would be described properly as a superspreading event, would it?

A. That's a superspreading event.

Q. Even something on that fairly contained, small scale?

A. Yes.

Q. Was MERS capable of asymptomatic transmission?

A. It's not yet known whether asymptomatic transmission occurs among humans, but clearly it occurs from camels to humans. The disease is now endemic in camels. The virus is carried in the nasal passages and transmits quite easily to humans.

Q. All right. So has it become endemic?

A. It's endemic in camels, yes.

Q. Yes. But not in humans?

A. Not in humans, no.

Q. Right. All right, well, that brings us to Covid-19.

It's no part of this Inquiry to debate or to determine the origin of Covid-19, but you attempt to assist us in your report by setting out what you consider to be the theories of origin.

Can you explain to us, please, Professor, what those consist of?

A. There are two major theories about the emergence of this

virus in human populations.
Q. Yes.
A. One is that it came from a bat into an intermediary animal, and from that animal into humans, possibly at a live animal market. That's one hypothesis.
Q. Right.
A. The other is that there was a laboratory accident at a major, highly secure laboratory in Wuhan, and that laboratory we know was dealing with bats that had coronavirus, and that laboratory, the hypothesis is that either the virus was able to escape from studies that were going on in a human who left and was infected, or through some other means. The hypothesis then concludes in some instances -- the other hypothesis is -- that the virus was being manipulated in such a way that it gained function, it gained the possibility of transmitting easily between humans.

So these are all hypotheses.

What's important from them is that there are messages that we can use. We need to make sure that live animal markets are conducted in the right way, that the animals that come to those markets are raised in conditions where they can't become infected.
Q. Right.
A. And at the same time there need to be better standards

of laboratories, high security laboratories, and those standards need to be developed by the people working with viruses, and adhered to by them.
Q. All right. So between those hypotheses, you aren't able to say which one is more likely or which one is more probable?
A. I'm not able to say that, because I don't have the evidence.
Q. No. But they are both --
A. They're both hypotheses, yes.
Q. Thank you.

In terms of the sequence of events at the start of the pandemic and the global spread, are you able to explain to us, Professor Heymann, how that happened in the immediate outbreak in China and how that travelled around the world?
A. Well, there, again, are some hypotheses on this and some evidence from that, but it's felt that it was possible that the province where this outbreak began was suppressing information about it, for some reason or another, and that when the central government did understand that it was going on they reported it to WHO. That's one of the hypotheses. That's what many people believe.

It doesn't really matter now what happened back

then, we have to deal with the virus as it is today, and WHO, when they received the report on 31 December in 2019, the next day did provide information about it, and then continued to provide information about the virus, through what's called the International Health Regulations system.
Q. Yes, we'll come to that in a moment. Before we look at the advice that the World Health Organisation gave in the immediacy of the outbreak, I'd just like to return to something that you've now confirmed in relation to all three of these coronaviruses, so SARS, MERS and what we now know as Covid-19.

You've referred to what I'm going to describe as a lack of candour or a lack of information, a lack of willingness to share information on behalf of some countries.

Why is that such a problem?
A. Well, when a country shares information about a disease, it often has economic repercussions.
Q. Yes.
A. For example, if a country says that they have cholera, then other countries may stop importing seafood from that country, tourists may stop going to that country, and so countries don't like to report. So in discussions at WHO it was understood that because there

is no international policing mechanism to force countries to report --
Q. Yes?
A. -- the way to do it was to change the norm, so that countries understood it was expected and respected to report. That's what the Director General of WHO did during the SARS outbreak in 2003.
Q. How did he do that?
A. She actually announced publicly, four months after the outbreak had begun, that China was not sharing information with WHO, and therefore WHO couldn't do a full risk assessment of what was going on.
Q. What happened? Did that have a repercussion or an effect?
A. That had an immediate effect, in that the vice premier, Madam Wu Yi, immediately travelled to Geneva, apologised to the Director-General, began to share information in China, was able to stop the outbreak very -- the outbreaks throughout China very rapidly.

So after that it's become understood that it's expected and respected, and most countries now continue to report, including China.
Q. What about MERS, was the same procedure adopted in relation to the concerns about a lack of information sharing there?

A. There was hesitancy of the government of Saudi Arabia to report at the start, and one of the doctors who had been treating the initial patient thought it was SARS Coronavirus 1, and he did a genetic sequence and put that sequence publicly, and fortunately it was in the public domain because that's how the UK knew that they had a case imported.

Q. Right.

More recently, then, with Covid-19, what concerns have been expressed internationally about a lack of information sharing from China in the early days?

A. Yes, there was concern about a lack of sharing of information. I don't want to take a position on that. WHO did receive information, did put it out to countries --

Q. Yes.

A. -- and countries in Asia took that information very rapidly and acted upon it.

Q. Right.

A. These were countries that had had SARS previously and they were very attuned to coronaviruses.

Q. All right. Well, we'll return in a moment to deal with those countries and what perhaps could have been learned by their experiences, and why they were able to react so quickly to --

A. Yes.

Q. -- Covid-19 when it started to spread.

But returning for a moment, please, to the initial outbreak, what reports and recommendations were provided internationally by the World Health Organisation about travel or travel restrictions?

A. Well, WHO recommended in its first emergency -- second emergency committee meeting after that, WHO took the recommendation of the emergency committee, which said that there should not be an interruption of travel and trade, especially for humanitarian purposes, if it was required to ship goods or other equipment to countries.

Q. Do you understand and concur with that advice?

A. In general, I do, yes. In fact, the best defence against the spread of international infections is good, strong national surveillance and detection mechanisms.

Q. Right, and what do you mean by that?

A. What I mean by that is that countries have surveillance systems which can detect unusual events very early --

Q. Yes.

A. -- whether it's reported from a community or reported from an emergency department or from the health system in general.

Q. And that, in your opinion, is a better -- the surveillance is a better method of controlling

an initial outbreak or reacting to an initial outbreak than travel restrictions?

A. Yes, because infections can travel asymptomatically in persons who don't develop signs and symptoms until they've crossed that international border.

Q. Yes.

A. So it's a false security to think that borders can stop infections.

Q. In later modules to this Inquiry we will look at the advice which was issued for preventing the infection spreading throughout the United Kingdom, but laying the groundwork now in terms of mask wearing, if I may, at paragraph 83 of your report you confirm that the World Health Organisation on 29 January of 2020 recommended wearing a medical mask alone during home care and in healthcare settings in the community, that that offered adequate protection against transmission if combined with hand hygiene and other infection prevention and control measures, but that a medical mask was not required for individuals without respiratory symptoms in a community setting, and that there was no evidence at that time on its usefulness to protect non-sick persons?

A. Yes, that was WHO's recommendations.

Q. Do you have any comment to make about that advice that was provided on 29 January?

A. That was solid advice to prevent transmission in care settings, and it was very important, and medical masks have been recommended -- were recommended for health workers.

Q. But it wasn't until much later, I think, in 2022, that the World Health Organisation unreservedly recommended mask wearing for the general public whenever there was a need to decrease community spread, but you would say, I presume, Professor, that by that time there was so much more evidence available?

A. That's right. And WHO doesn't like to make recommendations without an evidence base. They don't like to make precautionary recommendations, which are recommendations which would be modified as evidence comes in.

Q. So would you agree with a description that the initial advice, back in January of 2020, displays a hesitancy of the World Health Organisation in advising that mask wearing was appropriate? Or is it your evidence, Professor, that in fact that was solid, taking into account the very limited amount of evidence that was present at that time?

A. Yes, WHO has said that the reason they didn't recommend earlier is because they didn't have the evidence to make that recommendation.

Q. All right. And as you've just said, the evidence base is extremely important --
A. It's very important, yes.
Q. -- for the World Health Organisation?
A. But there can be precautionary measures that are made, recommendations that are made, which were not made by WHO at that time.
Q. Even taking into account that Covid-19 is a fairly recent disease, are you aware of case studies in China around the asymptomatic transmission of the virus?
A. There was a study early on about asymptomatic transmission in a household, but again the case definition was not clear what was being used and it was not really -- it was published and it was peer reviewed early on, but it wasn't really clear that this was an article to be followed. There were very few number of family members involved.

The evidence really came from Singapore, when they were able to look at seven different clusters of persons who were infected and were unable to link them to people who had clinical signs and symptoms.
Q. Right.
A. But people who they were able to link them to in context, some of them did later on develop signs and symptoms.

Q. All right. You've mentioned again there the case definition. Are you able to help us, Professor, with how the case definition of Covid-19 may have altered over time based upon the increasing evidence?
A. Yes. Early on the case definition in China, for example, was a case definition of a very serious illness which required hospitalisation.
Q. Yes.
A. So they only were finding those serious cases because that's what they were looking for, when other cases were likely occurring as well.
Q. Right.

Could I ask you to explain for us, please, the reproductive number.
LADY HALLETT: Before you do, can I just pause. The transcript is not running. Are there any problems?
MS BLACKWELL: I think mine is, my Lady.
LADY HALLETT: Maybe it's just me. I seem to have stopped rolling.

Sorry, forgive me, it was just me.
MS BLACKWELL: Not at all.

I was asking you, Professor, about the reproductive number. Can you explain what it is and how it relates to Covid-19, please.
A. The reproductive number is the number of people who become infected from a person who is able to transmit the virus or a bacterium.

Q. Right.
A. So if the reproductive number is 4, that means that one person can infect four other persons, provided there is no immunity among the persons to which that person is exposed.
Q. Yes, all right.

In relation to Covid-19, has the reproductive number dropped over the course of time?
A. Reproductive numbers drop as the number of people in a population become immune, either from vaccination or from disease. So the reproductive number has dropped in the UK, for example, it's now thought to be less than 1 --
Q. Yes.
A. -- which is what cannot sustain transmission.
Q. Could we display, please, paragraphs 99 to 101 of Professor Heymann's witness statement, his report, which is at INQ000195846_0021. Thank you.

I'm just going to read through this with you, Professor Heymann, dealing with the various symptoms of Covid-19.

"99. It is currently estimated that up to 33% of those infected in highly vaccinated populations do not develop recognisable signs and symptoms of infection after vaccination or on reinfection. Except for those with comorbidities, including obesity, the rest have a broad range of mild to severe signs and symptoms that can include a new and continuous cough, anosmia (loss of smell), ageusia (loss of taste), and a range of non-specific signs and symptoms including shortness of breath, fatigue, loss of appetite, myalgia (muscle ache), sore throat, headache, nasal congestion (stuffy nose), runny nose, diarrhoea, nausea and vomiting.)

"100. Decreased blood oxygen saturation is a hallmark of serious illness after infection with SARS-CoV-2 and complications including respiratory failure, acute respiratory distress syndrome (ARDS), sepsis and septic shock, thromboembolism, and/or multi-organ failure, including acute kidney injury and cardiac injury."

If we can just move up, please, to complete this at paragraph 101:

"Infections in the elderly, and in others from derived areas, and/or from certain non-white ethnic backgrounds have caused more serious illness and death. Underlying health conditions such as diabetes and chronic renal disease, as well as obesity likewise increase the risk of severe disease and death in

adults."

Now, that collection of symptoms and effects were not known about on the immediate transmission back in December of 2019, so does that picture build over the course of time as the transmission increases and we are able to see a variance in terms of the case definition, and does that expand?

A. Yes. This is called the natural history of infection.

Q. Right.

A. All the signs and symptoms that are associated at one point or another with infection. It does modify as more information is obtained and focus is not on persons who are seriously ill, but on persons who have a positive diagnosis but have less serious illness, and this often depends on being able to identify an infection by a laboratory test.

Q. Right. Why is it, Professor, that symptoms may be more severe for those who have comorbidities, in particular obesity?

A. In obesity it's thought that there is a physical component to that, where -- as it's very difficult for an obese person to breathe at times, especially when there is a pulmonary infection, making it very difficult to exchange oxygen.

Q. Right.

A. At the same time, persons who are obese have a greater risk of diabetes too, and diabetes decreases the immune response to infections, it's known that that occurs with bacterial infections and it also occurs with viral infections.

Q. Right, thank you very much. We can take that off the screen now.

Just before we break -- I'm conscious of the time, my Lady, and how long the stenographer has been working.

LADY HALLETT: I was wondering that. There have been some difficult words to transcribe.

MS BLACKWELL: Yes.

LADY HALLETT: Is that a convenient moment now?

MS BLACKWELL: Yes, it is.

LADY HALLETT: Very well, I think we will probably take a break. I will return at 11.20.

MS BLACKWELL: Thank you.

(11.06 am)

(A short break)

(11.20 am)

MS BLACKWELL: Thank you, my Lady.

We were talking about the facets of Covid-19 and the various aspects of it that are important and that perhaps set it apart from other viruses.

I'd like to turn to ask you, please, about the

incubation period. What do we know about that so far?

A. Well, the incubation period is the period, as we talked earlier, from the time of infection to the time of onset of signs and symptoms.

Q. Yes.

A. It's thought to be anywhere between two and 14 days, although it will become more precise as more analysis of information becomes available.

Q. All right. How does that compare to, for instance, the incubation period of influenza?

A. Influenza has a shorter incubation period, about one to three days or four days, so it's a much shorter incubation period, and therefore the virus can increase much more rapidly in infecting people than can one with a longer incubation period.

Q. Right. We've talked or touched upon herd immunity and you've explained to us what that is. Does the incubation period have any connection to herd immunity or how often -- sorry, how quickly, how rapidly a population can become immune to a disease?

A. Yes, in fact the more rapid -- the shorter the incubation period, the more rapidly the virus can spread --

Q. Yes.

A. -- and therefore cause an immune response in the people

who are infected.

Q. Thank you.

Moving on to deal with the current figures for deaths and cases from Covid-19, as of the end of May of this year, globally there were 767 million cases and close to 7 million deaths. Those are the official figures.

What is your opinion, Professor, about the danger of relying upon official figures and whether or not, in reality, those figures are likely to be considerably higher?

A. Well, when reporting figures, it depends on many different things. The reporting of cases by countries, confirmed cases, depends on their testing strategy.

Q. Right.

A. So some countries have a much higher testing rate than other countries. Some countries didn't bother doing testing at all. So the reporting of cases is usually based on confirmed cases, and that depends on the testing strategy. Other countries may report suspect cases; it may not be clear in those statistics who reported suspect cases, who reported confirmed cases, and, again, the confirmed cases depend on the laboratory strategy, so cases are not a good way of evaluating or at least comparing one country to another.

Deaths, however, are a much more solid figure, because deaths usually occur in a hospital setting in most countries, or many times do, and therefore it's a better indication if it's confirmed death of the number of cases that are occurring.

Q. But even in relation to numbers of deaths, is there a difference between how some countries interpret a death caused by Covid-19?

A. There is. In fact it depends on what's on that death certificate in many countries, and sometimes there are comorbidities which have become the cause of death, but they were the cause of death because of a Covid infection, yet it's reported as being a death from one of those comorbidities.

Q. So The Economist has recently calculated excess deaths globally as being in the region of 22 million, and that's a much higher figure, three-fold higher than the confirmed level of 7 million deaths globally.

A. Yes, and those excess deaths would also include deaths of people who could not obtain healthcare for routine problems during a pandemic or the epidemic, and therefore added higher rates of mortality, causing more excess death.

Q. Right, so excess deaths is not in itself an indication of deaths caused for certainty by Covid-19?

A. No, that's correct.

Q. All right.

I'd like to ask you now some questions about the level of preparedness of Asian countries for Covid-19, those who had experience of SARS and MERS in their recent history.

What effect do you think having a serious outbreak of those two previous coronaviruses had on countries such as Singapore, Japan, South Korea, Taiwan and Hong Kong?

A. I believe they had a profound effect on those countries. In fact I visited some of those countries during the period after SARS and before the current pandemic, and some of those countries had actually established isolation wards with hundreds of beds in their hospitals, ready for when there should be an outbreak such as this. So they were developing surge capacity in those countries at the same time as they were training their health workers in procedures such as contact tracing. So they appeared to be much better prepared, because of what they had learned from the SARS outbreaks back in 2003.

Q. So you have mentioned two things there, surge capacity within hospitals, training of health workers in contact tracing. Why was that second element so important?

A. That element was important because early in the outbreak countries such as Japan, for example, did not only contact tracing looking forward to see who was in contact with a person who was sick, but also looked backwards to try to find the source of infection, and when they found that, they then did what they called a precision lockdown: they locked down where the source of infection was. That's good basic epidemiology and outbreak control.

They did this in countries such as Singapore, in South Korea, in Japan, in Taiwan and other places as well.

Q. That was effective in controlling the spread?

A. It certainly appears it was effective, yes. In fact, they were able to stop outbreaks that -- there were major outbreaks in South Korea, there was a major outbreak around a church event, as there was in Singapore, and those outbreaks were completely contained and stopped, which permitted those countries to let the virus enter at a much lower rate because there were fewer people infected to infect community members.

Q. But to be effective, a precision lockdown has to take place very quickly after knowledge has been gained that the virus is spreading?

A. That's correct, yes.

Q. Before it gets out any further?

A. That's correct.

Q. All right. Those countries who had the ability, because of the training of their healthcare workers, to undergo contact tracing and then to set up a precision lockdown, were more successful in continuing(sic) the early spread of Covid-19?

A. It's my view that they were, and if you look at the results of that today, you will see that their mortality rates are much, much lower than mortality rates -- reported mortality rates in most European countries.

Q. All right. Let's take a look, please, at paragraphs 113 and 114 of your report.

(Pause)

113 and 114, please. Next page. Thank you. If we could highlight those two paragraphs, please.

So just to confirm what you have told us, Professor:

"113. Early in the Covid-19 pandemic, studies in Japan traced contacts of persons with Covid-19 forward for isolation and monitoring, and backward to the source of infection. They then shut down those areas where transmission was shown to be occurring, many times in nightclubs, gyms and other public spaces, until preventative measures could be reinforced at those sites.

"114. Such precision and short-term lockdowns demonstrated that unlike influenza, initial Covid-19 outbreaks could be contained and transmission interrupted. The same was true in Singapore and South Korea in early outbreaks that occurred in religious institutions and nightclubs [which is what you've just told us]. Many Asian countries continued to keep transmission at low levels before vaccines became available by outbreak investigation and precision lockdowns at the source, similar to those used in Japan. [So] As of 19 February 2023 Asian countries had reported fewer Covid-19 deaths per million in the population ..."

And you there give the figures:

"... (Japan 566, South Korea 680, Singapore 294; [which are to be] compared to Italy 3,150, USA 3,344 and the UK 3,038) [thereby] attesting to the effectiveness of their containment strategies, though other factors including the level of comorbidities and obesity may have also played a role."

Thank you very much.

So those figures speak for themselves, really, do they not?

A. Yes.

Q. You have described, when giving evidence before today, what is known as a surgical lockdown. Is that the same

as a precision lockdown, simply a different way of expressing the same?

A. That's correct.

Q. All right.

What is your opinion of the knowledge that the United Kingdom could and perhaps should have had of the effect that SARS and MERS had had in those Asian countries and how that knowledge could or should have been used in its pandemic planning?

A. In pandemic planning, the UK was very strong in influenza.

Q. Yes.

A. That was what their planning was mainly about. Because, in fact, that was on the top of their -- the risk register in the UK. So there was very much emphasis placed on influenza, and preparedness activities were going on.

As we'll talk about possibly later on, preparedness, though, doesn't just include strong public health, which is mainly the focus of many of their preparedness plans. It also includes a surge capacity, the resilience of a health system to be able to take care of patients who are infected, as well as patients who have routine health issues, and in addition healthy populations are better to resist serious illness after infection, and

health populations include those with fewer comorbidities.

Q. Right. So just taking us back for a moment to the evidence that you've just given about the preparedness of those Asian countries who had had a severe experience of SARS and MERS, is there anything about the lack of information sharing that you've also told us about that may have affected the United Kingdom having the ability to find out and understand the way in which those diseases had affected those countries?

A. I think the information was pretty well available, it wasn't available yet in peer reviewed publications, because it takes time to get those out, but it was being exchanged within WHO, within circles around the world, and I think most informal contacts of health systems in countries understood that this was quite a serious outbreak in Asia, especially after the Diamond cruise ship event, where a person from Hong Kong is thought to have infected passengers on a cruise ship.

Q. Right, so does the fact that the United Kingdom didn't have surge capacity, it didn't have hospitals with ventilators and beds awaiting a virus such as this, and didn't have a contact tracing system set up, indicate that we hadn't learnt from the previous experience of those Asian countries with SARS and MERS?

A. The UK had quite a good case -- contact tracing systems. In fact they're used at the local level regularly for outbreaks that occur. But they occur at the local level, where trust is very important, because if people are going to give information about their contacts, they're going to give it to people who they trust. So countries including the United Kingdom centralised more their contact tracing activities, and by so doing there was less of a trust in that contact tracing, and it may be that it was less effective.

So the lesson that I think we've all learned, and I think many of us knew before, is that contact tracing must be done where there's trust, and where you can interact with people. It can't be done digitally in an effective manner.

Q. All right. What about the lack of surge capacity?

A. The lack of surge capacity, after the influenza pandemic there was an increase in hospital respirators, as far as I understand, and there had been practice in activities related to influenza, but they were just not activities that were with the current pandemic, and I'm not sure whether or not -- I can't say whether or not they included what might happen if capacity in hospitals was overwhelmed, although the UK responded rapidly with its units that they did set up.

Q. All right.

Finally before we leave this topic, please could we display the report of Exercise Alice, which is at INQ000022732, please, and go to page 16.

Exercise Alice, as you will know, Professor, was an exercise, a tabletop exercise that was delivered on 15 February of 2016 involving the Department of Health as it then was, NHS England and Public Health England, and it was based around a large-scale outbreak of MERS, and dealt with two stages: first of all the initial actions of the local health organisations and, secondly, a position when the virus had spread to a wider number of cases.

What we can see here, at page 16 of the report, at appendix A, is the summary of lessons and actions identified. I'd like to highlight, please, if we could, number 5, action number 5. Thank you. We can see that recommended by those producing the report was a briefing paper to be produced on the South Korea outbreak of MERS, "with details on the cases and response", and to "consider the direct application to the UK including port of entry screening".

First of all, do you consider that that was an appropriate lesson to learn and action to raise?

A. Yes.

Q. Do you know, Professor Heymann, whether or not that briefing paper was ever prepared?

A. I do not know.

Q. All right. Thank you very much, we can put that away, please.

Predicting future pandemics. This is something that we touched upon yesterday in the evidence of Professor Whitworth and Dr Hammer, and they described to us the phenomenon known as Disease X and why it's important for countries to expect the unexpected or to look forwards and include in our pandemic planning a disease which is not yet known about, the details of which are not known about.

Do you agree with that?

A. Yes.

Q. Can you explain to us why you think it's important for that to be part of a country's pandemic planning?

A. If you look at a Disease X as being a respiratory infection or a respiratory disease, and look at the various outcomes of what might occur from that respiratory infection, then you can begin to prepare based on different scenarios. It's not just one scenario. As we talked earlier, it may be a respiratory virus that produces deep in the lungs, it may be one that produces superficially. But it's usually --

Disease X, in my view, is respiratory infection, but there are other means of disease spread, as you know.

Q. Yes.

A. It can spread by enteric infection, infections from food or water, and they can spread by vector-borne -- mosquitoes and other insects. So there are many different ways in which infections can be spread. But Disease X to me is that rapid spread of an infection, usually a respiratory infection.

Q. What Professor Whitworth told us yesterday was that, in his opinion, it's important to have a generic plan in place that can be adapted depending on the specific details of the disease that becomes a pandemic, that attacks us, if you like. Do you agree with that?

A. Yes, as long as it can be adapted based on the different characteristics of known -- what we know about viruses, where they reproduce, how rapidly they transmit, incubation periods and a whole series of other issues.

Q. Do you think that a pandemic on the scale and severity of Covid-19 could have been predicted?

A. I don't believe it could have been predicted precisely, no. I believe that there was concern about coronaviruses, that they could spread rapidly within populations. We had endemic coronaviruses. So I think there was concern about it, but an outbreak such as this

cannot be precisely predicted because you can't predict an outbreak based on only one thing, and that would be a virus; it has to be those risk factors that line up to cause the emergence and to cause the infection to spread.

Q. The Human Animal Infections and Risk Surveillance group known as HAIRS, tell us, please, Professor, what that group works on and the importance of the work that it does in terms of the animal kingdom, diseases there, zoonosis, and the prediction of what might be coming along the line.

A. The HAIRS group is a One Health group, and One Health means that the animal, human and environmental sectors are working together on risk assessment, risk analysis and risk management.

It's a very important mechanism within the UK, the UK was one of the first countries to develop such a mechanism, so it's very important, and in addition it includes the devolved administrations and it includes Ireland, the Republic of Ireland. So it's a very important way of looking, doing horizon scanning, looking -- what infections are occurring in animals and what their risk might be to human populations.

The HAIRS group meets -- it's the environmental sector, the government sector, the human health sector

and the environmental sector -- meets once a month, and they look at what's on the horizon, and they see whether or not that can be considered as a risk in the UK, and if the UK's not prepared they recommend guidelines, they recommend doing things to become better prepared.

So it's a very useful mechanism, and hopefully what it could do is shift the paradigm from rapid detection and response to prevention at the source, by knowing the source of where these infections might come from. It's a very important concept, because today most countries think: well, what we need is a rapid detection system, then we'll rapidly respond. What is needed is a One Health environment where hopefully, in the future, epidemics and pandemics can be prevented.

I can give an example.

Q. Yes, please.

A. In MERS coronavirus, we know that it's endemic in camels.

Q. Yes.

A. We know that humans get inspected sporadically from time to time from camels. The obvious solution to this is to develop a vaccine and use it in camels. As long as that prevents infection of camels and prevents nasal carriage of the virus, we can prevent future outbreaks of MERS coronavirus. That's why it's important to be looking at

both the animal and human sector and the environmental sector at the same time.

Q. So prevention at source, meaning the animal before the zoonosis occurs, before the disease jumps into humans, rather than the rapid detection and response once that has happened?

A. Both are important, but it's -- certainly the ideal is to shift the paradigm back to prevention at the source.

Q. Yes, thank you.

Let's then, please, move to your conclusions and recommendations. May we look first, please, at recommendation 1, which is at page 55 in your report.

Each of your recommendations is preceded by a conclusion, and in relation to recommendation 1 you have concluded that research needs to be cutting-edge, the UK needs to maintain its high vaccination rate.

And if we can go to the next paragraph, please, paragraph 262, we can see here your first recommendation is this:

"Funding for research should continue in order to answer questions related to the pandemic strategy adopted by the UK, including total population lockdowns, and the impact the strategy has had on sickness and death, and on surge capacity and resilience to continue routine healthcare. Funding should also be made

available for analysis of long-term outcomes including better understanding of long Covid and other sequelae, and for better understanding of the impact on pandemic control measures on mental health, on youth, and on industry and business in the travel sector. By joining the Horizon research programme of the EU, in which the UK was a leader in the past, increased funding would become available to supplement that provided nationally."

So that is what you are recommending in relation to continued funding?

A. That's correct. The UK in fact has contributed much, much information to the literature because of their excellent research capacity and because of the funding that was made available by UKRI on the rolling call for research that could be completed within a period of 12 months early on in the pandemic. In fact, I chaired the panel that reviewed those research proposals. They were excellent and they gave very important information.

Q. Thank you.

Can we move to paragraph 264, please, which is recommendation 2. Thank you.

Before this you have said in your second conclusion that the United Kingdom is one of the most respected donors of international activities to better prepare the

world for epidemics and pandemics. So your recommendation here is that:

"Funding should continue to be made available to national academic and technical experts so that they are able to support international activities that strengthen epidemic and pandemic preparedness and response activities, including support for funds at academic institutions and within government that permit replacement of skills nationally when UK experts are responding to overseas needs. Official development assistance (ODA) support should also continue to be provided both to public-private and other pandemic preparedness activities, as well as to international organisations that provide global guidance and support epidemic and pandemic prevention, preparedness and response capacity development. This should include continued active participation of the UK Government in negotiations around the revised International Health Regulations and the pandemic treaty, using its soft diplomatic power when needed."

Do you stand by that recommendation?

A. I stand by that recommendation.

Q. Thank you.

Moving to paragraph 266, please.

Recommendation 3, at 266, is to:

"Continue to make permanent cross-government interaction in activities that lead to stronger epidemic prevention, preparedness and response, and identify means of including the private sector in such activities by ensuring that conflict of interest -- whether perceived or real -- is understood and respected in decision-making."

If we could move to paragraph 268 and deal with these together, your fourth recommendation is:

"Cross-government working in a One Health mode [which you've described to us a moment ago] -- without ceding to the temptation to create a separate One Health Ministry or agency -- should be formalised and permanent. Cross-government work in a One Health mode for epidemic prevention, preparedness and response should continue, and include all economic sectors, both public and private, so that a shift can be made to prevention at the source. Such a shift might be partially accomplished, for example, by increased use of cost-effective vaccines in humans and animals, cleaner agriculture, and cross sector joint risk assessment, analysis and action."

Taking those two recommendations together, you are very much of the view, Professor, are you not, that not only should there be cross-government work but also what

you've described as One Health work within both the government and the public and the private sector, without being tempted to create a One Health Ministry or agency, because that would be effectively working in a silo and what you are promoting is working very much as a whole?

A. Yes, in fact during the pandemic I had the opportunity to see what many different companies in the UK were doing as their preventative measures to respond, and also with the airline industry, because they contacted me, having worked with them during the SARS epidemics in 2003, and it was clear that they had many innovations which might have been useful within the government, had the government included them in some of their discussions, and I think there was quite a high level of frustration that they had to work separately from the government because of this fear of a perceived conflict of interest.

Q. Yes.

A. So it's always there, that concern for conflict of interest and it's very important, but I think there are ways that lessons can be learned from the private sector, from others, that can be useful in government and vice versa.

Q. Joined-up thinking?

A. Joined-up thinking. Not only across government but across sectors.

Q. Thank you.

Finally, recommendation 5 at paragraph 270 -- you recognise in your fifth conclusion that:

"Some of the failures in epidemic and pandemic preparedness could have been prevented by focusing on preparedness activities that include, but are not limited to, the public health system."

You there mention again surge capacity within the NHS.

So your recommendation 5 is to:

"Increase [the] DHSC oversight of the partnership between the government agencies responsible for health improvement, medical management and health protection/public health with a focus on better epidemic and pandemic preparedness in the future."

A. Yes.

MS BLACKWELL: Thank you very much.

My Lady, please could you grant permission for Professor Heymann's report to be published?

LADY HALLETT: Certainly.

MS BLACKWELL: I'm just being given some instructions from behind.

LADY HALLETT: While you read those instructions ...

When you spoke about HAIRS -- we have a lot of these acronyms -- who established it? Is it a government-type organisation, is it a voluntary organisation amongst experts? How is it operated?

A. It's an organisation among experts, my Lady, and it was established by the Health Protection Agency back in the early 2000s as a means of bringing together technical people within the government and within the devolved administrations and the Republic of Ireland.

LADY HALLETT: Thank you.

MS BLACKWELL: My Lady, before I finish, I'm being invited to ask two follow-up questions on advice in relation to the wearing of masks, and I'm happy so to do with your permission.

Professor Heymann, can you explain why the experience of SARS and MERS, both being coronaviruses, may not have been sufficient evidence for the World Health Organisation to have advised at the beginning of the Covid-19 outbreak that mask wearing was a good precautionary element to take?

A. Well, it's very difficult to set up a study to determine the effectiveness of mask wearing, and there was great confusion in the general public, and in fact in some governments, about what mask wearing was for.

Wearing a mask was to prevent others from becoming

infected, unless that mask also included protective covering of the eyes. So mask wearing was a means of preventing transmission to others from a person who was infected.

It's very difficult to set up a study to evaluate that and collect evidence, because it's hard to know who's infected. So the evidence was not there and these outbreaks were relatively small, MERS coronavirus and SARS coronavirus, and there weren't studies that were set up to evaluate that.

In Asia, masks have been worn as a courtesy when people are infected for many, many years, and when a person has an upper respiratory infection many times they wear a mask to protect others. So it was much easier for them to implement activities of mask wearing because the population was accustomed to it.

Q. Would there have been any downside to the World Health Organisation as a precaution, once Covid-19 was beginning to spread, advising that masks should be worn?

A. There would have been one downside and that is the fact that medical masks were in very short supply, and if the general public were trying to get these masks as well as the health community, it might cause a very serious problem. So I know in the US, after an outbreak of a choir in March of 2020, they recommended cloth face

coverings to prevent transmission from a person infected to others. So there was concern, I believe, in many circles, including at WHO, that by making a recommendation to wear masks, this would compound the shortage which was occurring of medical masks.

MS BLACKWELL: Right, thank you very much. That's very clear.

My Lady, I have now finished. As my Lady knows, we have a procedure in place during which core participants are able to warn us of questions or areas of questions that they wish to ask, and I know that Allison Munroe King's Counsel, representing the Covid-19 Bereaved Families for Justice for today's purposes, wishes to ask one question based around a topic which we have been informed about.

So, my Lady, you have provisionally given an indication that you would provide your permission for that to be done. May that now be done?

LADY HALLETT: Thank you. Yes.

Ms Munroe.

MS MUNROE: Thank you very much, my Lady.

Questions from MS MUNROE KC

MS MUNROE: Thank you.

We're now at the afternoon -- oh, it's still morning, just. Good morning, Professor Heymann. My

name is Allison Monroe, and I represent the Bereaved Families for Justice UK.

Just one topic, and one question and one point of clarification arising out of that topic, which I'd like to ask you and seek your assistance on, please.

The topic is the issue of infectious disease strategy, and by way of a sort of point of clarification, in a general sense, when one thinks about or plans a strategy for infectious diseases, there would be a raft of different components, some more important than others, within such a strategy, wouldn't there?

A. Yes.

Q. This is not an exhaustive list at all, but, by way of example, some of those components would be things such as good public health, and a good public health system, clear consistent messaging, high levels of co-ordination, intra-governmentally and with the scientific community, with health communities, early alertness of infectious diseases, and a clear understanding of where transmission happens and an effective way of rapidly stopping that and shutting that down; would you agree?

A. Yes.

Q. Those are some of the more important components. Thank you.

Within that context, then, Professor, the question arises from something that is said by somebody that I think you're probably very well acquainted with, Professor Dame Jenny Harries, who will in due course be giving evidence to this Inquiry but has provided a written statement and a number of exhibits.

My Lady, I don't propose to take Professor Heymann to any particular documents, but, simply for the purposes of reference, the part of Dame Jenny Harries' documents that I wish to refer to are found at INQ000090317, and it's an exhibit, JH/M10009.

Now, she refers in that part of her statement, Professor, to a document, quite an old one, from 2002 called *Getting Ahead of the Curve*. You're nodding there. A document you're probably very familiar with?

A. **(Witness nods)**

Q. For those who are not, by way of a very, very abridged summary, it effectively was produced by the then Chief Medical Officer, Sir Liam Donaldson, and it recognised that the country faced a number of public health challenges, including infectious diseases, and it looked at ways of dealing with that, and it recognised the need to bring together skills and expertise of a number of separate organisations to work in a co-ordinated way.

Going back, then, to the question that is posed,

Dame Jenny Harries says this in her statement -- it's at paragraph 106, for reference, my Lady:

"In 2018, on a UK national level, Public Health England identified that there had been a gap in national strategy across governments focusing on infectious diseases, and this gap had been apparent since 2002 and the *Getting Ahead of the Curve* document. Having recognised this gap, work was then started in 2018 to address that issue of a strategy for infectious diseases, and it was published in the autumn of 2019, identifying ten different strategies including a strategy for infectious diseases."

Now, I appreciate, Professor Heymann, that you're not a person who makes policy decisions or policies, but are you able to assist us at all in terms of why there was that gap of a period of some 17 years, 16 years, where there was no detailed infectious disease strategy?

A. I really can't answer that question. It's my understanding that there were several plans on infectious disease prevention and control which were developed. I don't know what she's referring to that was the gap. I don't know -- I would need to see what documents were prepared, and I can't answer your question, I'm sorry.

MS MUNROE: I'm very grateful.

My Lady, that's the question on that.

LADY HALLETT: Thank you very much, Ms Munroe.

Right. Now, I think one of the next witnesses is attending via videolink.

MS BLACKWELL: Yes, we need to rise very briefly, please, my Lady.

LADY HALLETT: Thank you very much indeed, Professor Heymann. Not only were you very helpful, but you were very clear too. So thank you.

PROFESSOR HEYMANN: Thank you very much.

(The witness withdrew)

LADY HALLETT: Let me know when you're ready.

MS BLACKWELL: Thank you.

(12.04 pm)

(A short break)

(12.10 pm)

LADY HALLETT: Mr Keith.

MR KEITH: My Lady, may I please call Professor David Alexander and Bruce Mann. Professor Alexander is joining us from abroad by videolink.

LADY HALLETT: Professor Alexander, I understand you have recently undergone a bereavement, I'm very sorry.

PROFESSOR ALEXANDER: Thank you very much. I also had cardiac problems, so I do apologise most profusely for

not being present in person.

LADY HALLETT: Totally understand, thank you very much.

MR KEITH: Could they therefore be sworn, Professor Alexander obviously remotely.

PROFESSOR DAVID ALEXANDER (affirmed)

and

MR BRUCE MANN (sworn)

Questions from LEAD COUNSEL TO THE INQUIRY

MR KEITH: Gentlemen, could I commence by asking you both to ensure that you keep your voices up. It's going to be a little difficult at times, Professor Alexander, to hear you, so it's important that you do keep your voice up.

If you're asked anything about which you are not clear, please ask for the question to be put again. There will be a break at lunchtime, lunchtime our time, and there will be a break during the course of the afternoon as we proceed through your evidence.

Thank you very much indeed for your joint expert report, weighing in, I'm proud to say, at a hefty 321 pages.

Could we have that, please, on the screen. It is INQ000203349.

My Lady, may we have your permission to have that report published?

LADY HALLETT: You have.

MR KEITH: At page 2 of the report, we see something in short order of your professional qualifications.

Professor Alexander, commencing with you, please, first, are you professor of Risk and Disaster Reduction at University College, London, from 1982 until 2002? Did you teach in the fields of geomorphology, physical geography, natural hazard and disaster studies at the University of Massachusetts in the United States of America? Were you also Scientific Director of the Advanced School of Civil Protection of the regional government of Lombardy, and also professor at the University of Florence?

PROFESSOR ALEXANDER: That is correct.

MR KEITH: You have published the book *Natural Disasters*. It was published in London and New York in 1983, it's been subsequently reprinted, and you have published a number of subsequent books and articles, including *How to Write an Emergency Plan*.

PROFESSOR ALEXANDER: That's correct.

MR KEITH: Were you or are you still vice president and chairman of the Trustees of the Institute of Civil Protection and Emergency Management?

PROFESSOR ALEXANDER: I am.

MR KEITH: Mr Mann, turning to you, from 1979 to 2016 were

you a member of the United Kingdom Civil Service, serving in the Ministry of Defence and the Cabinet Office?

MR MANN: That is correct.

MR KEITH: Your MoD roles included being head of the Nuclear Accident Response Organisation, director of defence policy, and MoD roles in the Falklands, Gulf and Kosovo conflicts.

Most relevantly for our purposes, did your Cabinet Office experience including serving in the Cabinet secretariat dealing with terrorism and Cold War planning, then subsequently being director of the Civil Contingencies Secretariat from 2004 to 2009?

MR MANN: That is correct.

MR KEITH: Were you also the leader of the independent review of the Civil Contingencies Act and its supporting arrangements, 2022?

MR MANN: I was.

MR KEITH: Itself also a weighty tome.

Do you and have you both confirmed that the report which you have very kindly provided for us is the product of your own work, that the facts stated in it are within your own knowledge, and you understand your duty to provide independent evidence and expertise?

MR MANN: Yes.

PROFESSOR ALEXANDER: Yes.

MR KEITH: Thank you.

Now, it's probably convenient to start by considering very briefly the scope of your report.

Could we please have up page 201.

There we are, "Annex A: Scope of this Report". You have set out there the matters that you were asked to address by this Inquiry, and in very broad terms were you asked to consider the overall approach to risk and emergency management and a number of issues relating to that broad topic, pandemic preparedness, in particular whether there were in place suitable arrangements for identifying and assessing the risk of a non-influenza pandemic such as a coronavirus pandemic, whether or not there was an effective approach to building whole-system preparedness, the extent to which lessons had been learnt from other countries, about which we have just heard Professor Heymann give evidence, and whether, again, in particular, overall pandemic preparedness and resilience arrangements properly highlighted in the United Kingdom and prepared for the cascading consequences of a pandemic.

So in truth, a very wide scope indeed.

Could you please have up on the screen page 9. You commence your report by setting out, as we've just seen,

the matters which you were asked to address, and, at page 9, the sections into which you've divided your response. The way that you've done it is this: you have set out in section 2 the strategic approach adopted by successive UK governments. You addressed in section 3 the key preparedness structures. Sections 4, 5, 6, over the page, were the key preparedness structures and the supporting arrangements adequate? And then most importantly, perhaps, for the purposes of today, latterly in your report you address the broad area of pandemic preparedness. Before bringing all that together and providing a very long list of conclusions and recommendations.

Is that right, Mr Mann?

MR MANN: It is.

MR KEITH: In the first part of your report, we don't need, I think, to get it up on the screen, you make this point:

"More reports, on generic or pandemic preparedness are published every week."

There are hundreds of recommendations made.

"But we are conscious the Inquiry has set itself the goal of reporting quickly ..."

One of the reasons why that is a desirable aim, Mr Mann, is that lessons may be learned as soon as

practicable.

What is the position of the United Kingdom Government? What is its judgment in relation to potential future frequency of infectious disease outbreaks?

MR MANN: I think there are two key points from documents published by the government. I wouldn't say that they address the question of frequency. I think the two key points are as follows, and I'll quote from those documents.

First, that:

"Infectious disease outbreaks are likely to be more frequent [by] 2030."

And, second, that:

"Another novel pandemic remains a realistic possibility."

That is in the so-called Integrated Review of defence, security and resilience that was published in 2021.

MR KEITH: So at a very broad and provisional and necessarily introductory approach, is it generally well recognised, then, that there is now a greater, an even greater need to enquire into these issues, to report and to learn lessons in the field of disease outbreaks?

MR MANN: I hope that it is recognised. I recognise these

statements here, but clearly they need to be followed through into action.

PROFESSOR ALEXANDER: If I might add here, I'm slightly surprised that the government said that another novel pandemic remains a realistic possibility. I would have thought a better way of describing it is as an inevitability, given that if we look at history, pandemics have been recurrent throughout recorded human history.

MR KEITH: A great deal, a large part of your report, Professor Alexander and Mr Mann, sets out very detailed, quite prescriptive views on aspects of the United Kingdom system for preparedness, resilience and response.

At the beginning of your report, therefore, you've set out some of the features of the way in which you have gone about trying to identify the most important points, and you've set out some generic points about the way in which you've approached your exercise and how my Lady and this Inquiry should go about considering the general field of preparedness in the context of our emergency, civil emergency procedures.

So may I turn to just trying to highlight some of the general points that you've made in your report.

The first point you make, and it's at page 12,

paragraphs 12 and 13 of your report, is that you say that it's very important to note and to acknowledge that on account of the planning -- undoubtedly necessary and worthwhile planning -- that was done for the potential no-deal exit from the European Union, the inevitable consequence of the devotion of time and energy to no-deal planning had an impact on the United Kingdom's procedures and systems for general civil emergency preparedness; is that right?

MR MANN: Yes, that is right.

PROFESSOR ALEXANDER: Yes.

MR KEITH: Is that a political point that you seek to make, or is it simply a statement of fact that, in preparing for one thing, which was a necessary aim in itself, that preparation had to be done, there was inevitably going to be consequences on other areas from which government resources, time and effort were then going to be diverted?

MR MANN: No, let me be clear, it is not a political point, it is an administrative point. Yes, of course there was an absolute need to prepare for exit from the European Union. The point that we seek to make is that, as well as preparing for, if it came to it, a no-deal exit, there should have been capacity made available to continue to pursue preparedness planning in other

fields.

MR KEITH: Is the position of the United Kingdom Government that, in fact, important work was done in the course of preparing for the no-deal exit, for example in relation to the reinforcement of preparatory relationships and links between various entities, in relation to solidifying and better preparing supply chains, in relation to the training of civil servants, because of course they would have to be trained for the purposes of insuring for all the worst aspects that could come from an unintended no-deal exit in terms of our preparedness structures, and therefore there were undoubtedly benefits which accrued as a result of the attention to that particular course?

MR MANN: Yes, I recognise those benefits in exactly the two ways you describe, which appear in the witness statements which we read, on supply chains and on the ability -- the improvement in the capability to manage major emergencies, crises.

MR KEITH: But at page 11 do you nevertheless identify that important work in the field of civil emergency, including work on healthcare provision, adult social care, resilience in critical sectors, planning for the use of the police and military, the design of the central response structures, refreshing the 2011

Pandemic Preparedness Strategy and refreshing the UK Pandemic Influenza Communications Strategy was affected to some degree or another?

MR MANN: Yes.

PROFESSOR ALEXANDER: Agreed.

MR KEITH: That deals with, in a very general sense, the United Kingdom Government. Were there consequences also in relation to specifically Wales, Scotland and Northern Ireland?

MR MANN: Yes, I think the witness statements bring the consequences in each administration, bring those out very clearly.

MR KEITH: Page 12, please. So in relation to Wales.

MR MANN: So in relation to Wales, in the same way as, in my view, important aspects of public-facing preparedness, as opposed to Whitehall-facing preparedness, important aspects of public-facing preparedness had to be paused.

There were benefits in Northern Ireland, and the witness statements make that very clear. Those are, again, focused on -- although it is important, they are focused on the inward-facing -- within the administration -- capabilities.

MR KEITH: In relation to Scotland, which I think is over the page, was there an impact insofar as the biennial, every two years -- this is, every two years, the

biennial report to Scottish Ministers providing an overview of the resilience of essential services and critical infrastructure -- were not published?

MR MANN: Yes, this is the third aspect of -- there were, in this analysis we broke the impact down into three areas. The first is preparedness within an administration. The second is the assurance which ministers and senior officials could take on preparedness, this paragraph covers exactly that. And then the public facing activity preparing for the inevitable consequences of a severe pandemic.

PROFESSOR ALEXANDER: If I may add, in the witness statements there is a clear thread of a common feeling that there were areas in which responsibilities were not adequately clarified between central government and between the devolved administrations.

MR KEITH: Professor Alexander, when you say "in the witness statements", are you in fact referring to witness statements which had been obtained by the Inquiry from United Kingdom Government civil servants and employees?

PROFESSOR ALEXANDER: I'm specifically referring to exactly those, but from members of the devolved administrations, Scotland, Wales and Northern Ireland.

LADY HALLETT: Just before you go on.

Mr Mann, can you just expand a little on what you

meant by Whitehall-facing and public-facing?

MR MANN: By Whitehall-facing I mean the preparedness within the government department or series of government departments. So more trained staff, better facilities and so on, is all excellent, but it doesn't address the fact that preparedness for -- plans and preparedness for issues that would affect the public, who would be affected by a major emergency, were paused.

LADY HALLETT: Thank you.

MR KEITH: In relation to Northern Ireland, you say at the top of that page, page 13:

"By contrast, for the Northern Ireland Executive, EU Exit planning was broadly beneficial in building generic resilience and preparedness. Although some matters were paused for other reasons ... the assessment of the official most closely involved was that EU Exit planning meant that Northern Ireland was in a better position to manage the demands of major emergencies ..."

Is that in fact a reference to evidence obtained by the Inquiry from the Permanent Secretary to the Executive Office in Northern Ireland, who provides a corporate statement which sets out the Executive Office's view of the impact of the diversion of resources and attention to EU exit but concluded that broadly that planning was beneficial as far as

Northern Ireland was concerned?

MR MANN: In exactly the same space. This is within the Executive.

MR KEITH: You refer on the following page to the overall judgment of a gentleman called Sir David Sterling who I think was the head of the Northern Irish civil service between 2017 and 2020. He says at paragraph 16 of your report, because you've cited a segment of his evidence:

"... three challenges of persistent political instability, resource pressures and Brexit were significant issues in their own right. Together, they combined to create a complex and difficult context and significant resource pressures ..."

So in relation to Northern Ireland having reviewed the material from the Northern Irish Executive Office, as well as other civil servants in Northern Ireland, have you noted that whilst the attention paid to a no-deal exit had some beneficial impact, the position in Northern Ireland was a different one because of the issue concerning the collapse in the power sharing agreement and what Sir David calls political instability?

MR MANN: Yes. We tried to describe, I suspect, on the basis of relatively limited evidence, the three issues which faced Northern Ireland. We tried to bring out one

key judgment, which is that in March 2020, on the basis of the administrative issues inside Northern Ireland, a number of new and experienced staff had to be brought in at the very beginning of the response to the pandemic.

MR KEITH: All right, thank you very much.

That is the first point that I wanted to draw your attention to in a wide and generic way.

The second point that you make in your report, in a general sense, is the need to look to the future. When asked to prepare recommendations and improvements in the way that you have, is it necessary to try to form a view or to try to look as far into the future as you can, so that whatever you recommend -- if my Lady adopts those recommendations and builds on them for herself -- that those recommendations will stand the test of time and will have as long-term an impact as possible?

MR MANN: Yes.

MR KEITH: Just in a very general sense, perhaps Professor Alexander, where do we stand in the general scheme of things in terms of the United Kingdom's preparedness structures? When were they last subject to radical review?

PROFESSOR ALEXANDER: I suppose, really, that the last very significant change was the construction and the passing

of the Civil Contingencies Act in 2004, which removed the need to depend upon thoroughly outdated legislation from the Cold War and the Civil Defence period. That at least established statutory duties, not merely among government, but among the providers of essential services. In my view, it didn't go far enough, but I think that is also the view of the independent review of the Civil Contingencies Act. But we also have the fact that the Civil Contingencies Act, good or bad as it might be, was essentially thrown out of the window during Covid. In other words, it was essentially replaced by the Coronavirus Act, which, although it was drafted in 2017, was essentially passed very quickly with little debate once the pandemic had started.

MR KEITH: All right. Well, we'll return to the question of the pandemic draft Bill and the Coronavirus Act in due course.

When, as you say, the Civil Contingencies Act was passed in 2004, had the passage of that Bill and its coming into force come after a time when the government had been dealing with matters such as widespread flooding, I think foot-and-mouth, there had been fuel protests in the years or at least at some point in the two or three years before the Act; was that primary legislative structure and the duties which were

associated with it and the guidance and so on, to what extent were they informed by the political events that had taken place in the United Kingdom in the run-up to 2004?

PROFESSOR ALEXANDER: I think they very much were. And if you look at the world scale, you tend to find that about three-quarters of legislation on disasters and how to cope with them follows the event. Now, that may well be because disaster events are very common, worldwide we have about 700 a year, but nevertheless it is extremely common for a major event, a major civil contingency, to be the stimulus for a reappraisal leading to the passage of legislation to improve safety.

MR KEITH: Has there been a significant change, Mr Mann, in the -- what you would describe as the risk drivers which currently bear on the United Kingdom, in terms of the risks that the country faces, its future? Has the need to have a proper and effective system in place changed on account of changes in those risk drivers?

MR MANN: Yes, I think there are two points here. First, the Act and the legislation -- sorry, the Act and its supporting arrangements were taken through actually before the availability of the first national risk assessment, and there was a realisation -- and this was in my time in post -- there was a realisation with the

national risk assessment, a progressive realisation that some of those risks were national, indeed international, in scale, and the arrangements we had in place started with -- indeed, the Act has on the face of the Act "Local Arrangements".

That's the first point.

The second point, as we have developed as a society, technologically, not only within the UK but also internationally, over the course of the last 20 years, those fundamental drivers -- you have heard some evidence on this -- in terms of urbanisation, population concentration, the speed and frequency with which people travel, technological developments and so on, means that the position now is, in my view, fundamentally different to that in 2004.

MR KEITH: So the risks that you've described appear to be more uncertain, they are of perhaps greater complexity, greater frequency. Is there also a greater risk now of what you describe as cascading events, that is to say the coming together of different risks simultaneously to create an even more complex emergency, or of an emergency developing in unexpected ways so that other areas are then open to crisis?

MR MANN: Yes, Professor Alexander has written the book on this, so I'll turn to him.

MR KEITH: Professor, perhaps we'll hear from you on that.

PROFESSOR ALEXANDER: Thank you. I have a research group on cascading disasters and we would argue that all major civil contingencies and many minor ones are cascading events by their very nature, because we live in networked societies which require us to interact in certain ways that can be easily disrupted by such impacts. So we're not only dealing with cascading events where you have, to begin with, the toppling dominoes metaphor, where one impact leads to another, we also have escalation points in that, where the interaction of different kinds of vulnerability can cause a worse secondary impact to the one that started off the whole process, on certain occasions.

But apart from all of that, we have the possibility of concurrent events. Although this is not directly relevant to the UK, during Covid there were three major earthquakes around the world. They required a very different way of dealing with the event to that required for dealing with an infectious disease, and yet it had to take place simultaneously.

I think the UK in this was lucky, quite simply lucky, that it didn't have, for example, major flooding or something like that during Covid, because there could easily have been large natural hazard impact or

something else that would have even further complicated the response required.

MR KEITH: Thank you.

The third general point that you make in your introduction is that future improvements and changes, significant changes to the structural system for emergency preparedness, response and resilience, must reflect better than perhaps they have in the past societal and public expectation.

What did you mean by that?

MR MANN: I meant that there is a range of societal factors, we list them in the report, which any preparedness structure, any law, any arrangements have got to take into account. They are built to protect people, they are built in the name of the people, and they've got to be embedded. It's not just about processes and law and structures and so on; this has got to have a human face to it. We've identified five in the report, of which, in our view, the most fundamental is competence. I'm happy to go through the others if you wish.

MR KEITH: Well, we'll get to the conclusions in due course. You've separated out your conclusions by reference to these -- to some of these generic points.

PROFESSOR ALEXANDER: May I add --

MR KEITH: Please.

PROFESSOR ALEXANDER: -- that I think the UK is very good at foresight. In 2011 to 2012 there was a major foresight programme regarding civil contingencies, and there is now another, and it is turning up some very interesting pictures of what the country is now facing and will probably be facing over the next 50 years.

The question, however, remains the extent to which the results of such exercises are taken into account in the arrangements for dealing with events, and that is a very different matter.

MR KEITH: So are you saying, then, Professor, that whilst, as a country and on the part of its various institutions, there is good thinking going on in relation to the possibility of future risks and what they may consist of and what challenges we as a country will face, the trick is to ensure that what arrangements are put into place to give effect to that foresight reflect public trust, reflect public confidence, ensure that we as a country have faith in those arrangements and therefore are more likely to comply with them and to follow them? Is that the issue?

PROFESSOR ALEXANDER: Yes, indeed. I think the bottom line of all of this is: do you think that the British Government, within the limits of its competency, keeps the public safe? I fear my answer to that is no

or not sufficiently.

MR KEITH: Currently?

PROFESSOR ALEXANDER: We have a very quick illustration of this. We have these foresight programmes that have indicated what the hazards are, but we also have scenario-building exercises in government, namely the National Risk Register and the National Security Risk Assessment, which have very short time horizons, and yet we know very well that many of the contingencies we face are going to change and grow in the short term, the medium and the long term. And they will require adaptation to them.

MR KEITH: May we take it from what you've said, Professor, that that's your view of the current position, that currently the structures that we have in place do not keep us safe or do not keep us as safe as you would wish and everybody would sensibly wish us to be? Is that your view?

PROFESSOR ALEXANDER: That is indeed true. We are, of course, all responsible for our own safety, but government, of course, has an essential, fundamental and central role in providing safety to its population, and I think it could do more and better in that.

MR KEITH: All right. Well, we'll return, of course, to some of the aspects to which you've made reference, in

particular the National Security Risk Assessment, in due course.

The fourth general point that you raise and to which you refer is devolution. This is an important point because, of course, this is a United Kingdom Inquiry and it is enquiring, of course, not just into arrangements in Westminster, the United Kingdom arrangements, but into the affairs of England, Scotland, Wales and Northern Ireland.

In a general sense, who or which structures bear the primary responsibility for dealing with resilience, dealing with preparedness -- that is to say being in a position to respond -- and resilience, having the ability or capacity to be able to respond well?

MR MANN: I'm sorry if I appear to be avoiding the question. It has to be a shared responsibility. But technically, and in law, civil contingencies is devolved in Scotland and Wales. There are particular arrangements affecting Northern Ireland.

MR KEITH: So does it follow -- Professor, please, yes?

PROFESSOR ALEXANDER: Yes, thank you. I agree entirely with what Mr Mann says. However, I think if you look around the world, you would see that the management of civil contingencies only works if it is done at the local level, because that is invariably, no matter what the

size of the event, the theatre of operations. Therefore the quality of local organisation is absolutely paramount. It is, however, dependent on the quality of support given by higher levels of government.

One of the problems we have in Britain is that if we leave aside the question of the devolved administrations, we don't have an intermediate tier to manage this, and at the same time it is very hard to manage local endeavours from Westminster.

Thank you.

MR KEITH: Does it follow, therefore, from what you've both said, that proper and sensible recommendations must take into account the need to bring about improvements not just in the national structures but obviously the devolved structures and local structures, because all play their part in the overall system of preparedness and resilience?

MR MANN: Yes, it does. I fear that we are tacking back to your spaghetti diagram eventually, but yes, there are a wide range of organisations involved in preparedness and response. That means there is a wide range of interfaces between those organisations, and all of that has to fit together smoothly.

MR KEITH: The fifth point concerns the difference between resilience and preparedness.

LADY HALLETT: Before you go on to that, Mr Keith. I think I'm being encouraged --

MR KEITH: Ah, yes, may I say I think that's an excellent time to pause.

LADY HALLETT: Forgive me, Professor Alexander, I hope you have arrangements where you can get some lunch, Mr Mann, thank you both very much. See you at 1.45, please.

(12.47 pm)

(The short adjournment)

(1.45 pm)

LADY HALLETT: Yes, Mr Keith.

MR KEITH: In your report, Mr Mann, Professor Alexander, you refer repeatedly to the concept of preparedness and also to the concept of resilience, and we've all referred to those two words repeatedly already.

Preparedness appears to be about being ready: identifying a risk, the risk of an event occurring, and then preparing to deal with it, so doing something about it. And resilience appears to us to relate to capacity and concerns the ability to resist, absorb or adapt to an event.

To what extent can improvements to the structures for civil emergency better prepare us, as opposed to better enable us to be resilient? So, putting it another way, to what extent can any recommendation or

any inquiry improve our resilience? Is that something which is capable of being reported on, commented on, being made the subject of improvement?

MR MANN: Yes. I think in three areas.

First, on preventative activity, not only before an emergency arises, and you heard from Professor Heymann this morning, but secondly, at the onset of an emergency, to seek to slow spread, to give people time to prepare. That's the first area.

The second area is to recognise the need for whole-system preparedness.

The third area is the need, and I'm sorry to use jargon, to recognise the need for whole of society preparedness. That's not just public sector entities, that is the voluntary and community sector, the business sector, communities, individuals and their families.

PROFESSOR ALEXANDER: If I might add here, there is a question of lessons learned, which is a phrase that is often exercised. The measure of a lesson learned is in fact in measurable positive change. There are most definitely lessons to be learned from Covid-19, as there are from previous events.

But one small illustration of this situation is that one of the lessons of the 2005 bombs in London was the need for greater co-ordination between the emergency

services, particularly in the declaration of major incident that moves them from normal activity into fully emergency related activity. That had not happened then.

12 years later, in the Manchester Arena bombing, there was exactly the same problem, which implied that in the 12 years that intervened, that particular lesson, which is extremely important in terms of saving lives, had not been learned.

MR KEITH: Does it follow from what you both said that the distinction, for our purposes, between preparedness and resilience, may therefore matter little, because what matters is ensuring that the country puts itself in as best a position as possible in order to prevent civil emergency, to respond to civil emergency and to recover from civil emergency, and to do so in a way which engages the whole system and the whole of society? So notions of resilience and debate about how wealthy and healthy a country we are and how well we can adapt to an emergency perhaps doesn't take us very much further forward?

MR MANN: I think if you're looking at risk before an emergency happens, I think there are a variety of ways in which you can tackle risk -- we set them out on figure 1 and figure 2 -- which is: identify it in the first place, seek to avoid it or minimise its

consequences, prepare for it, respond to it. Each of those is a separate and distinct activity, although there are some overlaps, but they all need to be addressed for a country to be resilient. That's the proposition that we've got in section 2 of our report.

MR KEITH: So is resilience just an omnibus word, then, or an aspect, if you like, of general preparedness?

MR MANN: Preparedness is one aspect of resilience but there are many others which need to be addressed.

MR KEITH: All right.

PROFESSOR ALEXANDER: Resilience is a concept that actually has a history that goes back about 2,080 years to the first known sources of it. It is a rather difficult concept because it has been used in at least 200 different ways in modern times, which can easily confuse matters. But to me it is a mixture of adaptation and resistance to adverse events. This very definitely includes preparedness and planning. Therefore, both preparedness and resilience involve foresight, because it is necessary as far as possible to anticipate the events that are likely to occur, where these can be foreseen. Obviously not everything can be, but very much indeed can be. You may be familiar with the concept of the "black swan", as enunciated by Nicholas Taleb by his book of that name. It is worth

remembering that it is a concept that is quite controversial, in other words it applies in economics, which is a rather distinctive discipline. The idea is that Europeans went to Australia believing all swans were white and then encountered black swans. In other words, that we are likely to be faced, by analogy, with events that are completely unforeseeable and therefore unforeseen. That, I think, is not the case in terms of civil contingencies; just about everything has precedence, even though the exact mix and the exact composition of the event cannot be precisely predicted. But it does mean that planning is absolutely fundamental and central.

MR KEITH: Thank you. That's very clear.

The next area I wanted to touch upon with you, please, is the distinction between structures and policy and operational response. Very little of your report addresses the detail of how, for example, services and help are actually provided by way of education or the responses of the emergency services or the actual provision of healthcare in hospitals or of social care in care homes.

Is that because, when looking at a system of preparedness and looking to see where it can be improved, it's necessary to focus on the structures and

on the general policies rather than on the specifics of operational responses?

MR MANN: No, I'd come at it another way. The focus should be on the outcome: what are you seeking to do to reduce harm and loss, at all stages that we've described in the cycle. From there you can work back to how best you bring the organisations that are needed to reduce harm and loss together -- and that means structures, but it means a lot else -- into a partnership to reduce harm and loss. And of course policies and practices are part of that mix.

MR KEITH: I think we may be at cross-purposes. Does your report seek to provide the detail of how operationally responders -- and that may include emergency services, the NHS, educational facilities and care homes and so on -- should actually be responding day in, day out, to an emergency?

MR MANN: No.

MR KEITH: Right.

MR MANN: No. Our aim, as we say right at the beginning, is to address the strategic issues on the basis that other modules will address the more operational issues.

MR KEITH: Thank you.

The next area concerns risk, and you've touched upon this already. Are you agreed that not all major risks

to a country can be identified in advance, and of course not all specific major or catastrophic events can be planned for, and is it as a result of that that -- as you say -- no country can prepare for the specifics of whatever emergency may ensue, the need is to identify in broad terms the risks and to be able to plan for those broad risks in a way that is sufficiently flexible so that you can therefore respond properly to whatever emergency ensues?

MR MANN: Not quite. I agree with Professor Alexander that actually most risks can be foreseen in some shape or form.

MR KEITH: Ah.

MR MANN: But it is inevitable -- two things are inevitable. First, human beings being fallible, that not all risks will have been identified. We have been surprised in the UK on a number of occasions.

Second, the risk will not turn out the way in which you thought it might turn out.

At that stage, then, you rely on the planning that has been done for the risks that have been identified, and on generic preparedness, in other words planning for all risks in the way in which you've described.

Secondly, however, I would say best practice is that for the most significant risks, the risks with the

highest likelihood and the highest impact, there should be dedicated specific emergency planning for those risks.

MR KEITH: The -- Professor, before I turn to you, can I ask a follow-up question, please, of Mr Mann, so that we can understand the parameters of this debate.

You used the words "in some shape or form". The current system of preparedness in the United Kingdom rests on the premise that, in broad terms, categories of risk are identified, not the specific risk which might eventuate. A broad category of risk of, I don't know, flooding or pandemic influenza or a new and emerging disease. Those risks are then assessed in terms of likelihood and impact, and assumptions are made as to the consequences, planning assumption is made, and then those assumptions are disseminated so that everyone knows what they're planning for, what they have to deal with, and, in particular, what the reasonable worst-case scenario might be.

So the starting point is, as you say, not every single specific risk is identified in its detail. So for both of you, would you agree that it is not possible -- perhaps you may say it is possible, but we understand you not to say so -- that every single specific risk, with its particular detail, can be

identified in advance?

MR MANN: I think the distinction between us is I believe that those risks can be identified in advance, the question is what is taken into planning. So it is -- there are thousands of risks confronting the UK. You cannot plan for thousands of risks.

MR KEITH: Indeed.

MR MANN: So you need to group them together, where that is sensible to do so. Flooding is an example. You cannot predict where the flooding will be, how severe the flooding will be. What you can do is build something which says: if there is flooding, this is the plan we will put into place, these are capabilities we will deploy.

So I think there is a distinction between us on identifying the risks in the first place, because if you don't do that you will get caught out.

MR KEITH: I think we may be at cross-purposes.

Professor, what do you have to say to that proposition?

PROFESSOR ALEXANDER: I think one of the key issues is building scenarios. There is a website from a European project that was managed by the University of Manchester -- and the website is still active though the project is finished -- which includes 1,500 risks that

Europe and, in particular, the UK faces in terms of a brief description of possible scenarios and a description of so-called weak signals which are indications that that particular risk might be coming to the fore. Now, whether or not that helps us is a moot point, but let's also remember that the National Security Risk Assessment and the National Risk Register, its public face, both include scenarios. I think, however, there are severe or serious significant weaknesses in both documents methodologically speaking. The key one, perhaps, is that the scenarios don't connect directly to the plans, they are advisory for those who are making plans. But I am used, instead, to a situation in which the scenario is part of the plan, the plan responds to the scenario and the scenario includes the provisions for responding to the event.

There are other weaknesses, including short time horizons, spurious accuracy and some questionable assumptions or failure to declare all assumptions. But nevertheless there is this methodology and it does prioritise the risks. And let's remember that since 2008 viral pandemics were considered to be the most likely and the most serious among about 36 risks which figured in both documents.

MR KEITH: Perhaps we can descend to the detail immediately.

The current system under the National Security Risk Assessment and its public-facing National Risk Register identifies -- or at least in 2019, and we're more concerned with the position as it was when the pandemic struck -- pandemic influenza and a new emerging disease, a new emerging pathogen.

We've heard evidence, and it's obvious, that reference to a "new and emerging disease" doesn't tell you whether or not that disease is asymptomatic or symptomatic, it doesn't tell you what its incubation period is likely to be, it doesn't say anything about the severity, and therefore the characteristics of that particular risk remain unknown.

Are you saying that, and we're particularly concerned of course with pandemic planning, that a sensible system of risk assessment should be much more detailed in its identification of the risk than the current system, so that the system of identifying broad risks -- flooding, pandemic influenza, new and emerging virus -- is too broad? Whilst it provides us with flexibility, it fails to make us focus on the particular characteristics of the risk and therefore prepare?

PROFESSOR ALEXANDER: I think there is a variety --

MR KEITH: Sorry, Mr Mann, because you nodded, could you say "yes" so your answer is on the transcript.

MR MANN: No, no, that meant I understood your question, Mr Keith. I'll let Professor Alexander go first.

PROFESSOR ALEXANDER: Very kind, thank you.

I think that there are various criticisms that can be and have been levelled against the methodology used in the UK. For example, there are five or six major criticisms in the assessment made by the Royal Academy of Engineering of the National Security Risk Assessment procedure. I agree with all of them, but I would go a little further than that. One of the problems also is that there is a failure in the scenarios to be sufficiently inclusive. There is spurious accuracy but at the same time there is a failure to consider how things might develop in specific particular cases. But it can be done.

On 12 October 2008 I attended a Red Cross symposium, and at it an epidemiologist stood up and gave a 45-minute lecture. He started by saying, "My job is to tell you something you don't want to know and ask you to spend money you haven't got on something you don't think will happen". He then went on to describe a viral pandemic. And let's remember, this is half a medical problem, and an epidemiological problem, and half a socio-economic problem. And he described all of that in considerable detail.

It got me teaching pandemics for the next ten years and trying to encourage the creation of pandemic emergency plans. It was also quite clear that this was going to happen and that large elements of it were entirely predictable once the pandemic, in terms of infectivity and lethality, passed a certain tipping point or reached a certain level.

MR KEITH: All right.

Mr Mann, do you want to comment? You deferred to Professor Alexander there.

MR MANN: No, I absolutely agree with what Professor Alexander says. There is a greater degree of specificity that can be done.

MR KEITH: Right.

MR MANN: The only thing that needs to be avoided is that there are a thousand plans. There has to be some kind of aggregation to make the task manageable. But I do agree with the exact points that were made by Professor Alexander.

MR KEITH: But the proof of the pudding, of course, will be in the eating. I mean, you require further specificity but you must still acknowledge that the system has to work and take account of broad categories of risk. The issue will be: where do you draw the line?

MR MANN: Yes, which has to be a matter of judgement, but

a plan for -- as David has said, a plan for a severe pandemic has a lot of very common, very predictable features which ought to be identified and planned for specifically.

MR KEITH: Are you saying that those characteristics should have been identified in the general risk assessment preparedness procedures but weren't?

MR MANN: And the work that followed up from there, yes, absolutely.

MR KEITH: Right. We'll look at that and we'll come to it later.

PROFESSOR ALEXANDER: If I might add to that very briefly. One problem with the methodology that is used in Britain is that it is utterly specific. In other words, there is a scenario for a pandemic. I believe the correct methodology would be to have an envelope or a suite of scenarios: this is the best case, this is the worst case, this is the median case. What, instead, we have is an algorithm that gives us exact predictions: 48,324 deaths will occur. This of course is nonsense. It is indicative and, in that sense, it is helpful, but I think we need a much broader way of describing our scenario.

MR KEITH: All right. Well, we're going to return to that in detail a little later, and at this broad level, we

must try to, I'm afraid, keep our answers as short as we can or you must keep your answers as short as you can if we're to be able to get to the meat of it.

Another broad point that you make in your report, or another issue you refer to in your report is the existence of international indices of health security and related capability, and we've heard evidence about the Joint External Evaluation, which is conducted under the auspices of the World Health Organisation, and we've heard also of a second procedure under the Global Health Security Index processes.

Just in a general sense, is it possible accurately to gauge or assess preparedness in advance of a crisis? Britain, United Kingdom, did well in the JEE evaluation prior to the pandemic, but the evidence may show that in reality we didn't do so well. Is it ever possible to gauge or assess preparedness in advance?

MR MANN: Yes, I believe it is, provided that it is done in sufficient detail against precise or reasonably precise metrics. Yes, I believe that it is.

MR KEITH: All right.

Sorry, Professor, yes, please add what you were going to add.

PROFESSOR ALEXANDER: I have done research on this in Mexico, and much depends upon the quality of the

methodology used for evaluation. It did appear at the time of the pandemic that the World Health Organisation evaluation of Britain's ability to cope with a pandemic was simply wrong. It didn't match up to the results that came out in comparing the British response to that of other countries, or comparable countries.

MR KEITH: All right, thank you.

Could you please turn to page 23 of the report. Professor, I presume you have a hard copy of your report there in front of you?

PROFESSOR ALEXANDER: I do. I do.

MR KEITH: You say this:

"There was thus no document which set direction for the wide range of organisations involved in building resilience and preparedness, helping to unify their actions towards a common end."

Are you saying that there is in the United Kingdom no single document, no single strategy, no single piece of paper which sets out our disaster risk reduction strategy? Or is this a conceptual point that you're making?

MR MANN: No, no, absolutely not. A very practical point. No, there is no document that sets out where we're trying to get to, how will we know when we get there, and what steps we will take along the way and,

importantly, what resources we will apply to trying to achieve that ambition.

PROFESSOR ALEXANDER: Might I add here that when finally an attempt is made at this with the UK Government Resilience Framework of December 2022. In it there is no mention of gender, of people with disabilities, of the elderly, or of ethnic and cultural minorities, and yet all of these are essential issues that need to be dealt with if resilience is to be created, maintained, guaranteed or whatever.

MR KEITH: Can we just pause for a moment, then. You've introduced a new and important document. Is this the document published by the United Kingdom Government in December 2022?

PROFESSOR ALEXANDER: Yes.

MR KEITH: I'm going to hold it up, Professor, so that you can see it. The UK Government Resilience Framework.

PROFESSOR ALEXANDER: Exactly.

MR KEITH: Could we please have INQ000097685.

(Pause)

MR KEITH: Mr Mann and Professor Alexander, I think the position was this: that as a result of wider ranging reviews carried out by the government into national security and biological security, integrated reviews and so on and so forth, that the government committed to

publishing a new strategy, and it called for evidence in July 2021 for the public to contribute answers to question that it posed on a range of topics, and this document, the Resilience Framework, was published in December 2022.

I don't want to spend time going through it in detail with you, because in fact, my Lady, witnesses from the Cabinet Office will be addressing the particular document later in Module 1.

But did it essentially set out an action plan from the government in relation to a number of areas, risk, responsibilities and accountability, partnerships, communities, investment and skills, and set out a broad framework of -- and I apologise for using this word, it is not my word -- deliverables, which would be produced or which the government would endeavour to produce by reference to two deadlines: the preparation and conduct of actions by 2025, and also the production of actions and deliverables by a later date, 2030?

MR MANN: Yes, it did.

MR KEITH: In general terms, have you been able to take account of that document, the UK resilience framework, for the purposes of producing for my Lady the report that you have?

MR MANN: Yes, at relevant sections of our report we try to

interleave the relevant points inside the government's Resilience Framework.

MR KEITH: That is, on one view, a strategy document. It sets out at very high level what the United Kingdom proposes to do in relation to improving the structures, producing deliverables in relation to various aspects of the civil emergency structures in this country. Why does that not suffice to be the single strategy document of which you speak?

MR MANN: Four points. I think, first, in my view it starts from the wrong place.

MR KEITH: Why?

MR MANN: It sets out a range of measures and says -- implies: if those measures are taken, we will have a sufficiently adequate system to deal with the future we face.

I don't believe that to be the case. I think the document should have started in a different place: what do we need, first, to deal with catastrophic emergencies; secondly, actually to pick up international best practice? I think it falls short in both of those areas.

Second, it's too slow. It suggests a range of measures for implementation in the period 2025 to 2030. I think a lot of those can be done sooner and ideally

should be done sooner.

Third, it's not a strategy. It was advertised as a strategy. It does not set out "this is where we'd like to get to, this is how we'll know we get there, and these are the steps we'll take on the way. There's a lot of very good ideas in there, but they're not brought together into a single unifying roadmap which everybody in the responder community can use.

And finally, it is almost silent on resourcing.

LADY HALLETT: Mr Mann, you're probably more used to this language of this kind than I am, fortunately, what exactly does the "preparation and conduct of actions" mean? It's not even English, is it? Preparation and conduct, does that mean just actions?

MR MANN: No, it doesn't, my Lady. It is very, very -- I don't want to sound Sir Humphrey about this, but it's very, very carefully drafted language, which includes -- tries to seek to buy time and to leave open the option of not proceeding with those proposed actions.

LADY HALLETT: But doesn't the word "conduct" usually mean you've done the thing?

MR MANN: It ought to, yes. Yes, but I don't think in this specific case it is being used in that sense, for all of the actions that are proposed. Some of them you may have noticed are the subject of -- I'm sorry to use

jargon -- pilots and pathfinders and other things, which leaves open the option of not proceeding with those measures.

MR KEITH: Could we, I want to ask you since you've raised the topic, Mr Mann, perhaps we could get the summary of the framework actions on the screen. It may be at page 72, annex B of this December 2022 report, which of course is post-Covid. We'll just have a look at some of the propositions and the language.

So, to find our bearings -- Professor, you won't have a hard copy of the report in front of you --

PROFESSOR ALEXANDER: Actually I do have a pdf copy.

MR KEITH: Oh, very good. The hard copy is different, it's page 66:

"Annex B: Summary of Framework actions

"The [United Kingdom] Government is already taking action by:

"Refreshing the NSRA process ...

"Creating a new Head of Resilience ...

"Strengthening UK Government resilience structures ...

"Continuing ..."

So it's taking action already.

By:

"Continuing to take international, bilateral and

multilateral action ..."

And already taking action by:

"Continuing to deepen and strengthen its relationships with the Voluntary and Community Sector ..."

If you turn over the page to page 67 in the hard copy, or 73 online:

"By 2025, the [United Kingdom] Government is committing to take the following actions:

"[Clarifying] roles and responsibilities in the [United Kingdom] Government for each NRSA risk, to drive activity across the risk lifecycle.

"Conduct an annual survey ...

"Introduce an Annual Statement to Parliament ...

"Develop a measurement of socio-economic resilience ...

"Run a pilot across [the] three key pillars of reform ... [of] Leadership, Accountability, and Integration of resilience ...

"Grow ... advisory groups ...

"Deliver a new UK Resilience Academy ...

"Deliver a new training and skills pathway ...

"Reinvigorate the National Exercising Programme ..."

And over the page, page 69 in the hard copy, 74 online:

"By 2030, the UK Government will:

"Develop proposals to make ... communications on risk more relevant and easily accessible.

"Work across [the] three key pillars of reform to significantly strengthen [the local resilience forums] ...

"Introduce standards on resilience ...

"Provide ... better guidance ...

"Build upon existing resilience standards ..."

And in relation to investment:

"Have a co-ordinated and prioritised approach to investment in resilience ... informed by a shared understanding of risk.

"Consider options force funding models for any future expanded responsibilities ...

"Offer new guidance ..."

So in your professional opinion, Mr Mann, firstly, and Professor Alexander, are those commitments sufficiently concrete, clear, precise to meet the concerns that you've both expressed already this afternoon?

MR MANN: No. In three senses. First, if all of those were executed, the question I think needs to be addressed is: would the UK be in a better place to handle catastrophic emergencies? My judgment is no.

Secondly, are they concrete? To use your language, Mr Keith. No. What they don't do is, first of all, set out how we'll get from here to there in a way in which responders throughout the community can understand.

Secondly, they don't have any kind of -- almost any kind of metrics on, okay, when we get there, this is what we'll see, this is what it will look and feel like.

MR KEITH: Professor?

PROFESSOR ALEXANDER: Yes. There are one or two of these that have already been done. For example, the measurement of socio-economic resilience, the British Red Cross has already done that. But they are outside the system. However, more substantially, my feeling about this is that it is an attempt to tinker with the system rather than radically approach it with a new view.

My opinion of the British civil protection system is that it actually is not a system, it is a set of fragments, which is a way of saying that it isn't terribly well connected, despite the spaghetti diagram. Indeed, perhaps that is diagnostic of what I'm saying. It lacks a middle tier, for example. It is very top heavy. It is very top-down. Despite the absolute need for organisation at the local level, it relies heavily on the military, and I think that is a very bad thing.

I'm not anti-military. On the contrary, I would like to see the British military forces liberated from some of the civil contingencies work so they can get on with their core business, especially as they are in the process of being downsized with regard to their human complement.

MR KEITH: All right, Professor, I'm afraid I'm just going to pause you there. There are some things that this Inquiry can inquire into, some which it can't. I'm afraid recruitment levels and manning in the army is not one of them.

PROFESSOR ALEXANDER: No, no, I was not suggesting that there should be more recruitment in the military, rather, instead, that the system should be revised so that it is more securely based on the local level, the regional level and civilian input. That's including, as the House of Lords' report suggested quite strongly, a far better incorporation of the voluntary sector into that system, and a greater reliance, including in statutory terms, upon the voluntary sector.

MR KEITH: We will come to many of those aspects later. You've referred there to the House of Lords committee; is that the House of Lords Select Committee on Risk Assessment and Risk Planning, to which --

PROFESSOR ALEXANDER: Yes, it is, yes.

MR KEITH: Right.

So just drawing the threads together from the debate of the last few moments, is it because of the inadequacy of existing documents and strategies and also because of your joint opinion on the inadequacy of the government's post-Covid response that you recommend, at page 23 of your report, paragraph 44, Professor, that "a vital foundation stone to building robust resilience and preparedness" is the "development by the [United Kingdom] government, working with the devolved administrations and Resilience Partnerships of a formal UK-wide Resilience Strategy"?

MR MANN: Yes, it is.

MR KEITH: Are you inviting, in effect, a wholesale radical rewriting or writing of our strategic approach going forward?

MR MANN: Yes.

PROFESSOR ALEXANDER: Yes.

MR KEITH: Coming at this issue from a different angle, you go on elsewhere in your report to examine the conceptual features of the approach applied by the United Kingdom Government and other governments called "integrated emergency management", IEM, and at page 25 of your report -- could we have, please, page 25 up on the screen -- there is a figure, figure 1, "Original

Integrated Emergency Management Framework".

We understand that each of the blue circles signifies an approach or at least a broad description of what must be done. There is obviously a strong level of doctrine or conceptual analysis in this. But you've summarised the phases in your report:

"Anticipate: 'horizon scanning' ...

"Assess: the analysis of identified risks ...

"Prevent: the actions undertaken to seek to avoid [a risk] ... the likelihood of, a risk arising ...

"Prepare: the development of the emergency plans ...

"Respond: the actions taken to deal with the immediate effects of an emergency

"Recover ..."

Together they form, doctrinally perhaps, the framework for emergency preparedness, response and resilience. Why is it necessary to separate out these functions in this way? Why is it necessary to have what is known as an integrated emergency management framework? Is that not just more jargon?

MR MANN: No, I think it does two things. First, starting from the position of identified risks, it identifies the process which knits together the actions of a wide range of people and organisations into trying to avoid or reduce those risks causing harm and loss. Not every

organisation will have every one of those phases, but it's important that they can all see how, when they come together in partnership, they can minimise harm and loss, the risk of harm and loss. That's the first.

The second then is for those who are tackling, let's say, one part of that, emergency preparedness, they need to see the interconnections between what they are doing and what others are doing and not work in their own silos.

MR KEITH: So -- sorry, Professor, you were going to say something?

PROFESSOR ALEXANDER: Simply that this is one of a number of versions used in standard risk assessment, risk management by companies, by all concerned, by governments, by agencies and so on. It is necessary to tackle risks holistically in a broad sort of way, but to do so it does require a structure.

MR KEITH: So in essence, if I may summarise -- and I summarise your expertise imperfectly, of course -- although in a system, a proper system of emergency preparedness, the people who tell everyone else what to do need to know what to tell them to do, the people who respond need to be told what to do, the people who draw up the policies need to draw up clear, concrete and transparent policies, that's not enough.

To your second point, Mr Mann, everybody playing their part in a system of civil contingency and emergency crisis management needs to understand where they come into the general scheme of things. They need to understand, as you would say, Professor, holistically how it all hangs together.

MR MANN: Yes. Putting it at its simplest, when the people who have done the risk anticipation assessment produce their national risk assessment or whatever, the next question ought to be: okay, how do we avoid these risks happening in the first place, or at least seek to minimise their impact?

Next they ought to be saying: we have taken preventative or mitigation activities as far as we can, there is this residual set of risks and potential emergencies which we cannot address, we're now passing it over to the preparedness planners. And the preparedness planners will then pass it over to the response planners and so on. It has to be integrated, so the first word is really important.

MR KEITH: So this framework, this integrated framework is essential in order to remind everyone the nature of the task in hand, what needs to be done and to ensure that they're doing the right things in the overall system?

PROFESSOR ALEXANDER: Yes, in emergency management training,

half of the problem is to train people in what they need to do, the other half of it is to train them to understand what everyone else has to do, because this is always a collective effort, and --

MR KEITH: Right.

PROFESSOR ALEXANDER: -- it cannot take place on an individual level without adequate integration with what everyone else is doing, otherwise the results are working at cross-purposes.

MR KEITH: If the system or the integrated framework is erroneous or wrong in some regard, strategic weaknesses can follow, and do you therefore, at paragraph 50, say this form of the integrated emergency management framework resulted in an "absence of a focus on quality and effectiveness", basically an absence of focus on ensuring that everybody's parts were working, and that the system was being properly tested, and found to be adequate?

MR MANN: Yes.

MR KEITH: And also a "focus on processes rather than people". Would you elaborate on those two weaknesses which you say strategically resulted from this framework not being correctly drawn up.

MR MANN: Yes, your first point is absolutely right. Looking at it overall, at a whole-system level, at

a leadership level, have we done as much as we can -- there is a question: have we done as much as we can to reduce risk as far as is practicable and cost-effective? That is the validation and assurance bubble. And, secondly, to learn lessons of where we can do better to reduce risk. That might be about preventative activity, it might be about having better preparedness. That involves looking at the entire cycle overall, which is your point, I think, Mr Keith. On the people side, yes, as we put inside the report, it does get very processy, products, very antiseptic, as people use the word. It's very easy to lose sight of the fact that, at the end of this, this is being done for people, their safety, their welfare, harm -- to avoid harm and loss.

One of the criticisms we make here or one of the suggestions for improvement we make is: get that focus on people into all forms of activity, not only each of the bubbles, but actually into the process overall.

MR KEITH: So -- yes, Professor?

PROFESSOR ALEXANDER: In 2005, the London Assembly produced a committee which then produced a three-volume report on the bombs of 7 July. That was a day when there were some fairly severe problems in managing the emergency as it evolved, and the very first recommendation of that report was that the responders and the agencies and

organisations behind them needed to shift their focus from processes to the beneficiaries, the people they were helping. I thought at the time that that would cause a revolution in British emergency management practice, because it seemed both eminently sensible and something that clearly needed to be done in a wide variety of arenas. I was rather surprised to find that it simply did not happen.

MR KEITH: You may know, Professor, that my Lady was the deputy assistant coroner in the inquests into the terrible deaths of those who died in the 7/7 attacks. So what you're saying, essentially, is it was recognised -- and I'll apologise for giving evidence -- it was recognised by my Lady, in her report after the inquest, and by the London Assembly, that proper preparation and proper response needs to focus more on people rather than becoming obsessed, perhaps overly focused, with the processes themselves.

PROFESSOR ALEXANDER: Exactly. I'd like to emphasise that this is in no way a criticism of any individuals, inasmuch as there were many people who did precisely focus on the people, on the outcomes and so on, but the question is how much leeway to do that did the system allow them.

MR KEITH: Right. So if we could have up page 27 -- I think

it's 27 in the hard copy for you, Professor -- do you both recommend that in this conceptual issue in this identification of the learning and the work that has to go into identifying the integrated system, what we are all meant to do, it is essential that two further segments be inserted? One is an express obligation to validate and assure, that is to say to test; and a second one, to learn and improve, following recovery, so that lessons are better learned and the system is improved along the way.

MR MANN: Yes.

PROFESSOR ALEXANDER: Yes.

MR KEITH: If that is done, if my Lady recommends that the integrated emergency management framework be expressly altered to include those important features, that will have a beneficial, practical outcome(?).

MR MANN: Yes. This will tell people that, as part of their day-to-day work, as part of their training, those two activities need to be recognised and done properly.

MR KEITH: All right.

PROFESSOR ALEXANDER: And furthermore, there are at least, I think, 62 universities in Britain that provide expertise that is useful in this case. Now, some of them are directly used, for example Nottingham Trent and the Fire Service, Manchester Metropolitan University and

the National Health Service emergency response. However, there is a belated and rather slow realisation in government that they need to use academic expertise more, particularly academic expertise of an applied nature, which is directly useful in the processes of validating and learning.

MR KEITH: The next part of your report focuses on the legislative framework and structures, this is section 3 of the report. As you have already identified, the piece of legislation at the heart of the emergency preparedness legislative framework is the Civil Contingencies Act 2004.

In light of the time constraints, I'm not going to take you through even the most important parts of the Act. Could we please focus our attention on the Act at a broad level.

The Act provides in its first part for duties to be imposed at local level, and I'm summarising hugely here, on two groups of responders, category 1 and category 2 responders.

If perhaps we could have up our spaghetti chart, I think it's INQ000204014.

(Pause)

There we are. If we could go, please, to page 17. This is -- I'm not quite sure, it's just suddenly

jumped. Has it jumped to a different page?

LADY HALLETT: I've got the one with the "Local Resilience Forums" down at the bottom left.

MR KEITH: 2009 -- yes. If we look at the top:

"Pandemic preparedness and response structures in the UK & England - 2009."

I think that's page 17.

Could we just, to get our bearings, have page 3 and then page 4, if that's not too arduous a burden.

So around about nine years later, August 2018, and the position has become rather more complex, and of course, Professor, the answer to your implied question from earlier was that this diagram is not an exact reality, of course, as you know very well, of the reality of our emergency preparedness systems, and it was seeking to make the forensic point to which you referred about the complexity of the position.

Then page 4 should be 2019, there we are, August 2019.

So right at the bottom left, we have the "Local Resilience Forums", and then we have the two types of responders: category 1 responders and category 2 responders.

Is the position that they have differing legal duties imposed upon them, and that the Act obliges

category 1 responders to do in fact more things than category 2 responders are obliged to do, but it's more prescriptive and it imposes a greater legal burden on category 1 responders than category 2? Is that a fair summary?

MR MANN: That is correct.

PROFESSOR ALEXANDER: Yes.

MR KEITH: Is there an argument for changing the imposition of the legal duties on category 1 and category 2 responders to make sure -- to bring category 2 responders further into the fold, to bind them closer to category 1 responders, and to sharpen up that part of the system?

MR MANN: Yes, I believe there is, for three reasons. First, we'll come back to this, if we, as we propose -- if it is the aim to build a system which is capable of dealing with catastrophic emergencies, with the ability to deal with local and regional emergencies, then category 2 responders, at a time when the whole country is responding to a catastrophic emergency, have got to have fuller responsibilities than they presently have. We saw that proved in the Covid-19 pandemic.

MR KEITH: Can I just pause you there. Could you give us, please, some indication of who the category 2 responders are, and explain why they are the sorts of entities,

utilities and so on and so forth, and businesses and communications suppliers, who need to be brought into the fold more because of the more complex risks and the more dangerous emergencies we're likely to face?

MR MANN: Certainly. Category 2 responders are, in shorthand, the people who provide the essential services on which the country depends to keep running, so water, electricity, communications and so on, transport operators.

In other words, to keep the country running, here is the core point, they need to be capable of doing effective planning and playing a full role in the response, and that means that they need also to have played a key role in the identification of risk and in the preparedness planning.

So on the duties which presently fall on the so-called category 1 responders, the public sector bodies, we believe that they should have a full role in each of those activities, and therefore the duties should fall on them. First point.

Second point, the future risk picture, especially with climate change, the leading effects of climate change means actually that some of the most significant emergencies may start with the provision of essential services: electricity failure, telecommunications

outage, flooding and so on. That also, in our view, increases the responsibility on them to undertake those activities.

Thirdly, in the review, independent review, which I conducted, it was very clear that there was a developing "us and them". This did not feel like equal partnership; it was a mixed picture but it did not feel like an equal partnership. An equal partnership is exactly what is needed for dealing with a catastrophic emergency.

MR KEITH: Professor, do you want to add to those three points?

PROFESSOR ALEXANDER: Well, we live in a world of cascading disasters, and the cascade often occurs through the failure of critical infrastructure, which has between eight and 11 categories. It is things like water and sewage, electricity, gas supply, transportation, healthcare, emergency response. But if we lose electricity, I can fairly easily think of about 38 different consequences that would stop life being lived as normal. If we merely consider the effect of having no electricity on banking, it could freeze up just about everything, for the simple reason that the circulation, the supply and the use of money is entirely, nowadays, dependent on electricity, one way or

the other. So in fact there are plenty of opportunities for critical infrastructure failure to be absolutely central to the emergency, and that is a very good reason for ensuring that its operators have greater powers and greater legal requirements.

MR KEITH: Is the proposition underpinning what you've both just said that the imposition of legal duties is necessary to ensure that, whoever the responders are, they step up to the mark, that they do the planning that is expected of them, they draw up the plans, they validate them, they have them tested, they engage with the public, with other responders and so on and so forth, that they do the job in hand?

MR MANN: Yes, it is, and that how well they do the job is the subject of validation and assurance regimes.

MR KEITH: To what extent is central government or regional government or the devolved administrations subject to any comparable legal duty --

LADY HALLETT: Just before you move to that, Mr Keith, may I just ask a question.

You said there were examples during the Covid pandemic in the UK as to why you think this duty should be put on category 2 responders. Could you give an example of those?

MR MANN: Yes. It's not so much failure in that case, we

might come to other examples of that, critical infrastructure failure, but the key point, especially in the first wave of the pandemic, the key issues were how to keep essential services being provided to citizens and the economy. So that is continuing to keep electricity, food, water, transportation running.

LADY HALLETT: Now, I understand that, but I thought what you were saying was you were about to give examples as to why there should be this duty; in other words, that things had gone wrong because there wasn't this duty. You weren't saying that?

MR MANN: No, I wasn't saying that, my Lady. I'd use other examples for that.

MR KEITH: My Lady, is that a convenient moment?

PROFESSOR ALEXANDER: I would add that the law may be considered as a means of punishment, but it is also a great enabler, and one thing that it can do is to bring the providers of essential services and others more firmly into the system.

MR KEITH: I think I'd asked you to what extent are comparable legal duties imposed on central government, regional government and the devolved administrations.

MR MANN: Central government, there are two government departments which are designated, Department of Health and Department for Transport, who are designated in the

jargon as category 1 responders. The rest of central government -- UK Government central government departments are not, and that I believe is the case in the devolved administrations.

MR KEITH: There are other aspects in which the Act distinguishes between the United Kingdom Government and the devolved administrations but we needn't trouble ourselves about that now. What about regional government, so combined authorities, mayors?

MR MANN: Regional government is not covered. Combined authorities are not covered in any way in the Act or any of its supporting documentation.

MR KEITH: In your report, do you recommend that consideration be given to the imposition of the legal duties or a variant thereof in the Civil Contingencies Act 2004 to central government in general terms and to regional government beyond the specification of the two departments to which you made reference?

MR MANN: Yes, I draw a distinction. For exactly the same reasons, the ability to manage a catastrophic emergency, to take a leadership role in a catastrophic emergency, that sense of partnership, we believe that duty should apply to central government, uniformly, not just those two departments.

I'd make a distinction on combined authorities.

They need absolutely to be part of the system, but I think more thought needs to be given, especially in the light of this government's proposals for devolution and the creation of more combined authorities, as to what those duties, if there were any, would look like and how they should best be fitted inside the system.

MR KEITH: Has the argument for the imposition of legal duties in a general sense on central government strengthened as a result of the government's response to the Covid pandemic?

MR MANN: Unquestionably, yes, but what that has brought out for me is two things. First, that leadership role, that partnership role in leading an emergency and, secondly, as we put in the independent review report, some deficiencies which we heard about in their preparedness, to a degree because they did not have legal duties and it was not therefore one of the major things on the radar screens of the senior leaders of those departments.

MR KEITH: All right. There are two other aspects, structural aspects, to this chart or this representation of pandemic preparedness and response structures that I want to ask you about. In fact, three.

Firstly, at the top left we can see "Pandemic preparedness and response structures". When dealing

with the identification of the bodies and the entities that are concerned generally in the United Kingdom's response to emergencies, is it important to distinguish between preparedness and response? So there are different duties and different bodies depending on whether you're dealing with preparedness or response?

So, for example, the distinction between local resilience forums and strategic co-ordinating groups.

MR MANN: I'm hesitating on your word "distinction", Mr Keith. The two need to be umbilically linked. Whatever is done in preparedness is probably being done, and the plans that are being developed are probably going to be used by the same people when it goes into the response.

There is a very narrow question, which is whether it makes any sense any longer to have a distinction between local resilience forums on the one hand, as it were peacetime bodies, and strategic co-ordination groups on the other, the organisations -- the forums that manage a major emergency.

I think there are arguments either way. I do think it needs to be explored. I would say that there are differences in membership, there are differences in role, there are differences in legal responsibility -- local resilience forums have legal duties -- but most

importantly there are differences of culture, as between a meeting of a local resilience forum on the one hand and a strategic co-ordination group which is there to tackle an emergency. Those need to be thought through carefully, but I think it is a very good question.

MR KEITH: Professor, before I ask you to come in on this, may I please just ask a follow-up question and then I'll ask you to comment generally.

In your own report, Mr Mann and Professor Alexander, you separate out, by reference to preparedness and then response, all the many structures. So I think your section 4 deals with preparedness and your section 5 dealt with response. And so many of the same bodies to which you referred in one area were replicated in the other, and of course you've identified that many of the bodies have both response and preparedness functions.

Is there an argument for radical reform in terms of trying not to draw out that distinction between preparedness and response in terms of identifying the right bodies and the right duties to impose on them? Is this an unnecessary complication now?

MR MANN: I do not want to suggest that there should be a sweeping -- as it were, a sweep of the hand and all of these bodies be merged, response and preparedness be merged into every body, every organisation, every forum

all the way through this chart. I think it needs very careful thought, not least on the purpose of the organisation or the forum --

MR KEITH: Right.

MR MANN: -- before making that decision.

MR KEITH: Professor?

PROFESSOR ALEXANDER: Well, the Americans did try to, if not merge, at least bring very firmly together 125 federal organisations after 9/11 in the creation of a Department of Homeland Security, and I'm not sure that that was actually a terribly well thought out move.

I think there needs to be more of a sense of constancy in the way that emergencies are managed, rather than having fora that meet at intervals and groups that are co-ordinated to manage emergencies when they occur.

I think there really should be something that is there all the time, constantly upgrading the planning and so on.

But I would like to mention one other thing about your diagram and about the British strategy, and that is that in the National Security Risk Assessment and so on, there is the concept of the agency that "owns" the risk, usually a government department. I rather don't like at least the terminology. Perhaps I'm quibbling over

semantics, but I don't think risks are really "owned" by individual departments. They're "owned" by all of us. Although it is important to have, perhaps, a lead agency with regard to specific scenarios or specific risks, it is also important that there is a collaborative and shared effort.

MR KEITH: Professor, if I may say so, I think, with your appeal to plain English, you are, with this Tribunal, kicking at an open door.

PROFESSOR ALEXANDER: Yes.

MR KEITH: Perhaps we -- we can't, no, I think, in the course of this Inquiry, or at least an Inquiry lasting less than three years, deal with all aspects of language in this system which are -- I'm now going to just delve into it -- unfortunate. The point is well made, but we'll come back to risk assessments in a moment.

So that is one area. The second area I wanted to ask you both about was, if you look at the left-hand side of the diagram, you will see the "Resilience Emergencies Division", which is the liaison between local resilience forums and local authorities and also tactical co-ordination groups and strategic co-ordination groups, and the body above it, the government department which was the Ministry of Housing, Communities and Local Government, but is now the

Department for Levelling Up, Housing and Communities.

If we were, but it will take too long, to go back to the diagram ten or so years before, there used to be a government body known as the Government Offices for the Regions, and they provided a secretariat, something called regional resilience forums, and they were the liaison with all the local bodies, or at least the majority of them.

Was that change, whereby the link, if you like, between central government and local authority was put into the Department for Levelling Up, Housing and Communities, through its resilience emergencies division, an improvement, or was that a retrograde step?

MR MANN: No, my belief is that it was a retrograde step. I will start on the technical aspects. Professor Alexander will probably talk about experience in other countries.

I think it's a retrograde step for three reasons.

First, on risk assessment and planning, there are risks which are -- not all risks stay nicely confined within the boundaries of a local resilience forum area, there are risks that cross boundaries. There needs to be risk assessment done on a regional level, there needs to be planning done on a regional level as well as training and exercising and so on, and experience has

shown that that has degraded in the course of the last ten years. First point.

Second point, those regional resilience teams were boots, eyes, ears on the ground. They knew what was going on, they could report back, they could have a quiet word in the ear, they were a first line assurance capability that people in the organisations were undertaking tasks well. That again, as we found in the independent review, has gone.

Thirdly, when it comes to an emergency, what we have at the moment is 38 entities, local resilience forums, strategic command groups, going into one government department. I just don't think that can be done.

MR KEITH: Before I ask Professor Alexander to come in on this, can I ask you, please, Mr Mann: you were of course director of the Civil Contingencies Secretariat from 2004 to 2009; this change, fundamental change, took place after your watch, didn't it --

MR MANN: It did.

MR KEITH: -- in 2011?

MR MANN: Yes.

MR KEITH: Were there indications of this change whilst you were still in office in that post or was this all entirely after your time?

MR MANN: All entirely after my time. It was the incoming

administration that made a number of changes to local and regional levels, the governance of England, and this was one of them.

MR KEITH: All right.

Professor, do you want to add anything to the point about the RED, the Resilience --

PROFESSOR ALEXANDER: Yes, please. I was a member of the East of England resilience forum, which co-ordinated the work in six counties. It had great potential but it had no resources and no authority, which was extremely frustrating. Therefore it wasn't able to achieve very much, although it did achieve something, and I was sorry to see it go.

I'm familiar with regional work in a variety of different countries, for example in Sweden, Portugal, Spain and so on, and particularly in Italy, and during Covid it was most notable that the regions were the lynchpin, absolutely. Television viewers on the news three times a week would see a film clip of the Prime Minister in front of 20 screens, on each of the screens, there were the presidents of each of the 20 regions. Covid was very different in each region. The purpose of central government was to support variously and fairly the work against Covid of the regions, and in Italy the regions run the health

service. So that was really important in both civil protection and health maintenance terms.

I think that that worked out extremely well. It also meant that attention could be given at the right level to the sorts of work and support required locally which simply could not be managed nationally.

So I do believe that one of the things that Britain most needs is a proper regional tier. I don't think that the metropolitan authorities are sufficient for that. For example, it might be helpful to have a regional tier that encompasses both Liverpool and Manchester, and things like that.

MR KEITH: All right.

The next and final point in relation to the structures concerned something that you've already referred to, in fact repeatedly, the lead government department.

Now, again dealing with the United Kingdom structure, not because the DA, the devolved administration, structure is any less important but it's convenient to be able to identify in the UK structure this entity.

An absolutely core feature of the emergency preparedness systems in the United Kingdom is that there is always identified a lead government department which

must maintain a state of readiness and lead the charge in terms of the response to emergencies for which it is the nominated central government lead. So if there is a government department which takes the lead in relation to an animal disease, it's going to be the Department for Health and Social Care. Which is why, in this chart, which deals primarily with Covid of course and preparedness for pandemics, the lead government department is the Department for Health and Social Care.

In your report, you identify that in relation to national crises and complex emergencies, and particularly cascading emergencies, a number of departments will have to be involved. So, for example, in relation to Covid you would have had the Department for Education in relation to schools, you've got HMT in relation to financial support, you've got the Home Office in relation to borders and enforcement, and so on and so forth.

What flaws have you identified in relation to the lead government department model?

MR MANN: The most obvious systemic issue is whether, for a catastrophic emergency, a lead government department can oversee preparedness for and the response on all of the issues including a wide range of issues which are outside its direct scope and responsibility.

PROFESSOR ALEXANDER: Yes, worldwide it's usually the ministry of the interior -- or, in other words, the Home Office -- which is the minister and the ministry that runs civil protection. And it was the Italians, in 1999, who bequeathed to Europe a non-binding European Union directive that civil protection should really be a dependency of the cabinet as a whole, because of the need to give full weight to other ministries, health, public works, whatever, economy, whatever the ministries might be. And that was adopted by a number of countries, more or less by Britain as well. That was absolutely necessary to avoid the marginalisation of particular government departments.

MR KEITH: When Covid, of course, struck, a very large number of government departments were engaged. Was the flaw that when more than one lead government department had to respond and take responsibility for important parts of the country's response, the lines of accountability and transparency and leadership blurred because nobody could say that there was one single lead government department that was in charge?

MR MANN: I think there are two parts of the answer to that question. There is a preparedness part to it, which is: who should lead on areas which are outside the responsibility of the so-called lead government

government department because it responds to matters concerning the environment and flooding and so on, but then when the emergency moves to the response stage another government department, a different lead government department, may be the more appropriate department?

MR MANN: No, I would never change horses in mid-stream. The people who did the planning, the people who did the thinking, ought to be the people who are involved in the response.

I think my point is that there is a range of smaller scale emergencies, animal disease outbreaks, flooding and so on, where people will naturally look to the lead government department, the obvious department. That is right, because the --

MR KEITH: I'm sorry to interrupt, I think, Mr Mann, we may be at cross-purposes. I may not have put the question clearly enough.

LADY HALLETT: You can put it after you've had the break, Mr Keith, give you a chance to rephrase it.

MR KEITH: That gives me a chance to reformulate it.

LADY HALLETT: Exactly.

Right, 3.20, please.

(3.05 pm)

(A short break)

department and make sure that those are planned for properly and what is needed is in place; is that the lead government department or is that somebody else, like the Cabinet Office? That's the first question.

The second question then is: in the response phase, is it the lead government department or is the Cabinet Office absolutely at their shoulder, at the lectern for every press conference given by the Prime Minister, and so on?

My personal view is, for the most catastrophic and complex emergencies, there should be that shared responsibility -- not a single responsibility, that shared responsibility -- lead government department with the Cabinet Office using its convening power in the preparedness phase and in the response phase to get all other entities behind the response.

MR KEITH: Professor, before I ask you for your response, could I just please ask you this, Mr Mann: you yourself have just drawn a distinction between preparedness and response in the context of a lead government department, and identifying which one is maybe the lead government department. Is that because, in our current system, there may, in the currency of a single emergency, even have to be a change of lead government department? So you might have flooding where DEFRA might be the lead

(3.20 pm)

LADY HALLETT: Mr Keith.

MR KEITH: Mr Mann, I think that we may have been at cross-purposes. What I was asking you was whether or not -- and I confess I haven't really reformulated the question. Are there ever occasions in which, in the course of an emergency, there may be a change in the nominated lead government department? So, for example, drawing on the witness statement of Mr Hargreaves, your successor as the director of the Civil Contingencies Secretariat, a flood may require DEFRA to be nominated as the lead government department for the purposes of the initial response, but, for the purposes of recovery, DLUHC, the Department for Levelling Up, Housing and Communities, may then become the lead government department?

MR MANN: Yes. I'm sorry if I misunderstood you, Mr Keith.

Yes, there are two circumstances. First, because the immediate emergency has cascaded into another emergency. We had that at Buncefield, we had a fire explosion, and then we had an acute shortage of kerosene to Heathrow Airport. The leadership changed in that circumstance.

Secondly, then, for the recovery phase, absolutely, the instinct -- the usual preference would be to pass it

to DLUHC.
MR KEITH: All right.
A second question that I wanted to ask just by way of clarification: do you happen to recall when EPRR, emergency preparedness, resilience and response, became devolved insofar as Wales was concerned?
MR MANN: Yes, the Transfer of Functions Order.
MR KEITH: The Transfer of Functions Order --
MR MANN: Functions Order.
MR KEITH: -- 2018.
MR MANN: 2018.
MR KEITH: I knew you would get that.
So, just to deal, then, with the lead government department and to conclude that issue, the lead government department, or at least a government department will have a general responsibility for one or more critical sectors, so there are obviously government departments that deal with particular areas of the infrastructure, particular areas of critical importance. At the same time, there are different government departments that own, to use that terrible word, different risks. So in the course of a response to an emergency, in reality more than one government department is likely to be fully engaged, and as you described, in the course of Covid a multitude of

on and so forth, to make it happen?
MR MANN: Yes, that is not the same as a rigorous cross-check against standards -- Have you got in place the capabilities you need? Are they well trained, exercised and so on? -- either at the level of the individual organisation or at the level of the whole. In an area this important, it needs that forensic checking, and that is not done.
MR KEITH: But I sense that you are focusing, with your answer, upon the particular issue of standards, which we'll come to in a moment, which is the general word given to the system by which any body, whether it be a local resilience forum or a regional resilience forum or a strategic co-ordinating group or RED of DLUHC or the lead government department, meets a certain standard, that it's tested, it's validated, to use your word, it's checked. There is no one body that is responsible for checking the various moving parts.
LADY HALLETT: I think Professor Alexander physically had his hand up.
PROFESSOR ALEXANDER: Yes, thank you.
I was just thinking that it's possible that one is looking at this from the wrong perspective, in other words back to front, because what really matters is solving problems as they arrive. I would therefore

government departments were engaged.
What government body is responsible in advance of an emergency for ensuring that each government department's plans and procedures and policies are up to date, correctly drawn up, properly written, and do the right job, and ensuring that each of those government departments has, to use seemingly the correct nomenclature, assured itself, tested itself, and also responsible for ensuring proper collaboration between government departments and making sure they all work smoothly together in the event of a crisis?
MR MANN: None, is the quick and simple answer.
Is there -- there are pieces of that jigsaw where there can be that validation and assurance. Is there anyone who is checking that that work is -- cross-checking that work is being done properly, checking the whole system will work together? There is no such department.
MR KEITH: Does not the Cabinet Office liaise at least with government departments to ensure that they are doing what they're meant to do in advance of a crisis, brokering arrangements, ensuring proper co-operation and, in the event of a crisis, both assisting government departments to respond, collectively, as well as putting into place the physical arrangements, like COBR and so

expect the system to be able to identify the problems and allocate them to those who can solve them, in other words the various departments, with a degree of flexibility and general ability to respond rapidly, rather than purely being aware beforehand of what is likely to happen and who is likely to need to be responsible. That certainly is what is done in scenarios, but there is also a process, not merely of prior planning but of adapting plans to dynamically evolving circumstances. I think this was very, very evident in Covid, because initially we didn't know what was going on, because it was an emerging disease of which the characteristics were partly or largely unknown, and later we learn more about it and it becomes more clear what is needed to be done, and problems also arise out of that, out of the disruption that it causes, that need to be allocated to departments. So perhaps we should look at it from the point of view of the needs as much as from the point of view of the needs of the departments.
MR KEITH: Yes.
PROFESSOR ALEXANDER: Or of government.
MR KEITH: I don't think anyone would disagree with that, Professor. I was asking Mr Mann, though, about which entities the current structure provides for to do the

testing, the validating, and keeping the government organisations in line.

Could I ask you one more time, therefore, in this way: you have described for us how there is a system by which local resilience forums are broadly but indirectly connected through to a particular division, the Resilience and Emergencies Division, in the Department for Levelling Up, Housing and Communities. You've described a system whereby, in terms of preparing, analysing and identifying risks and in terms of being responsible for response in the critical sectors, a government department may have a great deal to do. And in the context of a complex or cascading emergency, a significant number of government departments may all be reacting -- preparing and then reacting.

It appears that this is a very complex system with a lot of moving parts, and that there is therefore a need for a single body, whether it be external to government or within government, to manage and control these various moving parts.

Would you agree?

MR MANN: I would agree, and I believe there is no such entity who is either checking the individual parts or --

MR KEITH: The whole.

MR MANN: -- the total system.

LADY HALLETT: Thank you.

MR KEITH: My Lady, we will come back to the question of whether or not there should be an agency, a body, internal or external, and how it should be headed.

But for present purposes, Mr Mann, do you understand that the new head of resilience in relation to which -- at annex B of the December 2022 UK Government resilience framework -- the United Kingdom Government says is already taking action by creating a new head of resilience.

Has a new head of resilience been appointed?

MR MANN: If a new head of resilience has been appointed, I've not seen that announcement, I don't know who it is.

MR KEITH: Has the government identified a particular entity or body within which a new head of resilience might even operate?

MR MANN: Not as far as I'm aware.

MR KEITH: Is the government's current plan that a new head of resilience is in fact somebody who would simply be a new post within an existing government department?

MR MANN: The role of the head of resilience, the location of the head of resilience is left quite vague in the Resilience Framework, so I'm afraid I can't answer the question, because the material there is vague and I have seen no subsequent announcements.

MR KEITH: Professor, would you agree?

PROFESSOR ALEXANDER: Yes, I would agree. I would agree exactly as Mr Mann has said.

MR KEITH: Right, thank you.

Now can we look, please, because a great deal of your report properly deals with the devolved administrations, at the position in Scotland, Wales and Northern Ireland, and have, please, on the screen the organogram INQ000204014.

LADY HALLETT: Whilst that is coming up on screen, if there ought to be one entity, the framework that I criticised earlier for its lack of using English, that talked about appointing a national resilience officer. Would that meet the bill or is that not going far enough?

MR MANN: No, it's a separate point, my Lady. I do believe there needs to be a single person, the chief resilience officer, as we've labelled him, in charge of making sure that the system is good, and that chief resilience officer should have available to him or her some form of team that can make sure that that validation and assurance is done.

LADY HALLETT: So the one officer is not enough, they've got to have the backup to do the job?

MR MANN: They need to get out onto the ground and check that what is being done in individual entities is right.

MR KEITH: Thank you.

So there is the organogram. Could we please have, slowly, in relation to Scotland, please, page 8 -- I hope this will work -- then page 7, then page 6.

(Pause)

So this is 2010, page 8. Is this the position, that towards the bottom of the page, we can see local resilience partnerships and above them strategic co-ordination groups that over time, I think -- the strategic co-ordinating groups. I think it should be strategic co-ordinating groups, not strategic co-ordination groups -- became regional resilience partnerships?

MR MANN: That's correct.

MR KEITH: If we go forward, please, to page 7, which is 2017, we can see, in the bottom left, regional resilience partnerships. Then, forward to page 6, 2019, the position on the advent of Covid. There we are. So still there, regional resilience partnerships.

Does everything that you have already said in relation to the integrated emergency management framework, in relation to the legal obligations under the Civil Contingencies Act 2004, what you have said in relation to the proper approach to identification of group risks, as opposed to specific risks, or specific

risks as opposed to group risks, apply equally to the pandemic preparedness and response structures in Scotland?

MR MANN: Yes. Is the integrated emergency management framework the same in all administrations in the UK? Yes. With one small exception, which is in Scotland they've got the anticipation of risk and the assessment of risk together, but otherwise it is the same.

MR KEITH: One major difference, of course, is that in the Scottish system there is no Department for Levelling Up, Housing and Communities, because resilience is a devolved matter, and it is all therefore run by the Scottish Government and not, obviously, by a Westminster government department, and there is no the Resilience and Emergencies Division.

If you look at the left-hand side of the page, the link between the local resilience partnerships and, below them, the category 1 and 2 responders comes up to the Scottish Government and ministers through the Scottish Resilience Partnership and the Scottish Government liaison officers. Is there anything you want to say about that system in the context of Scotland?

MR MANN: I think it's a much preferable system, for the reasons I described earlier.

components: Cabinet Office, the lead department, Department of Levelling Up, and, actually, the Department for Culture, Media and Sport, who've got sponsorship for the --

MR KEITH: Voluntary community.

MR MANN: -- voluntary sector. That is very, very diffuse and federated leadership, it is not clarity of leadership, and it's especially not clarity of leadership in an emergency.

MR KEITH: That is not something of which, you would say, from which the Scottish system suffers?

MR MANN: That would be my view, yes.

MR KEITH: All right. But if you look at the top of the page, plainly in relation to an emergency that affects the whole of the United Kingdom, including all its constituent parts, its countries, there is still that link there, is there not, up through SAGE, about which we'll hear great deal more in Module 2, COBR, the Cabinet Office Briefing Room, which are the physical emanations -- well, at least COBR is the physical emanation of the Cabinet Office in London.

MR MANN: It ought to be the physical emanation of bringing everybody, together from whatever administration, in the management of the emergency.

MR KEITH: Yes.

PROFESSOR ALEXANDER: Agreed.

MR KEITH: Thank you, Professor.

It is also evident in Scotland that there's one unitary government body identified here: the Scottish Government. So you don't have here the identification of a particular government department as you had on the UK chart, namely the Department of Health and Social Care.

Is the Scottish structure better, insofar as you don't have the danger that you've identified a few moments ago of more than one government department attempting to lead the charge in response to a multiple or complex or cascading emergency?

MR MANN: I'm not sure I see the distinction, Mr Keith. There is in the middle, the blue box, the health and social care directorates, which to me are the analogue of the Department of Health and Social Care. So --

MR KEITH: But is the system, is the departmental system in Scotland as complex and, therefore, as diffuse and as liable, perhaps, to a lack of control as the United Kingdom model?

MR MANN: The United Kingdom model has a wide range -- if you think about the various component parts of the response to a catastrophic emergency, the United Kingdom Government model has four or five leaders or particular

MR MANN: So it's not just the UK Government.

MR KEITH: Right. But this is the link from Edinburgh to London, because the Cabinet Office is in London and COBR is in London, and in a national emergency that is where the link exists.

MR MANN: Yes, this is the dominant link. There will be others on science and on -- between Chief Medical Officers and so on, but this is the dominant link.

MR KEITH: All right.

Then finally, in relation to the Scottish model, if you look at the top right-hand corner of the page, national security, risk assessment and National Risk Register, is the system for the identification of risk, the apportionment of risk to particular sectors, the grouping of risks, the analysis of planning assumptions as a result of those risks, and then the sending out to everybody of what those risks are and how they should respond, the same in Scotland as in Westminster? Did they use the same NRSA procedure?

MR MANN: It starts from the same NRSA, which covers all administrations. It is then for each administration to choose to take the NRSA down into its own risk assessment and the administrations of Wales and Scotland do.

MR KEITH: Is that why underneath the NRSA you can see

a line to Scottish risk assessment?
MR MANN: Exactly.
MR KEITH: Then that line is the line from there down to the Scottish Government Resilience Room. Is that the Scottish equivalent for assessing the impact of risks in Scotland that is the equivalent of COBR, the Cabinet Office Briefing Room, in London?
MR MANN: Yes, this chart does not cover all of the material that it had in the UK Government chart. There will be peacetime, as it were, non-crisis activity being taken forward on the basis of the risk assessment, which is not just about the Resilience Room.
MR KEITH: All right.
Could we have, please, page 10 of the organogram up, please, in relation to Wales.
As you said a few moments ago, the resilience and preparedness became a devolved issue, that is to say it is a matter dealt with exclusively by the Welsh Government and its First Minister in 2018 under the Transfer of Functions Order, you can see in the bottom left-hand corner of the page the Wales strategic co-ordinating groups. That's the response function. To the top right of that body, the local resilience forums, of which there are four in Wales, by comparison to a much larger number in England. And above that, going

up the left-hand side of the page, the Wales Resilience Partnership Team, the Joint Emergency Services Group, the Emergency Coordination Centre, which all feeds into the be Welsh Government.
Is there a regional structure in Wales in the same way that there is a regional structure in England?
MR MANN: No.
MR KEITH: Does what you have said in relation to integrated emergency management, in relation to the risk assessment process, in relation to the need for a central accountable and transparent body to lead the charge, apply equally to the Welsh structure?
MR MANN: Yes, it does.
MR KEITH: In relation to Northern Ireland, page 14, please.
Civil contingencies are largely devolved in Northern Ireland. It's not the same as Wales and Scotland on account of the existence of the Executive Office, but we can see at the top the Cabinet Office again and the National Security Secretariat, COBR, the briefing room. Top right, the risk assessment process, which feeds in through the Northern Ireland risk assessment process into the office of the Northern Ireland Executive, which is the office of the First Minister and Deputy First Minister, and you can see something that we'll come to and address in more

detail tomorrow, the Civil Contingencies Group and the Civil Contingencies Group for ministers and officials.
Then at the bottom of the page, there are three emergency preparedness groups. I say at the bottom of the page --
MR MANN: It's the pink box in the middle, Mr Keith.
MR KEITH: I've completely lost it.
MR MANN: Bottom of the pink box on the left-hand side.
MR KEITH: There we are, thank you very much.
Emergency preparedness groups, of which there are three, and they feed up through the regional community resilience groups, the regional recovery forum and up through the Northern Ireland emergency preparedness group into the ministerial and civil service functions in the large yellow box.
So, again, broadly similar. There are differences, are there not, in terms of the legal duties under the Civil Contingencies Act, but they needn't trouble us. There are differences in some non-devolved functions. But do the broad points that you've made apply equally to Northern Ireland?
MR MANN: Yes. Can you bring a range of bodies together in partnership under clear leadership to try to avoid harm and loss? The architecture will vary from administration to administration, but the core

principles are the same.
MR KEITH: All right.
In your report at page 56, and this is your division between preparedness and response, you turn to structures in the response phase, this is the report, your report, INQ000203349, page 56. Thank you.
PROFESSOR ALEXANDER: Can I just add something about what we were dealing with before, for the record.
I'm very much in favour of devolution in civil protection. I am concerned about the grey areas which are essentially two. One is the extent of United Kingdom, that means Westminster, authority particularly in Wales and Scotland; and the other is cross-border events, that's to say emergencies which involve both sides of the border and therefore both systems.
I did gather from the witness statements that there were some concerns among representatives of Scotland, Wales and Northern Ireland about the extent of their powers during a major emergency, something that the Civil Contingencies Act is fairly clear on but not completely clear, and which subsequent legislation and organisation have apparently failed to clear up completely.
The other is how well all of this would perform when

we have to have the English and, for example, the Welsh systems functioning side by side in harmony, and I note that, for example, in the diagram for Northern Ireland there is apparently no reference to southern Ireland, and the possibility of cross-border events there is also very significant, and one would expect to see at least an office of liaison with Dublin.

MR KEITH: Yes, Professor, thank you for that.

Of course the Republic of Ireland is not in that chart because the chart represents schematically the position in the United Kingdom, but my Lady will be addressing the issue of cross-border communication, given that Ireland, the island of Ireland, is a single epidemiological entity in the course of Module 2C, which is, happily, for the future.

PROFESSOR ALEXANDER: Thank you.

Thank you, my Lady.

MR KEITH: Page 56 at paragraph 163 you refer to non-statutory guidance. Did the Civil Contingencies Act provide for all the local bodies, the responders and so on and so forth, to be the grateful recipient of a large amount of statutory and non-statutory guidance?

MR MANN: Yes, it did. Whether grateful or not is another matter, but yes, it did.

MR KEITH: Well, indeed.

So just with a broad eye to the position, from the viewpoint of a local resilience forum or a category 1 or 2 responder, is the following a broadly correct identification of the sorts of documents which they might have to have regard to under this system: they will have to know and understand the government's responding to emergency ConOps document, the revision to emergency preparedness Cabinet Office document, all of 591 pages, the emergency response and recovery document from the Cabinet Office, how to engage with and be guided by the Resilience Capabilities Programme, they'd have to engage with engagement and guidance material from the DHSC on the Pandemic Influenza Preparedness Programme, the material from the Pandemic Flu Readiness Board, multiple successive editions of the National Resilience Standards, the local risk management guidance, *Humanitarian aspects in emergency management*, Department of Health pandemic preparedness strategy, Department of Health pandemic preparedness and response, the 2014 Influenza Strategic Framework. They'd have to compile community risk registers, and they would obviously have to be familiar with each one of perhaps 22 or more risks identified by Westminster as being risks to which they must have regard.

Is that a fair summary of the sort of level of

guidance, paperwork and policy material?

MR MANN: Yes, it is. I'd just put an overlay on it: some of that is statutory, and some of that is non-statutory, and some is lower level guidance on best practice. So there are a number of filters which they should use in approaching those documents.

MR KEITH: You say at paragraph 354 on page 123, much further into your report, that much of the guidance has in fact not been updated and, moreover, that there is no central directory.

Could we have page 123, paragraph 354, please.

If you go back one page, please, to 122, you will start to see some of the material to which I've made reference, and you say at paragraph 354:

"It is gravely disappointing that so much of the key generic resilience and preparedness doctrine and guidance was not updated by the UK government during the relevant period."

Is it the position, in fact, that two of the most essential documents, that's to say the guidance from the Cabinet Office called Responding to Emergencies, Concept of Operations -- which you will know of, Mr Mann, prior to your role as an expert, because it was first published in March 2010, shortly after you left the Cabinet Office. It was last updated in which year, do

you recall?

MR MANN: 2013, I believe.

MR KEITH: And the emergency preparedness doctrine, which is the general guidance from the Cabinet Office for local authorities and local resilience forums and so on, the 591-page document to which I've made reference, was that updated last in March 2012?

MR MANN: Yes, in a series of individual chapter updates, yes.

MR KEITH: Yes, section 6 I think was updated.

Is there a very strong argument for having this profusion of paperwork brought together in single guidance, or at least in a single location?

MR MANN: I think there need to be two things.

First of all, a nice simple map as to where it all is. People should not have to fight to discover it, especially to fulfil their jobs effectively.

Secondly, in this day and age, it ought not to be a 500-page document. There are different ways of presenting and packaging these things so that people who need specific aspects of a 500-page document can pull down what they need on specific aspects.

MR KEITH: Professor, do you want to add anything to that? If you say "yes" if you agree, then the transcript will pick up your nod.

PROFESSOR ALEXANDER: There is simply one other aspect that has to be dealt with, and that is secrecy. Information that is classified is something of a problem. Studies of recommendations have suggested that a good portion of it could be declassified, and indeed some of it that is classified as not for public consumption is nevertheless in the public domain in other form. So that, I think, needs to be part of the -- reviewing(?) the changes.

MR KEITH: Thank you.

Can we then move to the issue to which you referred earlier, Mr Mann, and which I promised you we would come back to, which is that of National Resilience Standards.

What are National Resilience Standards?

MR MANN: They are a series of standards in a particular topic area, like risk assessment, for example, that set out three levels of practice, what is necessary to be compliant with the Civil Contingencies Act, and then two further levels to, in the jargon, good and leading practice.

MR KEITH: And is there a single document called National Resilience Standards that if you are the chair -- for example, a senior member of the police in your locality, and you're chairing a local resilience forum -- you can go to and say, "Those are our National Resilience Standards, they test, validate or assure,

whichever word you want to use, our functions"?

MR MANN: If I put myself in the shoes -- as indeed I have done in separate work -- myself in the shoes of the chairs of local resilience forums, there are 15 documents which can go into a loose leaf binder, they will tell me eventually the answers to one question: am I compliant with the duties in the Act? They will not of themselves provide an answer to, "Yes, I am compliant", but actually: is this local resilience forum ready to respond to all of the risks on its risk register? First point.

Second point, as well as the National Resilience Standards there are two other excellent and rather elderly documents which have not been -- I won't trouble you with the details, but they have not been withdrawn. So actually the standard set is confusing from the point of view of, let's say, the chair of a local resilience forum.

MR KEITH: And what are those two other documents? Could I trouble you for them?

MR MANN: Yes, of course. The so-called expectation set and the -- published a little before the National Resilience Standards -- and then the roles and responsibilities of LRFs.

MR KEITH: The expectation set was published in

December 2010; the role of LRFs in March 2011 have either been withdrawn or updated?

MR MANN: To the best of my knowledge, no, they haven't, and therefore if local resilience forums are trying to see if they're either compliant or ready, they've got a confusing picture to look at.

MR KEITH: By contrast, in Scotland is there a very useful document called "Preparing Scotland" which sets out in one place the principles and standards which must be applied by the local bodies in Scotland?

MR MANN: It sets out in one place, with a very good map, where all of the relevant guidance is, so that people do not have to fight to access it. It does make clear that regional bodies and local bodies should conduct their own assessments of their compliance and readiness. What it does not have, to the best of my knowledge, is a set of standards against which those assessments should be made.

MR KEITH: All right.

When the draft Civil Contingencies Bill came before Parliament in 2003, the Bill that became the Civil Contingencies Act 2004, did the parliamentary joint committee recommend a dedicated inspectorate to ensure adherence to standards which could be identified?

MR MANN: Yes.

MR KEITH: It's obvious, self-evident, that no inspectorate was formed, but did the Civil Contingencies Act actually provide for a system of monitoring and enforcement at least by way of allowing ministers to call for explanation?

MR MANN: Yes, it did. There are two sections that deal with that.

MR KEITH: Have they ever been utilised?

MR MANN: As far as I know they have never been utilised and they do involve taking cases to the High Court, which is quite a dramatic intervention.

MR KEITH: Did the Audit Commission until March 2015 exercise some limited external audit activity and assurance activity for public sectors in the emergency services and wider NHS?

MR MANN: I believe the Audit Commission did, until it was abolished, and so do some other bodies in this field in the blue light services.

MR KEITH: There was something called the national resilience capabilities survey, between 2007 and 2014, every two years. Did that end?

MR MANN: Yes, in 2017.

MR KEITH: Do you know why it was discontinued?

MR MANN: No. I read that ministers thought that the money could be spent better elsewhere. I do not know what

lies underneath that judgment.
MR KEITH: Was that a survey in fact directed to local bodies on a self-assessment basis, so they were asked to check their own homework?
MR MANN: That's correct.
MR KEITH: And in fact in 2014, was the take-up rate of self-assured testing 29%?
MR MANN: Yes.
MR KEITH: So do you, at page 91 of your report, recommend a systematic, new, rigorous, evidence-based process for checking standards, for testing the policies and procedures and the plans drawn up by various bodies are adequate and proper?
MR MANN: Yes, I do. In a field of such significance, where human life is at stake, then that checking -- that capabilities are in place and that they are good enough -- I believe to be fundamental.
MR KEITH: If we then go to page 92 -- sorry, yes, Professor.
PROFESSOR ALEXANDER: If I might add to that very quickly.
Absolutely agreed, but I would add to that that the procedures and so on are compatible. Given that we are dealing with what is or should be a system that involves devolved administrations, local administrations, local resilience fora, and so on and so forth, then when

procedures are applied in order to obtain results they need to be compatible, unless we're dealing with the very smallest class of emergency.
MR KEITH: Thank you.
Page 92, the following page, do you say that if the government is to comply with its duty to protect its citizens it is vital they have high quality assessments of the preparedness of the whole system, and drawing on good practice in a range of countries, you recommend substantially bolstering those National Resilience Standards, of which you've spoken, embedding them in an inspection regime, developing new arrangements under which the category 2 responders -- the responders to whom you referred earlier as being the ones who currently exist under a lesser legal duty -- should be assessed against the revised national standards, the Cabinet Office should approach a standard approach and methodology for reviewing.
Over the page, you suggest a compliance and preparedness review team in the Cabinet Office, and -- if we remind ourselves -- earlier you said that government departments should themselves be subject to an enhanced legal duty in the same way that local authorities and their bodies are.
You say on page 94:

"All Compliance and Preparedness Reviews and their resulting Action Plans should be brought together by the Cabinet Office, the Resilience Division in the Scottish Government, the Resilience Team in the Welsh Government and the Civil Contingencies Policy Branch of the Executive Office in Northern Ireland ... to provide an overarching ... annual [report] of the ... state of resilience and preparedness ..."
MR MANN: Yes, in an area of such importance where some of the risks are catastrophic and have hideous consequences, it seems to be a reasonable question that senior leaders ought to ask: how ready are we to respond to those risks? And indeed in the other countries in which I have worked, including in preparing risk assessment, it is normally the first question any senior minister asks: "Thank you for the risk assessment, what do we do with it, how ready are we as a country?"
MR KEITH: Because you referred earlier to the highly distributed leadership or the diffuse leadership -- you recall that we were debating and discussing the multitude of government departments, and different parts of different departments, and the Cabinet Office's role -- do you go further, page 112, and suggest that, for the purposes of accountability as well as management and control of the various moving parts in this system,

there should be a single body at UK level in order to provide a proper, accountable, transparent strategy to this hugely important area? And it should be, you suggest, a self-standing body rather than part of a UK Government department, in order that in part it can bring control and management and supervision to the government itself?
MR MANN: Yes, I do.
MR KEITH: Would such a body require clear and visible leadership?
MR MANN: Yes, that goes to the question asked by my Lady. I believe that there needs to be a single point of focus, both in terms of a single body -- not the diffuse arrangement as exist at present -- and a single individual at official level, and most likely at ministerial level, who has that visible responsibility and accountability for the state of preparedness and resilience more broadly inside the United Kingdom.
PROFESSOR ALEXANDER: I concur entirely.
MR KEITH: Yes, Professor, please.
PROFESSOR ALEXANDER: It may be necessary, if such a body and a personage is created, to make the leader responsible directly to the Cabinet and the Prime Minister, which is another European recommendation that various countries have taken up. It is, after all,

a matter of national emergencies.
MR KEITH: The Inquiry is aware, Mr Mann and Professor Alexander, that there are currently a number of ministerial posts concerned with civil contingencies. There is a minister of implementation, there is the Chancellor of the Duchy of Lancaster, there are ministerial positions which have responsibility for certain aspects, not all aspects but certain aspects of the civil contingencies system. Is that current system too diffuse?
MR MANN: Yes.
PROFESSOR ALEXANDER: Yes.
MR MANN: The simple question I start from is: to whom does Parliament, to whom do the public look to keep them safe? To put it at the most simplest, who is in charge of making sure that this country is ready to respond to all natures of emergencies but especially catastrophic emergencies?
MR KEITH: The Inquiry is aware that in the field of national security there is, at a very high level in government, a National Security Adviser, but the evidence appears to suggest that national security has become over time much more focused -- for very obvious and perhaps sensible reasons -- on threats, terrorism is an obvious example, as opposed to hazards.

Has over time -- in your opinion, has over time the focus in government on hazards in civil contingencies waned by comparison to the focus on malicious threats and national security matters in the way that we commonly understand them to be?
MR MANN: Yes, that is my belief. Indeed it's in Ms Hammond's witness statement as well. That is not in any way to diminish the work that is being done on threats, but our position is that substantially more work needs to be done on hazards.
PROFESSOR ALEXANDER: If I may add, conceptually speaking we have a difference between civil defence and civil protection.
Civil defence conceptually is a top-down procedure, organisation, dealing with threats which originally would have been armed aggression by a state-based power, and more frequently now is armed aggression by various dissident groups.
Civil protection, instead, which grew up decades later, is more about managing hazards such as floods and so on. It is a much more bottom-up sort of enterprise, because it has to be done and managed at the local level, albeit co-ordinated, harmonised regionally and nationally.
So in some countries there is a very distinct

separation of the two. In other countries they are quite merged. But there is a distinct difference between the kind of management of threats that definitely requires a top-down approach based on central government, and the kind of management of other sorts of civil contingency that very much requires local participation.
MR KEITH: Thank you.
In your report, gentlemen, you suggest the creation of a role called the united government chief resilience officer. You referred, Mr Mann, yourself earlier to the government's proposal of head of resilience within annex B to the December 2022 the United Kingdom Government Resilience Framework. Wherein is the difference?
MR MANN: I can't answer that question because I don't know what is inside head of resilience. What is in the framework is vague, so I'm afraid I can't answer that.
MR KEITH: But would your proposal -- sorry, yes, Professor, do please answer orally if you can.
PROFESSOR ALEXANDER: No, I simply concur entirely with what Mr Mann says.
MR KEITH: But whatever post is created, must it be a post that is independent, that has serious political clout, is transparent and accountable, accountable to

Parliament and has the ability to be able to control the various parts of government over which it sits?
MR MANN: Yes, and that individual must feel that accountability.
MR KEITH: Must?
MR MANN: Feel that accountability.
MR KEITH: Right.
LADY HALLETT: If the devolved nations -- if civil contingency is a devolved matter, how would a UK chief resilience officer work?
MR MANN: I believe there would need to be similar chief resilience officers in each administration, and then they can collaborate together within the context of the various devolution settlements.
LADY HALLETT: So you're suggesting one for Northern Ireland, one for Scotland, one for Wales, and a UK one, or and an English and a UK one?
MR MANN: English and UK. There are some issues that need to be addressed at a UK level in collaboration with the devolved administrations. There are some issues which are England alone.
PROFESSOR ALEXANDER: Yes, there are also, my Lady, models of this in the European Union when we have union-wide co-ordination of emergency response planning, preparedness and so on, and national; and therefore it's

a much bigger problem in terms of having national resilience officers and national advisers and so on. But it is (inaudible) even at that level.

MR KEITH: How, gentlemen, would we avoid -- if the Inquiry were to so recommend -- merely the replication of another level of bureaucracy, another level of governmental function being superimposed on top of this already very diffuse, complex and -- one may suggest -- overmanaged process?

MR MANN: I believe it would clear bureaucracy by clearing that diffuse picture on leadership; first point.

The second point is that I believe this role belongs in the Cabinet Office, where there are presently two entities who are dealing with resilience and preparedness.

So this may be no more than the designation of a senior officer who has that responsibility, clarifying responsibilities and accountabilities, cleaning up the overmanagement you describe, but drawing on existing teams.

MR KEITH: And would you propose an annual statement to Parliament for such a position?

MR MANN: Yes, I would. To actually each -- going back to your question, my Lady -- to each Parliament, because this is a devolved matter.

the primary decisions in the course of the government's response, the country's response to the Covid pandemic?

Was it, in terms of applying and running this system, in terms of making the decisions, in terms of social restrictions, how the various governments would respond and so on?

MR MANN: People at every level but starting in central government, which I think is the point you're trying to make, Mr Keith.

MR KEITH: Yes.

MR MANN: Then there would have been their equivalents at local level and at regional level and at devolved levels. So it is actually people at every level but including especially the people making the biggest and most critical decisions.

MR KEITH: And who took the biggest and most critical decisions?

MR MANN: In the context of the Covid-19 pandemic, obviously central governments in all four administrations.

MR KEITH: I'm pressing you, Mr Mann, because you know what I'm driving at.

MR MANN: Ministers.

MR KEITH: Thank you. Professor Alexander?

PROFESSOR ALEXANDER: Yes. The status and standing of emergency managers appears to have declined in Britain,

MR KEITH: All right.

Competence and training. We're now, my Lady, in the final furlong. Page 131.

(Pause)

In summary, do you propose that in order to make sure that the people at every level in this system are skilled, effective and recognised, that -- I'm now trying to find where the specific recommendations are. I think paragraph 379 -- that all local resilience forums and government departments should have suitably qualified, experienced and empowered personnel?

There should be a single competent strategy, and a framework to ensure proper training and the checking of training. There needs to be a fundamental reboot, you say, of the training ecosystem, and significantly -- page 134, please, paragraph 387 -- ministers and their special advisers must have a proper understanding or a basic understanding of resilience structures and the basic principles of emergency management.

MR MANN: Yes. The root point here is those who are taking critical decisions in a catastrophic emergency should have the competence and training they need to fulfil those roles well.

MR KEITH: At a necessarily superficial level for today's purposes, what body of people took all the important,

at least that is what they say when one talks to them. There is little or no career progression in this. There is also a tendency to cycle people in government departments through competencies that involve civil protection and emergency preparedness and then cycle them out of it again, such that expertise is lost.

What we need here is to ensure that there is identifiable career -- there are identifiable career paths and the means to pursue them. I think that's very important, and also I believe there is now a growing understanding of the value of involving universities in providing basic training.

It is recognised that, in order to be a good decision-maker or emergency manager, you need the background and the understanding which you can get from, for example, higher education, and you also need the experience to combine with that in perhaps a 50/50 measure, which you can get from being on the job. But purely being on the job will not give you an adequate understanding of the dynamics of emergencies.

MR KEITH: Do you also refer at page 139 to -- page 137, I apologise -- to the need for a new centre of resilience excellence, that is to say a body to promote the right principles, to train, and to provide leadership to everybody who requires to be trained in

this system of civil contingencies?
MR MANN: Yes, it goes a little wider than that. What does good look like? It starts with good guidance. It includes training. It includes a process on learning lessons, and it includes a function which is to pick up good practice in higher education institutions, other governments and so on, but its focus is on excellence.
MR KEITH: In the government's December 2022 Resilience Framework at annex B -- we won't bring it up, but you referred to it earlier, Mr Mann -- the United Kingdom Government committed to taking the following actions by 2025, to include the delivery of a new UK resilience academy built out from the Emergency Planning College.
The Emergency Planning College, is that a body that currently exists, I think operated by a third party?
MR MANN: It currently exists, it's a joint venture between the Cabinet Office and a private company, SERCO.
MR KEITH: Do you understand or do you know anything about the proposals to be delivered by 2025 to deliver an academy -- I don't know quite how one delivers an academy -- built out from the Emergency Planning College?
MR MANN: No, I've not seen any of the detail on that.
PROFESSOR ALEXANDER: Neither have I.
MR KEITH: Has the government published a single document

stating the rubric or the aims or the outcome or the structure of such a body?
MR MANN: No. I declare an interest, I am a senior associate of the Emergency Planning College. I have not seen such a document.
MR KEITH: All right.
In Scotland there is a National Centre for Resilience. Is that an appropriate body, as you see it, for the purposes of ensuring excellence and ensuring the correct degree of training in Scotland?
MR MANN: Yes, Scotland has four bodies on training, on exercising, centre of resilience and so on. If you were to hypothetically stitch those together, that is pretty much what we had in mind in writing our proposals on the centre of resilience excellence.
MR KEITH: All right.
Drawing all those threads together, Mr Mann and Professor Alexander, at page 179 of the report, having examined all the structures of which you've spoken today, having identified the correct doctrinal foundations, the integrated emergency management, all the structures and the policies currently in existence, and asked yourself the question or the primary question, "Were those structures, those policies, those schemes suitable or effective in responding to the Covid

pandemic?" what was your conclusion?
MR MANN: Our conclusion, there is a figure -- figure 6 in this table -- which breaks down what should be there and what should be good, which I suggest we don't go back to in the interests of time. I did an assessment against every one of those components, and that led to my conclusion -- which was recorded a bit later in this document -- that the vast majority of those components were poor or non-existent, and therefore it led to my conclusion that the overall preparedness for the pandemic was inadequate.
MR KEITH: Was your conclusion at paragraph 523 -- and, Professor, I'll ask you to confirm it in terms as well -- that influenza pandemic preparedness in England and for areas of planning that were UK-wide in their scope was poor, although the evidence suggests that preparedness will have been stronger in Scotland and especially Wales and Northern Ireland, which did sustain activity to build pandemic preparedness throughout most of the period?
The fact remains that three years after Exercise Cygnus and almost ten years after the Hine review -- the Hine review being the review by Dame Deirdre Hine into the 2009 swine flu pandemic -- key areas of weakness in the United Kingdom Government's

planning had not been fully addressed.
Do you both stand by those propositions?
MR MANN: Yes.
PROFESSOR ALEXANDER: Yes.
MR KEITH: Was preparedness for a novel infectious disease pandemic adequate or inadequate?
PROFESSOR ALEXANDER: Inadequate.
MR KEITH: Had the response strategy put in place by the United Kingdom Government been adequately tested in advance of Covid-19?
MR MANN: In detail, forensic detail, to make sure that the plans worked on the ground, no.
MR KEITH: Was it clear in fact that health and social care sectors were liable to be overwhelmed?
MR MANN: That was the clear advice, not only from the Hine review in 2010, it appears in the Cygnus report, the report of Exercise Cygnus, it appears in officials' advice to ministers, it's in Ms Hammond's statement that they would be overwhelmed, which has to raise serious questions about whether the plan would not -- would have worked.
MR KEITH: Is, therefore, now radical innovation and change required?
PROFESSOR ALEXANDER: Yes.
MR MANN: Yes, in structures and, yes, in the detail in

which plans, procedures, whatever is issued from whatever organisation but especially the centre of government, are followed through in detail to make sure that they will work.

MR KEITH: To that end, gentlemen, do you set out, at page 185 through to 199, 47 separate recommendations which you invite my Lady to take account of?

MR MANN: Yes.

PROFESSOR ALEXANDER: Yes.

MR KEITH: Thank you.

My Lady, as with the previous witnesses, the core participants, in particular Covid-19 Bereaved Families for Justice, have indicated that there are some questions that they would wish to put. You indicated provisionally that you would be minded to allow them to put them.

In light of the evidence that has been given, they are all issues which remain outstanding, and so may we have, please, your permission for them to put the questions that they wish?

LADY HALLETT: Mr Weatherby, if we could make sure we stick to the issues I have given permission on.

MR WEATHERBY: I shall certainly do that.

LADY HALLETT: Thank you.

Questions from MR WEATHERBY KC

MR WEATHERBY: First of all, my name is Pete Weatherby, and I'm representing the bereaved families. Mr Keith has been through most of the issues that I wanted to deal with, so I can be very brief.

In terms of what Mr Keith has just asked you, in fact in the report you've referred to the novel disease preparedness as being woefully -- sorry, wholly inadequate. So it's quite a strong finding, isn't it? And it's in the report, so I don't need to go through it in any detail with you, but you identify the 2011 plan as being very deficient in terms of being a whole-system plan. So the 2011 flu pandemic plan is not a whole-system plan, is it?

MR MANN: Yes, that's what we put in the report, absolutely.

MR WEATHERBY: The points that you make from that are that, despite the fact of the Hine review referring to a containment phase as being an important part of a whole-system plan, that didn't find its way into the 2011 plan.

MR MANN: That's correct.

MR WEATHERBY: And in the decade or almost decade until Covid struck, no change was made to the plan to include a containment plan.

MR MANN: That's correct too.

MR WEATHERBY: Yes.

In terms of the plan itself, you conclude that it's a Department of Health plan which ostensibly deals with health and social care, although you point out it's very slim on the social care aspect of that.

MR MANN: Correct.

MR WEATHERBY: The further point is that by 2017, in the light of the Cygnus learning, efforts were then made to refresh that plan, but it came to nought because of the Brexit pausing.

MR MANN: Exactly.

MR WEATHERBY: Yes. But in the course of that, the National Security Council committee was specifically warned about the state of capacity within healthcare, weren't they?

MR MANN: Healthcare and social care, yes.

MR WEATHERBY: I stand corrected, indeed.

So through this period, there was no whole-system plan and the plan, such as it was, was deficient, known to be deficient, and by January 2020 hadn't changed?

MR MANN: It was, in my view, deficient. I believe it was known to be deficient in 2017. I wouldn't necessarily say throughout the period.

MR WEATHERBY: Yes.

PROFESSOR ALEXANDER: Might I add here that there is a considerable amount of academic work between 2003 and 2009 on developing the scenario for a generic viral

pandemic, and what makes this very particular is that such an event is half a medical epidemiological problem and half a socio-economic one. The planning tended not to concentrate on the socio-economic implications, even though these were well known.

MR WEATHERBY: Yes, thank you, Professor.

So what was really needed was this whole-system plan that you talk about, or strategy that you talk about in your report, which would have covered all of the issues that we have been through beyond healthcare and social care?

MR MANN: Yes. You might call that a war book, but it has to cover all of the actions that are taken in all of the sections, not just -- I can understand, Mr Weatherby, you're focusing on health and social care -- there's a range of other activity which needs to be there as well.

MR WEATHERBY: Yes, indeed. And in order to then make that a whole-system strategy, that has to be brought together.

MR MANN: Yes.

MR WEATHERBY: So whether we call the Department of Health and Social Care the lead government department, it's certainly going to be one of the main departments involved in any pandemic strategy.

MR MANN: It has got a large part of the management of the

consequences but there are other parts, which is the point we explored with Mr Keith.

MR WEATHERBY: Indeed.

So in terms of the responsibility for the whole system -- a point that again you've just been dealing with, with Mr Keith -- the point of having a single point of responsibility is to ensure that the relevant departments and beyond departments, other organisations as well, their plans are integrated into this whole-system strategy and somebody is responsible for making that happen.

MR MANN: Those two points are exactly my point, yes. Integrated, and responsibility and accountability, yes.

MR WEATHERBY: Yes.

So we learned yesterday that the Civil Contingencies Secretariat -- which of course you're very familiar with -- has been split and there is a Resilience Directorate now.

Could that do the job of being single point of responsibility?

MR MANN: No, I think you may have landed on the wrong part of the split. There is also the COBR unit which could be the single point of accountability. I would much prefer to see the shared accountability between the so-called lead government department, DHSC in this case,

and the Cabinet Office to use its power to bring everybody else together.

MR WEATHERBY: Right.

PROFESSOR ALEXANDER: My feeling about COBR is that it is too small. I think it might fit somewhere like the Netherlands, which in any case has highly devolved emergency response. But I think it is too small for a country as large and as complex as the UK.

MR WEATHERBY: So the body that should be responsible for this whole-system strategy, should that be within the Cabinet Office or should it be elsewhere?

PROFESSOR ALEXANDER: It's a European recommendation that it be in the Cabinet Office and countries have taken it up with a degree of success, so possibly, yes. The alternative is to have a completely independent agency, and that certainly has some advantages, if it is tolerated adequately as a solution by government.

MR WEATHERBY: Yes.

Is there a problem with that concept in terms of ministerial responsibility? Because sitting above the doers, the civil servants who are going to make this work, has to be somebody with democratic power and democratic responsibility, doesn't there?

MR MANN: Yes, and accountability, yes.

MR WEATHERBY: Yes. So does that work better with this

being located in the Cabinet Office, or even a different Ministry?

MR MANN: I'm trying not to sound too geeky. The issue with Cabinet Office ministers is that they are rarely or have not historically been responsible for a particular piece of operational activity. So I think there would be a prior question: is this a separate minister, let's say a minister in charge of a separate government body -- the conversation we were having with Mr Keith --

MR WEATHERBY: Yes?

MR MANN: -- or would we change the model of Cabinet Office ministers over many decades and have a minister with explicit operational responsibilities?

MR WEATHERBY: Yes.

I'll leave it there, thank you.

LADY HALLETT: Thank you very much indeed, Mr Weatherby.

Thank you, Professor Alexander, Mr Mann. Particularly you, if I may say so, Professor Alexander, given your bereavement and your heart problems. I hope the heart problems resolve soon.

PROFESSOR ALEXANDER: That's very kind of you, my Lady.

LADY HALLETT: And thank you too, Mr Mann, for being here too.

(The witnesses withdrew)

MR KEITH: Thank you, my Lady, that concludes today's

evidence.

LADY HALLETT: 10 o'clock tomorrow, please.

(4.30 pm)

(The hearing adjourned until 10 am on Friday, 16 June 2023)

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