Thursday, 15 May 2025

(10.00 am)

LADY HALLETT: Ms Cartwright.

MS CARTWRIGHT: Good morning, my Lady.

The gentleman by the witness box is Sir Paul Nurse. Could I ask, please, for him to be sworn.

SIR PAUL NURSE (affirmed)

Questions by LEAD COUNSEL TO THE INQUIRY FOR MODULE 7

MS CARTWRIGHT: Could I ask you, please, to provide your full name to the Inquiry.

A. Of course. Paul Maxime Nurse.

Q. Thank you. With your permission, I'd like to refer to you throughout your evidence as Sir Paul.

Could we first of all identify the witness statement you've provided. There should be a copy brought up on the screen in front of you. It's INQ000587302. Could we turn to page 44, please, of that statement which is dated 9 April 2025. And can I ask you first of all to confirm, are the contents of that statement true to the best of your knowledge and belief?

A. Yes, it's true to the best of my knowledge and belief thank you.

Q. Now, it's correct, isn't it, Sir Paul, that the statement has been provided to effectively represent the corporate position of the Crick Institute?

A. That's correct, yes.

Q. And for completeness, is it also right to identify -- and we don't need to go to it -- that you also contributed to a statement that Module 7 has received from the Microbiology Society?

A. Absolutely correct too.

Q. Thank you. Sir Paul, before we deal with the Crick and what the Crick is, and the importance of what the Crick did in the pandemic, could we first of all identify yourself and your professional background and qualifications and then we'll move to the detail, please, of the Crick.

It's right, isn't it, that you have a degree in biology from the University of Birmingham?

A. I do.

Q. That in 1979 you set up your own laboratory at the University of Sussex?

A. I did.

Q. In 1984 you joined the Imperial Cancer Research Fund?

A. I did.

Q. Which became Cancer Research United Kingdom in 2002?

A. I did.

Q. And you have done an awful lot of work in respect of genes, and it's right, isn't it, that, for your work generally, you were awarded, in 2001, the Nobel Prize in

physiology?

A. I was. Physiology or medicine.

Q. Thank you.

So, moving on from your time at the Imperial Cancer Research Fund, it's right, isn't it, you left in 1988 to chair the Department of Microbiology at the University of Oxford?

A. I did.

Q. You continued your work on cell cycles there and also new research areas in genomics?

A. I did.

Q. In 2003 you were president of The Rockefeller University at New York City?

A. Yes, I was.

Q. In 2010, and this brings us, I think, to what you're going to speak about today, you became the first director and chief executive of the Francis Crick Institute in London?

A. I did, and I still am.

Q. Thank you. And it's right, isn't it, that for five of those years you've been president of the Royal Society?

A. I was.

Q. And in fact you will be returning to the role, I think in December of this year, to be president of the Royal Society?

A. I will be doing so.

Q. That's only a snapshot of your knowledge and experience. Is there anything else about you, sir Paul, that you'd like to identify that's going to be relevant to anything we're going to talk about in respect of test and trace?

A. No, except I'm not a clinically trained researcher; I'm a biological researcher.

Q. Thank you.

Can I then turn to you to what us what the Crick Institute is, but also the significance of the skills and experience and equipment that is held at the Crick Institute that is relevant to test, trace and isolate, please.

A. Yes, I'm delighted to do so.

The Francis Crick Institute was founded just ten years ago, moved into its new buildings next to St Pancras. It is funded by three biomedical funders: Cancer Research UK, Medical Research Council, government one step removed, and the Wellcome Trust. It is a large institute, around 1,300 permanent scientists, 200 or 300 visitors, so it's the biggest biomedical research institute under a single roof that I'm aware of, and it covers a whole, wide range of fundamental science into biology and biomedicine. A total of 120 research groups.

It has rapidly established its reputation. Of those 120 -- a good reputation. Of those 120 research group leaders, four are Nobel laureates, two are emeriti and two who are still active, and I believe about 27, 28 Fellows of the Royal Society, so a very high concentration of talent.

Q. Thank you.

A. It is also a very well-equipped institute, reasonably well funded, and covers a wide range of research activities with a wide range of different technologies.

Q. Thank you.

You've identified the Nobel laureates and I just want to identify another one of them by name because it will become relevant to some of the correspondence we look at together. Is it right that one of the four that you'd identified is Sir Peter Ratcliffe, who is the Director of Clinical Research but he is also a Nobel laureate?

A. He is. And I should say he is probably the most distinguished clinical researcher in the UK today.

Q. Thank you.

Now, you've given an overview about the skills and expertise, but when we look at the statement, and the statement will be published, it's clear that in terms of the expertise that exists, it's expertise from an

international perspective. I think you tell us that there's individual experts from over 80 countries that work within the Crick?

A. Yes, we are very international. We have approaching 80 different nationalities working there. We are able to recruit the best from the world. When we actually search for a new group leader, we get nearly 500 applicants from around the world.

Q. Thank you. Unless there's anything else you want to say about the Crick, the full details are in the statement, but I'd like you to assist her Ladyship with when the pandemic happened, and certainly around January time, the relevant steps that the Crick were taking when they identified that something significant had to be done in respect of testing, please?

A. Yes, when we saw the pandemic coming, we have about 20 clinically trained group leaders who came to see me, or a subset of them, to say that this was likely to be a very significant pandemic. And we looked very quickly at whether the Crick Institute could assist the country in dealing with that. We rapidly realised that we would be able to assist with testing, because the equipment and skill sets were very well represented at the Francis Crick Institute.

We'd never done routine testing before, so it was

something completely different from what we would normally do. We're a research activity; we're not an NHS support facility. But we realised we had the skill set and the people. And of course, very rapidly, they were sent home or on furlough, or would have been sent home on furlough, and we realised that we would be able to contribute to the testing facility in a limited way, locally, but very rapidly.

And we perhaps realised rather quickly that the plans to establish very large testing facilities -- the Lighthouse laboratories -- would take many months to get properly functioning, for both scientific and logistic reasons, yet we would be able to get something in place, to deal with the more vulnerable individuals in society and healthcare situations, much more rapidly, in a matter of weeks.

So we started planning to do that from early February onwards.

Q. Thank you. Can I ask you, then, to provide the details of the Crick Consortium because it's right, isn't it, that partnerships were entered into including with local NHS trusts as part of the thought process around what you've just described for getting some testing up and running?

A. Yes, we set up a Crick Covid Consortium, we called it

CCC for short. And just to summarise it logistically, really, what we did is we plugged our testing facilities into pre-existing pipelines into hospitals and eventually into care homes, so that there were already in place, if you like, embryonic logistics, that could be put rapidly into a more rapid and larger testing facility if they had, at the front end, the ability to test.

So we provided the ability to test and connected it to local hospitals and care homes.

Q. Thank you. And can we just ensure we've identified those in the partnership. It's right it was University College London Hospitals, NHS Foundation Trust, care homes, but also you had the input from the health services laboratories and a UK Accreditation Service-recognised clinical diagnostic laboratories. Can you just provide the details as to why they were important to be in the partnership, please?

A. They were really critical because, if you like, they gave the, sort of, legal cover and the accreditation that we, as a research laboratory, wouldn't have. And that's really what I was trying to emphasise, is that we stepped up the ability to do the lab work connecting with pre-existing legal support and facilities that then would connect into the hospitals. That was what was

special about this.
Q. Thank you. I'm going to briefly display a document that just helps identify the hospitals and community hospitals that the pipeline then provided with testing. It's, please, INQ000587047. That's INQ000587047.
A. Yes, I think that I -- I haven't that in front of me.
Q. So whilst -- it is being displayed, and if it can't be displayed, there's no issue, but it's right, is it -- thank you -- could the bottom be expanded, thank you?
A. Ah yes, I have it now.
Q. -- that essentially the pipeline provided testing to the 13 acute hospitals listed there and five community hospitals?
A. Absolutely correct, all in, essentially, mostly in north London, yes.
Q. Thank you. I don't think that's a complete picture of what was supported because if we look over the page, although they're not listed, we know that it went to 200. You can see at the top of the page, additional locations included care homes, mental health facilities, crisis centres, GPs and medical centres?
A. Absolutely correct.
Q. Thank you. That can be removed, please.
You've already mentioned what could be achieved because of the local connections, can you perhaps expand

upon the benefit of how the Crick was able to operate because of it being part of a local infrastructure?
A. Yes, I can. It's really a sort of sticking plaster approach, if I may use that metaphor. Because it was local and because we knew many of the people involved, or rapidly got to know them, when there were difficulties, when there were issues, when we lost samples, when the IT didn't quite work, we could literally get on a bicycle and sort it out. I remember one case that a GP needed a test within hours. We managed to get it to them in hours. That happened frequently.
That's really difficult in the big Lighthouse labs, because it has to be like that. If you are in Milton Keynes and doing testing for Staffordshire a couple of hundred miles away, you cannot solve problems with sticking plasters. But that we could, and it's one reason we were so effective.
We never could work at the same scale, but we could provide a service that gave -- and we did -- a 24-hour turnaround from the very beginning. And if you are dealing with a pandemic, that sort of speed is absolutely critical to protect vulnerable people. Absolutely critical.
Q. And when you say the 24-hour turnaround, that is from

being tested and having the results available?
A. Absolutely. So you would give your sample, you would know the answer within 24 hours, and nearly everything we did was within that timescale.
Q. Thank you. Now it seems an important observation point you wish to make around the speed of turnaround and the importance --
A. Yes.
Q. -- for the obvious reason you've given, but why are you wanting particularly draw that to our --
A. I want to bring that to attention because even when the Lighthouse labs, which had to be put in place -- I mean, we needed mass facilities -- they were counted as working well if they had a seven-day turnaround, and seven days is a very long time when you're dealing with vulnerable people in vulnerable healthcare situations, for all sorts of reasons which I think will be obvious. 24-hour turnaround is really important in this situation, if you are to provide the appropriate protection of patients and other vulnerable individuals.
Q. Thank you. Perhaps if I identify this as a theme, we'll perhaps come back to on the chronology when we look at Lighthouse laboratories. I think you have been referenced by myself in opening but also in the press at the time where you describe, essentially, that there's a

need for the small boats of organisations like the Crick to operate?
A. Yes. I stole a metaphor from Dunkirk of course with the big ships and the small boats. I stole it from my wife, actually, who suggested it when I was going on the Today Programme the night before, but I think it is a good metaphor, it is a good analogy. We needed the big ships but we had to appreciate that they would take time to be put in place and that we had to do something before they could get in place, and they would probably always be a bit slower.
The little boats, on the other hand, such as the Crick, could produce, as I've explained, much more rapid turnover in getting the data back, and would be very essential at the beginning of a pandemic because if you don't know where the infection, is you can't actually take any ways of preventing it. So it's absolutely critical.
Q. Thank you. And we'll look together in a little time at an article that one of the members of the Crick Consortium wrote where, I think, if we have the lighthouses, they described what laboratories like you and others were doing as "the lifeboats"?
A. Yes, that's another good metaphor. Yeah.
Q. Now, at a very high level, can we just deal with the

logistics and the infrastructure you had at the Crick. And, particularly, we know that the gold standard test at that time early in the pandemic was PCR machines, and just from a logistical point of view, can you give her Ladyship, please, some idea about how many PCR machines the Crick held?

A. Yes, so we had the machines and we had the expertise, just to make that critical. We had about 50 PCR machines operating in the building. We also needed containment facilities and we had good containment facilities, I mean, the sort you would find in a local hospital, but we had about 20 of them. And those were critical -- both of those items were critical.

Q. Thank you. And just pausing there because I've introduced the containment levels and how initially the pathogen of the coronavirus was being treated as a containment level 3 virus before then the HSE and the ACDP downgraded it to a level 2. So, just to be clear, is it correct that when you gave those figures, that there were -- certainly you had 20 PCR machines and facilities that could operate at containment level 3?

A. Not PCR machines --

Q. Sorry --

A. -- we had the containment facilities that could operate at containment level 3 very effectively, yes.

Q. Thank you.

A. And the PCR, 50 PCR machines that could service them, yes.

Q. Thank you.

So can I just understand, because the distinction you were making about the different PCRs, is that dependent on where they were being used in the containment levels?

A. No, the PCR machines are a machine that allows you to detect the presence, in this case, of the virus. So that is a piece of kit that, with the right people running it, could tell you whether the virus was present in a sample.

The containment facilities were important for safety purposes, essentially to kill the virus before you actually did the analysis.

Q. Well, I think perhaps to best show this, can we use your witness statement, please, where we've got the description of that.

It's your statement, please, INQ000587302, at page 13. You've helpfully extracted from the article I referenced a moment ago the process. So if we could expand the image at the top.

A. Yes. Yes, this is very useful what you can see here. We have to take a sample, and that has to be bar coded,

scanned, so it can enter into the IT system. I mean, that's the starting point. This means, of course, you have to have IT that can deal with this.

Q. Just pausing there, we'll look at the article, but you did have the IT systems --

A. We did. We had to modify it, of course, but we had the skill set to be able to do that rapidly. I want to emphasise, we don't normally do this sort of thing at all, so we had to do it from scratch, and so we had to modify what we had, the IT facilities, to be able to deal within that.

That means we had a sample and we could know where -- the patient or the person producing it, who it was, and -- it was anonymised, of course -- and who it had to go back to. It was then opened in a safety cabinet which --

Q. Which is the next part.

A. Which is the next one.

Q. And I think this is where, with the containment levels -- because it's essentially a hood, isn't it? And is it the circles that we see, essentially that's where your hands would go in as you're handling the virus?

A. Yes, exactly. It's a containment facility. You put your hands into those two holes there, into gloves, and

that means you can manipulate the sample safely.

And, as you rightly said, initially at containment level 3 and then subsequently at containment level 2. That would allow inactivation of the virus so it then became safe. It then had to be plated out. You see a 96-well plate. So this allows us to analyse samples at scale, so we could do 96 individual tests simultaneously in that particular plate.

We had to extract the RNA --

Q. And just pausing there --

A. You pause me.

Q. -- I think a little bit of help about RNA and what this in the virus, and how that is important in identifying whether someone has got positive for Covid, please.

A. Indeed, I am happy to explain that now.

Every virus has a genome. We have genomes too. Our genome is made of DNA, that's deoxyribonucleic acid. Viruses can be DNA or RNA, which is just ribonucleic acid. In the case of coronavirus, it was an RNA virus. So, if you like, encodes the genes that make the virus work.

If you can extract the RNA out of the virus, which is what we did next, then you can use the PCR machine, I'll come to that in a moment, to determine whether that RNA comes from the Covid virus.

So then, after RNA extraction, you go to the PCR machine. PCR means polymerase chain reaction. It's just a technique which allows us to detect the -- what sequences are present. And we know the signature sequences of the Covid virus, so that allows it to be tested to see if it is positive or negative.

Then, of course, you have to go back through the logistics, right to the beginning again, to actually get that information back to the patient or the person giving the sample.

And we aimed at doing all of this process and getting back to the patient -- the logistical issue, which can be slow -- in less than 24 hours.

When necessary, we could do it in eight hours.

Q. Thank you.

Just dealing with -- we've dealt with PCR, but can you just explain again, at a high level, what the RT, the reverse transcription, means, please.

A. Oh, I can! It gets a bit more technical, of course.

Q. Well, perhaps a very high-level --

LADY HALLETT: Slowly then, please.

A. Very high, at very high level.

We have RNA, which is essentially a molecule made up of different letters, chemical letters. And these chemical letters can connect to other chemical letters

that we can construct, so that it allows us to detect, if you like, the presence of a particular sequence of letters. And that's what this process is going.

And essentially, what happens is that we copy the molecule and then we copy it again, and again, and again, maybe 20 times. So it turns from being one molecule, which is infinitesimally small, into many millions, and then we can detect that in the assay that we do.

MS CARTWRIGHT: Thank you.

Now, I think, just with looking at an example of a PCR machine, which is the machine at the end, that identifies whether someone is positive for the Covid virus for negative, I think there were a number of manufacturers of PCR machines, and are you able to give us any idea as to the PCR machines that the Crick had or was it a mix of manufacturers of the machines?

A. It was a mix of different manufacturers. We'd actually inherited them from our -- or we merged three institutes to make this one. The equipment was actually quite old, it worked quite well. We had some new equipment, some old equipment, some large, some small, all of which could be used in this particular process.

Of course, if you were doing a Tali(?) testing lab you would have the same machine and it would be more

standardised. But we could put into the testing regime all the machines that we had.

Q. Thank you. And can I ask you, just because it may be relevant also, how were the Crick -- to do this process you also need reagents; is that correct?

A. Yes.

Q. And how were the Crick making or getting their reagents to be able to do the PCR testing phase --

A. Well, this is interesting you should bring it up, because in fact, as you could well imagine at this time that sourcing these reagents became quite difficult because they were in demand across the world. But being a research institute, it was rather trivial for us to set up a line that could make the reagents that we needed. That would be more difficult in a conventional testing lab, but we were able to do that. So that when we were lacking a particular reagent, we just made it ourselves.

Q. So that was possible at the Crick also: you could make the reagent to do the testing?

A. We could make it at the Crick, but also there would be many other academic-type research institutions and universities which would be able to do it. It's relatively trivial but it wouldn't be, if you like, the sort of thing that a company would normally do in

a normal testing laboratory.

Q. Thank you. Now, the way you repurposed the Crick, it's right to say that you weren't being paternalistic or protective of it, you shared your standard operating procedures, they were accessible on your website, but, essentially, what you'd achieved could be copied or mirrored at places that had the equipment and facilities?

A. Absolutely. We made that a priority. Once we'd sorted out how to do it, we also worked out how a conventional research laboratory like the Crick could be rapidly repurposed in a couple of weeks into quite an effective small testing facility. I say small, I mean we were doing, in the end, 3,000 to 4,000 tests a day, we started off with around 1,000 but nearly -- there would be many places in the UK, academic institutions, maybe some other small companies, that could be rapidly repurposed to produce that sort of output.

Q. Now, we'll look at the correspondence, you do identify a figure that you could get to, I think the 3,000 to 4,000 but I think there's also an indication that had there been more money and more facilities, that the Crick could have increased that figure again to what would have been possible at the Crick by way of daily turnaround of testing. Are you able to, and if you're

not, please don't speculate, but are you able to give us some idea of what could have been possible for volume testing at the Crick with more investment or money?

A. Yes, because we were using our research money, of course, for this purpose. So, I mean, we were somewhat restrained by money. We weren't restrained by numbers of workers, because we had many who were skilled.

I think we could have scaled up to around 10,000 in a month if we'd had the money. And given what I've already said, there's nothing that special about the Crick except we were prepared to do it and to do it very quickly. That could have been rolled out, using our protocols, to 30, 40, 50, maybe more places in the rest of the UK. I'm guesstimating there, I haven't actually counted them, but I'm thinking of research universities and other research institutions.

So if you just do the simple maths there, you can see that, within a month or two, we could have had 100,000 to 200,000 tests which would be turned around every 24 hours, locally set up. And that, I think, would have been a very effective way of dealing with the early days of the pandemic.

Q. Thank you. And so, I just want to be sure that we're clear about the timeline and the volume, I think you'd indicated you think it would have taken the Crick

a month to get to a potential ability to have, then, 10,000 tests a day?

A. I'm -- I'm estimating. We'd need to do a proper study of that, but yes, I think that would be reasonable.

Q. Thank you. And you --

LADY HALLETT: Sorry to interrupt.

Did you discuss with your colleagues -- obviously you all discuss things at different times, did you discuss with your colleagues who headed these other institutes as to what their plans were and what they could do or couldn't do?

A. We didn't discuss -- we sent it all out and there were informal discussions. There was a great deal of interest in doing it, I have to say, but there seemed to be many obstacles. Some of the obstacles were a lack of interest from, if you like, the central -- both government and maybe the testing services, who were totally focused on big Lighthouse. So there was a lack of -- there was a real lack of interest. I think that was one problem.

I suspect also, but this is hearsay, so I'm afraid I'm not sure about this, there might have been a certain reticence or reluctance in some institutions. You know, did we have the right insurance? Were we legally in the right position? All the usual sorts of things that

maybe in peacetime you would really have to take seriously, but in wartime perhaps you could be a little bit more bold about.

I think the Crick was in a special situation that we controlled our own finances. We were bold, we got things working. What surprised me was that that wasn't taken up centrally. When -- with that support centrally, then I think we'd have given confidence to the universities, who might have been perhaps a little more timid than we were, to actually roll this out.

So I think it needed -- boldness in the political leadership centrally would have made a very significant difference.

It's my opinion, of course, because we did not do that.

MS CARTWRIGHT: Thank you.

Can we then look to the correspondence that you and others at the Crick entered into. Can we start, please, first of all, with INQ000587053. Thank you.

So here we have, 10 March, your email to Patrick Vallance, with Chris Whitty on copy.

A. Yes.

Q. Perhaps if I read it just to contextualise, we've got -- attached to it was the "Crick work to support COVID-19 research", which we'll look at in a minute briefly, but

you say as follows:

"Dear Patrick

"In view of the current situation with COVID-19 I thought you might like to be aware of what work the Crick is currently undertaking to support the research endeavour. I have attached a short summary. If there is anything in this summary you would like us to prioritise please let me know.

"The Crick obviously only has certain expertise but I would like to offer any support we have that might be useful to you. For example, we could use volunteer laboratory staff if needed for diagnostics, or offer use of our high-quality containment of our general lab facilities.

"Please do let me know if there is anything else you feel the Crick can do to support the overall effort against COVID-19."

Then over the page, please, to page 2. This the attachment to the e-mail. Thank you.

We can see, I'm not going to read it, but it will be published. It essentially summarises --

And go to the next page, please.

A. Yes, this is -- sorry, yes.

Q. Sorry, thank you.

A. Keep going.

Q. And over again.

Essentially was giving the detail of what could be achieved and what was being offered.

And then I'm going to take us on to the next page, please, page 8 -- sorry, over again, because -- sorry, it's page 7, I do apologise, because then we'll pick up the correspondence from that point.

So when that was sent, can you assist about the response you had back to that offer of what could be achieved at the Crick?

A. Well, I'm trying to recall. I think Chris, Chris Whitty, responded positively. And what we were offering there, just to be clear, was everything we could do, which was testing -- which we've spoken mostly about, and which of course is what you're looking at here today -- but also research activity, which we could repurpose from what we normally do to a focus on the coronavirus.

So we did have a response, you see there, from Chris, who I'm sure was extremely busy at this time, but I don't think this was picked up centrally to be able to turn these offers -- and at this moment they were perhaps a little vague -- into a more comprehensive local testing.

I mean, that was where we eventually ended up in

fact in only a few weeks, but we weren't so specific at this stage, I would say.

Q. Thank you. So I'm going to start at the bottom of this page, then, as to the next piece of correspondence, please. 17 March, Peter Ratcliffe, who we've already identified from the Crick, one of the Nobel laureates.

Going over the page, you say:

"As you may know I am the Clinical Research Director at the Francis Crick Institute."

Again, a follow-up saying that "We're here to help", essentially:

"At present I am contacting heads of NHS labs in London and Oxford to determine if they can deploy extra personnel -- as the easiest first step."

And then also saying:

"We will also scope out methods, reagents equipment ..."

Then if we can go back a page to, please, page 6 -- sorry, page 7, I apologise.

We can see that Mr Whitty responded on 18 March to thank Peter, and say that:

"I am ccing my government address ... and will discuss with the team there."

So an acknowledgement and the fact that it was to be discussed.

I then want to take you, please, if we follow the chronology, to you taking up the mantle again on 19 March, which is our internal page 6.

Can you give us a sense now, we've -- the initial contact was the 10th. We're now at 19 March, where you are now emailing Mr Warr, who was at that time special adviser to the Prime Minister for health, social care, life sciences and technology, and minister Nadhim Zahawi and Greg Clark.

Can you help us as to why you were sending this email and why you were going to these individuals in particular, please.

A. Yes, I think what we decided at this point is that we told the science and medical advisers, Patrick and Chris, but we thought that we needed to try to persuade government to take this seriously, and this was our first attempt to do so. And we sent it to Mr Warr who was, I believe, adviser to the Prime Minister. Again, previously summarising what we could do, and indicating, as you see there, that when we -- within 24 hours of asking our staff, we had 300 who volunteered, they would come in, and remember, not being paid because they were already furloughed, and so at no cost, in fact no extra cost. We only needed money for reagents and maybe for new equipment, just to indicate at the highest level, at

the level of the Prime Minister, what was possible at the Crick, and then, of course, subsequently, what would have been possible had it been rolled out across the country.

Q. Thank you. So as you already indicated, this is you indicating that the support to scale up diagnostic testing was being offered, that you were aware of a significant diagnostic bottleneck with PCRs, that you had that large number of qualified volunteers ready to help, nearly 300, and as we can see in the next paragraph, that:

"The Crick also has significant capacity that could be turned over to testing, including 20 class B fume hoods in Containment Level 3 labs, and a very large number of lab spaces that are ready to be turned into a Containment Level 2 space."

And we can see the offer that you were prepared to quickly turn significant resources over to that work.

A. And, of course, we did turn most of it over. I mean, not quite at the scale, as I've already indicated, that perhaps we could have done, but we did turn it over quite quickly.

Q. And we will see that, then, in the next piece of correspondence, please, moving along in the same document, please, to page 9.

We're now at 1 April 2020. Can I ask you, in response to the email that you sent of 19 March, did you have any response?

A. We didn't get any response from William Warr or the Prime Minister to that letter, no. We did not.

Q. Now, we next see your letter of 1 April, now on Crick-headed paper, from 1 April, at this point now updating on the progress that the Crick had made, supporting the national testing. You obviously reference that email by saying:

"On March 19, we informed 10 Downing Street through the Prime Minister's adviser William Warr that the Crick had decided to turn significant institute resources over to PCR testing, to help support the national Covid-19 testing effort."

And the email was provided.

And then you indicated the progress that had been made, that:

"We are now in a position to scale up, starting with around 100 tests a day later this week, moving to 500 a day by next week. Subsequently, we are aiming for at least 2000 a day. Our objective is to have results within 24 hours, as this will help return healthcare staff rapidly to the front line, which is our initial priority.

"In addition to testing in the building, we also have many expert volunteers on standby to support Public Health England to scale up their testing laboratories."

And in response to that letter, did you have a response?

A. I don't recall a response, no.

Q. Thank you. Now if we turn over the page again, please, we can see that a further update was given from -- this is actually internally in the Crick -- from Sam Barrell to yourself, but attaching a document which we then see on the next page, please, at page 11, which was a document that had been provided to the call that had taken place the day before with the Department of Health and Social Care, so on 18 May.

Are you able to give any further details about that contact and input in the sharing of the opportunities to increase throughput in the testing pipeline document that we see that starts on page 11?

A. Yes, so we -- we were now, and as you see we were doing 2,000 a day tests. We were reporting that. We could increase to 4,000. We didn't have the resources, as I said, so we were using our research resources. But I think it was at this stage that we realised that we could go to 10,000 if we had the resources.

I was a little surprised that nobody even

contemplated giving us some support, and of course nor -- and you may get to that a bit later -- was it being considered that what we were doing could be rolled out.

Q. Thank you. I'm going to just turn over the pages of this document because it's a detailed document. It had obviously been given a great deal of thought, because it set out strategic operation on specific testing issues within the document.

Can we move over to page 13, please. Thank you. And on to 14. And into page 15, please, 16 and 17.

So the letter will be published. I don't have the time to deal with each aspect but I think it speaks for itself as to things that have been identified but solutions that the Crick had found, but also the real benefit it was having on the ground locally for those that you were providing testing to.

A. Yes, and if I could just add, together with Sam Barrell, who was a COO, Sonia Gandhi and Charles Swanton were two of the three leaders who actually drove this on the ground. I just want to acknowledge them.

Q. Thank you. Can we, just briefly, on the asymptomatic turn to page 13, because we will look together very briefly at an article that was published. So if we go to page 13, please, we can see in this letter it was

identifying:

"There appear to be no national PHE Guidelines regarding the testing of asymptomatic [healthcare workers]."

And referencing Sam Barrell speaking to Duncan Selbie on 20 April with Charlie Swanton and Peter Ratcliffe:

"... and discussed the importance of testing asymptomatic HCWs as there is evidence to indicate that they are almost a source of cross infection."

A. This is a very important point, I think, for you. Asymptomatic healthcare workers who are dealing with vulnerable patients can, of course, spread the disease. Nobody knows they have the disease, but they could spread it.

Now, there was ample evidence, actually from very early on with studies in China, Hong Kong, Italy, the cruise ship, that asymptomatic transfer of the virus from asymptomatic individuals was taking place.

Now, once you realise that, then you realise you have a problem in a healthcare situation. Because what that means is that you may well have healthcare workers looking after vulnerable patients who are spreading the disease to those vulnerable patients so it becomes a very critical issue. What was happening at the time

was that testing was only being made available to those healthcare workers who had symptoms.

Now, that's a sensible start, because sometimes viruses are only spread from people who have symptoms, but there was really good evidence that in this case of Covid, it was possible to spread it from people without symptoms. And this meant that you had to simply test all healthcare workers.

Now, that wasn't happening, and I think it wasn't happening, and again, I'm guessing here -- you may want to find out -- but I suspect that the testing capability at this stage simply could not test all healthcare workers. However, had they followed a month or two earlier what we were proposing with the Crick out across the country, that would have been possible because it was possible with the testing we were doing locally to the Crick.

So I do think this will have contributed to the spread of the virus amongst patients at this time as a consequence, and subsequently, of course, it became clear that there were indeed high levels of healthcare workers who definitely had the virus and were potentially spreading it.

Q. Thank you. We'll look briefly in a moment at what the research identified and perhaps, so we're clear, the

testing that the Crick provided into hospitals and the research that was being done, had clearly identified that locally in London, asymptomatic transmission was taking place, because on the testing that the Crick was doing of those healthcare workers in hospitals, and care homes, there was clear evidence of asymptomatic people but who were positive for Covid?

A. There was clear evidence confirming the earlier studies that I referred to.

Q. Thank you. And then we've looked at May and the document provided to the DHSC, but I want to now deal with a letter -- we're going back in the chronology.

A. Yes.

Q. It's your, letter, please INQ000587060, which was the further letter on Crick-headed paper. So we've looked together at the earlier letter in April but we're now at the one that you, Dr Barrel, and Sir Peter Ratcliffe sent on 14 April, and this time directly addressed to the Secretary of State, and can you just confirm, was that the Secretary of State for Health, Mr Hancock?

A. Correct, it was Matt Hancock, yes.

Q. Thank you. And we'll look at the terms of the letter because as well as identifying what you could do at the Crick, would you agree that this letter clearly identified the concerns around asymptomatic healthcare

workers and the need for asymptomatic testing?

A. It clearly identifies that as a major issue.

Q. Now we can see that the starting point for this letter was the evidence that had been given to a Select Committee on 6 April, and it says as follows:

"We followed the Committee's debate on the adequacy or otherwise of the testing capacity within the NHS, but were surprised that as far as we could hear, no mention was made in that assessment of the need to test asymptomatic or oligo-symptomatic individuals ..."

Pausing there, what is oligo-symptomatic?

A. A limited number -- in this context, a limited number of symptoms.

Q. Thank you.

"... be they healthcare workers or patients. This is of great concern in view of the emerging evidence that a high proportion of infections are asymptomatic, obviously entraining a high risk of transmission between and among healthcare workers and patients.

"We assume this has already been debated amongst Her Majesty's government advisers and you might feel appropriate responses have already been considered. However, there are several reasons for our concern and for writing to you directly in this way. These are as follows:

(i) our perception is that, at present, there is reticence about doing more widespread testing of healthcare workers. It will clearly be expensive and yet another challenge for hospitals that are already under pressure. Some have privately expressed their concern that making a positive diagnosis in asymptomatic healthcare workers who might otherwise continue to work will deplete staffing levels at a time of need. Whilst perhaps understandable, these concerns are not productive in terms of the overall goal of controlling the epidemic. Rather, it will result in recurrent problems of seeding fresh outbreaks with staff absence and the potential for infecting non-Covid patients in the healthcare environment. Importantly, we consider that these concerns can only be overcome by a clear central directive from you as Minister."

Is there anything else you want to expand on, the terminology and what is being said seems pretty clear, but is there anything else you would like to add, Sir Paul, to that?

A. I think it, frankly, couldn't be clearer.

Q. The letter then goes on:

"The operational issues in setting up systems for systematic and repeated testing for healthcare workers are very substantial, even apart from the tests

themselves. We are concerned that this may not have been fully appreciated. To avoid delays, it is essential that this is done in parallel with the development of testing capacity itself."

Is there expansion you want to make to the point?

A. No, it just emphasises the importance of immediately increasing testing capacity and, as could have been done locally, had the same model been followed.

Q. You go on:

"The most accurate interpretation of testing results is only likely to be achieved by systematic repeat testing in vulnerable groups. Such data collections will be essential for accurate assessment of whether and for how long a particular titre of antibody against a particular viral antigen is indicative of protective immunity."

A. Yes, it is a little bit more complicated, but it indicates the importance of correct interpretation of the data.

Q. And it goes on:

"Even when the current wave of the epidemic has passed, there will be a continuing risk of re-emergence with a strong likelihood that this may originate, and be at its most damaging within the healthcare sector. So the need for systematic surveillance will be ongoing for

the foreseeable future.

"We therefore advise you to action an initiative that all NHS trusts and healthcare providers should be required to set up surveillance systems for the regular testing (both virological and serological) of all healthcare workers and patients with immediate effect.

"Our concern is that if this is not done, the current initiative to expand testing itself will not achieve the desired effect and the 'breathing space' potentially achieved for the NHS by the 'lockdown' will not have been used effectively."

A. Yes.

Q. Now, we have looked at the chain of correspondence that had not had a substantive response. Did you receive a response to this letter of 14 April from the Secretary of State for Health?

A. We did receive a response in July, if I recall correctly, but it wasn't from the Secretary of State; it was from a civil servant.

Q. Well, we can look together at that response, at the July letter. I just wanted to clarify, there was nothing before the letter of 6 July?

A. No, there was not.

Q. Can I then have displayed, please, INQ000587061. Thank you.

This is the -- thank you -- the letter that was sent on 6 July. The name of the individual, being a more junior individual, has been redacted. But would it be fair to say that one of the major issues being flagged was the issue of asymptomatic need for testing?

A. Yes, and I think I described this letter as anodyne, if I recall correctly.

Q. Well, let's just look at the response that was given to the letter. Obviously, a:

"Thank you for your correspondence of 14 April to Matt Hancock, co-signed by sir Peter Ratcliffe and Sir Paul Nurse, about the novel coronavirus. I have been asked to reply and I apologise for the delay in doing so.

"I understand your concerns and hope these are now resolved. I trust the information below is helpful nonetheless.

"Testing is a key part of the UK's response to COVID-19 and, following the publication of the Government's strategy, capacity has rapidly expanded. Anyone in England who has symptoms of COVID-19, whatever their age, can now be tested for the virus. Further information can be found at [various websites] ... and about getting tested."

Now, obviously, that's flagging the fact that anyone

with symptoms can be tested but you had flagged the concern and issue as to asymptomatic testing.

I'm going to go to the next page because it allows the full context of the letter to be seen -- thank you. And it doesn't seem, from my reading of it, that there was any addressing of the concern around asymptomatic transmission in healthcare workers or testing. Is that your reading of the letter?

A. That is my understanding. I think we also have to be disturbed by the fact that it took three months even to get this letter. I'm a yeast geneticist, so I can understand I was ignored. Peter Ratcliffe, as I said, is a very prominent clinical researcher, but for the Secretary of State to ignore a letter from two Nobel Laureates in physiology or medicine for three months is a little surprising, I would say.

Q. Thank you. Now, you've already commented upon what you believe would have been possible if local testing had been put in place sooner. Is there evidence that you wish to say about your views about what should have been happening sooner in respect of it being clear and necessary for the view of the Crick that there needed to be testing of healthcare staff even that didn't have symptoms?

A. It was absolutely clear that was essential. The fact it

was not put in place was a limitation on testing capacity, because I suspect they felt they couldn't do it, and rather than acknowledge that they couldn't do it, because that would have indicated a mistake in their overall strategy, they remained silent upon it. But I will repeat, in my view at least, that had they rolled out in March, April, a copycat of the Crick across many publicly-funded research places what we had been doing, I think they would have easily managed to get the capacity to do that, and I repeat, that would have led to protection of vulnerable patients.

Q. You referenced protection of vulnerable patients but does the same principle apply also to protection of healthcare workers?

A. Also for them as well.

Q. Thank you.

Now, can I just ask some follow-up questions in the context of those letters and what had been identified. The concerns raised in your second letter did not seem to have been acted upon because it's been identified that asymptomatic testing was delayed until November 2020. Did you ever receive a later response or any further input from anyone in the rest of that year in respect of the concerns the Crick had raised about asymptomatic transmission in testing?

A. No, I certainly didn't get any formal response. There were one or two informal situations in media, which may have been touched upon, but no formal response.

Q. Thank you. Can I also ask you, you have noted within your evidence the prevailing policy in July of 2020 of survey sampling level of testing healthcare facilities was preferred to systemic, regular testing to address staffing shortfalls from Covid-positive test results. Do you have any comments as to whether it's likely that survey sampling contributed to Covid spread in healthcare settings from transmission to healthcare worker to patients and vice versa?

A. I'm not an expert in this area but I think it is likely.

Q. Can I ask you whether you've any views as to whether the delay in testing healthcare workers with immediate effect, as recommended in your letter of 14 April 2020, contributed to increased spread and, invariably, deaths?

A. Again, I don't have data on it and I'm not an epidemiologist, but I think that is likely. I should emphasise, I think it was probably recognised somewhere that that was the case, but they just simply didn't have the capacity to test following the strategy of total investment in large central laboratories which were still not operating sufficiently effectively.

Q. Thank you. Can I ask you also, given the Crick's

research around asymptomatic transmission concerns that were raised in April, the surge in cases that we know happened in the autumn of 2020, do you have any views as to whether the delay in systemic screening of healthcare workers and asymptomatic testing may have played a role in the spike in Covid cases in the autumn and winter of 2020?

A. I don't have any view about that. It is possible, I suspect, but you need to talk to a real expert.

Q. Thank you. Can I ask you, we know that you raised these issues with the government of the United Kingdom. Do you know whether the Crick made any similar approaches to the devolved nations' chief medical officers or scientific officers or their governments?

A. I don't think we did. I'm not absolutely certain of that, but I don't think we did.

Q. Thank you.

Can we then, just for the last portion of my (sic) evidence, just identify a number of the recommendations that you and the Crick have detailed within your witness statement.

Can we display on the screen, please, it's -- thank you -- INQ000587302, but it's the internal page 21, please. Thank you.

We can see at paragraph 2.4 you set out

recommendations. If we go to the bottom of that page, please, we can see -- you give the detail and underpinning evidence, but you and the Crick recommend that the United Kingdom should have a standard stockpile of standardised reagents and/or resilient domestic manufacturing capacity.

A. Yes, we have that in this -- at the bottom of the page there, 2.4.1. That has to be combined with what is further up, which is the establishment of a plan for local testing that could be implemented very rapidly. So those two things have to be combined together. We do need a stockpile, or at least national ability to produce rapidly, but that has to be combined with the second point of a network of local testing facilities, which is a bit further up the page.

Q. Thank you.

Can we then turn over the page, please.

I'm afraid, Sir Paul, I'm dealing with the highlights in bold --

A. Yes.

Q. -- because of the time, just to capture them.

A. Understood.

Q. We can see that you recommend that:

"There should be a clear roadmap for the development of new assay in the early stages of a pandemic (bearing

in mind there is likely to be restricted access to control standards or consumables), or a scheme for continual pre-evaluation of emerging technologies as scalable and fast testing platforms."

A. Yes, and I think this only requires planning. It requires planning of identifying where the resources are most needed. That would be, of course, hospitals, care homes and the like. And then just ensuring that you can put something in place with everything here, with control standards and consumables, all which could be planned beforehand. And this means you don't have to hold something in place in -- which would be expensive, you know, in big laboratories. You simply have a plan for repurposing pre-existing facilities, pre-existing laboratories, and make sure that they have a plan that would allow it to be rapidly implemented.

So I think that is all that's required. It wouldn't even cost very much.

Q. Thank you.

I'm going to summarise, to go through, you've also recommended that the government should maintain an up-to-date register of the nation's network of research and clinical laboratories where large amounts of equipment are housed and relevant expertise is available for rapid repurposing in a pandemic.

I think that speaks --

A. That's exactly the point I'm making, thank you, yes.

Q. There's the point about the reagents, then, that you recommend there should be coordination of production of reagents and testing across the nation's network of research in clinical laboratories?

A. Exactly, yes.

Q. Over the page, please:

"An up-to-date register of staff training across all aspects of testing should be maintained."

A. Yes.

Q. "... prior planning for sample collection standardisation in a readily automatable format."

A. Which is important, because often there's IT issues here, and you just need to solve those up front.

Q. The Crick make recommendations in respect of data, namely that:

"Urgent action is required to develop common 'platforms' for patient care and data management, procured, managed and integrated system-wide, not at individual trust/body level."

A. Yes, clearly vital, yeah.

Q. Over the page to page 24, please, that:

"Patient data has to be consolidated across platforms into a single platform record which can be

presented via Application Programme Interfaces ... to allow for key patient data to be shared with, and updated by, approved non-NHS organisations."

This is basically stating: solve the IT problems up front.

Q. Thank you. Then further you go:

"[The] NHS must invest in technology professionals and skills development system-wide, and dramatically reduce reliance on external contractors and restrictive managed service arrangements."

A. I think that's critical. And I want to add something else. What we were doing was almost an example of public duty rather than simply relying on commercial organisations to produce these tests. And I think insufficient attention was paid to the public duty aspect here.

People wanted to help. They volunteered to help. They weren't allowed to help because all that was being thought about were commercial solutions rather than exploiting the great opportunities we had with our publicly funded institutions.

Q. Thank you. And then over the page, please, to 25, in the context of clinical testing you recommend:

"A pre-pandemic plan should include a list of favoured or approved sites for quick mobilisation, to

help prioritise distribution of limited test material, potentially scarce consumable resources, and rapid integration into the reporting system."

A. Two words: proper planning.

Q. Thank you.

LADY HALLETT: Everything in this Inquiry comes back to proper planning, I'm afraid, Sir Paul.

A. Yes.

MS CARTWRIGHT: Just finally for my purposes, Sir Paul, I know your statement deals with much wider issues, including a concern you had about what was being said by the government about the extent of testing and tests from a news --

A. Yes.

Q. Can you briefly address that before I --

A. Yes, I would like to, because actually, first of all, we have to have some sympathy. This is a, then, very difficult situation to deal with, very difficult to communicate quite complex things to the public, but the government did no favours to itself by trivialising communication.

I mean, a particular thing that irritated me was the 100,000 tests by, I think, the end of April that was being put up. And then, when it wasn't reached, poor old Grant Shapps was put out to protect a claim that

100,000 had been reached when in fact over half of them or thereabouts was actually in the post.

And when that actually emerged, and I mean -- you know, my eight-year-old grandsons would realise that's nonsense. I mean, when that emerged it actually undermines the public confidence. That if a government can say they are meeting 100,000, when 50,000 of them are in the post, what else are they meant to believe?

This is where communications and PR is simply overwhelming truth and engagement and truthful communications with the public. I think it was outrageous.

Q. Thank you. Then just to finally end the evidence, it seems right, you having identified the volunteers that gave of their time and expertise, could I briefly display INQ000587069, internal page 5.

And the full article here essentially sets out in detail what the Crick did and achieved, but if we look on the last page of this article, we can see there: the Crick Covid-19 Consortium and the names of a great many of those that were part of the consortium that worked for the public good that you've described. And I think it's appropriate in my questions to end with displaying the names of those individuals.

A. I'd just like to identify all my colleagues here who

were working long shifts, no extra pay, of course, they were on furlough. But they did it, I repeat, out of a feeling of public duty.

MS CARTWRIGHT: My Lady, those are my questions. There are questions from the Core Participants.

LADY HALLETT: I think Mr Thomas is first.

Mr Thomas is over there, Sir Paul.

Questions from PROFESSOR THOMAS KC

PROFESSOR THOMAS: Good morning, Sir Paul.

A. Good morning, good morning.

Q. I'm representing FEMHO, that's the Federation of Ethnic Minority Healthcare Organisations.

Sir Paul, as we reflect on the response of the pandemic, I would like us to address the role of ethics, accountability, and inclusion in the decisions that were made in and around the testing, in particular trying to understand how equity was integrated into the design and implementation of the TTI system, especially how it impacted on marginalised communities.

So with that in mind, my questions are aimed at trying to explore those issues.

So the first question is this: Sir Paul, in your experience, with your insight into both the scientific and the logistical barriers faced during the pandemic, how can we ensure that ethical and equity considerations

are formally embedded into future pandemic testing protocols, particularly when addressing the needs of underserved communities?

A. I think -- I don't have any specific and special knowledge of this particular area, I have to admit, but I think it is very difficult to achieve equity unless you have the capability to deliver the, in this instance, the testing that was required. And in that situation, all communities will suffer, of course, but including marginalised communities.

So what we see here is the failure to produce the appropriate testing, and we've just been discussing that, and as a consequence of that, communities will suffer, including marginalised communities. So we need the capability, in short.

Q. Well, that leads me on to my second question, which is, if you can assist us, who in your view should be held accountable for ensuring that these ethical and equitable considerations are adhered to, particularly when designing the testing, especially when it comes to safeguarding the interests of marginalised and minority ethnic communities?

A. I think what's critical here, as in times, all times of crisis, is proper political leadership. Leadership which leads to the confidence of the nation and all

parts of the nation that the very best is being done to deliver an appropriate outcome.

So the key issue for me is good political leadership. It is not enough to simply say, for example, we will identify a company who will do it and put it off to somebody else and not take responsibility for actually getting a proper delivery of the appropriate outcome.

Q. Thank you. As we reflect on the systemic failures of the TTI system, particularly in respect of minority ethnic communities, how do we -- how do you assess the role of cultural competence in the initial design and implementation of these services?

A. I think critical here, and I'm not sure I'm fully addressing your question, is appropriate communication of all aspects of the issues around these particular problems and deliveries, and I think why I emphasise communication is that those who come from different communities have different needs for appropriate communication and you have to make sure that the communication, which is critical, is actually tailored in such a way that it is appropriate to all parts of the community. I think that would be the only comment I could make about it.

Q. Communication being key?

A. Yeah.
Q. And finally, this is my final question, looking back, what could have been done to ensure that the TTI system was both culturally competent and equitable in its outreach and provision of services, especially for vulnerable and at-risk communities?
A. I think it's having people in charge who care.
PROFESSOR THOMAS: My Lady, thank you.
LADY HALLETT: Thank you, Mr Thomas.
Ms Munroe.
Ms Munroe is there, Sir Paul.

Questions from MS MUNROE KC

MS MUNROE: Good morning, my Lady.
Good morning, Sir Paul. My name is Allison Munroe. I ask questions on behalf of the Covid Bereaved Families for Justice.
Sir Paul, thank you for your evidence this morning. Just two questions on behalf of our families that we would welcome your views on. Both in your oral evidence and indeed in your written evidence you've emphasised the key workers, both symptomatic and asymptomatic, should have been the focus of early testing and especially healthcare workers. My question is this: notwithstanding the high infection and mortality rates of TfL workers, in the first wave, they were not

prioritised for Covid testing following the government's suspension of community testing on 13 March 2020.
In your view, should TfL workers and other key workers such as teachers and domiciliary workers have been prioritised for testing as were the healthcare workers?
A. So what I think here is that we need to look at our -- at our community across the board in our appropriate planning, and I said "proper planning" a few minutes ago. Because you're quite right, there are a variety of different key workers, not just healthcare. We emphasised healthcare because of the spreading amongst vulnerable patients, but there are others which should have a protected status. I want to emphasise something that that we haven't mentioned. We managed, of course, to protect the Crick by testing individuals at the Crick and this meant that we allowed people to do research into Covid in the Crick.
Now, the principle you're talking about there applies to other essential activities, and different workers that you've mentioned. This needs proper planning as to where you need the testing and to make sure you have the capability of doing the testing through the sorts of, in my view, the sorts of recommendations that we've made to mimic the Crick in

any future pandemic.
Q. Thank you, Sir Paul.
My second and final question. To an extent you have answered it in answer to Mr Thomas King's Counsel, but Sir Paul, you note that the Crick Consortium were staffed by volunteers who, as you say, would otherwise have been furloughed and at the outset the testing was focusing on NHS staff and families, but the work from the Crick later included collaboration with clinicians at UCLH, and other hospitals, local hospitals, and programmes to test, for example, homeless individuals residents and staff at care homes, locally, and staff and users of mental health units.
So looking at those particular vulnerable groups in society, would you agree that that outreach testing, such as was carried out by the Crick and its partners, was perhaps more suited than digital apps for certain vulnerable groups within the population such as the mentally unwell, those with mental disabilities, elderly, and those who were unsupported and unable, perhaps, to be, for want of a better word, less digitally literate?
A. Yes. I'm no expert in this area, as I said I'm a yeast biologist, but there's no doubt, I think, that when you have an initiative that is local, by its very nature,

that will focus on the needs of the local environment which I have a feel will include exactly the sorts of things and people that you mention.
We got a lot of advice back and a lot of proposals back from the community about where testing should be applied, and we did our best to actually satisfy it when it's requested.
I think this naturally comes from more local testing by its very nature.
MS MUNROE: Thank you very much, Sir Paul.
Thank you, my Lady.
LADY HALLETT: Thank you very much, Ms Munroe.
That completes all the questions we have for you, Sir Paul. I'm sure I'm not the only one who when we heard just part of your CV, I felt extremely humble. So thank you very much to you and to your colleagues for all that you did, and tried to do, to protect people during the pandemic. Obviously I can't reach any conclusions until I have heard all the evidence, but, I have to say, I share your astonishment that when two Nobel Laureates write to important people, that you don't get a response.
It makes one wonder if they realised who you were, but it's on the letter, in fact, I think --
THE WITNESS: I think it was on the letter, yes.

LADY HALLETT: Yes. So thank you, again, for what you did during the pandemic, and also thank you for your help to the Inquiry.
THE WITNESS: Thank you for listening to me. Thank you.
LADY HALLETT: Very well, I shall return at 11.35. Thank you.
(11.17 am)
(A short break)
(11.35 am)
LADY HALLETT: Ms Cartwright.
MS CARTWRIGHT: My Lady, please could Professor McNally be sworn.
PROFESSOR ALAN MCNALLY (affirmed)
LADY HALLETT: I hope we told you you weren't first on, Professor?
THE WITNESS: Yes.
LADY HALLETT: Thank you.
Questions from LEAD COUNSEL TO THE INQUIRY FOR MODULE 7
MS CARTWRIGHT: Could you please tell the Inquiry your full name.
A. Yes, my name is Alan McNally.
Q. Thank you. Professor McNally, you provided a witness statement to the Inquiry. It's 31 pages.
Could we go to page 31, where we see the date of your statement being 27 March this year, and can I ask

you to confirm that the contents of your statement are true to the best of your knowledge and belief.
A. I can confirm they are true.
Q. Thank you.
Professor McNally, could we together identify your relevant knowledge, experience and expertise.
It's right, isn't it, that you are professor of microbial evolutionary genomics and inaugural head of the School of Infection, Inflammation and Immunology in the College of Medicine and Health at the University of Birmingham?
A. I am, yes.
Q. Can you assist us as to how long you have been a professor at the University of Birmingham, please.
A. I've been a professor since 2019. I've been at the university since 2016.
Q. Thank you. And I think, is it right, that before that time you were formerly at Nottingham Trent University?
A. Yes, I was. Yes.
Q. Thank you. It's right, isn't it, that you are also a consultant for Prenetics?
A. Yes, I was. I acted as a consultant to advise them on their testing to resume the football Premier League.
Q. Thank you.
You are also a trustee and member of council of the

Microbiology Society?
A. I am, yes.
Q. And it's right, isn't it, that you have collaborated and contributed to the microbiology statement authored by Peter Cotgreave that --
A. Yes, I did.
Q. -- the Inquiry also have. Thank you.
Significantly though, I'm going to come on to deal with the fact that you were part of the team that set up the Milton Keynes Lighthouse laboratory in March 2020?
A. Yes, I was, yes.
Q. And I think also of significance, that we're going to come on to deal with in a minute, that you have previously done post-doctoral research at what was VLA, now the Animal and Plant Health Agency in Surrey?
A. Yes, I did perform post-doctorate research on avian influenza and diagnostics for that virus.
Q. Thank you. Now can we first of all identify, it may be obvious from your qualifications, but it's right, isn't it, you have a wealth of relevant experience that is pertinent to test, trace and isolate?
A. I think so, yes. Certainly from my post-doctoral work on avian influenza. I've also had several funded projects to develop rapid diagnostic tests over the years.

Most of my research now is actually not relevant to that, but I do have -- and also, at the time of the pandemic, I was the head of one of the most prestigious microbiology institutes in the country, so I had quite a bit of insight to give, I felt.
Q. Thank you. Now I'm going to start, please, with you looking at the beginning of January 2020 and can I ask for your assessment at that time about what you thought was likely going to happen and what was needed?
A. Yes. I think myself and many other, sort of, senior microbiology colleagues across the country were watching what was happening in China, I also have very close collaborators in China that I was speaking to, and it was clear that this wasn't -- it wasn't going to be a localised outbreak of respiratory disease, it looked like it had the potential to be a pandemic. And then, as it spread into Iran, Italy, other parts of Southeast Asia, I think my colleagues and I were all discussing the absolute probability that this was going to be a significant pandemic.
And then, from my own expertise, the thing I started to worry about was whether or not we as a country would be able to cope with the influx of that disease, particularly around diagnostics and testing.
Q. Thank you.

Can we together just identify what ability the University of Birmingham had in January of 2020 --

A. Yes.

Q. -- to make PCR tests, please.

A. Yes. So, as January unfolded, myself and some colleagues in the university, Professor Andrew Beggs, Professor Alex Richter, working with our head of college, Professor David Adams, we started to think about how we might contribute efforts to control the virus, and that was specifically around testing.

Q. I'm just going to ask you to slightly slow down for our stenographer, but thank you, continue.

A. So we looked at the equipment that we had in the medical school of the university. We had sufficient PCR machines, maybe around a dozen. We had containment level 3 facilities which we could employ to help. And we had sufficient expertise and knowhow to perform testing.

Unlike Sir Paul, who was on previously, we don't have a core research budget that we could divert to, but what we did was have everything set up, we identified staff that we could train and who could help, and we got ourselves in a position where we felt we could very quickly redeploy efforts to offer somewhere between 3,000 and 5,000 PCR tests per day if it was needed.

Q. Thank you. So that's 3,000 to 5,000 PCR tests per day at the University of Birmingham from what time period? Would it have been possible in January?

A. Probably planning in January, with us being able to do that from mid-February.

Q. Thank you.

Can I perhaps explore what might be an obvious point, but the University of Birmingham and your medical school, does it have a direct sharing of data through hospital records, because of the nature of the medical school -- (overspeaking) --

A. Yes, it's one of the benefits that we have as a medical school, is we have some research laboratories. And we also have some, sort of, semi-research, semi-service laboratories which already perform tests for the NHS, and therefore report those results into the NHS data reporting system. So that's the major hurdle for university labs in being able to offer diagnostic testing, but most medical schools have labs that do that and therefore that obstacle does not exist.

Q. Thank you. So, again, in terms of what was possible, in February 2020, would it be local testing at the university using the university laboratory, but also the ability that the data across and the recording of that positive or negative test could have been directly

inputted into medical records?

A. Yes, yes, we believe so, yes.

Q. Thank you. Now, we've just touched upon one medical school at one university in the United Kingdom. Are you able to assist us as to how many medical schools and similar-calibre universities have a similar type of resource in the UK in January 2020?

A. Yes. It's a guesstimation, it's not an accurate summary, as a guesstimation. But there are around 40 medical schools in the United Kingdom, so that's across England, Wales, Scotland, Northern Ireland. All of the -- the vast majority of those are research-intensive universities, they would have the equipment, the expertise, the staff, and the vast majority of them would already be doing research projects that would allow them to share data with the local NHS trusts.

Q. Thank you. So the same data sharing ability and flexibility --

A. Yes.

Q. -- of testing and inputting of records?

A. Yes.

Q. Now that's the mainstay medical schools in the UK, but is there a different cohort of universities that also have the laboratory centres and the laboratory equipment that aren't the classical core 40 medical schools,

please?

A. Yes, absolutely. There are research universities, research -- pockets of research intensivety(?) in universities up and down the country. So you could easily add another 30 or 40 laboratories that could have -- that had the equipment and the knowhow that could have contributed. They probably would not have that normal day-to-day seamless exchange of data with NHS but that would be the only obstacle to them also standing up and supporting.

Q. But certainly having the correct PCR equipment?

A. Yes.

Q. The relevant expertise?

A. Yes.

Q. And ability to perform testing quickly?

A. Yes.

Q. Now, in terms of other existing infrastructure that existed in the United Kingdom, I highlighted, when I dealt with your past experience, the Animal and Plant Health Agency?

A. Yes.

Q. The Inquiry has already heard some evidence about zoonotic diseases and viruses. Can you assist with your informed knowledge about what laboratory structures and availability existed through the Animal and Plant Health

Agency, please?
A. I would argue that the APHA, the Animal and Plant Health Agency lab in Weybridge and the large virology research lab in Purbright were almost certainly the two facilities that would have needed absolutely zero support in beginning Covid testing immediately. The APHA was a European reference lab for avian influenza, for rabies virus, for lots of different viruses, so it's already performing diagnostic tests at the very highest level, the same PCR tests for viruses, similarly with Purbright, and there are other facilities like the National Institute for Biological Standards in Hertfordshire, they're doing testing for high containment level pathogens on a regular basis.
Q. Thank you. And I've sought your help to try to understand infrastructure. On top of that, can you assist, just so we've got a proper context of your informed view about what existed. You touch upon it in your statement but it's just to make sure there's no confusion about what existed. We've heard about the Virology Network --
A. Yes.
Q. -- and the virology laboratories.
A. Yes.
Q. Can you just assist as to where they sat? And

obviously, that's quite separate as to how that then factors into also what was available?
A. Yes, so those are the network of, if you like, hospital-based laboratories that have the infrastructure, expertise and equipment to perform relatively high throughput molecular tests, PCR testing for viruses. They were part of the old Public Health England network of labs, around about 40 or so. As the pandemic emerged, 12 of those were stood up to provide testing for the UK, but there is that network.

Then there's also further clinical microbiology labs with PCR machines and obviously the expertise to turn over to viral PCR testing.
Q. Thank you. So just to be clear, I dealt in my opening with the fact that when PHE commissioned 12 of the PHE labs, your evidence and knowledge is that, sitting outside that, there are other PHE laboratories that also could have been stood up for testing?
A. And clinical microbiology laboratories.
Q. Thank you. And then, separately again, in terms of laboratories that existed in hospitals up and down the country, are you able to assist at all as to how many laboratories they would have had also additionally? I know a lot of their testing would have been contributing to the effort but, again, just to get an

idea about the existing infrastructure.
A. Yeah, I can't give you a fully informed answer to that. Many laboratories, as hospital labs and public health labs were rejigged pre-pandemic, many of them became a hub and spoke model. So the example I gave you, when that happened I was in Nottingham, was that a hospital in Chesterfield reduced its capability to do PCR testing but would have used Nottingham as a central hub in order to do that type of testing. But the majority of hospital laboratories are able to do a PCR test. Many of them have now moved over to black box cartridge systems but there are dozens and dozens of labs that can do PCR testing for viruses.
Q. Now, other than being able to tell us what you think was achievable on a daily basis in Birmingham, I'm not going to ask you to even attempt to estimate, but can you just solidify again what you say would have been possible in Birmingham in February?
A. In Birmingham, again, by mid-February I think we could have run 3,500 to 5,000 tests per day, and speaking to colleagues in other medical schools, Leeds, Nottingham, they were saying identical things. They could have stood up to 3,500, 5,000 tests per day, so 40 medical school labs, 5,000 tests per day each is 200,000 tests.
Q. Thank you. Now, we know that -- in fact you started to

take steps with the view to thinking that was exactly what you would be doing on the ground in Birmingham?
A. Yes, yes. I'd been doing a lot of press work in my, you know, prominent microbiology role, I've been doing a lot of press work suggesting that we weren't prepared for the level of testing that would be required to stay ahead of the virus. And that led to a lot of conversations with colleagues across the country and that's when we started to look at exactly what we could do and, as I say, we'd started to localise equipment, in a number of labs that were better suited, so if we were doing proper diagnostic testing, for example one of the labs, the Clinical Immunology Service Lab, which has already -- feeds data into the NHS.

So we were being very strategic about where we were placing resources. We were starting to identify staff that could be trained or were already trained and that could help us with the testing. Some of them were starting to be furloughed and so on. So we had, what we felt, everything in place. We turned the containment level 3 labs over to complete -- just would be used for purposes if needed. As I said, unlike Sir Paul, we didn't have a core research budget so we weren't able to actually start any testing, but we felt we were in a position where we had everything ready to go if the

support was given to us to start.
Q. Thank you. Can I ask you, you just said that you didn't have any specific budget as a university. The Inquiry has already heard some evidence about the successes in Germany --
A. Yes.
Q. -- and what Germany was able to do.
A. Yes.
Q. And can I ask you in terms of how Germany's universities are utilised, whether there's any relevant evidence you have about the funding of Germany universities?
A. Yes. I mean, this is the point I was making over the whole of January and February is that in Germany they have a rather wonderful system, it's a federated lab system where they use a mixture of university laboratories, commercial laboratories, veterinary diagnostic laboratories, and essentially what they do is they apply to be part of that network. They are then sent some samples to test, to check if they're up to the job. They have staff that are trained and on a register of staff that can do that testing if required, and they essentially sit on standby ready to completely divert their activities to diagnostic testing if it's required, which is why Germany was able to start testing in January, February of 2020.

The cost of that, again, this is a guesstimate, a very back-of-the-envelope calculation on my behalf would be half a million pounds per lab per year to sustain that, 20 labs, you're looking at maybe £10-15 millions pounds per year budget for that to be sustained.
Q. So the Government of Germany, as part of this scheme, invest that portion of money into the universities that are able to, essentially, have that facility ready to devote to testing?
A. Yes, and it's controlled by state -- basically the state infectious disease lab, the Robert Koch Institute, so they have overall responsibility for it and they maintain it and oversee it.
Q. Thank you. Now, I am going to ask you this question because I know you were involved in the set-up of the Milton Keynes Lighthouse lab. So you've contextualised the £10-15 million annual figure in Germany for that facility at the universities. Can you contrast that with how much it cost for the initial set-up of the Milton Keynes Lighthouse lab, please?
A. Yeah, I mean, again, I must stress I do not have anything in writing, but, you know, you're talking of a facility, the number I heard was somewhere in the region of £150 million to establish the Milton Keynes

lab.
Q. And can you assist as to what time frame that you'd been shared that information of £150 million?
A. That was over the first three months when I was there to help set it up.
Q. I think we'll perhaps come on to deal with together that, essentially, the Lighthouse laboratory network has completely gone and been lost?
A. Yes. Yes, it's a bit of a tragedy that none of it exists anymore. The equipment was sold off, and the staff have all returned back to what they do, and there is nothing remaining of the Lighthouse lab network.
Q. Thank you.
Now, I'm going to please take you to -- actually, before I do that, I'd just like your views. You were plainly watching what was emerging in January and February, giving thought about what was possible, and so I'd like your views with the relevant expertise you do have as to if that resource was stood up, in February of 2020, what that could have meant for stopping or reducing, mitigating the pandemic?
A. Yes.
Q. And that's only if you're able, and if you're not, equally --
A. No, I think I can answer that. As Sir Paul said

earlier, I think we needed the large lab network, Lighthouse labs network, because at some point you are going to have to perform 250-500,000 tests per day, and so we needed those large central labs, but I believe in January, February, March, university labs, research institute labs could have been stood up in a couple of weeks and that would have created that, sort of, holding capacity of tests such that you could have slowed the growth of transmission and the growth of the pandemic in the early part of 2020.
It would not have stopped the pandemic from happening, but it could certainly have slowed the rate at which it happened. That would have alleviated the pressure on our healthcare system, and it would have put us in a much more informed path of how the virus was coming into the UK, how it was spreading, hotspot areas, for example that we might want to invest testing in, such as healthcare facilities, places like, as an example in Birmingham, there was an abattoir that saw a massive outbreak, largely driven by migrant workers. Having a good early testing infrastructure could have allowed us to very quickly identify hotspots of transmission and get slightly ahead of the virus.
Q. Could I ask if you can assist me, please, Professor McNally, we know that the national position

across the four nations on 12 March 2020 was to stop all community testing --

A. Yeah.

Q. -- and to stop contact tracing, and it appears that part of the reason for that was the lack of testing.

A. Yes.

Q. Do you have any views on that decision informed by the evidence you've just given about just what was possible in February, please?

A. I think I'm on record in the press as saying I was flabbergasted. I just can't believe that decision was taken.

Q. Can we then, please, I think we see some similarly strong language in one of the emails from 19 March. I'm going to take you there now, please.

A. I apologise.

Q. You don't need to be embarrassed, in fact I'll skip over the word, but if we could go, please, to INQ000582851, please. And it's, I'm afraid on the chain, we're going to have to move to the next page because it works backwards, so let's start at page 2, please. Thank you.

I think we see here the decisions that are being made and what was being asked, and we'll come on to then what you'd been doing. So this is a letter that's been sent, but essentially been sent on behalf of Jeremy

Farrar; is that correct?

A. Yes, to all medical schools across the country.

Q. I'm going to read it:

"Dear All

"Excuse the late hour and an extraordinary request."

So this is 16.46 on 19 March:

"You'll be very aware of the COVID-19 pandemic and the inevitable impact on the [United Kingdom]. We have been working 24/7 over a number of weeks now on this and over the last two days have been focused on increasing the UK's capacity for diagnostic testing ([healthcare worker], individual patients in hospitals, people at home, and age stratified population serology).

"It is clear that whilst the NHS and the PHE are ramping up, there is no way they can meet the surge that is going to be needed.

"We estimate that we will potentially need to get to 200,000-300,000 tests a day at the peak of this pandemic, current capacity is [I think that means 'less than'] ~5,000 tests a day. Not only do we have to increase the speed of the tests, but also the speed of getting those tests completed from sampling, to assays to results fed back to people. All the logistics being done at scale and at speed by professional companies used to dealing with such complex issues ..."

And there's a reference to the individual:

"... at Amazon has been a great partner throughout this. And this comes with the very strongest support from across government as the only viable solution. So the extraordinary request!"

Pausing there, can I ask for your comment, it may be obvious from the evidence you have already given, but is what was being asked and proposed in this email the only viable solution?

A. I don't agree with that and I made it quite clear throughout January and February that I believed university labs and research institute labs could have been utilised.

Q. I rather suspect that, after this email, the university network themselves shared their own views about it.

A. Yes, yes, we -- yes.

Q. Sorry. And again, if you're able, was there any consensus view that fitted with your view about this being the only viable solution?

A. All of the colleagues I spoke to -- as I said, this email was received by all medical schools. All of the colleagues I spoke to in the prevailing 24 hours said the same: that it was a solution, it wasn't the only solution. Universities were ready and willing to step up.

Q. Let's read on.

"The best approach is to use in the first instance is to use the Thermo Fisher platform (others Roche ..."

How do you pronounce that, sorry?

A. Qiagen.

Q. Qiagen, thank you very much.

"... Qiagen, and others will follow) and to use these in 'dedicated diagnostic factories' in the UK. Probably three in the first instance with dedicated equipment, staff and able to work 18-24 hours a day, 7 days a week.

"There are no Thermo Fisher machines to buy globally (or any other platform!). Many of your Universities and Institutes have these machines.

"We want to ask you to work with us all at this time a great national need to allow the machines in your Universities and Institutes to be provided to the centralised diagnostics centres. And to do so urgently!

"We appreciate there are a significant number of issues to work through -- QA/QC, regulation, ownership, replacement, equipment when we eventually get through this, liability and many more. But these are unprecedented times and we cannot use by normal processes.

"With the UK now on the cusp of the pandemic

following the path of northern Italy and with a doubling time in parts of the UK now of 3-5 days currently this could not be more urgent. We estimate that ITU's in will be beyond capacity within 14-28 days if the measures announced over the last week fail to shift the epidemic curve.

"We at Wellcome have been working on this with the No10, CSO, CMO, DHSC, the Office of Life Sciences, Amazon, Thermo Fisher Roche, Qiagen, and others over the last 36 hours and are a totally committed partner to this national and global emergency.

"We need your help!

"Tomorrow the Prime Minister will write to you and add to this request, but I wanted to give you a heads up tonight. In an ideal world the army would pick these machines up in the next 24 hours -- that is the sense we believe of the urgency.

"Much to think through and ponder -- and we may not have all the answers today or tomorrow -- but we would hugely appreciate your partnership and urgent support.

"Very best wishes

"Jeremy."

So if we go back to page 1, please. Again, we see a chain, but we see your response at 17.24.

"Wow. I didn't see that coming, and if you can

excuse the French that's a massive 'fuck you' to the whole of UK academia!

"It's not the directors of travel I was sensing. The most senior of PHE colleagues were telling me the use of Uni labs for community testing was almost certainly going to happen. I was on 5 live this afternoon recommending it!!! We insured of course try and fight our corner but this feels like an absolute done deal, all testing will be in approved, validated, accredited labs.....real shame."

Professor McNally, does your email effectively capture your complete sense of shock with the decision that was then being communicated on 19 March?

A. Perhaps rather too clearly, yes.

Q. And then can I ask you, the practical thing that was being asked was essentially all of these universities that had the equipment, had staff that lived nearby that could operate the equipment, had the knowledge and expertise, the machines were being taken from where they could be used locally and placed in what was perceived to be needed to be created, a factory, that didn't exist at that time --

A. Yes.

Q. -- and be placed there?

A. Yes. And then, subsequently to this, a request if we

could provide staff to voluntarily staff the labs as well.

Q. And we know you did and you went. But can I ask you, perhaps to use the personal evidence in a witness in this Inquiry, Hazel Gray talked about common sense. Have you any views on, when you had an existing infrastructure, that was ready to go, of removing the equipment from the institute that could start making these tests, essentially reconditioning it, and taking it away -- (overspeaking) --

A. It made --

Q. -- national effort?

A. It made no sense to me and to other medical school colleagues I spoke to. It made no -- a lot of them were very, very angry by that letter from Jeremy Farrar. It didn't really make any sense to me at all.

Q. Is that what happened? Did all of the University of Birmingham's PCR machines get placed into the Lighthouse network?

A. So actually later in this chain you can see that there was an agreement that we could keep some of our PCR machines, because we were in a position where we could help the local hospital and the local public health. We did provide equipment though. The army came and picked up quite a substantial amount of equipment

from out university the next day, and from universities all across the country. The Army handled the logistics of picking those pieces of machinery up and transporting them.

Q. Thank you. We know that was what happened in terms of the proportions going, but can I ask you, just from a logistical point of view, I think you probably know, if you move a PCR machine from Birmingham to Milton Keynes, how quick can you then set it up in Milton Keynes?

A. In terms of the machines, fairly quickly. They have to be checked and recalibrated because they're very sensitive machines and movements and some things can -- you know, need tweaked after that. The actual machines themselves fairly quickly, but of course it's all the other parts of the testing: installing safety cabinets, finding staff, and then creating your SOPs, your workflows, you know, which rooms you're going to do things in and so on. So there's a substantial piece of work still needs to be done at the stage after the equipment arriving in the laboratories.

Q. Can I ask you then, thought could have been given to allowing the PCR machines to stay where they were so universities could continue to use them until the infrastructure in the Lighthouse laboratory said, "We're

ready for it", and then it could have been moved in a short priority with the assistance of the military?

A. Yes, potentially. Yes, yes. Or the kind of halfway house that we reached at Birmingham, where we provided some equipment but not all of our equipment, and we kept some of our equipment.

Q. Thank you. Can we then look at the pro-vice-chancellor's response.

And it's, please, INQ000585205, page 1. Thank you.

We can see that the response that came back was:

"Dear Jeremy

"I just received your request to set up testing factories using university capabilities and machines via MSC. Over the last 3 days our researchers here [led] by Alan McNally that have worked closely with PHE and our NHS partners to set up testing in our university laboratories. We have capacity for more than 10,000 extra tests per day already set up, with 35 academic volunteers who can work on a rota to provide the testing. We are hoping to more than double this by bringing board our regional genetics lab. It would seem a shame to stand people down and relocate facilities centrally but maybe we can act as local hub as part of your greater scheme."

So obviously you're being referenced to the great

efforts you had made, and can I just to get an understanding, if this request had not been made for the machines, when would you have been -- the extra things you were putting in place have been put to use?

A. It was my colleague Andrew Beggs, actually, who was really driving that effort. I was providing the oversight of it but, yeah, I mean, Andrew was -- Andrew runs a -- sorry, a cancer and disease genetics lab. He believed he was in a position where they could have went live in a couple of days.

Q. Okay. Now, in terms of, then -- we know that you then, following requests, went to assist in setting up the Lighthouse laboratory in Milton Keynes.

A. Yes.

Q. Can you just help us then with plainly the shock when the pivot, as detailed in that email, happened.

A. Yes.

Q. So can you give some idea to her Ladyship why, then, you followed the request to go and set up the Lighthouse lab at Milton Keynes, please.

A. I think it was -- as I said in the email, it was a done deal, and we'd lost the fight. We weren't going to be doing testing in university labs.

It then, from -- personally came to the question of: can I still help? And lots of academic colleagues

felt that as well. And so I was asked if I could find some volunteers from Birmingham to staff the lab in Milton Keynes. I sent an email round to the university, collated quite a substantial list of names, I added my name to the top of that list and sent it forward as these are people that are willing to come and help.

I wanted to do something and I wasn't going to be doing anything in the university, so that was the not quite as great option but the next best option, I felt.

Q. Rather than reading the emails can we just do it -- so I think it's right, isn't it, that there were requests for you anticipate in calls with, was it, John Bell and Deloitte?

A. Sir John Bell, yes.

Q. Sir John Bell, sorry.

A. Representatives from Deloitte, yes.

Q. Perhaps can I allow you, rather than me taking you to documents, just to give an idea to her Ladyship as to then who you spoke to, who was involved in the discussions, after 19 March, that then takes you to Milton Keynes.

A. Yes, primarily by -- it was an email inviting me to an online call -- Sir John Bell was there, some senior representatives from Deloitte, some people from Wellcome and some people from the Office for Life Sciences at

Number 10 -- where they made clear it is that plans that were very advanced and in place for a small number of centralised labs, including a lab in Milton Keynes.

The argument that was given was that would make it easier to basically focus all of the reagents and plastic-ware required to do that sheer amount of tests in one place, so it made it easier, rather than transporting them around the country, and samples, transporting them to a small number of places, and that that was going to happen and that was all there was to it.

And we could continue to try to help in Birmingham if we liked, around healthcare workers and with local in public health teams, but that was how national testing was going to work.

I then received a number -- I say, sorry, I was asked if I could find some volunteers to staff the lab, which I did, and then I received a phone call on my mobile phone from -- I'm not quite sure who it was, I was led to -- I was under the impression it was someone from government.

Q. Professor McNally, could I just ask you to slow down just a little.

A. Yes.

Q. Thank you.

A. Yes, asking if I would go to Milton Keynes the next day and help set up the lab. So I had a brief chat with my wife and family and phoned back and said I would be in Milton Keynes the next morning, and arrived at Milton Keynes with 12 -- 11 other people the next morning to start setting the lab up.

Q. Thank you.

Obviously that was a big personal sacrifice for you and your family, to essentially uproot yourself from home to locate yourself in Milton Keynes. And obviously you managed to encourage 11 of those at the university to follow you also?

A. Yes. And then over the subsequent weeks and months, the Microbiology Society put out a larger call for people to volunteer to help. The Animal and Plant Health Agency was contacted and they seconded quite a lot of staff as well. So yeah, we very quickly went from a small number of staff to around about 240 staff. I would say of that 240, around about 200 to 210 were probably there on a voluntary basis.

Q. Thank you. Let's just -- on a voluntary basis, not being paid in respect of the work in the Lighthouse laboratory other than furloughed salaries through the university?

A. Exactly. From a personal level, I was still being paid

by the university, so I didn't see any need to seek recompense. I believe the Animal and Plant Health Agency staff were still being fully paid as agency staff, and they were seconded on a voluntary basis as well.

The vast majority of staff were actually post-doctoral researchers and research fellows who had been furloughed who -- their labs had been closed, they couldn't do their research, and they put their hand up to voluntarily come and work in the lab.

Q. Thank you. So then can you give us an impression, then, as to what was at Milton Keynes when you got there. And let's crystallise the date. What date did you go to Milton Keynes?

A. March 27 was my first day there.

Q. Thank you.

A. Was it? Yes, the 27th, yes.

Q. Can you then assist us, because we've got the benefit, through you, of a direct lived experience about what was there, what existed --

A. Yes.

Q. -- but the efforts that you took to set up the national laboratory, please.

A. Yes, so when I arrived that day, there were already -- there was a small delegation from the University of

Oxford there. That was led by Dr Mike Hill and Dr Stewart Moffat, and a small number of their teams.

So they had already set up some protocols, some work flows for how they were going to do the testing. There was a small lab set up with three or four safety cabinets where samples could be processed. There were a lot of PCR machines already there and a lot of machines for extracting the RNA from samples, as Sir Paul mentioned earlier.

So lots of equipment, very, very few staff, and I would say the early stages of some protocols, but only the very early stages. So over the next couple of weeks, Dr Hill very quickly realised that I was a fairly senior microbiologist, he asked me to help him creating protocols, workflows.

More staff were coming in on a daily basis. We had to then create a system whereby we could train those people as they came in, carefully train them, supervise them and then sign them often as competent so they could start to help, and we got a rolling process of training and competence set up.

And within a month, as I say, we had 240 people, and we went from 500 tests a day to, at the end of April, 30,000 tests per day.

Q. I think you've helpfully dealt with that chronology. So

for the period of March 27 to March 31, you identify the 500 samples per day?

A. Yes, yes.

Q. On April 1, you indicate that 600 tests were performed. One week later, 1,200 tests per day?

A. Yes.

Q. And you then tell us that April 28 was when you performed 28,000 tests in 24 hours?

A. Yes.

Q. And then on 3 May you achieved what was at that time your operational maximum of 30,000 tests in 24 hours?

A. Yes.

LADY HALLETT: Can I just interrupt for a second. Going back to the point you were making about not using your labs in medical schools that were all set up and ready to go, had that policy been adapted at the same time as you say we did need the big labs --

A. Yes.

LADY HALLETT: -- when would you have seen the transfer of the skills of your staff and the machines to have the optimum effect on the small ships and the big ships, as Sir Paul calls them?

A. It's an excellent question. I would suggest that -- I think I've said in my statement, I think Milton Keynes and the other Lighthouse labs were set up just a little

bit too late to impact wave 1 of the pandemic. I think that the small ships idea would have been sufficient to slow down wave 1, help not overwhelm the health system, and have given us spring into summer to take our time to get the Lighthouse labs set up ready for what was undoubtedly going to be a much larger wave as we went into autumn and winter, as you would expect with a respiratory disease.

LADY HALLETT: Sorry, just to pursuit the point. It's only because of the equipment that the Lighthouse at Milton Keynes had and the skills of the likes of you and the other people you were leading, but by the end of April you got up to 30,000 tests a day. Now, if that was replicated around the country that's a lot of tests a day.

A. Yes.

LADY HALLETT: But if you'd kept the staff and the equipment in the medical schools, you wouldn't that have got to 30,000 tests a day at the Lighthouse labs, would you, by the end of April?

A. Not at the Lighthouse labs, no, but what we would have got, I would -- I guestimated earlier, I think you could have got to over 100,000 tests a day using that armada of small boats, and there were plenty of trained scientists to go around and staff those labs in medical

schools as well as find trained competent staff to staff the Lighthouse labs, like the Animal and Plant Health Agency staff, for example, and lots of other university research staff who were furloughed and who were more than capable of helping. There was no shortage of skilled staff at all.

LADY HALLETT: Thank you.

MS CARTWRIGHT: Can we then, perhaps, just to look at the point of her Ladyship a little more, look at the map of the Lighthouse laboratories that gives a top line of when they were able to operate. It's INQ000587456.

Now, obviously, the different Lighthouse laboratories had different operators so this really is top line, but it's significant because it assists with when various laboratories were opened.

A. Mm-hm.

Q. So we know we can see, obviously, the Milton Keynes Lighthouse laboratory where you went and helped set it up, operating from April 2020?

A. Yes.

Q. We have Alderley Park in Cheshire set up, and also Glasgow in April 2020.

A. Yes.

Q. But looking at the Lighthouse laboratory network, that is it in April 2020.

A. And Cambridge as well. Cambridge used AstraZeneca's, the company AstraZeneca's lab facilities.

Q. Of course. Thank you so much.

If we look then and follow it through with the timing it took to bring the other Lighthouse laboratories online, we can see that obviously it continued to develop, but obviously, again, significant delays of months to establish them in 2020 through to 2021. So I think we've got Newport in October 2020.

A. Yes, so the expansion of Newport and Loughborough, that occurred at the time when the Lighthouse network was expanded and the University of Birmingham had a lab incorporated into that stat. Those came online as part of that expansion programme for autumn and winter of 2020. The labs in 2021, they came in as part of the then, there was a re-tendering process for Lighthouse labs, they came in as new labs in the spring of 2021.

Q. Thank you. So you've already identified so Charnwood in Loughborough in November 2020. We've then got Brants Bridge in Bracknell in March 2021 and Baltic Park in Gateshead in March 2021, and Plymouth.

A. Mm.

Q. And then we've got the Rosalind Franklin Leamington Spa mega Lighthouse lab --

A. Yes.

Q. -- in June of 2021. Thank you.

Now, I think you've already headlined alongside the laboratories that then opened in the October, November, that that fitted with when you'd gone back to Birmingham --

A. Yes.

Q. -- and the (unclear: overspeaking) you had with then, but before we deal with that next bit on the chronology, are you able to give any other reflections or comments to her Ladyship on anything that you identified in the set-up of the Lighthouse labs that you were central to, or any relevant evidence you'd wish to give, obviously there's a lot more detail in your statement but if there is anything of relevance that you wish to particularly draw to her Ladyship's attention, please.

A. I think the only thing I'd like to say, I guess, is that it was a little too late, but what we established at Milton Keynes was nothing short of remarkable, I think. We would -- essentially within a month we were in a position where we could offer a PCR diagnostic test for a notifiable infectious disease to anyone in the country that wanted it, and bear in mind, as I said, that that was all staffed by volunteer staff primarily. I think it's one of the proudest achievements of my career, just, like I say, a little too late, I felt, to

impact wave 1.
Q. Thank you.
The image can be taken from the screen.
But can I ask you, because plainly there's been a lot of comment and commentary around the involvement of the private sector that was used to set up the logistics and procure matters?
A. Yes.
Q. Obviously, you, no doubt, would have worked hand in hand with consultants from Deloitte and probably other procured companies. Are there any other observations or insight you can provide about the role and experience, good or bad, about the private contractors, please?
A. I think some of the companies like Thermo Fisher, Tecan, who provided a lot of the automated liquid-handling devices, they worked very hard. They were with us overnight. I think I had a lot of frustration with the involvement of Deloitte. They had an enormous team in situ in Milton Keynes providing project management. I felt at times the project management got in the way of what we were trying to achieve in the laboratory. There would be questions about: can we tweak amounts of reagents? Can we speed up things? And there was a lack of realisation that if you do that you're no longer doing an accredited test, you'd have to revalidate it.

So at times it was very frustrating dealing with colleagues in Deloitte.
Like I say, this project absolutely required the very highest level of project management. I was unconvinced that we needed quite as many of them as we had in the facility. And very often, they would be doing, you know, multiple people would be doing the same thing.
Q. Thank you. Can I then, as a separate point, within your statement you -- there's a number of times where the word "frustration" appears but can I take you to paragraph 38, please.
A. Yes.
Q. INQ000587245.
Now, you detail at paragraph 36:
"The narrative that was created around the Lighthouse lab network was that it was a triumph of the private sector working in cooperation with government. This provoked frustration in me as the enormous role played by higher education was often overlooked. Of course the private sector was pivotal with companies such as Tecan and Thermo Fisher putting huge resource and focus into the testing infrastructure and capacity, but also to their financial benefit. What is overlooked is that MKLL, and the labs in Cheshire, Glasgow, and

Belfast were all established with equipment belonging to universities and were all staffed by university researchers or seconded civil service laboratory staff, with many, such as myself, taking leading roles in the process. In my opinion, the most confusing and frustrating involvement was the reliance on a large number of Deloitte consultants to project manage the Lighthouse labs. As they had no expertise in laboratory work, infectious disease or diagnostics, I often found myself having to spend lots of time explaining concepts and fact to the consultants and having to set realistic expectations of what was feasible again and again. I do see the importance of having exceptional and experienced project managers for such a complex and important project as the Lighthouse labs network but did not see the need for the number of consultants I encountered in my time in the network. As an example of how I was often not impressed by their project management, on April 2 there was a sudden realisation at [Milton Keynes laboratory lab] that we did not have the logistics expertise to supply the lab with the consumables and reagents needed to conduct tens of thousands of PCR tests every day, despite the number of consultants on site and their responsible for planning. One of the consultants ... had joined Deloitte from the military

and reached out to contacts, and on April 3, troops from the Royal Army Logistics Corps arrived on site, setting up an industrial warehouse of consumables and reagents, making inventories and taking complete control of stock. Their involvement was transformational to [Milton Keynes Lighthouse lab] and testing would have quickly ground to a halt without their logistics expertise."
A. Yes.
Q. Is there anything you want to add to that or does that essentially speak to --
A. I hope it speaks for itself, and I guess just to explain why I didn't spot that, in a university lab you may be lucky if you do a couple of hundred PCRs a week. I had no idea of the scale of the exercise in running 30,000 tests a day, and things like waste disposal, we had no idea how complex the logistics around that were going to be.
Q. Thank you. Now, we know that you set it up with your knowledge and experience, and I, this morning, with Sir Paul, was able to capture in a very quick way the names, hundreds of names of individuals in the Crick Consortium. I think you yourself would actually, without naming them, but by number, identify that army of volunteers that assisted you in setting up the Lighthouse labs?

A. Yes, absolutely. I mean I'm sitting here today because I had a leadership role in that lab, but there are over 200, in my opinion, real Covid heroes who gave up their lives for three, four, five months to basically provide testing for the UK and I'm not -- I don't feel that's ever been formally recognised. I think we took for granted the fact that anyone could go to a walk-in test site and get a PCR test for Covid. What they didn't realise was that under the bonnet of that were hardworking volunteers making that happen.

Q. Now, I'm going to briefly ask you just to summarise to her Ladyship because when you left Deloitte (sic), you did, then, or were part of the Lighthouse network, where the University of Birmingham did do some testing for Pillar 2, but can you just deal with that, to her Ladyship but also contextualise it as to whether any other laboratory other than the University of Birmingham was doing it, please.

A. Yes. Yes, so the reason that I left on 1 June was I felt that Milton Keynes was running seamlessly, it was running perfectly. Lots of staff had been trained to a level where they really didn't need me there and the university was reopening and I felt with my leadership role in the university, it was important I returned back to campus. I had been back on campus a month when

I received calls from employees at Deloitte asking if I would engage with them in the process of setting up a Pillar 2 laboratory at the University of Birmingham -- essentially what I'd been arguing we should do in February. And then, between July and September of 2020, we worked to establish a mini Milton Keynes in the University of Birmingham.

A couple of other universities were bought into the process. To my knowledge, to my understanding, University of Birmingham was the only university lab that actually ran accredited Pillar 2 tests for the network.

Q. And are you able to offer any insight or observations as to why the University of Birmingham outside the main Lighthouse labs we can see, was stood up for a period to do testing?

A. Possibly my -- my role in Milton Keynes, and there was maybe a trust that we could set that up. If I could offer a cynical, slightly cynical approach, is that very often it's easy to keep your enemies closer. I could have been seen as a bit of a fly in the ointment, but I have no evidence of that, just a hunch.

Q. And you detail in your statement that essentially that testing was also used for surge capacity to test University of Birmingham students in, I think, the

winter, November time in 2020?

A. Yes, so essentially what we created in Birmingham was exactly what Sir Paul was suggesting. We had, on one of our university car parks there was a walk-in or drive-through test site, so you could register for a test, walk in to that car park, be tested, that test would then be transported to a laboratory in the university where we would test it, and we were delivering results within 24 hours back to the people who'd been tested. I was also the benefit of being a member of the Covid Genomics UK Consortium, and we were able to hand positive samples directly to my colleague Professor Nick Loman, who could then do the genome sequencing within another 24 hours, which meant we were going from test to epidemiologically informative results within 48 to 72 hours.

Q. Thank you.

Now, I think you have provided, attached to your witness statement, essentially, the letter thanking you and the University of Birmingham for your efforts, but, essentially, you were stood down from 26 February 2021 from that effort?

A. Yes.

Q. And did you do any contribution of testing after 26 February?

A. We then began a ramping down process and we ended it on 31 March completely.

Q. Thank you.

Now, the final topic before I deal with recommendations. You, I think, have been quoted within a number of articles about the sensitivity or the accuracy around the Immensa scandal?

A. Yes.

Q. Can I just ask you to give a summary to her Ladyship of what the concern was or what the issue is, from your perspective, please?

A. Yes, I think, when -- when I was involved in Milton Keynes, we were really, really -- we were really under the microscope and UKHSA and NHS England really scrutinised the quality of the provision that we were providing, the quality of the test data, and whether or not what we were doing could be trusted. And that was also the case when I set up the lab in Birmingham. We were under the gaze of UKHSA and NHS England to make sure that our testing was as good as it needed to be to contribute to the network.

Clearly what happened with the Immensa laboratory in Wolverhampton, then, in 2022 -- '21 or -- '21, sorry -- where up to half a million test results were incorrectly reported to members of the public, suggest that that

strict level of oversight, something happened there, because if that had happened in Milton Keynes that would have been picked up on within a couple of days, and if it had happened in a lab in Birmingham it would have been picked up in a couple of days.

So I don't have any evidence, my Lady, but it does suggest that that really rigorous oversight, something happened to that in that timeframe.

Q. And I think you, I'm going to quote from the article that you contributed to, I think you are recorded as saying:

[As read] "In the long list of Covid disasters and scandals, this is pretty near the top. You shouldn't be relying on anecdotal reports to spot a problem of this size. That's the unforgivable thing about this. I don't think it's going too far to say that an absolute failure of quality in that lab is going to lead to very serious illnesses, maybe hospitalisations and maybe worse."

A. And I believe there is now proper data to confirm that there were avoidable deaths as a result of the Immensa mistakes.

Q. Thank you.

A. Particularly in the southwest of England.

Q. And I think the anecdotal evidence that picked it up,

I think it was actually just member of the public that was, was it that was --

A. It was members of the public in the southwest of England who were saying that they -- lots of test results were coming back as negative but people were falling very ill, and it was strange that it seemed to be co-located in a particular part of the country. And then some very astute scientists started to pick up and the fact that a lot of this data is in the public domain, started to look at it and started to see quite an alarming level of negatives, way below what would be expected in any of the testing labs, given the incidence at the time.

Q. Thank you. You've given a large portion of your statement over to recommendations which will all be carefully considered.

Can we go to your statement, please. INQ00058724. Those lessons learning and recommendations start at paragraph 40.

Let's move along the pages, please, so they can be captured, and displaying them on the screen.

But then having done it in a very high-level way and with the time we've got, can I ask you to, because others have questions, is there any driving recommendation that you would wish to commend, or a number of them? Because plainly there's a great many

you've given thought to, and reflection, that you would indicate from your perspective with your knowledge and experience that you think are lacking still now and it's essential that is implemented?

A. If I may, I think the one pressing thing is that all of that testing infrastructure we created no longer exists, no part of it at all. It was all wound down. Equipment was sold off, labs were closed, and if, heaven forbid, SARS-Co-V-3 happens in December, we will be exactly where we were in January, February, of 2020. There is no way to scale up testing quickly.

I would urge that we look at the model that's employed in Germany, in South Korea, the federated lab model, look at how much that would cost to implement and maintain, such that we have the capacity to stand something up quickly, like Sir Paul did in the Crick, and like we did at Birmingham. I think it's essential, because we will be -- in terms of delivering tests, we'll be exactly where we were at the start of 2020.

MS CARTWRIGHT: Professor McNally, those are my questions. A number of Core Participants have questions for you.

LADY HALLETT: Ms Maragh?

Questions from MS MARAGH

MS MARAGH: Professor McNally, I'm Thalia Maragh, and I have some questions for you in relation to your experience at

the Lighthouse lab, and I ask questions on behalf of the Covid Bereaved Families.

You were taken, just now, by Ms Cartwright to your experience in setting up the Lighthouse lab back between March and June of 2020.

A. Yes.

Q. And you've spoken of some of the challenges you faced in the early stages and some of the positives, and I want to ask you just a few questions about some of the negative reporting of the experiences at the Lighthouse lab. And I want to make reference to a report that was covered in the BBC back in October of 2020 -- I'm not going to bring it up on the screen, but for the records it's INQ000228145.

And this report documented some of the experiences of a virologist, Dr Julian Harris --

A. Yes.

Q. -- who described that -- the article is entitled, actually "Coronavirus lab testing (sic) 'chaotic and dangerous'", and that is a caption of his description. And it reported Health and Safety Executive breaches at the lab back in -- when he was there in July of 2020, which included inadequate health and safety training for staff, employees working too closely together, and other workers there reported poor safety protocols, lack of

suitable PPE, including a report by a PhD student, presumably a volunteer as well, of being asked to wear cheap disposable lab coats and plastic gloves attached with parcel tape.

So this is the experience reported back in July.

Now, my question to you is, were you aware of these sorts of experiences and complaints back in your time there?

A. The first thing I'd like to point out is that that -- that report occurred after my time had ended at Milton Keynes. I can say that it bears no reflection to my experience while I was at Milton Keynes. There was sufficient -- there were proper lab -- heavy lab coats, as is a legal requirement in a containment level 2 laboratory. There was sufficient gloves, et cetera. So not really indicative of my experience.

With regards to the comment -- well, there's two things. The Health and Safety Executive report is in the public domain. There were no major concerns, actually, in that report. There were a number of recommendations, which is fairly normal for an HSE visit to any laboratory, but there were no major concerns, which is where the HSE would say: okay, we're really worried about this, you're not doing this properly.

I think the other thing, and I feel I need to

address this, because in that report the gentleman talks about two people working at a cabinet and how that makes it unsafe. I was actually part of the team that made the decision to have two people working at a cabinet.

There's only one person working in the cabinet. You need two people to process a test. Essentially, what happens is you have a 96-well plate, with a bar code. That's scanned into the lab tracking system. That's then placed into the cabinet. And then a sample with a bar code from the testing system is scanned by an operator, and he passes that into the cabinet, and what happens then is that that sample is allocated a specific well in the 96-well plate, so that it can be tracked all the way through the lab until the result is given.

Now, you cannot have one person in a cabinet doing that because they'd have to be bringing their hands in and out, and that's not safe. So we had one person in the cabinet and one person standing next to them to do the scanning, and witnessing that the sample had been placed into the appropriate well, which is very important. And myself, Mike Hill and Stewart Moffat made the call that we absolutely would have that as a minimum requirement, because we absolutely would not tolerate an incident where someone was given a result but actually it wasn't their sample it was someone

else's.

So that's why -- but two people never worked in the cabinet; it was only ever one person.

Q. Okay, thank you. Just to pick up on your observation in relation to the Health and Safety Executive report, because actually, the BBC investigation reported that the findings -- so whilst there wasn't a reporting or sanction, the findings of the Health and Safety Executive was that there was inadequate health and safety training for staff and employees; right? So that was one of the findings?

A. Yes.

Q. And my final point, just picking up on something, your observation, in terms of your timeline, the virologist who makes the report to the BBC speaks of his experience in July.

A. Yes.

Q. And we appreciate that your timeline was up to June.

A. Yes.

MS MARAGH: Thank you, my Lady.

LADY HALLETT: Thank you, Ms Maragh.

Mr Thomas.

Mr Thomas is over there.

Questions from PROFESSOR THOMAS KC

PROFESSOR THOMAS: Good afternoon, Professor McNally.

Let me introduce myself, I'm Leslie Thomas and I'm representing the Federation of Ethnic Minority Healthcare Organisations.

Just a little bit of context. The questions that we seek to ask are in relation to the pandemic preparedness, specifically regarding the testing infrastructure and the potential for university labs to support early community testing efforts.

So, with that in mind, let me come to my questions. Professor, in paragraph 18 of your witness statement you advocate for scaling up testing through smaller lab consortiums in February 2020, which you believe would have given us a headstart in tracking the virus.

Could you explain how this early initiative particularly, if it had been implemented at a larger scale, might have benefited minority ethnic and other minoritised communities in terms of both access and protection?

A. I'm not an expert in this area, and I think Professor Fraser and Professor McKee on Tuesday spoke to it much more eloquently and more informed than I can, but, as an example, we had excellent local directors of public health in the West Midlands at that time, specifically thinking of Lisa McNally -- who is not a relative of mine, I should add. And Lisa did

a fantastic job of going out to marginalised communities across the West Midlands and communicating the need to test, the need to get a test result, support with the isolation.

That was transformative in the West Midlands because I think that that centralised message of "get a test", that doesn't pervade all the way through society, and the work of people like Lisa and also Justin Varney, who was the Birmingham Director of Public Health, they spent an inordinate amount of time and resource on trying to get the message to marginalised communities. And we have quite large Eastern European migrant workforce communities as well. There was a huge amount of work done in trying to engage those communities with testing. And the university actually even helped with a lot of translation materials such that the message about "get a test" was got across.

So I don't know if I'm answering your question, but I think that's how the localised set-up can help, because, I think Sir Paul said, local public health working with local universities, working with local NHS trusts, has a far more powerful and compelling case than everything being centralised.

Q. You've highlighted the untapped potential of university labs in testing early in the pandemic. In hindsight,

how could universities have been better mobilised to improve testing access for minority ethnic communities and other marginalised communities? And in particular, were there any specific measures that could have been taken to ensure that these institutions played a greater role in community testing, particularly in underserved areas?

A. Again, I'm going to give a relatively uninformed response to that, but again around my own experiences in Birmingham, which would be where, as I said, we worked with local public health. So even though we had a Pillar 2 laboratory, there were occasions where the director of public health would come to us and say, "We think we may have an outbreak in given a community and can we give you some swabs and can you run them for us?" And we could do that very, very quickly. Whereas if it had been a case of them having to go a walk-in test site and those tests go through the national system, then you can imagine that wouldn't have worked so well.

So I think, again, it comes back down to the partnership between local public health, smaller university labs, local trusts working together to provide targeted testing where it's required.

Q. This is my final point. So, trying to be forward

looking --

A. Yes.

Q. -- god forbid the next pandemic, what would be your advice in terms of just looking forward and being prepared?

A. I think -- as I've said, I think we should really examine implementing the kind of lab -- federated lab system that they have in Germany and South Korea. It can be stood up incredibly quickly, and then it can work at a federated local level, with oversight from UKHSA, the DHSC providing that project oversight and making sure everything is joined up.

But I really would strongly advocate that we need the -- you said "heaven forbid"; there will be another pandemic in the near future and we need to make sure we're ready for it, better prepared for it than we were for Covid. We got lucky with Covid.

PROFESSOR THOMAS: My Lady, thank you.

LADY HALLETT: Thank you, Mr Thomas.

Those are all the questions we have for you, Professor McNally. You rightly praised your colleagues. The more I hear of this Inquiry, the more I realise how many thousands of unsung heroes there were. So thank you for that, and I endorse you for your comments. But also thank you for the way you stepped up, too, to help

the public of the United Kingdom.

You could have sat in your tent and sulked when your advice wasn't accepted, but you didn't. You bit the bullet and you got stuck in. So thank you for all that you tried to do.

THE WITNESS: Thank you.

LADY HALLETT: And all you did do! Not just tried to do.

THE WITNESS: Thank you.

LADY HALLETT: Thank you very much. I shall return at 1.45 pm.

(12.46 pm)

(The Short Adjournment)

(1.45 pm)

LADY HALLETT: Ms Nagesh.

MS NAGESH: My Lady, the next witness is Mr Matthew Gould. Could the witness be sworn, please.

MR MATTHEW GOULD (affirmed)

Questions from COUNSEL TO THE INQUIRY

MS NAGESH: Good afternoon, Mr Gould, thank you for attending today and assisting the Inquiry.

Just a few preliminary matters.

A. Of course.

Q. If, when you answer, (a) you could direct your answers towards my Lady, and secondly, if you could keep your voice up. There's a microphone in front of you. So if

you speak into that then you know the stenographers can hear you for the transcript.

Please do ask me to repeat anything if it's not clear.

Now, Mr Gould, you've helpfully provided a witness statement to the Inquiry dated 28 March 2025; is that right?

A. Yes.

Q. And you're familiar with it? You have a copy with you, I believe?

A. Yes.

Q. Now if you take a look at the last page of that statement, page 18, can you see at the end of the statement there's a statement of truth?

A. Yes.

Q. And it essentially attests that all the facts within the statement are true to the best of your knowledge and belief. Does that remain the case today?

A. It does.

Q. Thank you.

Now, Mr Gould, if we could just start talking a little bit about yourself and your professional background. You were, I believe, prior to 2019, a diplomat and a civil servant, and the director general of digital for the government?

A. Yes.

Q. And the director of cyber security for the government?

A. Yes.

Q. Then in May 2019 you were appointed the chief executive officer of NHSX, following the establishment of NHSX in February that year?

A. Yes, all that's correct.

Q. Thank you. And you in fact remained the chief executive officer of NHSX until 31 January 2022?

A. Yes.

Q. So you were chief executive officer during the period of the pandemic and the period with which we're concerned?

A. Yes.

Q. One of your duties, and the duty that we're going to talk about today, was to direct the development of what became the first version of the NHS app, a version we've been calling "app 1"; is that right?

A. Yes.

Q. Because as we will hear, and as we have in fact already heard from other witnesses, there were, in the end, two versions of the NHS contact tracing app. App 1 was the first, and that was the one for which you were responsible; is that right?

A. Yes.

Q. And app 2 was the second?

A. **(Witness nodded)**

Q. And Simon Thompson, who we shall hear from later, was responsible for that development.

A. Exactly.

Q. So if, first, we can just go through briefly what NHSX was for those of us who may not be familiar. I've mentioned it was established in February 2019. It was a joint unit, wasn't it, of NHS England and Improvement and the Department of Health and Social Care?

A. Yes, it was a very unusual beast, bureaucratically. So I was double hatted as a director general of the Department of Health and also a national director of NHS England, both for digital transformation.

The purpose of NHSX was essentially to drive digital transformation in health and social care. We saw our role as being: to digitise, so to put in place the basic digital infrastructure; to connect, so to try to make sure that disparate data systems across health and social care could speak to each other; and then to transform, so using the digitisation and the connection to find new ways to deliver care more effectively.

Q. Thank you. That summarises it perfectly, I think.

I keep referring to NHSX in the past tense because it's true it was actually retired, if I can use that phrase, or amalgamated into a different directorate in

around November 2021.

A. Yes. Actually at my -- with my support and to some degree at my instigation. I'd come to the view that it was best -- digital transformation was best driven, actually, as part of NHS England, so rolling NHSX, NHS Digital, into NHS England was more likely to achieve the scale of change that was required.

Q. Thank you.

I've mentioned we're going to go through with you the detail of the development of app 1. Before we go into that detail, I'd like to first start, if I may, with us setting out a chronology, effectively, of events over which you had responsibility, so that we can start with a clear picture of what occurred, and when.

A. Of course.

Q. So firstly, on or around 6 March 2020, is it right that NHS Digital were tasked to assist with identifying vulnerable people who might need to self-isolate through contact tracing?

A. The request to NHS Digital was not actually primarily through contact tracing, but through -- filtering through medical records to find out those who had conditions that might cause them to be particularly vulnerable. So NHS Digital was separate from NHSX, although obviously we worked very closely together, and

I was the so-called Whitehall sponsor of NHS Digital.
That task, wasn't, though, primarily a contact tracing task; it was a data analysis task.
Q. Thank you. But the next day, then, on 7 March, you in fact chaired a workshop in which you did discuss proposals for a smartphone app?
A. Yes.
Q. And then it was only two days later, or so, that you yourself and the Chief Scientific Adviser, Mr Finkelstein, sent the Secretary of State a submission outlining your plans to investigate the viability of an app to support the response?
A. Yes, no, exactly. This was moving very quickly so we had a very initial meeting internally about the possibility of digital contact tracing on 6 March, which was a Friday. On the Saturday, I convened, at DHSC, the first meeting to really work through the possibilities. On the Sunday, Anthony and I put together the advice of the Secretary of State which was given to him on the Monday.
Q. And then only about two weeks later you had the first meeting of the Covid-19 Contact Tracing Board?
A. Exactly.
Q. And what was the Contact Tracing Board?
A. So this was, essentially in project management, you

want -- the standard model is to have a Senior Responsible Owner for the project, which in this case was a colleague from NHSX and a public health doctor called Dr Geraint Lewis. And then sitting above the SRO you'd have a steering board, bringing together key stakeholders, me as the chief executive of NHSX, to provide oversight and challenge and make sure the project was being run properly.
Q. Thank you. There was also an oversight board, wasn't there, which I think met I think two days later for development of the Covid-19 app. Were you involved in the Covid-19 Oversight Board as well?
A. Yeah, I think it's worth saying we had an oversight board and -- which I chaired, and we had an assurance board, which was a more technical group, which I wasn't on, but which reported into the -- directly into the oversight board, which included representatives from the National Cyber Security Centre, people from Zuhlke Engineering, who we had contracted to provide technical assurance on the development of the app, and so forth.
Q. Thank you. 24 March is a date I'll mention because you met with the devolved administrations to inform them of the work on the app?
A. Yes.
Q. And was that the first time you'd met with the devolved

administrations to inform them of the work?
A. From memory, it was the first formal meeting. I think it is very likely, but I don't have chapter and verse, that we would have informally told them what we were up to before that.
Q. Thank you.
Then we get to April and in April, on 10 April, Google and Apple announced that they were developing an application programming interface, an API, to allow for contact tracing through mobile phones. And it's right, isn't it, that they also approached the Department of Health and Social Care with a proposal to work together on creating an app?
A. Yes. So I got a call from colleagues at Google and Apple to say they were doing this and suggest we work together, which of course we then did.
Q. You say you worked together but meanwhile you were still developing app 1 separately I think from Google and Apple; is that correct?
A. So essentially -- and obviously, we'll be coming on to this, but essentially what we did was, as soon as the Google and Apple API -- so essentially a sort of data pipe from the phone became available, we stood up a separate team to develop a version of the app that sat on top of the Google/Apple API. So from that point --

and actually, I should say, the team, we called it a technical spike team, that was -- came into being three days before we had access to the Google/Apple API. So as soon as we had that access, they were able to start developing on top of it.
And essentially we had two tracks from that point. We had a track that was using the Google/Apple API with the technical spike, and then there was the original track, which we carried on developing. Obviously the one which was working on the Google/Apple API was done in coordination with Google and Apple, but of course we carried on talking to them about the version 1, as it were, as well, not least because we were all exploring a novel technology, which was the use of bluetooth, to try to work out who was near you and how near.
And the information was very much flowing both ways, so we shared, for example, quite critically, some work that we had had done by colleagues at the Turing Institute to identify ways that you could use bluetooth to more accurately assess distance.
So there was a constant to and fro.
Q. Thank you. That's helpful. Now, around this time, on 4 May was a trial that we'll come on to talk about in some detail, but it was a trial on the Isle of Wight?
A. Yes.

Q. And that was a trial of effectively the prototype of app 1; is that correct?
A. Correct.
Q. Then, at 17 May, I think you were instructed to prepare a pre-registration scheme for app 1, so allowing people to sign up for the app ahead of its general release?
A. Yes.
Q. And then, by the end of May you effectively had a working prototype of app 1 and a working prototype of app 2?
A. Correct.
Q. Then we get to June, and it was on 15 June that yourself and Simon Thompson wrote a joint submission to Dido Harding and the Secretary of State recommending that efforts be focused solely on the Google/Apple API, so app 2?
A. Yes.
Q. And from, I think, three days later, 18 June, the Secretary of State accepted that recommendation, app 1 was effectively stood down?
A. I think from memory the Secretary of State accepted the recommendation on more like the 15th or 16th, but then the announcement was on the 18th.
Q. Thank you. Some point after this, in June, you -- at some point between June and September, when app 2 was

launched, you stepped back, effectively, and Simon Thompson had the lead role?
A. Exactly. So I stepped back very soon after 18 June. It had been a sort of phenomenally busy, stressful, trying period. So I was really happy at that point to hand the reins over to Simon, who had, for the previous few weeks, been an important part of my senior team, and I had total confidence he would then be able to take forward version 2 in a really competent, effective and professional way, which he then did.
Q. So that's effectively the chronology within which we're working. If we can sort of take you back now to early March.
A. Of course.
Q. And particularly 7 March, which was the workshop that you chaired. That workshop, I think, included a number of members of planning, expert scientists, technologists and academics?
A. Yes.
Q. Now, at that stage, what was the purpose of developing an app? What was your motivation behind developing the app?
A. So the purpose had really been suggested by Professor Christophe Fraser, who I know you've heard from already in this module, who had looked at, in

particular, what was suppressing the propagation of the virus in China, and had come to the view that the use by the Chinese authorities of an app-based contact -- effective app-based contact tracing tool, had been effective as a way of stopping the virus spreading, and had contacted me to propose that we should look at technology to do the same.

So that meeting was an opportunity for him and his team to meet me and my team, colleagues from NCSC, colleagues from elsewhere across government, colleagues from Public Health England, and really start to chew over what, at that point, was a seriously novel concept, as well as being a novel technology, which was, if we went down this route, what it would involve, what the issues would be, what the technological basis might be. So it was very much the sort of initial brainstorming around what digital-based, smartphone-based contact tracing might look like.

Q. Thank you.

Now when you move on to start developing the app. You started developing it in March, I believe?
A. So the sequence of events was -- as I say, we met on the Saturday. The Sunday, Professor Finkelstein and I put together a note, which was sent on the Monday, 9 March, that asked for a week to just do a very initial

technical test, to develop it and see where we got to.

So really, the development of it started pretty much immediately after that.
Q. Thank you. Now, was there much institutional accountability or oversight in the development, or were you effectively left to it?
A. So I would say, actually, we had, right from the start, the sort of project oversight and discipline that you would expect for a large tech or any sort of project. So we had a senior responsible owner in a very capable public health doctor, we had an oversight board, which I chaired, which pulled together key stakeholders, Public Health England, et cetera. We had an assurance board, which I mentioned, which was a more technical oversight. We had Zuhlke Engineering -- I mean, quite intentionally commissioned separately from VM Pivotal to -- who were developing version 1, to provide an independent technical verification.

We set up the ethical advisory board as well to make sure we were considering all the ethical angles. And then on top of which, all of which, as I think is demonstrated in the various notes that came from the meetings we had with the Secretary of State, all of which was, in turn, reporting to ministers as well as being overseen by Number 10 and the Cabinet Office and

so forth. So yes, we were -- we had, I think, an appropriate amount of oversight.

Q. Can I ask, please, we've heard about a key feature of app 1, and app 2 in fact, which was that app 1 was centralised.

We've heard a little bit what that means from Professor Fraser, but effectively is it right that, in a centralised app, all the data as to a person's contacts are held on a central server?

A. Yes, in an anonymised way. So we were -- that is exactly the fundamental difference, those -- the data that allowed people who had been in touch with a phone that somebody who then subsequently reported as infected would be held centrally through anonymised data in the centralised app on people's phones on the decentralised app.

Q. So were there privacy concerns if the data was anonymised?

A. So we took a great deal of advice from the National Cyber Security Centre, which published a couple of public documents, I think at least one is in my evidence pack, explaining why we thought those privacy concerns could be allayed, as well as from Professor Finkelstein himself who was a, sort of, very leading, sort of, digital scientist.

I mean, on one level the decentralised app of course, by definition, presents less grounds for concern around privacy. It was -- there was a trade-off, and this was a constant discussion which we had internally and externally. There was, of course, a trade-off between assuaging those concerns around privacy, which we believed the model we were developing did sufficiently, and ensured a level of anonymity which we felt was strong, demonstrable, and appropriate, but on the other hand, the insight from the data that we would have accumulated on the centralised model, albeit anonymised, we thought would have enormous value as well.

So there was a trade-off between the two.

Q. So if I've understood you correctly, was the reason you went for the -- a reason you went for the centralised app, you decided to use that, because you felt that you would have better data?

A. So, at the time, we felt it was an appropriate trade-off that the privacy concerns were amply, we thought, amply met through -- on the basis that's set out in the National Cyber Security Centre's papers, but that the benefits of having that anonymised, essentially anonymised graph of contact events and infections would have given colleagues in public health a great deal of

insight about the spread of the virus. It would have allowed them to see how that spread changed in patterns and shape when certain interventions were taken.

It would have allowed them to see sort of hot spots and particular patterns. It would have also allowed, through that insight -- in principle, it would have allowed us to constantly tweak the algorithm that worked out what was a concerning contact event and what wasn't, because that insight into the contact events and subsequent infections would have allowed us to see, okay, if, when somebody appeared to be in contact, for example, at 3 metres for ten minutes, turned out that isn't so much of a problem, but 1 metre for one minute is much more of a problem.

So the centralised approach and the insight it would have allowed would have come with, I think, some quite sharp advantages in terms of insight around how the virus was spreading, but there was a totally legitimate discussion to be had about the trade-off between the two.

Q. Thank you.

Now, if I can move on to ask you about your interaction with the devolved nations, so Scotland, Wales and Northern Ireland.

A. Of course.

Q. We heard that on 24 March you held a formal meeting and of course you've said you might have informally spoken to representatives from those nations before that. Was it your intention, or your hope I suppose, that the devolved nations would adopt the app?

A. Yes, it was certainly our hope because obviously it would have made contact tracing across borders more straightforward, and at a point when everyone was working absolutely flat out, it seemed to us sensible that we don't have duplication. As you know, what happened in practice was the Welsh Government chose to adopt the version that we and then Simon's team developed; the Scottish Government chose to develop a separate approach; and the Northern Irish government chose to use the approach developed with the Republic of Ireland.

Q. Yes. So in relation to -- as you say, Wales adopted the app, were there any efforts to collaborate or coordinate with the Welsh Government, NHS Wales, and/or Public Health Wales in the development of the app?

A. So I think from memory, and I've set out my recollections as best I can in my witness statement, I don't have too much more to add to that, but from memory, we did maintain a sort of fairly regular and frequent dialogue with the Welsh authorities on exactly

that.
Q. As part of that dialogue were you taking into account things such as having the app available in Welsh, or other Wales-specific issues?
A. I imagine we would have been; I have to say, I can't remember the precise details.
Q. I know that Scotland and Northern Ireland didn't in fact use the same NHS app, but was there any coordination or discussion had with them in relation to the development of the app?
A. Yes. I mean, we did speak to our colleagues in both those devolved administrations, and in fact, before the pandemic started, I'd initiated a coming together of digital health leads from all four nations on a regular basis. So we knew our counterparts shared, and there was quite a healthy exchange.
LADY HALLETT: Presumably, Northern Ireland, you can see the sense of that being with the same part of the epidemiological -- I can never say that word -- unit.
A. Yes, my Lady.
LADY HALLETT: And therefore, in a perfect world, the epidemiological unit that is Scotland, Wales, and England would also have been together. Is that your approach?
A. Yes, my Lady, I think that's exactly right. It would

have made, I think, good sense to have done it that way.
MS NAGESH: Do you know -- you don't know, I suppose you can't help us, with why Scotland and Northern Ireland chose to develop their own apps?
A. I think with Northern Ireland it's more, it's clearer although, obviously, the question is best put to them, but it was essentially that, as the baroness has said, it made sense, given movement across the land border in Ireland to have a single system covering both Northern Ireland and the Republic of Ireland.
Scotland, I don't understand that reason, no.
Q. Thank you. Just one more question, then, on devolved nations. At paragraph 41 of your witness statement, which on page 11.
A. Yes.
Q. Line 2. About halfway through the line. You say:
"In the end the Welsh joined in with the adoption of the Covid-19 app that was rolled out in September 2020 ..."
And quite a specific question, really, you use the words "in the end", does that mean there was some reluctance or delay in Wales joining the app?
A. No, I don't think "in the end" was intended to signify that so much as we had been discussing with all three, but in the end one came with us, one chose to brigade

with the Republic of Ireland, and one did its own thing.
Q. Thank you.
Now I'd like to, please, move on to ask you about your knowledge of another app, application that was being developed at around the same time as you were developing app 1. So we're looking back again at March and April 2020. That's an app called the ZOE app. I think you know that Professor Timothy Spector is one of the co-founders of a science and nutrition company called ZOE?
A. Yes.
Q. In fact, you've seen his witness statement to this Inquiry and have a copy of it with you.
A. I have.
Q. So you know, do you, that in early March 2020, Professor Spector and the team at ZOE had started development of an app designed to log symptoms, incorporate location information, and effectively let users know whether they might have Covid-19?
Are you aware that by 21 March 2020, ZOE had produced a version of their app on the Apple store and they launched it the next day on 23 March?
A. Yes, I am.
Q. And Professor Spector has told us in the witness statement that you've seen that within 24 hours, the

downloads, in his words, went viral and they had about a million downloads.
A. Yes.
Q. Then he tells us this, I'll read it to you, but for yours and my Lady's reference it's at paragraph 16 of his statement at pages 7 to 8, he says this:
"After the first day or two of the launch of the app [so the ZOE app], we saw that it was a success and we were getting very useful data back from participants that we knew would be useful. We made contact with the government with the initial intention of handing it over to them so they could run it as a UK-wide screening service to find out what was going on."
I'll just pause there so I can ask you some questions about that part first of all, if I may.
Do you recall whether you personally were involved in any discussion with Professor Spector or the ZOE team in relation to the ZOE app?
A. So we did have discussions with the ZOE team. I don't think that initial conversation where he says, "the intent of handing it over to them" was with me or my team, but we certainly did have, as he sets out later in the paragraph, further discussions with them.
Q. Can you help us, then, with whether NHSX did consider Professor Spector's, as he puts it, offer to hand over

the ZOE app?
A. Yes, we did. And -- I mean, look, first of all, I'm filled with admiration for what Professor Spector achieved, and it was a really impressive system that he developed, but I think it's important to make clear he was doing something different from the thing we were trying to do. He was developing a symptom tracker. Did so extremely expertly. We were trying to develop a digital contact tracing tool. And so, although what he did was brilliant, it was a different thing from what we were trying to achieve.
Q. Was the ZOE app something that you could have built upon, and developed your app on top of the framework, if I can put it that way, that he'd already put in place?
A. I'm not sure. I mean, I think actually doing that would have been rather more work and complication. It's very important, if you're building something like a digital contact tracing app, which is a sort of sovereign tool of the NHS, which has the purpose of telling people to isolate, so really has a sort of profound impact on people's lives, that right from the start it should be built to the very highest standards of security, which is why we had the National Cyber Security Centre experts in right from the start.
I think trying to retrofit that on top of someone

else's app, built in a way which we didn't have insight into, without that same really sort of precise expert input from the National Cyber Security Centre, wouldn't necessarily have been a sort of saving or helpful thing to try and do.
Q. Does it follow that -- as part of your discussions, was there any cost-benefit analysis or did it not even reach that stage because the concepts were just so different?
A. It didn't reach that stage, because essentially he was, brilliantly, doing something different. If he had developed a digital contact tracing tool, it would have made much more sense, but essentially, he was developing something that allowed you to put in your systems -- your symptoms, so that there was a -- really helpful data around who had what symptoms and then who then subsequently turned out to test positive for Covid.
So, I mean, it's worth breaking down what the ZOE app had that could have been useful in relation to what we were doing. So, first of all, it had the symptom tracker. Now, as I've said, we weren't developing a symptom tracker; we were developing a digital contact tracing tool. Had the CMO or the deputy CMO or SPI-M said to us "We need a symptom tracker", then of course we would have developed that, including through a proper analysis of whether we should build on the ZOE app and

Professor Spector's achievements in building it.
The second thing it had, which he refers to in his statement, is a wider set of symptoms that people could tick. Now, we were entirely directed on symptoms set by the medical experts, the CMO and so forth. So, on that, it's a straightforward sort of question for the medical leadership.
The third thing he obviously had was a good number of users, and it was extremely impressive, but the truth is, as soon as the NHS Covid contact tracing app -- version 2, as it happened -- was released, we had really impressive uptake. And Simon can speak to this later, but our uptake was in the tens of millions.
Q. Thank you. That is helpful. I'll just go on to something else Professor Spector says in the same paragraph, paragraph 16. He says this a few lines later, so over the page, on page 8, about three lines down, he says:
"The initial response of the UK government (NHSX) was not supportive. It was to initially try and see if they could stop us doing the app because they were worried it would interfere with the COVID-19 app developed by NHSX which was in the trial phase, and we were told it would be released within three weeks to everyone in the UK. The rationale was that the public

would be confused and therefore our app would likely damage the major official effort."
He goes on to say:
"Pressure was put on my university and funding buddies to make us stop promoting the app (though I have no written evidence). Because of this pressure ... we organised a virtual meeting with many groups including the head of NHSX to reach a compromise. The outcome was we were allowed to carry on, but had to agree to stop as soon as the NHSX app was up and running and agree to promote the future NHS app to our followers who were by then over two and a half million people."
So, a fairly long quote, but, first of all, do you agree with his written evidence there that you wanted them to stop development of the ZOE app?
A. No.
Q. Had you taken any view on whether there was a benefit to allowing both the ZOE app and the NHS app to run in parallel?
A. So I'll say a couple of things. We didn't try to shut down the ZOE app. We did make the point that, at that point, it was claiming that it had the backing of the NHS, and we didn't think that was appropriate. We hadn't formally endorsed the app.
There was a concern, which I think, in retrospect,

I'm not sure was correct, but there was a concern that, on the basis that we knew the success of the contact tracing app was sort of arithmetically linked to the number of users, if you had lots of Covid apps out there and people not being keen to have loads of different Covid apps, it could have affected the uptake of the digital contact tracing app. And so that was the basis for saying they should carry on -- at the point at which the NHS contact tracing app was released, could either consider rolling in or, at the very least, using Professor Spector's user base to encourage uptake of the NHS app.

But in terms of running in parallel, I mean, it comes back to they were doing different things. They were different functions. And so we were focusing on digital contact tracing. He was focusing on tracking symptoms.

Q. So you didn't want him to stop development of the app but you were concerned about, effectively, dilution of the market, if I can put it that way?

A. We were concerned that people wouldn't want to have a multiplicity of Covid apps, even if they did different things. So it was important that we were clear about function, clear about what was being endorsed and what wasn't, and that we had an agreement that once the NHS

app was released, then we would coordinate to make sure that one way or another, uptake was driven to the highest level possible.

Q. I see. Thank you.

Was there any -- you've mentioned concerns about too many apps. Was there any thought about potentially the opposite, that if there was only one app, people might be reluctant to effectively feel directed to join that app? That if they had choice, they might be more willing to engage at least with one of the apps.

A. So, I mean, I'd say two things, and it's a very fair question. First of all, it is back to the point that the apps are doing different things, so they're both Covid apps, but ours was a digital contact tracing tool, Professor Spector's was not, it was a symptom tracker. So ours was designed to measure who was within range, who -- which other phones my phone would be able to see, at what distance for how long, and therefore, if I tested positive, who needed to be alerted to the fact that they may have been infected themselves.

His app wasn't doing that, so a choice between the two is a choice between totally different things.

The second thing to say is it's of -- in the nature of digital contact tracing and the way the technology works that you don't want competing apps, because what

you want is everyone on the same system, because if I'm on one app and -- if I'm on one app and you're on another, my phone sees yours, but you don't get a ping when I test positive because you're on a different system, that's actually a failure of the system.

So it's one of those rare cases where you do, actually, for digital contact tracing, you want one app in the same way you want one test and trace. It would have been really odd to have had two test and trace organisations to give people the choice; the same is true with the app.

Q. Thank you, that's clearer, I would say.

We know -- just a few more questions on the ZOE app.

A. Of course.

Q. We know, I think, around April or so Professor Spector indicates that the ZOE app did halt development due to, I think, a lack of funding, and that's his pages 9 to ten, paragraph 19. But my question is really about the effect of the fact that the ZOE app had halted development around April, but there was no, as yet, NHS app. Did that mean that there was a period when the government was unable to, effectively, track emergence of new symptoms?

A. I mean, there were other ways of tracking. It wasn't just his app and our app. But again, it comes down to

the fact that his app and our app were doing different things. So again, if the CMO or Jonathan Van-Tam or SPI-M had said to us, "We need a symptom tracker", then of course we would have taken their direction and the conversation with ZOE and, indeed, our own work would have gone off in that direction, as well or instead. But, of course, we didn't receive that direction.

Q. Thank you. Then just two more fairly discrete questions. The first is Professor Spector, I think, has told the Inquiry that the Welsh Government in fact did adopt the ZOE app and we know that the Welsh Government then went on to adopt the NHS app. Please say if you can't help us with this, but are you able to provide any insight as to why the Welsh Government decided to ultimately use the NHS app rather than the ZOE app? I know they were very different things.

A. No, I mean, again, it comes down to the fact that the NHS app was a digital contact tracing tool; the ZOE app was not.

Q. Then I know that you weren't as closely involved, or at all in the version of the app that was eventually launched in September 2020 so again, if you can't answer this, please do just say, but can you help us with whether there was any monitoring after the launch of the app as to whether any users who had used and trusted the

ZOE app didn't then use the NHS app?
A. I think you're better directing that question to Simon when he appears later.
Q. Thank you.
Now if I can move on, please, to the Isle of Wight trial --
A. Of course.
Q. -- which as we mentioned earlier launched on 4 May. And that was a trial of app 1 amongst the residents of the Isle of Wight.
A. Yes.
Q. First of all, why did you choose the Isle of Wight, geographically?
A. So we had given this a lot of thought. It came with several advantages, in terms of being a discrete test area, so for obvious reasons, it's an island with limited movement on and off at that time. There was a single health authority and a single local authority which made for much simplicity in terms of organising it, and then crucially, in terms of digital exclusion, it had a much higher rate of people aged above 65 than the national average.
So it was useful in respect of one axis of potential exclusion or inequality. I recognise it wasn't useful on a number of axes, which is why it was so appropriate

that, under Simon's leadership, a subsequent test was done with the London Borough of Newham. And I think a combination of the two was a very sensible one.
Q. And in fact there was -- that takes us nicely, I think, on to our next question, which is -- which will be helped by referring to the report of the results of the Isle of Wight trial.
So if we can have on screen, please, INQ -- thank you. If we can look, please, at page 16 of that report. It's the first paragraph. It is on your screen as well, if that helps.
A. Thank you.
Q. But sometimes people prefer paper as well. So feel free to use whichever helps.
The first paragraph says:
"Age had an impact on the percentage of smartphone owners who said they downloaded the app, falling from 87% for those aged 55 to 69 to 79% for those aged 70+. Similarly, fewer smartphone owners with no qualifications downloaded the app ... than smartphone owners with GCSEs or equivalent ..."
And it gives 78% as contrasted with 85%.
"Ethnicity also had an impact, with 87% of white smartphone owners saying that they downloaded the app compared with only 77% of smartphone owners of non-white

ethnicity."
Then it goes on to say uptake was similar for key workers and non-key workers, and between genders, effectively, it was about the same for males and females.
A. Yes.
Q. While you were developing app 1, were you aware of these figures, these results?
A. From memory, yes. And I think, as it happened, these figures, because of the timing, mostly impacted the decisions taken by Simon and his team for app 2. So, for example, the multiplicity of languages that app was produced in, and the wraparound support, and so forth, was in part built on the insight that this gave us.
Q. Did these figures concern you at all, given that even at that stage it was fairly well known that people over 70 and ethnic minorities were more likely to succumb to the effects of the virus?
A. So, I mean, yes, and I should say all way through from the very first note we wrote to the Secretary of State at the start of March, we flagged the risk of inequality and digital exclusion on the basis of the use of a smartphone-based digital contact tracing tool, and I think it's fair to say that that concern and consciousness of risk flows through literally almost

every document in the pack. So it was something -- it was a risk about which we were acutely concerned and alive.
Q. Thank you. And certainly we'll pick up the point about digital exclusion shortly. And in fact, assist us. If we can look, please, at page 17 of this report, and the chart near the top headed "Reasons for not downloading the app", we can see that the largest reason or the highest reason for those not downloading the app is, perhaps unhelpfully on its face, labelled "Other", but if we keep the chart on the screen and I just read out to you the explanation given for "Other" on page 16, the report says:
"... the most commonly cited reason was not having the appropriate equipment. Many did not have the correct operating system or were using phones that they did not think would be compatible with the app. Additionally, those who did not have mobile data or were on pay-as-you-go contracts were not keen to download the app or did not think it would be useful. Another commonly cited problem was not having enough space on the phone to be able to download the app."
Does that effectively demonstrate that your concerns about those who were digitally excluded were borne out in practice?

A. Yes, I think it does.
Q. Then the second highest reason given for not downloading the app were people worried about privacy. We discussed earlier the fact that you've chosen a centralised system, and potential concerns about privacy. When you became aware of this feedback, did that impact your decision in the end to move to a decentralised system?
A. So, as I said, that -- between the two systems there was essentially a trade-off, and different equities in play. One, I think, had a sort of more reassuring story to tell about privacy, although I still maintain the centralised app had a very strong story all the same. The other -- the centralised app, though, gave the possibility of insight into the way the virus spread that could have been profoundly useful.

Now, what we took from the Isle of Wight trial, a message, actually, that, even with those concerns as set out in this graph, the uptake was very high. I mean really, sort of, gratifyingly high.

So we didn't come way with the message that the privacy concern was going to kill the project. In the end, the decision to move from version 1 to what became version 2 was based on technical performance.
Q. Thank you. We can take that off the screen. Thank you.

And moving on to version 2 briefly, we know that

in June, as we've discussed, on 15 June, you and Simon Thompson both recommended that version 2 be preferred.
A. Yeah.
Q. But version 2 had already been developed; is that right?
A. The sort of technical version. So it was -- it clearly wasn't a version that you would release to the public. The actual version was much better in all sorts of ways that Simon can talk about. But what it was was the bare bones, so we could test one versus the other.
Q. That may answer my next question, which is simply this: what was the reason for not moving to version 2 sooner?
A. So I think -- and what it comes down to, essentially, is we did what I think you would have hoped we would have done, which is: we developed version 1; as soon as the Google/Apple API became available we worked up a bare bones version to test one versus the other; we then developed both in parallel; and then mounted a series of technical tests, one against the other, to check performance.

And actually, I think, comparatively, as far as we know, had one of the most rigorous approaches to testing efficacy between different models of any country, and it was on the basis of those repeated very scientific tests of performance that we were able to come to a conclusion

that the version based on top of the Google/Apple API was more performant than version 1.

But it made total sense in that period to develop both and test them against each other.
Q. Thank you. And am I right in thinking that Google and Apple had indicated from the beginning that they would be using a decentralised system?
A. Yes.
Q. And so was that the primary reason that app 2 was a decentralised system in the end?
A. Yes, because Google and Apple had said that the -- their API, so access to the data, would only be available to those systems that conformed to certain standards that they had set out. So they had determined that no government or health service app should be able to have access to the API unless it was built on the decentralised version.

They told us that they did that because they had concerns around how health data might be used in some countries. We asked them at the time if, despite that, given it was the UK and we had clear legal standards and checks and balances and assurance in place, we could nonetheless have access to the API for our centralised app, but they chose not to give it to us.
Q. Thank you.

Now, the last topic, I think, before we get on to the recommendations and your learning, is the topic of inequalities. And really, first of all, focusing on digital exclusion which we've mentioned.

So could I ask, please, to put on screen INQ000279898, the third paragraph of that letter, please. Starting "We propose spending" -- thank you.

And this is the letter we've referred to dated 8 March 2020, which is the letter from yourself and Mr Finkelstein, Anthony Finkelstein, to the Secretary of State, copying in various others.

So on 8 March you said:

"We propose spending an exploratory week testing whether this [as in the app] is possible in a helpful timescale."

You go on to say you will look at the potential sources of data, the risks of false positives and other unintended consequences and the level of uptake required for the app to be useful, the technical challenges of combining data sources, and producing meaningful analytics, data protection, public trust, consent and other policy challenges, and then you say "including implications for the digitally excluded".

So is it right that even as of 8 March, you were concerned about the digitally excluded?

A. Yes, and look, I mean, I think it's worth saying by way of context that when, at this point, the technology that we were proposing to develop was entirely novel. So using Bluetooth as a way of seeing who was around at what distance and for how long, it's not what Bluetooth was designed for, and so we were doing something really extraordinary, which was hence this talk about unintended consequences because this was really new.

In terms of the digital exclusion, I mean, it is -- it's a sort of unavoidable feature of digital contact tracing that if you're digitally excluded you're not part of it. So we knew right from the start that by definition, a digital contact-based -- a digitally-based contact tracing system wouldn't be accessible to those without smartphones, those without a level of comfort of using smartphones, those with old smartphones that weren't technically compatible with what was being developed which is why I think we always knew that the -- it was essential that any digital system of the sort we were developing should sit within a wider system which included manual contact tracing.

So if it had been the app by itself, it would have been much more problematic. It made sense, and was to some degree a mitigation for, people without smartphones that it was within the context of a wider Test and Trace

Programme.

If I can make one other point, though, which I think is really germane to your question, it's important to note that the benefit of the app and the system we developed didn't accrue to the individual user. It was a societal benefit. Because what it did was essentially, if you were a user, what you got out of it was a ping telling you that you had to stay at home for ten days or whatever it was.

The importance of it and the benefit was to society as a whole, because it was intended to remove people who might have had the virus from circulation so that the spread of the virus was reduced. So although there is a sort of serious question about digital inclusion, it is important to assess that in the context of the benefit being collective not individual.

Q. That is helpful. Did you -- thank you, we can take that off screen.

Were you given authority to proceed with that exploratory week?

A. Yes.

Q. Are you able to help us with what the findings were in relation to the digitally excluded, or --

A. I think it was, as actually, as I've just described, we, as well as a sort of technical week of development, we

spent a lot of that week considering exactly what we've just discussed, and came to the view, number 1, it had to be set within a wider context, a wider system, so it's not just a digital system; and number 2, the main mitigation or defence of the system would be that the benefit isn't to the users directly, it's to society as a whole.

Q. Thank you. And then just a final point on the digital exclusion, in your statement at paragraph 57, but you don't need to go to it unless you need to, you've mentioned developing the COVID Pass app which isn't within the scope of this module but the thing of interest that you say that is of interest to this point is that there was a non-digital element available to the COVID Pass app which was launched before the digital version?

Is that similar to what you're describing now: the manual contact tracing style -- (overspeaking) --

A. Yes, exactly. So COVID Pass, the benefit was very much to the individual who held the app, because it was used to get into venues or whatever, and show proof of vaccination. So it became really important that people who were digitally excluded could nonetheless get those benefits. So we made a point of developing a non-digital version of COVID Pass which came in the

form of a watermarked certificate sent through the post which, as you said, we launched before the digital version on purpose, to make sure that there was a version which could be used by anyone before we brought on line a digital version.

Q. Thank you. And one final question in relation to inequalities, a slightly broader question, were you involved in any exercises to ascertain the impact of the app on those with protected characteristics or particular vulnerabilities?

A. So that was done, I think, well and properly by Simon and his team under version 2, who did a full equalities and health inequalities assessment before the launch of the app to the public. I think that was the right point to do that formal assessment, and I know the outcome of that assessment informed his team's work.

Q. Thank you.

Now, just moving on to, finally, lessons learned and recommendations. You've set out very helpfully some lessons learned in your statement, and the Inquiry does have that and certainly is taking it into account.

There is one additional query in this point that I wanted to ask you about, and it relates to some evidence that the Inquiry heard yesterday. The Inquiry heard from Professor Iain Buchan yesterday, who

described the Liverpool Pilot, with which, I think, you're familiar?
A. Yes.
Q. And he described difficulties he had in obtaining data from that pilot. He indicated that you were very supportive and of great assistance in helping him obtain that data but it still took him about eight months, I think.
Do you have -- first of all, what was your perspective of that situation? And second of all, do you have any recommendations arising out of that situation?
A. So this speaks to a much wider endemic problem across health and care, which is data flows very slowly and -- or can flow very slowly and incompletely between different systems. That's for technical reasons which NHSX was trying to address. It's also for system -- some quite deep-rooted cultural reasons across the system.
If you are a healthcare professional, the way you see the world, from all you've heard and all you've read, is there is much more risk in sharing data than not sharing data. And it's something I used to talk to the Information Commissioner and to Dame Fiona Caldicott about often, was we were sitting on top of -- or next to

a system where the incentives had all been not to share, and that was very dangerous, but particularly dangerous in a pandemic where you really need data to share -- to be shared quickly.
So, I mean, I think Professor Buchan's problem was symptomatic of a much wider and deeper-rooted issue.
I think one of the things we did during the pandemic which I think was probably had the biggest effect was a relatively straightforward thing, which is -- you had a -- it got together with Fiona and Elizabeth, the National Data Guardian and the Information Commissioner, and we just agreed that we would put out a really short statement that said, effectively, if we are in a pandemic, if you are a healthcare professional and you share data, sort of, sensibly and in good faith, there will be no bad consequences. We're not going to launch enforcement action.
So it's just a really strong jolt to the system that you can share data for the benefit of your patients if you need to. And we got a flood of feedback that this had really sort of electrified the sharing of data across the system.
And I think in as much as there's a recommendation, it is the sharing of data saves lives. And particularly in a pandemic, the quick sharing of data is essential

both for individual care and for optimising the public and policy response. And so everything which allows that to happen is really important.
MS NAGESH: Thank you. That's answered my question perfectly.
My Lady, those are all my questions.
LADY HALLETT: Thank you very much indeed.
Thank you very much, Mr Gould, I'm very grateful.
How did a diplomat that end up doing the job that you were doing that we've been hearing about?
THE WITNESS: So when I was ambassador in Israel, one of the things I did was spending quite a lot of time to build links in the tech community between Israel and the UK, so when I came back to the UK I thought it would be fun and worthwhile to go down that route. So instead of going back to the Foreign Office, I asked to become director of cyber security for the government, and then the next ten years of my career followed.
LADY HALLETT: Well, it sounds as though you made good use of the skills that you'd adapted in the Foreign Office.
THE WITNESS: Thank you.
LADY HALLETT: Thank you very much. I'm sure it must have taken you many, many hours and a lot of personal cost to you and your family, so thank you very much for all you did to try to get the apps off the ground.

THE WITNESS: Thank you, my Lady.
LADY HALLETT: Thank you.
Very well, I think it's best to break now before the next witness. I shall return at 3.05 pm.
(2.50 pm)
(A short break)
(3.05 pm)
LADY HALLETT: Ms Cartwright.
MS CARTWRIGHT: Thank you, my Lady. Could Mr Thompson be sworn, please.
MR SIMON THOMPSON (sworn)
LADY HALLETT: Mr Thompson, I hope the wait to become our last witness of the week hasn't been too long.
THE WITNESS: It's been fine, thank you.
Questions from LEAD COUNSEL TO THE INQUIRY FOR MODULE 7
MS CARTWRIGHT: Could you tell the Inquiry, please, your full name.
A. My name is Simon Thompson.
Q. Mr Thompson, thank you for the witness statement you have provided to the Inquiry. It's 23 pages, dated 23 April 2025. We see your signature and statement of truth on page 23. Can I ask you to confirm that the contents of the statement are true to the best of your knowledge and belief.
A. Yes, they are.

Q. Thank you. Can we identify the relevant evidence you had to TTI and, perhaps headlining it in the shortest way possible, you essentially had five months' involvement developing app 2 that we've heard about?
A. That's right, 20 weeks developing app 2, yes.
Q. So let's just crystallise the dates, 3 June 2020 until 9 October 2020?
A. That's correct.
Q. And would it be fair to say that once you left the project on 19 October you had no more involvement in app 2?
A. That's correct.
Q. And similarly in respect of app 1, you had nothing more to do with app 1?
A. That is also true.
Q. Thank you. Please can you give the other relevant experience you have as to why you came to be seconded on this project, please.
A. Yes, sure I have a long history in technology. During to my time at William Morrison Supermarkets, I took them online, I'm an ex Apple executive, and I also worked in the technology solutions organisation of Ocado Plc.
Q. Thank you. I'm going to briefly take you to the handover that was given to you as you joined the project. Can we go to the organogram that's in the

PowerPoint, please.

Can I ask for it to be displayed, please, INQ000575875. And it's internal page 5 to go to, please -- sorry, can we move along to page 7, I do apologise. Thank you.

Thank you. So this is part of the pack of slides that was part to the handover in June 2020. And just to identify you in the organogram, we can see that you sit below -- the team below you that deal with the technology, the product marketing and support, and then above you is Mr Bailie and, directly above that, Dido Harding.

A. Yeah, that is correct. And as it says there quite rightly, is that I was accountable for all matters relating to the app and all of the engagement with Apple and Google.
Q. Thank you.

Can I ask you, just whilst this is displayed, we can see stakeholders to the right-hand side bullet points. We've got, first of all, fourth bullet point, "Other country App teams", and I think you were present in the hearing room when Mr Gould was asked about uptake of the Covid app 2 and other countries. Are you able to assist us in terms of other country app teams? Did you have any liaison with any of the devolved nations, from Wales

or Northern Ireland or Scotland, as part of the development for app 2, please?
A. Yes, sure. We were in touch with the devolved administrations on a very regular basis. We continued an awful lot of the processes that Matthew covered off as well and we also reached further afield. So if you take the check-in part of the app, which I suspect we'll cover off, that was actually developed for us by a team in New Zealand based on their experience.

We were very interested in what other people had done that had worked.

Q. Thank you.

Now, perhaps the most efficient way to deal with your evidence as to the functionality and development and implementation of the app is to use the slides just before you left from October 2020.

So, again, could I ask, please, to be displayed INQ000575876.

So we know that this is your handover documents from 9 October, although you left the project ten days later.

Again, just perhaps because there's a more detailed organogram within this, can we please go to internal page 34, please. And we can see "185 App Cell Total". Now is that the number of individuals working on the development of app 2?

A. Yes, that's the number of people dedicated to this initiative. It did not include some of the resources from devolved administrations and some other resources that we would leverage, but this team was 185 people.
Q. Thank you. And, obviously, if we move to the right we can see under "What we do", your name, and then I think it's described as a tree that sits below it that then has the other aspects of the development of app 2, the "What we Make", "Make it", "Assure it", "Approve it", "Adopt it", "Improve it", "Fix it", and "Operate it".
A. No, that's absolutely right. I think what it says here is absolutely right. My accountability was what exactly are we doing, the strategy, the outcomes, accountable for the decisions around the app, of course also working with the rest of the test and trace team and actually leading it to a conclusion.

And what we can see here from the left to the right, we had a team that were dedicated on making it, we would call that project management. We had a team that made it, that was the technical team. We had a dedicated team to make sure that it met all quality standards and it was indeed secure. And then we had an approver team which I think is a really significant part here. If you have a look at the general headcounts across here, apart from the "Make it" team, you can see this is where an

awful lot of the resources were input.

This team here were largely made up of civil servants around governments, ethics, equalities, accessibility, because I felt, we felt that they were best placed to be the gatekeepers of what we gave to society.

And then we had a team that was accountable for adopting it, making sure it was downloaded and used.

And then also making sure we had a team that were improving it, so every day we would look at user feedback.

The "fix it" team were dedicated and focused on making sure that the distance algorithm was accurate and we had an operator team that really managed all the infrastructure.

Q. Thank you.

Mr Thompson, you have the benefit, as we've now heard two witnesses, both Professor Fraser and Mr Gould a minute ago, so there's been a large volume of evidence that her Ladyship has heard around app 1 and its functionality, and then what I'm going to describe as the privacy app, app 2, that was then ultimately the one that was implemented and available for downloading from 24 September 2020.

A. Mm-hm.

Q. And having said about the privacy app, there's been some discussion as to whether to refer to app 1 as the centralised app and app 2 as the more local app. How would you characterise app 2?

A. Yes, well, I think the phrases "centralised" and "decentralised" are probably a little unhelpful because they are technological solutions. I think the way that I think about it and I think the team felt about it, was which technological solution was going to allow society and the people feel confident that it was protecting their privacy? And that, to me, was the debate, was which would be, would give the assurances of privacy, therefore was more likely to be downloaded and used?

And I think, from the Isle of Wight survey, testing that Matthew and the team did, there was over 70% of the people that participated in that particular test initiative that felt or were concerned about the fact that they were being tracked.

And in my view, and in the team's view, that would be a negative to the product being downloaded and used.

Q. Thank you. Now, I'm going to ask you a question that Mr Gould deferred to you a moment ago, which was a question that was asked about the extent to which the app monitored, after its launch, app users under the ZOE app. I think he said you might be able to help us. Can

you help us at all with how the Covid app looked at or monitored any data from the symptom tracker app of the ZOE app?

A. Two separate things.

Q. Yeah. Thank you. So let's -- using your slides, please, for functionality, can we please go almost to the beginning at internal page 4, first of all, please, the role of the app. I'm not going to spend time on that because I think it's clear what the purpose of the app was.

But again, we can see on that slide, speed, reach, precision. Can you just speak to what you intended this to communicate as you provided your handover, having implemented the app.

A. Yes, when we were reviewing is what did we feel the app could do particularly well versus other contact tracing methodologies? And we really felt that these three areas was something that digital tools could do better. The first one was speed, which is being able to get a notification to self-isolate in a matter of minutes.

There was precision, so of course, the tools that we built were good at understanding how close people were to each other and for how long, better than a human would be able to do, I would suggest.

And in terms of reach, of course the digital tool

will remember people who you've met who you hadn't realised you'd met.

So our view was that the app was better in terms of speed, precision and reach, but I think there's one really important point here to make, as well, is, as good as the tool was at these three things, it was only ever designed to be part of an overall system. Within the test and trace strategy there were ten particular areas of focus of which the app was one. It was number 6, really focused on letting people manage their freedoms and make the right decisions.

So yes, the app was better at this, but it was also important that it sat within an overall system.

Q. Thank you. Can we then go to the next slide, please. We can see a slide that essentially gives some indication of the functionality, but I think it's right, isn't it, the Geiger, social distance score, was not something that was then used on the app?

A. No, that's right. Geiger we didn't launch in the end.

Q. Can you summarise what that was and why it was dispensed with?

A. Yes, so what Geiger was about was about giving people even more information as to whether they were putting themselves at risk. I think later on in the pack that we disclosed, we did actually put that into research and

people liked it. The issue that we had is that within the timelines that we had, that had a high degree of complexity in terms of development so at that point in time we actually didn't launch it. What I would say in terms of learnings for next time, certainly based on consumers' feedback, I think that's something worth investigating again.

Q. Thank you. Can that be taken down, please.

Can I then ask you in respect of we know the app allowed you to book a test, it was the method by which you'd be notified of a positive test. Is there any other aspects of the functionality you wish to touch on? I think we've heard quite a lot of evidence about that already.

A. Yes, two things if you don't mind. I think the first thing is that when we looked at general app adoption around the world it was relatively low, with some notable exceptions that I think have been mentioned. And our view was that we had to have a situation where we got mass adoption of the app, so a good take-up of the app. So the approach that we took was not just being privacy protecting and just a contact tracing app, it was also given the users some real benefits for themselves, where it would actually drive adoption.

So I think one that I'll really specifically pick

out would be the check-in process which really helped drive up adoption, which is if you wanted to go out to a restaurant, that, you know, you had two choices, you could actually do a handwritten, you know, "I am here with", I would suggest maybe limited privacy protection on that, a lot of them were handwritten.

But here, actually, you could check in in a totally privacy-protecting way and I think that was real big driver of general take-up. And of, course, what we've seen and I think we've heard over the last few days is that the higher the level of adoption, the higher benefits or the more benefits the app would bring.

Q. Thank you. We know also from your helpful statement that once you were told to isolate through the app, it had a helpful countdown function which meant that told you when you were then released from your isolation.

A. That's right. And when we had a look at, you know, when we spoke to the potential users, actually remembering how many days it was that you had isolated and how many days there was to go through isolation was not something that everybody could remember in a very clear way. So I think having that isolation partner that would count down ten, nine, eight, seven, to wherever it was, so that you were really clear on how long you needed to be isolated for, so that you did not spread the virus,

I thought was a really benefiting tool, yes.

Q. Thank you.

Can you then just clarify my understanding is correct that from the app being operational from 24 September downloaded, essentially if you were told to isolate, there was no, then, requirement to, if you'd used the app, to have any dealings with a contact tracer through centralised call centre?

A. Yeah, that's right, you followed the instructions.

Q. Thank you.

Now can I just ask you a few questions on accessibility.

A. Mm-hm.

Q. First of all, your statement deals with engagement you had with Newham and Newham Council. Do you want to give her Ladyship just the details of that and how that factored into the development of app 2, please.

A. Yes, and I think Matthew mentioned a little bit about it before, is that, you know, we'd done the work in the Isle of Wight -- which by the way was totally invaluable in helping us accelerate with those learnings. We should really not ignore that. I think it was a very important part of the process.

But one thing that really struck me, stuck us as the team, is that, you know, was the Isle of Wight truly

representative of all of the communities around the country? And I think that the answer was probably no. So we reached out to Newham Council -- and I have to say, I'll take the opportunity of thanking Althea, the CEO, and Rokhsana, who was the MP (sic) there, who were absolutely tremendous in helping us engage with the local community. And we went there and spent an awful lot of time really understanding some of the barriers to potential app usage.

There was a few that really immediately struck me. One was the multi-cultural nature of that particular community, which is why we ended up launching in many, many languages. And I will say here that having an app in multi-language is painful -- very, very difficult to develop and also difficult to test at speed -- but incredibly essential in terms of this response.

We also learned many other things as well. We made sure that the app was available for a reading age 8 and above, which, again, is going to give people the access that they want as well.

Q. Thank you.

Can I, again on accessibility or usability, it's a separate question linked to the devolved nations, because you tell us in your witness statement the hope had been to launch app 2 before the Scottish holiday --

sorry, the Scots went off their holiday and their children back to school, which is early in August of 2020, and obviously Scotland then developed their own app.

Is there any observation you can give about accessibility from the four nations' perspective? Because we have obviously Wales that was a part of this app, but then separately we've got Scotland and Northern Ireland with different apps.

A. Yes, I think interoperability is very, very important, and the way I characterise it is: I am living in England, and I travel to Scotland, and I meet some people in Scotland, and then I travel back to England and then I test positive for the virus. How can we make sure that the people that I've interacted with in Scotland can be notified that they are potentially at risk?

So my view was, and remains today, that actually having one app that is interoperable -- or what would be even more preferable is not needing the interoperability, actually having one app as part of the response I think would have been a much better approach.

Q. Thank you.

Now, I'm not going to take you to the documents unless it would help your understanding, but we have

within the documents provided to you information that confirms that the accessibility of the app met the level AA success criteria of the web content accessibility guidelines.

Are you able to help us then? Because if you go to the underpinning guidelines in respect of AA and AAA, it obviously doesn't meet the highest standard of the AAA, and can you help us as to why the app was only developed to meet the AA rather than AAA standard, please?

A. Yes, well, the first thing is just picking up on that particular letter, that definition on that standard. Those standards are set on a global basis by an independent organisation. They are to make sure that there is accessibility of the app. I mean, one example I'll give is that if you're using a screen reader on the app, that that would actually work.

We took a judgement call that getting to that standard, which was a really good standard, within the timeline that we had, would mean that we would accommodate the vast majority of needs that would be out there. And I think one other thing to add, as well, is that before the app was launched, we also did a Public Sector Equality Duty test as well, just to make sure that as many people as possible were going to be able to access the app.

But I'll say again that the app was never going to be the total solution. It was one part of an overall response.

Q. Thank you. And you've just mentioned the Public Sector Equality Duty consideration. You say "we"; in fact was it you that completed that --

A. No, it was not me, it was not me, but within the team we had a very, very dedicated team that were looking after the equalities and all of the parts of government requirements before you put a tool such as this in their hands.

And as I said before, I would not say that that was my expertise. It was certainly their expertise. And they -- and that function was predominantly staffed by people from the Civil Service.

Q. Thank you.

Now, I'm going to ask for us briefly to look, as well, at the launch PowerPoint that identifies issues of accessibility that were looked at, please.

It's INQ000575873.

So it was the campaign activation slides that you've provided.

Again, just on accessibility issues, please, having identified that, thank you, can we move to internal page 5, please.

I think we can see there certainly in terms of targeting, black, Asian, minority ethnics is part of the target that has been considered for the launch for uptake of the app; would you agree?

A. Yes, I would. Now, I would say this is the first time I have seen this slide so I am reading it freshly here, but that does meet with my understanding.

Q. Thank you. Can we then move to internal page 8 of that document, please. These slides also suggest that there had been work done by way of onboarding with local authorities in community settings, and in particular of significant, trusted voices.

A. Yes, I think that's right. And I think I did cover off in my statement a number of people that we spoke to on a very, very regular basis to make sure that when the app was launched, they would have the right level of engagement. I think one of the things that we definitely learnt in Newham is the power of local advocates to get the app downloaded was incredibly important, as well as central messages, and we made sure that we had trusted voices across many communities, and within many organisations, feeling that they understood what the app was about and they understood why it was of benefit for their area of interest.

Q. Thank you. And then finally for these slides, please,

the internal page 17, please, which I think also identifies -- thank you -- the thought process again in terms of engagement with TV and radio, socials, that had bespoke content that would obviously make the knowledge of the app go as widely as it needed to do for download?

A. Yes, that's absolutely correct, including an awful lot of videos that were put on YouTube and through other digital channels actually explaining very clearly how it is that the app worked, yes.

Q. Thank you. That can be removed, please.

Now, can I then, please, see if you can assist us with a broader review that was part of research that we looked at with Professor Fraser, that deals with the really positive things, but then there's also an issue I want to see if you can help us with around download or use in Wales.

I'm going to go, first of all, please, to INQ00509696, internal page 6, please. That's INQ000509696. Internal page 6. Thank you.

Could it be expanded so it shows the graphs and the two maps of England and Wales?

Mr Thompson, you tell us in the witness statement about the success as to downloads.

Could you do the top graphs, first of all, please, a, b and c.

They're shown on the graphs themselves but do you want to just confirm the success of the download but also the very meaningful difference it made in many areas?

A. Yes, I would like to. I think that, you know, to get 18 to 19 million downloads was a great success. We'd set ourselves a target of making sure that people felt that their privacy was protected and it had daily usability. So I think to get to that level of people downloading it was great. And I saw this the other day, and I know that Professor Fraser went through it, I think, you know, a million infections, say 44,000 hospitalisations and 9,600 people -- deaths averted, I would like to take the opportunity of thanking the team that worked on both app 1 and app 2, to actually get these results.

Of course, we would have all wanted more. Of course.

Q. Thank you. Can we now go to the maps below. Is there any additional comment or input you can provide as to what's shown here as to map d, which is the estimated cases averted and the different impact or uptake, or the estimated percentage of reduction in cases in map e? Can you assist us at all with anything there?

A. Well, I think it's got to me curious. The technology itself is the same for all of these areas, the features

and functionality are the same for all of these areas, yet for some reason and I think it's important that we understand what that reason is, it clearly had some different levels of uptake.

The first time I saw this document was just the other week, but I can understand why it is that you're showing it to me here now and I think there are clearly some learnings in here that perhaps we haven't quite got to yet.

Q. Thank you. And in terms of that, you say "we've not got to yet", but it's not within your portfolio; would that be correct?

A. Yes, that's correct. I mean, I was with the app, as I've said for that 20 weeks. There was three weeks whilst I was leading the team when it was initially launched. I think this reporting came in sometime after.

Q. Thank you. Then, please, to move in the same document to page 2, where we see another map that I want to see if you can assist at all with an issue of particular interest.

Can you expand the map again, please at the top.

There's what seems to be a significant trend identified for Wales around the usage of the app. Are you able to help us as to any understanding of why we

see the, sort of, almost widespread uptake of the 16-20% apart from what seems to be one area of yellow? Can you help us as to that trend that seems to be very particular in Wales.

A. No, I think Professor Fraser described it a couple of days back as "striking". I agree, it's definitely striking. I think it's important that that's understood. I can't add anything today but what I would offer is if I could help in understanding what it is that drove that, then I would be more than happy to support.

Q. Thank you. Can I then ask you if you could provide whatever recommendations or learning, they're detailed in your statement, that you'd wish to provide to her Ladyship in the context of your knowledge and experience, please?

A. Yes, I would. I think that there were many things that we learnt. I think the first thing that we really learnt was that confidence and privacy is really critical for foundation of app adoption, but I would just add a couple of other data points, if you don't mind.

I think that when we launched the NHS Covid app, the actual NHS App, the one that gives you access to services, only had 1 million downloads back then.

When we look at that app today, it's got 34-35 million downloads, that's almost two-thirds of the population. That's an incredible change in five years.

I think the other thing that I would say, as well, is that Generation Z, who have actually been brought up, they are probably the first generation that have been brought up in the digital age, they're approaching 28 and 30 years of age. In ten years' time they will be deciding things, very much so, from a leadership perspective.

I think also on the privacy side of things, if you have a look at what is now the norm, some five years down the line, in terms of what people are prepared to share, in terms of their location, who their friends are, their videos, it almost appears that they're more comfortable living in that digital world than perhaps the world that I'm more used to.

I think those three things are incredible differences for anybody that would be looking to develop an app today.

I think a couple of other things just to pick up. I think that as technically challenging as it was, I think multi-languages and accessibility were absolutely key. I think it's very important.

I think, as I mentioned earlier on, developing one

app for the whole of the UK would be my strong, my very, very strong preference.

LADY HALLETT: Did you ever find out why Scotland had a separate app?

A. No, it irritated me, but I moved on.

I think also as I said, I think it's very important that the next time a response like this is required, is that we've taken the learnings from now and we are more prepared.

MS CARTWRIGHT: Thank you.

And I think you've already said as much but one of the things you wanted to make clear within your statement is a formal thanks to all of those involved in the development of app 1 and app 2.

A. Yes, please. It was difficult, it was a very difficult time, and a big thank you to everyone that was involved.

Q. Thank you.

Now, Mr Thompson I've got one question that I'm asking, that permission has been given to FEMHO, a Core Participant who unfortunately now can't be here, so I'm asking the question on their behalf, that they've been given approval for.

So could I ask you, how was the NHS Covid-19 app's functionality and intended use communicated to the public, and was this messaging adapted to meet the needs

of underserved communities?

A. I believe it was.

MS CARTWRIGHT: Thank you.

My Lady, that having been said, there are questions from other Core Participants.

LADY HALLETT: Certainly.

Just before Mr Stanton, who is over there, asks his question, going back to the point you made, Mr Thompson, about the downloads of the NHS App, going up from 1 million to 34-35 million, do you think that that is largely attributable to the fact that people got used to using an app during Covid?

A. That would be my view. I have no data to support that but I think --

LADY HALLETT: No, I think because I've done the same, I'm just wondering whether I was encouraged to do it because I have an NHS App.

A. I think it gives a very different starting point, next time, in terms of how a response could be potentially done, because one of the things that is really, really important is that people trust the technology. And I would suggest that there's now 34, 35 million people -- I think my numbers are right -- that trust that app.

LADY HALLETT: Booking a test, which I, obviously, given my

advanced age, I'm allowed to do, is really easy. Is that part of the system that your team developed, or is that the NHS App development?

A. I'm not sure of the current functionality so I can't answer the question on the current one, but what we did embed within the Covid-19 app is that if you did a check on the symptoms, then you could actually book a test straight away, and then you would go and do your test, but the results would actually come straight back to the device. I think that making that really easy and very seamless, I thought definitely drove some good upside, I think.

LADY HALLETT: Thank you.

MS CARTWRIGHT: My Lady, I apologise to you, there are two other strands of the questions from FEMHO I haven't asked so could you permit me to complete --

LADY HALLETT: Sorry, Mr Stanton, you will have to stay seated for a bit.

MS CARTWRIGHT: Mr Thompson, these are other questions that (unclear) asked on behalf of FEMHO.

Can I ask you additionally: were specific efforts made to reduce minority ethnic populations or communities with historically lower levels of trust in government-led health interventions?

A. I'm not actually sure how to answer that question. What

I would say is that, from our perspective, we delivered something that was going to be inclusive for as many people as we could find. That was absolutely our focus. Whether it was through a Public Sector Equality Duty process or whatever else it was. So we worked very hard to make sure as many people could access this as possible, accepting that it was part of a system and that system had to accommodate everybody.

Q. Thank you. Then, finally, on behalf of FEMHO, how were concerns regarding data privacy and potential surveillance, particularly among communities with reasons to be cautious about state technology, anticipated and addressed in communication strategy?

A. There was no surveillance. There was no risk of people's information being given us. And that is why we took the route that we took.

MS CARTWRIGHT: Thank you.

And with apologies to you, my Lady.

LADY HALLETT: Thank you.

Mr Stanton now, please.

Questions from MR STANTON

MR STANTON: Thank you, my Lady.

Good afternoon, Mr Thompson. I ask questions on behalf of the Covid-19 Bereaved Families for Justice Cymru.

I just have one question, the context of which is the map that you were shown earlier, and the apparent disparity in uptake between Wales and England, and I note you've already answered very candidly that you're keen yourself to understand why there should be such a difference. But could I please ask you, and having regard to the fact that you indicated you were in regular contact with to devolved government, can you recall whether there was any engagement with the Welsh Government specifically on issues or problems in Wales that might relate to the slightly older population in Wales, or particular issues of digital inclusion in Wales?

A. We applied the same principles across the whole of the areas that we went, and I've articulated the things that we did.

I think in terms of engagement of the devolved administrations, I think our relationship with Wales and the people had -- they were excellent. And we did make some changes based on their requirements. You know, they had a different look and feel for their particular campaign. We did, you know, the Welsh language from launch. And if there was a different application of the -- you know, the health rules within Wales, then we made sure that the app could accommodate that. So

that's the work that we did.

I don't ever recall having a conversation on the particular topics that you've articulated, but I'll say again, looking at the information that was presented by Professor Fraser, it is striking -- it's the word he used: it's striking. And I'm happy to participate if I can help, but I think it's really important we understand why that is striking.

MR STANTON: Thank you very much.

Thank you, my Lady.

LADY HALLETT: Thank you, Mr Stanton.

Ms Munroe, I think you have some questions.

Questions from MS MUNROE KC

MS MUNROE: Thank you, my Lady.

Good afternoon, Mr Thompson. My name is Allison Munroe. I ask questions on behalf of Covid Bereaved Families for Justice.

Just two questions, and in fact you touched upon some of the points, or the main point, indeed, in answer to questions from my Lady just a little while ago.

And just to put my questions in context, now I know you're app 2, but at the end of the Isle of Wight Pilot there was a report and, amongst the things that they looked at and evaluated, it was noted that, although 1,592 people had reported symptoms via the app, only

309 home test kits were actually ordered. So that discrepancy was obviously very marked.

There doesn't seem to have been a definitive answer as to why, although it is suggested in the report that the discrepancy "may be because people were using drive-in test centres instead or they were entering symptoms to the test app to see what happens".

In terms of -- concentrating on app 2, then, would you agree, Mr Thompson, that in relation to the app and the effectiveness of contact tracing on an app, it relies not just on reporting symptoms but on prompt action to be taken, such as testing. There's a clear link, isn't there?

A. Yes, I would say that, yes -- yes. I would believe that.

Q. So, in terms of -- and as I said, you touched upon this with her Ladyship.

So in terms of app 2, what our families that I represent are particularly concerned about is whether that link was properly examined in the development of the app, because I don't know, and it may be that I've missed it, whether there was a similar reporting thereafter to see what was the correlation between people tapping in "I've got symptoms" and actually following through with the test.

A. I don't have that information to hand. What would also say is that the app was privacy protecting. So if people actually had a symptom checker and said that, you know, "Please go and check", I don't know, we don't know, whether they actually went and did it in a different process.

So I think because of the privacy protecting nature, I think the insight that you're after might be a little bit hard to get to, but I think there's no reason why we can't take your question as a takeaway from today and see whether we can get a better answer than the one I'm giving you today.

I can't give you a definitive answer. I think the question I have is, because of the privacy protecting nature of app 2, whether that answer can be given. But I totally understand why you're asking the question.

MS MUNROE: Thank you very much, Mr Thompson.

THE WITNESS: You're welcome.

LADY HALLETT: Thank you, Ms Munroe.

That completes the questions that we have for you, Mr Thompson. I don't know if you heard what I said earlier to Mr Gould, but thank you very much indeed for all that you and members of your team did to try to get these apps off the ground. I'm sure it took a lot of long hours and hard work, and so I'm sure we're very

grateful to you. Thank you.

THE WITNESS: Thank you very much. That's very kind.

LADY HALLETT: And thank you for helping the Inquiry.

THE WITNESS: You're welcome.

LADY HALLETT: 10.30 on Monday.

MS CARTWRIGHT: Thank you, my Lady.

LADY HALLETT: Thank you all.

(3.43 pm)

(The hearing adjourned until 10.30 am on Monday, 19 May 2025)

I N D E X