1 **Thursday, 19 September 2024**
2 **(10.00 am)**
3 **MS CAREY:** My Lady, may we have, please, Dr Gee Yen Shin
4 sworn, Professor Dinah Gould sworn and Dr Ben Warne
5 sworn.
6 **DR BEN WARNE (affirmed)**
7 **PROFESSOR DINAH GOULD (affirmed)**
8 **DR GEE YEN SHIN (affirmed)**
9 **Questions from LEAD COUNSEL TO THE INQUIRY for MODULE 3**
10 **LADY HALLETT:** Are the three of you all right? I'm sorry,
11 the box isn't intended for threesomes.
12 **MS CAREY:** Can I introduce all three of you in turn.
13 Can I start with you, Dr Shin, I believe you are the
14 Director of Infection Prevention and Control at UCLH in
15 London, informally known as a DIPC, if I can introduce
16 more acronyms. You are a consultant virologist at the
17 University College Hospital's Foundation Trust and have
18 been so since 2018; is that right?
19 I think during the pandemic you were interim DIPC
20 and then, since 2021, have been continuously in that
21 role.
22 Would you mind saying "Yes".
23 **DR SHIN:** Yes, that's correct.
24 **MS CAREY:** Thank you. So that anyone who is following
25 online can hear and, indeed, our stenographer, who is

1 off site.
2 **DR SHIN:** That is all correct.
3 **MS CAREY:** Thank you.
4 I think you were heavily involved in many aspects of
5 the Covid response of the trust, and you are also
6 a member of the UK Advisory Committee on Dangerous
7 Pathogens; is that correct?
8 **DR SHIN:** That's correct.
9 **MS CAREY:** We may come to HCIDs later.
10 You have worked for Public Health England formally
11 between 2013 and 2018 and have co-authored various Covid
12 papers. Can I ask you, during the pandemic, were you
13 working on the wards in the hospital or in the
14 background, as it were?
15 **DR SHIN:** I was working in non-clinical areas.
16 **MS CAREY:** All right, okay.
17 Professor Gould, may I come to you. You are
18 a registered nurse and nurse educator; is that correct?
19 I think you taught for many years the scientific aspects
20 of the curriculum to undergraduate nurses and other
21 health professionals. You have undertaken a PhD
22 exploring hand hygiene, use of PPE and other matters.
23 You've conducted research into how IPC is taught in the
24 undergraduate programmes and, indeed, at one stage you
25 belonged to a group known a the Cochrane Effective

1 Practice and Organisation of Care group and you were on
2 the World Health Organisation's Technical Advisory Group
3 for hand hygiene?
4 **PROFESSOR GOULD:** That's correct, and I'm still on those two
5 groups.
6 **MS CAREY:** Thank you.
7 Can I ask you about your role during the pandemic.
8 Is this right, that, as we entered the pandemic, you
9 were not in fact on the nursing register; is that
10 correct?
11 **PROFESSOR GOULD:** I was on the temporary nursing register.
12 **MS CAREY:** Did you make efforts -- we've heard a little bit
13 about that -- to go back onto the temporary register
14 once there was the call out for assistance?
15 **PROFESSOR GOULD:** Yes, as soon as the call came out because
16 I'd only just come off the permanent register. So
17 I went back on the temporary register as soon as it was
18 possible.
19 **MS CAREY:** Thank you. Were you, in fact, deployed during
20 the pandemic?
21 **PROFESSOR GOULD:** No, I would like to have been but I was
22 never asked to, so I did work in the background.
23 **MS CAREY:** Did they tell you why you weren't able to be
24 deployed?
25 **PROFESSOR GOULD:** No, I never received any information

1 individually from the Nursing and Midwifery Council,
2 just generic emails.
3 **MS CAREY:** Thank you.
4 Dr Warne, finally to you, you are a consultant in
5 infectious diseases and general medicine at Cambridge
6 University Hospital's NHS foundation trust; is that
7 correct?
8 **DR WARNE:** That's correct.
9 **MS CAREY:** You trained as a registrar in infectious diseases
10 from 2015 to 2024 and have recently finished a post as
11 an academic clinical lecturer in infectious disease at
12 the Department of Medicine at Cambridge University.
13 **DR WARNE:** That's correct.
14 **MS CAREY:** I think during 2017 to 2021, you were a clinical
15 research fellow at the university using pathogen
16 genomics to study common infectious diseases of public
17 health significance; what did you do, Dr Warne?
18 **DR WARNE:** So it was using genomics and traditional
19 epidemiology to study important pathogens, including
20 influenza and SARS-CoV-2 and how they spread in
21 hospitals, as well as antibiotic resistance mechanisms.
22 **MS CAREY:** Of significance to us, I think during 2020 to
23 2021, that academic year, you were the clinical lead for
24 the university's asymptomatic Covid-19 screening
25 programme?

1 **DR WARNE:** That's correct.
2 **MS CAREY:** May I ask you about your time during the
3 pandemic. Did you work on the front line, if I may put
4 it like that?
5 **DR WARNE:** So during the first wave of the pandemic, I went
6 back to the hospital to work on preparations for the
7 pandemic, guidelines, et cetera, but I wasn't
8 a frontline clinician for the majority of that time.
9 I continued to do out of hours on-call work from June
10 2020 and then returned back to full-time clinical work
11 at the end of 2021, when I was caring for Covid patients
12 directly.
13 **MS CAREY:** Thank you very much.
14 May I start actually where we normally end up and
15 ask you, please, in turn for a headline recommendation,
16 and I would like you, if I may, just to tell us what it
17 is, briefly why, and I suspect, as we go through your
18 evidence, the reasons why, I hope, will become more
19 obvious.
20 Can I start with you, Dr Shin. If you could
21 recommend one thing for her Ladyship to consider that
22 might help in the event of a future pandemic what would
23 it be?
24 **DR SHIN:** It would be really important to review and improve
25 the NHS estate, particularly in ventilation and

1 isolation capacity. The reason why this is important is
2 because, in facing any epidemic or future pandemic, if
3 the legacy inadequacies of our NHS estate across the
4 country, which in some places is very old, if that is
5 not improved, we will face the next emergency with the
6 same difficulties that we encountered this Covid
7 pandemic.
8 **MS CAREY:** Thank you.
9 Professor Gould?
10 **PROFESSOR GOULD:** I think that, throughout the four nations
11 of the UK, we should have guidelines for infection
12 prevention and control that everybody knows about, that
13 everybody can access, that people believe in and want to
14 put in place and can put in place and understand why
15 they're doing it.
16 **MS CAREY:** Thank you.
17 Dr Warne?
18 **DR WARNE:** I would advocate for the rapid expansion of
19 testing capacity in the UK, both for testing symptomatic
20 people and asymptomatic individuals. In the event that
21 we have another pandemic which involves any kind of
22 asymptomatic transmission, it is vitally important for
23 infection control that we know who those individuals
24 are, and that requires expansive -- different types of
25 testing capacity and also that the results of that are

1 linked to large national databases, so we can properly
2 understand and address the problem.
3 **MS CAREY:** We heard the chief nursing officers for different
4 reasons advocate for the same thing when they gave
5 evidence.
6 Can I just deal with your report. Helpfully, you
7 have divided up the task between you and there are lead
8 authors for various parts of the chapters and it will be
9 to those that I turn and ask you to respond to. Can
10 I urge you not to all jump in, no matter how tempting it
11 may be, but if there are important matters after the
12 lead author has given their answers, feel free then to
13 perhaps add different perspectives to the matters that
14 we will be examining.
15 I think you make the observation that, broadly
16 speaking, between the three of you, your expertise
17 covers IPC, nursing, education and training, obviously
18 infectious diseases, public health virology and managing
19 those outbreaks and you have written about matters
20 within your collective experience and expertise and
21 I think you've also seen Professor Beggs' report and he,
22 likewise, had seen yours.
23 Also this, just so that you know, we have been
24 referring to it as Covid, rather than SARS-CoV-2, if you
25 can manage to do that, that would be greatly

1 appreciated.
2 May I turn to you, Dr Shin, firstly, for a brief
3 summary of how pre-pandemic respiratory viruses impacted
4 the healthcare, so we have an overview of where we were
5 before we entered and then what happened when we got
6 into the pandemic, and if it helps you I'm at paragraph
7 1.5 in your report.
8 **DR SHIN:** Thank you. So the NHS is used to seeing
9 a seasonal winter challenge from multiple respiratory
10 viruses, particularly respiratory syncytial virus,
11 influenza or flu, A and B, each winter and also some
12 other non-respiratory viruses like norovirus, which
13 causes a gastrointestinal illness. And this occurs very
14 regularly and predictably every winter, approximately in
15 that order, and this causes a major challenge for acute
16 parts of NHS hospitals, our emergency department, our
17 acute wards, sometimes intensive care and, of course,
18 all of these have infection prevention and control, IPC,
19 challenges to them, which we are reasonably well, you
20 know, practised in dealing with.
21 Part of the response includes a pre-emptive seasonal
22 flu vaccination for all staff, for vulnerable patients
23 in the population, diagnostics and preparing pathways
24 for these kinds of patients.
25 **MS CAREY:** Let me just pause you there, can I just ask you,

1 we've not actually looked at RSV, respiratory -- how do
2 I pronounce the second word --
3 **DR SHIN:** Syncytial.
4 **MS CAREY:** -- syncytial virus; what is RSV?
5 **DR SHIN:** It's a common, globally-distributed virus which
6 particularly affects young children, infants, and also
7 we now know older adults, and adults with chronic lung
8 disease and it can lead to hospitalisation, in some
9 cases intensive care and, sadly, globally, it does cause
10 thousands of deaths globally. In UK that's less common.
11 **MS CAREY:** So there is a background of dealing with the flu
12 epidemics that hit us most winters.
13 **DR SHIN:** Yes.
14 **MS CAREY:** You mentioned there that the vaccine take-up can
15 impact the impact of the flu vaccine on the numbers in
16 hospital. I think you also say whether social
17 distancing, the mutation of the particular flu virus,
18 they all depend on how badly hit the hospitals are; is
19 that correct?
20 **DR SHIN:** Yes. So the severity of each winter's flu
21 epidemic does vary year to year and that is affected by
22 multiple factors, for example the characteristics of
23 virus strain, how well matched the virus is to the
24 vaccine, vaccine uptake and many other factors, which
25 I won't go into too much detail here. But it does vary

1 year to year, some years are very severe, some years
2 less.
3 So you mentioned social distancing. Actually, with
4 flu, we don't traditionally apply social distancing that
5 much something which is a feature of this pandemic.
6 **MS CAREY:** Can I pause you there because I think you make
7 the point in your report that, during the winter of 2020
8 into 2021, the non-pharmaceutical interventions actually
9 suppressed flu cases that year.
10 **DR SHIN:** Yes, I think that was a general observation that
11 in that winter, the first winter of the pandemic, Covid
12 really dominated, and we saw most of the other viruses
13 in far lower frequency than we did before, and that's
14 probably linked to, for example, lockdown and the
15 various public health restrictions that influenced that
16 significantly. But it was a remarkable change in
17 epidemiology in that winter.
18 **MS CAREY:** I think you say that regular infection prevention
19 and control challenges of dealing with RSV, for example,
20 flu and TB, meant the NHS had some experience of IPC
21 countermeasures. Was that isolation, cohorting, those
22 kind of things?
23 **DR SHIN:** All of those and PPE.
24 **MS CAREY:** And PPE, right.
25 **LADY HALLETT:** Can you just say in one sentence what

1 cohorting means for those who might not have followed?
2 **DR SHIN:** So cohorting -- when you have sufficient number of
3 cases of, for example, flu, then you can put them into
4 a bay or, indeed, a ward if it gets that many. Many
5 trusts or hospitals would have had, for example, a flu
6 ward. In paediatrics, it's common to have an RSV ward
7 because when you have sufficient numbers then that area
8 then becomes, you know, an infection area, which is
9 dealt with differently to other wards.
10 **MS CAREY:** We are familiar with some IPC definitions but,
11 Professor Gould, can I ask you about the World Health
12 Organisation's definition of IPC, and I think you set it
13 out in your report as follows:
14 "The World Health Organisation defines IPC as a
15 'practical evidence-based approach preventing patients
16 and healthcare workers from being harmed by avoidable
17 infections'."
18 A fairly common sense definition, if I may put it
19 like that; do you agree?
20 **PROFESSOR GOULD:** Yes, that's correct.
21 **MS CAREY:** We have heard a little about source control, and
22 is this right, it means preventing the spread of
23 infection from an individual who is known or suspected
24 to be a potential source of infection, and that can
25 include things like having the infected person in

1 a single room, isolating them, decontaminating the room
2 or the ward, and using masks?
3 **PROFESSOR GOULD:** That would be correct.
4 **MS CAREY:** PPE we're familiar with, I won't ask you about
5 that. You do help in your report, though -- and if it
6 helps you, Professor Gould, at paragraph 1.18 -- in
7 relation to the make-up of IPC teams. I think you say
8 that there are specialist teams employed in most
9 countries in the UK. Can you just tell us who makes up
10 an IPC team?
11 **PROFESSOR GOULD:** The infection control team will be led
12 either by a doctor or a nurse. It will consistent of
13 usually a medical microbiologist, it will include
14 a virologist, it will include specialist nurses, it will
15 probably include nurses who are specifically engaged in
16 surveillance and audit, it will very likely,
17 particularly in a large NHS Trust, would involve nurses
18 who particularly have an educational role, and people
19 will be co-opted on to the team in the case of
20 particular need. So if there was an outbreak of food
21 poisoning, for example, the catering staff would be
22 there, but they wouldn't be there all of the time. If
23 there was a problem with ventilation then the hospital
24 engineers would be there. So there's a core team and
25 there would be additional people as well.

1 **MS CAREY:** You mention in your report what are called IPC
2 link nurse schemes. What are they, please?
3 **PROFESSOR GOULD:** Infection prevention and control link
4 nurses are members of the general ward team, so they
5 would be a member of the team who looked after patients
6 or worked in an outpatient department in the usual way
7 but they would have an additional responsibility: they
8 would act as ambassadors for infection prevention and
9 control, they would have a liaison role, they would
10 provide the communication channels between the infection
11 prevention specialist team and ordinary people on the
12 wards, and they would usually have some particular
13 education or training for that. Not every organisation
14 will have them --
15 **MS CAREY:** I was going to ask.
16 **PROFESSOR GOULD:** -- but many, many do.
17 **MS CAREY:** Are they across only England or UK-wide?
18 **PROFESSOR GOULD:** Oh, they would be UK-wide.
19 **MS CAREY:** Thank you. Can we look at perhaps the
20 arrangements for the leadership of IPC teams across the
21 four nations. I think obviously in England there is the
22 director, the DIPC, as Dr Shin is. In Scotland they
23 have -- the leader of the IPC team is called the
24 infection control manager; is that correct?
25 **PROFESSOR GOULD:** Yes.

1 **MS CAREY:** In Wales, leadership for IPC is undertaken by
2 a senior nurse with expertise in IPC.
3 **PROFESSOR GOULD:** Yes.
4 **MS CAREY:** And in Northern Ireland, I think you say in the
5 report:
6 "We could not locate any publicly available
7 information on IPC team leadership for Northern
8 Ireland."
9 **PROFESSOR GOULD:** I looked as far as I could but I could
10 find nothing in writing, and I have no contacts in
11 Northern Ireland, whereas I do -- I worked in Wales for
12 eight years so I have contacts in Wales, I have contacts
13 in England, I do have some contacts in Scotland, but
14 I have no contact in Northern Ireland to ask.
15 **MS CAREY:** Whatever nomenclature is given to the person in
16 charge leading the team, does effectively the director,
17 the manager and the senior nurse with expertise in
18 Wales, are they all performing roughly the same
19 function, do you know?
20 **PROFESSOR GOULD:** They're performing roughly the same
21 function, but their remit would vary a little bit,
22 because in Wales they have health boards instead of
23 NHS trusts, and the health boards would include some
24 community staff as well. So the person, the nurse in
25 charge, would have a community role, whereas somebody in

1 a large NHS Trust would have a role just to do with the
2 acute trust.
3 **MS CAREY:** I ask you this because there is a query by those
4 who represent the Welsh bereaved as to whether the
5 absence of a DIPC, a director, in Wales, might have
6 detrimentally affected implementation of IPC guidance.
7 Are you able to opine on that?
8 **PROFESSOR GOULD:** I worked in Wales between 2012 and 2019,
9 and Wales is a small country and that is advantageous
10 because you can know people in it the way you can't in
11 a larger country, I used to go to a lot of meetings to
12 do with infection prevention specialists and I would say
13 the quality of the service that was offered by the
14 people in charge of the services was very good. The
15 fact that they didn't have the title of DIPC didn't make
16 any difference, they performed the same role.
17 **MS CAREY:** Perhaps a question for you, Dr Shin, in practice
18 does your oversight of IPC matters include consideration
19 of non-clinical staff as well as clinical staff?
20 **DR SHIN:** It is -- yes, my role is really to protect
21 the patient and staff safety. Putting staff safety
22 aside, it includes all staff, clinical and non-clinical,
23 if that's what you're asking.
24 **MS CAREY:** Thank you.
25 A slightly different matter, the characteristics of

1 Covid, and for you, Dr Warne. We have heard from
2 Professor Beggs, so we're familiar with contact, direct,
3 indirect, fomite, call it what you will, droplet and
4 aerosols, I won't ask you about that, but can I just ask
5 you very briefly about transmissibility and the
6 reproduction number. I suspect her Ladyship's heard
7 about this in earlier modules but, for the purposes of
8 Module 3, could you just help us please with how
9 transmissibility is commonly expressed as the R number?
10 **DR WARNE:** Absolutely. So in terms of infection control
11 measures, the transmissibility is a key feature of
12 consideration for -- when you're talking about infection
13 control measures. So the R number is the number of --
14 if you had an infected individual, it's the number of
15 people in a vulnerable population you would expect to be
16 infected coming into contact with that person.
17 So, for Covid, early in the pandemic the estimate
18 was that it was around 2.5 in -- and for other pathogens
19 that can vary. It's roughly the same number for
20 influenza and other respiratory viruses. It's far
21 higher for conditions like measles, lower for
22 tuberculosis, and so on. And that influences the
23 control measures we would take.
24 **MS CAREY:** I think you say though in your report that it's
25 important to note that the transmissibility or the

1 R value is an estimate and the true transmissibility
2 depends on the setting.
3 **DR WARNE:** Exactly right. So the R0 is quoted in
4 population-level studies but obviously the individual
5 circumstances in which a patient finds themselves on the
6 ward in hospitals, that will influence the R number, the
7 transmissibility, if the pathogen has an opportunity to
8 spread and there are different ways to facilitate that.
9 **MS CAREY:** Is there a higher or a lower R number in the
10 hospital settings?
11 **DR WARNE:** It could potentially be higher. It really
12 depends on the setting. So if you were to put a patient
13 isolated into a side room, in principle it would be
14 lower, but we don't really think about the R number in
15 terms of these individual settings, it's more of a
16 population-level measure.
17 **MS CAREY:** Some other terminology we might be considering
18 throughout your evidence, the infection fatality rate,
19 please, what is that?
20 **DR WARNE:** It's the number of people who get the infection
21 who subsequently died. So it's the true number. So the
22 problem we have with Covid is that we know that there
23 are a number of people who are asymptomatic, who --
24 where they're never identified as being a true case.
25 The difficulty there is it's very difficult to always

1 identify all of the asymptomatic cases so they're often
2 not included when you're quoting rates of infection.
3 More commonly quoted to be the case fatality rate --
4 **MS CAREY:** Slow down a tiny bit, please.
5 **DR WARNE:** Okay.
6 **MS CAREY:** Tell us about that.
7 **DR WARNE:** So the case fatality is where you have confirmed
8 cases, where you know that you have the infection. So
9 that doesn't include asymptomatic individuals, but it's
10 much easier to get that information from nationally
11 collected data on confirmed cases, confirmed infections.
12 **MS CAREY:** Thank you. For our purposes, hospitalisation
13 fatality rate.
14 **DR WARNE:** This is the proportion of people who are
15 hospitalised with Covid who subsequently died. Again,
16 that's only a subset of all the people who catch Covid,
17 is the ones in hospital.
18 **MS CAREY:** I think you go on to say -- look, in your report,
19 into the fatality rate, and there's a graph I'd like us
20 to put up on screen.
21 Can I have, please, INQ000474282_18. Already there,
22 thank you very much.
23 You'll have to help me, Dr Warne, with this. What
24 does the top graph show and what is the point that is
25 trying to be depicted by this graph?

1 **DR WARNE:** So the top graph shows the hospitalisation
2 fatality rate. So this is the proportion of people with
3 Covid in hospital who subsequently die.
4 **MS CAREY:** Right.
5 **DR WARNE:** So we can see that with the purple line, that's
6 the original variant of the virus.
7 **MS CAREY:** You've called it wild type but is that what came
8 out in January to March 2020?
9 **DR WARNE:** Exactly right.
10 **MS CAREY:** All right.
11 **DR WARNE:** You can see that the hospitalisation fatality
12 rate peaks at over 40%, so over 40% of people
13 hospitalised with Covid in that time would have died.
14 **MS CAREY:** So that is -- yes, thank you very much, that is
15 April 2020 there. Then it falls throughout the summer
16 effectively. The dotted line running down, what does
17 that signify?
18 **DR WARNE:** So that's the point at which the vaccination
19 campaign was launched in the UK, so in December 2020.
20 **MS CAREY:** Thank you.
21 Then we can see it rise slightly, then there's the
22 emergence of a black line on the graph, which I think
23 you say is the weighted indicate -- what's the weighted
24 indicator?
25 **DR WARNE:** So at this point we have two variants circulating

1 in the UK at the same time, the original wild-type virus
2 and the emergence of the Alpha variant, and that black
3 weighted line shows the definition of those two as the
4 wild type numbers went down and the Alpha numbers went
5 up.
6 **MS CAREY:** Then if we look at Alpha just before
7 December 2020, the hospitalisation fatality rate is at
8 40% and then begins to drop as we pass through 2021, and
9 then we get to June, or thereabouts, 2021 and the
10 emergence of Delta.
11 Now, that's got a lot lower hospital fatality rate.
12 Can you help as to why that is?
13 **DR WARNE:** So you've noticed before that that there are two
14 waves of Alpha.
15 **MS CAREY:** Oh, yes.
16 **DR WARNE:** The Alpha hospitalisation fatality rate falls.
17 There are multiple reasons. Probably the most important
18 was the introduction of vaccination, as well as other
19 things including effective treatments for Covid that
20 weren't there previously, but vaccination is probably
21 the most important.
22 **MS CAREY:** Then it rises slightly, and then towards the end
23 of December 2021 into February 2022 we've got the
24 emergence of Omicron.
25 **DR WARNE:** Yes, so each of these variants have lower

1 fatality rates associated with them.
2 **MS CAREY:** Going back to the beginning, then, in April 2020,
3 can you help at all as to why the hospitalisation
4 fatality rate is as high as it is in April 2020?
5 **DR WARNE:** So it's a number of things. First, we had
6 an unvaccinated population, all of whom were vulnerable
7 to the infection. The virus itself was probably more
8 pathogenic, it was more likely to cause severe disease
9 and death. So the Omicron variant is very different in
10 that regard to the original wild-type virus, as well as
11 other factors, including an absence of effective
12 treatment, and there are differences in the patient
13 populations that were admitted, but they're all
14 contributing.
15 **MS CAREY:** Okay. Then the bottom graph, please, is the
16 effective infection fatality rate. What is that graph
17 demonstrating to us?
18 **DR WARNE:** This is all of the people -- an estimate of all
19 of the people that were infected with Covid, what
20 proportion of those ultimately died. So it peaked at
21 just over 1% with the wild type early in the pandemic,
22 but like the graph above it, each subsequent wave of
23 virus appeared to have a lower fatality rate, so fewer
24 people died with subsequent variants.
25 **MS CAREY:** I think you make the observation in your report

1 that obviously if you are asymptomatic, or indeed
2 minimally symptomatic, don't feel that unwell, if I can
3 put it like that, you can still transmit the virus as we
4 have heard. You say this:
5 "The proportion of asymptomatic infections varies
6 depending on the immune status of the individual, but
7 a meta-analysis of studies published in 2020 estimated
8 this figure at approximately one third of all cases in
9 unvaccinated individuals."
10 Can you just put that into layman's terms for us.
11 **DR WARNE:** So a meta-analysis is where you take multiple
12 studies and group them together to try to get a better
13 idea of an estimate of a number. So that number of
14 roughly a third of people from different studies with
15 different methods comes to this conclusion that roughly
16 one in three people who catch Covid are asymptomatic.
17 So the relevance of that for IPC is that it means
18 that anybody coming into your hospital who don't have
19 any symptoms may be carrying Covid, they may be
20 potentially capable of spreading the virus.
21 **MS CAREY:** Yes, and before testing it's almost impossible to
22 work out if the person is infectious or not?
23 **DR WARNE:** Exactly right.
24 **MS CAREY:** Incubation periods we did briefly look at with
25 Professor Beggs, but I think you say there that data

1 from the pandemic showed the incubation period was --
2 from time to -- catching the virus and developing
3 symptoms, anything from between 1 and 14 days, so you
4 could be asymptomatic for as long as two weeks.
5 **DR WARNE:** Exactly right.
6 **MS CAREY:** But the average was five days. Again, presenting
7 a problem for visitors, patients, staff alike, coming
8 into hospitals.
9 **DR WARNE:** Absolutely, so you could potentially be in
10 hospital for two weeks before you -- having caught the
11 virus in the community and potentially spread it from
12 that point onwards. Which is very difficult to try to
13 work out from an infection control point of view where
14 that infection originally came from.
15 **MS CAREY:** Now, there was knowledge, as we know, of
16 asymptomatic infections being possible early on and
17 evidence emerging as we went through the pandemic about
18 the role of asymptomatic transmission, but do you think
19 that future guidance should assume there will be
20 asymptomatic transmission unless and until the contrary
21 is proven?
22 **DR WARNE:** Absolutely. So we know that there is
23 asymptomatic transmission of a range of respiratory
24 viruses, including influenza, including RSV. I think
25 that there is much less with SARS, and MERS prior, but

1 until proven otherwise, I think we should assume that
2 there will be a substantial proportion of asymptomatic
3 transmission.
4 **LADY HALLETT:** Are you saying, Dr Warne, that that should
5 have been the case, given the state of knowledge when
6 the pandemic hit us?
7 **DR WARNE:** So we knew that there were high rates of
8 asymptomatic influenza and, although we discussed before
9 in this Inquiry about the importance of preparing for
10 an influenza rather than a coronavirus pandemic, the
11 likelihood that you have asymptomatic influenza is
12 equally likely. So I think that we should definitely
13 have been preparing for it and should prepare for it in
14 a future pandemic.
15 **LADY HALLETT:** Thank you.
16 **MS CAREY:** We have become familiar with standard IPC
17 measures and transmission based precaution but, can
18 I just ask you this, I'm asked to ask you about
19 Professor Beggs' conclusion that hand hygiene has
20 a modest effect in preventing Covid-19 transmission and
21 whether, I think probably you, Professor Gould, agree
22 with that conclusion or any of you if you disagree with
23 it. Start with you, Professor.
24 **PROFESSOR GOULD:** I would agree with it. Direct contact was
25 not found to be the major -- not considered to be the

1 major route of spread, so hand hygiene is always going
2 to be important but would not, in this case, be the
3 major route.
4 **MS CAREY:** Dissent from either of you two gentlemen?
5 **DR WARNE:** No, I agree with that.
6 **DR SHIN:** I agree but I think there were a few words there
7 that were important. IPC is not just about Covid
8 obviously, so we have to be conscious of all the other
9 infectious threats. For that reason, hand hygiene is
10 extremely important, as Professor Gould has just said,
11 so I broadly agree, with that small caveat.
12 **PROFESSOR GOULD:** Could I just add, we would be concerned
13 with the spread of Covid but we wouldn't want
14 inadvertently to give the patients MRSA or any other
15 infection. So hand hygiene is always good.
16 **MS CAREY:** No, it's always important.
17 **LADY HALLETT:** Can I just check what your final word was
18 because I missed it and I think the stenographer missed
19 it, Professor Gould. You said hand hygiene is important
20 but not -- I think I know what the word was.
21 **PROFESSOR GOULD:** Wasn't the major route.
22 **LADY HALLETT:** Thank you.
23 **MS CAREY:** Thank you.
24 We are familiar with airborne contact droplet, and
25 the like, so I won't ask you to go through those again.

1 Can I just ask you about FRSMs, though. Is this right,
2 that they have effectively sometimes a dual role as
3 source control and/or as PPE; is that a fair way of
4 putting it?
5 **DR SHIN:** I think they're used as source control, for
6 example historically in operating theatres surgeons will
7 wear them to protect the patient from -- and especially
8 the operating field -- from any droplets from that
9 surgeon. They can be used -- they're not technically
10 PPE --
11 **MS CAREY:** Yes, we know.
12 **DR SHIN:** -- but they are deployed in that way, so with that
13 small distinction, important distinction, they have been
14 used as a form of PPE but officially and technically
15 they're not classified as PPE.
16 **MS CAREY:** Understood, save that all the IPC guidance talks
17 about them in the context of PPE, but we take the
18 technical distinction that there is. For these
19 purposes, obviously it can protect you from getting
20 blood on you if someone is bleeding but, equally, if
21 you're coughing and sneezing, it can help prevent the
22 larger droplets going out into the environment.
23 **DR SHIN:** Yes, as I think a number of witnesses have said in
24 written and verbal that any form of face covering
25 provides some protection, so FRSMs can provide modest

1 protection for the wearer.
2 **MS CAREY:** Thank you. Dealing with masks and respirators,
3 we're familiar with FFP3. Can I just ask about FFP2 or
4 N95, as it's also been referred to. Is that a type of
5 mask that is commonly used in the UK?
6 Perhaps is that to you, Dr Shin, or you, Dr Warne?
7 **DR SHIN:** I can start. So FFP2 or N95 is commonly used in
8 other countries, notably the United States but some
9 European countries. It is available in the United
10 Kingdom but we don't have any tradition in the NHS of
11 using FFP2. We tend to use FFP3 because it provides
12 a slightly higher level of protection.
13 **MS CAREY:** I think in the report it says the type of
14 respirator is designed to reduce the exposure of the
15 wearer to respiratory particles by 95% when properly fit
16 tested, compared to no mask; is that correct?
17 **DR SHIN:** I think for FFP3 it may be higher than 95%. So
18 FFP2 is also known as N95, that's where the figure comes
19 from, but I think we're talking about fine margins here.
20 **MS CAREY:** Fine. Whether it's FFP2 or FFP3, it provides
21 a higher level of protection than wearing no mask at
22 all, understood.
23 **DR SHIN:** Yes, I think that's clearly true.
24 **MS CAREY:** Now, fit testing, can I ask about that, please.
25 There are two ways, as I understand it, of fit testing

1 and is this a matter that you can help us with,
2 Professor Gould, or is it for you, Dr Warne?
3 **DR WARNE:** I'm happy to talk to it, or Dr Shin.
4 **MS CAREY:** Either of you.
5 Help us with what is quantitative fit testing and
6 it's at paragraph 1.59 in your report.
7 **DR SHIN:** So there are two main methods of conducting fit
8 testing, which is a requirement by the Health and Safety
9 Executive, before using FFP3 as PPE. The qualitative
10 method requires the user to, once having donned a well
11 fitting respirator, to show that when a scent, for
12 example, is placed close to the user, that they cannot
13 detect that scent, which means that there is a good seal
14 and protection and those particles cannot breach that
15 PPE.
16 That's suitable for probably low volume -- you know,
17 low volume usage. But --
18 **MS CAREY:** Do you mean when lots of people don't need to be
19 fit tested?
20 **DR SHIN:** When you only have to test a few people,
21 basically, and there is no real urgency, that's
22 a reasonable approach and one which my hospital used,
23 for example. But, in the context of an emergency like
24 the pandemic, we have to scale up fit testing to a very,
25 very massive degree, then that becomes impractical, and

1 there is a method called the quantitative method which
2 used complex equipment and you need to train personnel
3 to do that and that becomes -- that is a method which is
4 more easily scalable for this pandemic situation, for
5 example, and most trusts would have used that method.
6 **MS CAREY:** Can I ask, what about the person who may not have
7 a sense of smell: how is fit testing conducted in those
8 circumstances?
9 **DR SHIN:** I think that would need the quantitative method
10 and the qualitative method, relying on scent detection,
11 would, in that case, clearly not work, which the irony
12 is that Covid produced anosmia or loss of sense of smell
13 in a number of people. So that was another reason why
14 the quantitative method, needing specialist equipment,
15 was favoured.
16 **MS CAREY:** Just help me, is this specialist equipment
17 available in most hospitals, are you able to give us
18 an indication about how widely available it is?
19 **DR SHIN:** I don't know specifically if I can give you a best
20 guess, my best guess is that most trusts probably didn't
21 have this equipment or, if they did, very, very -- you
22 know, only in one or two examples. So I think --
23 I suspect during the pandemic most trust hospitals would
24 have had to purchase more equipment and/or outsource.
25 There were some companies which could do this as

1 an outsourced service.
2 **MS CAREY:** And you need trained people available to do the
3 fit test?
4 **DR SHIN:** Absolutely.
5 **MS CAREY:** All right. The fit test results, as I understand
6 it, have to be recorded; is that correct?
7 **DR SHIN:** Well, they should be, I mean, if you want to have
8 a robust process, once again, the logistical aspect of
9 all this is very important. If you don't have a proper
10 record then, as an employer, you can't get assurance, as
11 a member of staff, you can't assurance that you know
12 exactly which mask fits you and that you need that mask
13 available. So we have records for many reasons. The
14 hospital has to assure itself that sufficient numbers of
15 staff in relevant areas have been fit tested and so,
16 obviously, we record for the staff that we know, for
17 those staff they need this type of mask, for these staff
18 we need that type of mask. So accurate records, I would
19 suggest, are really quite important.
20 **MS CAREY:** Help us, how long does it take to do a fit test?
21 **DR SHIN:** Approximately 15 minutes, 15/20 minutes, and the
22 difficulty there is that, if you don't pass on one type
23 of mask, you then need to be tested on another type of
24 mask. So that adds to the time.
25 **MS CAREY:** Understood.

1 We are familiar that fit checking is a different
2 process and, is this right, it's effectively designed to
3 check the seal?
4 **DR SHIN:** Once you have found a mask which fits that person,
5 they use that particular type of mask, don it, and it's
6 just basically breathing in to make sure you feel that
7 there is a seal and there is no air leakage.
8 **MS CAREY:** Thank you.
9 May I ask you, please, Dr Shin, about a document
10 INQ000427339, please, at page 5. I just want to look at
11 some of the practicalities of how they played out. This
12 is a document from Leicester NHS Trust, and it's dated
13 30 April and, in short, it sets out some of the
14 challenges that that trust was going through in fit
15 testing their staff and what they did to try and deal
16 with that, and a proposal that they made.
17 So that's the background, and I think, if we just
18 look there at 3.0, "What has Changed?", the trust was
19 saying to the board that:
20 "... the NHS supply chain has been unable to provide
21 a consistent stock of masks. In practice, this means we
22 have had very limited stock of FFP3 on which staff have
23 previously been tested. Under the current supply chain
24 conditions, no Trust has any control over the types of
25 mask that are provided."

1 Drilling into that, you might have type A mask
2 one week and type B mask comes in next week and no-one
3 has been fit tested on the type B mask?
4 **DR SHIN:** That is possible.
5 **MS CAREY:** "[Public Health England] guidance has changed
6 a number of times in recent weeks and has meant we have
7 used up some supply in fit testing groups of staff where
8 a surgical is now considered ..."
9 Then they go through the deliveries that are
10 expected to come in and it was the next bit really:
11 "Currently we have seven different types of mask in
12 stock approximately 2,000 staff who require repeated fit
13 testing as the mask type changes. Each test takes
14 between 15 and 30 minutes. Even with our now increased
15 fit testing offer over 7 days per week, it would take
16 a number of weeks to test all staff on all available
17 masks."
18 I know we're looking at a Leicester problem but is
19 that an uncommon problem or do you think this is
20 replicated across other trusts in other parts of the UK?
21 **DR SHIN:** I think every NHS hospital had huge challenges in
22 getting their, you know, many thousands of staff fit
23 tested with the multiple different types of masks and
24 the logistical challenges would have been huge and we
25 had similar problems. It was a massive logistical

1 challenge, training challenge, it was a very
2 difficult --
3 **MS CAREY:** Well, if we go down the page to 4.0, what have
4 they done, that trust, to maximise fit testing? They
5 purchased ten PortaCount machines, which is the
6 quantitative test, reducing the time from 30 to 15; they
7 worked with colleagues to acquire additional fit testing
8 kits; they established a team of staff trained to
9 undertake the fit testing clinics; they identified areas
10 where testing should be prioritised; and, indeed,
11 vulnerable staff, with underlying health conditions,
12 were fit tested and provided with the PPE.
13 So they did a number of things but, if we go over
14 the page, please, to page 6 -- thank you -- this is
15 where they ended up:
16 "The purpose of this paper is to inform the board
17 that following discussion and approval at a strategic
18 and tactical response level, the trust has made a move
19 away from compulsory fit testing for all types of FFP3.
20 "We have emphasised the need for a fit check at the
21 time of donning the PPE ..."
22 But, essentially, they wanted sign-off to move away
23 from the need to fit test; is that how you read this
24 document?
25 **DR SHIN:** That is how --

1 **MS CAREY:** Now, I know there is going to be controversy
2 about this, given that you are required to fit test. If
3 you go over the page, please, to page 7, they received
4 what was called compliance advice and they had taken
5 steps to try and mitigate the testing situation,
6 including they considered the least harm that would be
7 obtained by releasing FFP3 national emergency stock.
8 They set out there, effectively, that they acknowledge
9 this is not in line with the standard practice outside
10 a pandemic situation, but they considered it was
11 consistent with the requirement under the Health and
12 Safety at Work Act to ensure, so far as is reasonably
13 practicable, the health and safety and welfare at work,
14 and they noted that:
15 "... we would not expect staff to work in Covid
16 positive areas without fit testing."
17 So I just raise that so we can look at the interplay
18 between the health and safety legislation and actually
19 how it panned out on the ground, and then they asked the
20 board to derogate from the usual requirements to fit
21 test and revert back to fit testing as soon as supply
22 issues -- do you think that's an extreme example,
23 Dr Shin, or does it demonstrate, actually, what trusts
24 were having to do, particularly in April 2020, when
25 there were supply chain issues?

1 **DR SHIN:** So this is the only example I know where there has
2 been applied but, as they said in this document, I think
3 they've put a lot of thought into this in an extremely
4 difficult and challenging situation, which they've
5 described well. They've tried to mitigate risk as much
6 as possible, so I think I can understand how they got to
7 this position that they made and I think that they took
8 lots of reasonable steps to try and mitigate the risk,
9 and I think reflecting on the Health and Safety
10 Executive guidance or instruction, that's written in the
11 cold light of day for a non-pandemic situation, and this
12 is in early 2020, as we've heard, in the face of
13 a rising tide of a very dangerous, lethal virus, so they
14 were -- like many hospitals, and I wouldn't be surprised
15 if this wasn't the only one, I'm sure other trusts had
16 lots of difficult discussions -- and I think it's a very
17 well reasoned rationale for changing their position to
18 what we would like in ideal circumstances because we
19 were not in ideal circumstances.
20 **MS CAREY:** No, understood. I want to ask you about those
21 who fail a fit check and need something other than
22 an FFP3 mask and you include in your report reference to
23 powered air purifying hoods. Clearly, staff who
24 couldn't find either suitably sized or it failed for
25 reasons of beards or face shape, whatever the position

1 may be, could use a powered hood. You say this in your
2 report:
3 "For these healthcare workers, such hoods were the
4 only viable respiratory PPE option."
5 You say this:
6 "This was understood before the pandemic but a very
7 large number of NHS staff would fail their first fit
8 test for a variety of reasons."
9 Can you give us an indication of why people might
10 fail it? Obviously beards, face shape but what are the
11 other reasons that are commonly encountered.
12 **DR SHIN:** Actually, I would say that beards are probably not
13 the most common, so I know colleagues who shaved their
14 beards during the pandemic. But one really significant
15 problem, which is one of the recommendations actually,
16 is that we found that, basically, these masks were
17 designed for, you know, stereotypical face size, if we
18 can call it that, and shape and many of our staff just
19 don't have the -- you know, looking around the room,
20 even, you see people have different shaped faces,
21 especially women and persons of other ethnicities and we
22 found that in our workforce, and I think we said in our
23 paper, and it's well known, most nurses -- more than 80%
24 of nurses are female and in the NHS we have a lot of --
25 a very diverse workforce, especially in London we have

1 a particularly diverse NHS workforce, and we just found
2 in practice, when we were scaling up this fit testing,
3 that a lot of the people who failed their fit testing on
4 a number -- one mask or more, were female and of another
5 ethnic -- non-white ethnic background. And that's one
6 of the recommendations that that needs -- that situation
7 needs to be improved.
8 **MS CAREY:** I appreciate that a lot of the staff had never
9 had to have been fit tested or needed to wear RPE but,
10 given that it was known, if I understand you correctly,
11 pre-pandemic that there wasn't enough masks to fit the
12 variety of face shapes that we encounter, can you help
13 at all as to why there wasn't provision in place for
14 being able to scale up lots of different types of masks.
15 **DR SHIN:** I think basically the practice -- this is one of
16 the areas where our practice in the NHS changed
17 dramatically during the pandemic. We just -- before the
18 pandemic we would only have had FFP fit testing for very
19 specific -- as I think we did mention in our report, for
20 example, critical care, for example, respiratory
21 medicine and other areas similar to that and infectious
22 diseases wards, where there's a reasonable expectation
23 that patients with infections like TB and HCIDs could be
24 seen.
25 So that means this testing was only done in a very

1 select few areas, whereas in the pandemic because of the
2 scale of it, it eventually it expanded to most acute
3 areas of acute hospitals and indeed perhaps most
4 clinical staff. So it was a question of what was needed
5 before the pandemic was very different.
6 **MS CAREY:** Understood.
7 Can I change topic and turn to you, Dr Warne, and
8 included in the report is a section entitled
9 "Controversies surrounding the transmission route of
10 Covid and the implications for PPE", and if it helps
11 you, Doctor, I'm at 6.10.
12 Can I ask to be called up on screen page 64 of the
13 report, it's INQ000474282_0064. Would you be able to
14 highlight the five bullet points, because, if I may say,
15 this rather encapsulates the areas of controversy that
16 we have been dealing with. You say:
17 "However, there has been disagreement in the
18 scientific and medical communities, and a changing
19 evidence base during the course of the pandemic, related
20 to:
21 "[Firstly] Whether the simple size threshold of
22 5 microns is accurate when considering which particles
23 are aerosolised.
24 "Which medical procedures are at increased risk of
25 generating aerosols (AGPs).

1 "Whether aerosolised particles can be produced in
2 the absence of AGPs (for example through talking,
3 coughing, sneezing, and singing).
4 "What is the contribution of aerosol transmission
5 for Covid-19 in comparisons to other routes in
6 a hospital setting.
7 "How the above relates to implications for IPC
8 guidance."
9 In a nutshell, we have been considering some of that
10 already and I don't want to revisit old ground but did
11 you hear some of yesterday's evidence from Professor
12 Susan Hopkins?
13 **DR WARNE:** Some of it, yes.
14 **MS CAREY:** I would like to ask you, please, about FFP3
15 versus -- and it's my word, not anyone else's --
16 efficacy of FRSMs. I think you perhaps go back in time,
17 please, to your paragraph 6.12 because, as I understand
18 it, for a long time now there has been a distinction in
19 IPC guidance, whether it's flu, MERS, coming on to
20 Covid, drawn between FRSMs for routine care and
21 respirators for AGPs; is that correct?
22 **DR WARNE:** That's correct, yes.
23 **MS CAREY:** That's been pre-existing, I think you say, since
24 at least 2007?
25 **DR WARNE:** Yes.

1 **MS CAREY:** The flu pandemic guidance was based on the
2 assumption that flu was droplet and so, again, FRSM was
3 recommended for routine care, respirators for AGPs. Can
4 I ask you this: why do you think respirators are
5 recommended if it was not thought that, in a clinical
6 context, they necessarily offered a higher degree of
7 protection than FRSM?
8 **DR WARNE:** Is this related to aerosol-generating procedures?
9 **MS CAREY:** Well, no, not necessarily. Yesterday we heard
10 from Professor Hopkins, and I asked her this:
11 "Do you agree that where there is an accepted risk
12 of aerosol transmission FFP3 should be recommended?"
13 She didn't agree with that. She said it was
14 complicated, and she said that evidence was weak that
15 FFP3s protected more than FRSMs, and it made us ponder
16 why, if the evidence was weak, there has been, running
17 throughout the guidance, this distinction between FRSMs
18 in one context and respirators in another.
19 So that's the genesis of the controversy and I'd
20 like your help with how we've ended up in this position,
21 if you're able to help us.
22 **DR WARNE:** A lot of the evidence for this comes from SARS,
23 so it's about 20 years old. There is no high-quality
24 evidence, as we would understand it, so in future
25 modules we talk about vaccines, talk about drugs and

1 effective treatments that undergo high quality
2 randomised control trials, so evidence which is
3 considered to be of a high quality and is robust.
4 Those kind of studies are very uncommon in infection
5 control measures so we rely on, essentially, look-back
6 exercises, retrospective observational studies where
7 some people had one type of infection control
8 intervention and another group had another.
9 So, in SARS, there were a number of very small
10 studies looking at people who had surgical masks or
11 respirators or no PPE at all, and the evidence from
12 SARS, based on those small studies, is that some PPE is
13 much better than none, but very few of them actually
14 compared respirators with surgical masks.
15 There were two studies, they're incredibly small,
16 and those very small studies, which are by the authors'
17 admission of poor quality, essentially are the only
18 basis -- the only scientific basis at the start of this
19 pandemic by which -- is quoted in guidance both of
20 pandemic flu preparedness and other guidance at the
21 start of this pandemic, the rationale for using surgical
22 masks for routine clinical care above respirators.
23 **MS CAREY:** So is a lack of high-quality trial evidence that
24 respirators are more effective than FRSM, is that --
25 **DR WARNE:** That's right because there is essentially no

1 high-quality evidence.
2 **MS CAREY:** Right, but there is other evidence because we
3 heard from Professor Beggs about the studies done in lab
4 conditions.
5 **DR WARNE:** Absolutely.
6 **MS CAREY:** What about observational studies, if that be the
7 right -- are there any other studies that help at least
8 try and ascertain whether respirators are better than
9 FRSMs?
10 **DR WARNE:** There's certainly been a lot, as the pandemic has
11 progressed, observational studies which show that FFP3
12 respirators or other types of respirator are associated
13 with lower risk of transmission, particularly to
14 healthcare workers, which are the group we're talking
15 about. None of -- again, they are being criticised
16 because the methodology is not rigorous, they often rely
17 on retrospective observational data, there are chances
18 of bias, and so on.
19 But that's the quality of the evidence that we're
20 relying on and the laboratory style evidence, what we
21 know **a priori**, you know, what we know about the first
22 principles of these aerosols and how they're generated,
23 has contributed to a body of evidence that's open to
24 interpretation.
25 **MS CAREY:** If there is this lack of high-quality trial

1 evidence, can you help why it is that we've ended up
2 now, for a number of years, with a distinction
3 nonetheless being drawn between FRSM in routine care and
4 respirators for AGP procedures; why have we been
5 following this for two decades?
6 **DR WARNE:** I think part of it is entrenchment that IPC
7 measures are very slow to change. So once you have
8 a standard which is establish, 15, 20 years ago, there
9 is very little change that happens with IPC measures,
10 particularly at any kind of pace, so "That's what we've
11 always done, that's what we'll continue to do".
12 **MS CAREY:** I saw Professor Gould nodding there. As someone
13 who has been involved in the educational side of things,
14 do you have a view about what Dr Warne's just told us?
15 **PROFESSOR GOULD:** I think, by tradition, infection
16 prevention people are very traditional and they are not
17 very forward-thinking people, they tend to be
18 backward-thinking people, they tend to be, "We've always
19 done it this way and it's the safe way and so we'll
20 carry on doing it the safe way". They don't think it
21 for any malicious reason; people don't dare to change.
22 So there are some entrenched things that we do and
23 we do them because we've always done them because we
24 just don't dare to change. We always wear masks in
25 operating theatres because we always have. Some kinds

1 of surgery, it's probably very unlikely that
2 transmission of infection would occur by that route but
3 we still wear them just to be sure.
4 **MS CAREY:** Can I ask you this, though, that her Ladyship
5 will see, as we go through, and may indeed have
6 an indication of it already, there are a number of calls
7 from people like the BMA, the Royal College of Nursing,
8 the TUC, for increased usage of FFP3 masks. Why is
9 there this demand for FFP3 if, in fact, it makes,
10 certainly in terms of the clinical trial evidence,
11 little difference to the protective quality over FRSMs;
12 why is there the call for it?
13 **DR WARNE:** There is certainly a perception among healthcare
14 workers that the respirators provide more protection
15 than surgical masks?
16 **MS CAREY:** Do you think that's basically because, if you
17 look at them, one is blue and loose fitting and the
18 other one is tighter and is more robust material?
19 **DR WARNE:** I think that is a big -- evidently a contribution
20 to it but a lot of healthcare professionals do follow
21 the evidence or they are associated with professional
22 bodies that review the evidence on their behalf and
23 there are, as you mentioned, trade unions, Royal College
24 of Physicians, other bodies, where their view on the
25 evidence was that FFP3 masks or other respirators would

1 have provided protection to those healthcare workers.
2 **MS CAREY:** What did you wear, Dr Warne, when you were on the
3 wards?
4 **DR WARNE:** So initially, as was the guidance and as I even
5 advocated at the start of the pandemic, in line with
6 national guidance, I would have worn a surgical mask, as
7 we have done for previous flu winters. Our trust is one
8 of a number across the UK that moved towards respirators
9 based on evidence that we had that respirators provided
10 more protection for our staff and so, as the pandemic
11 progressed, we switched to using respirators for
12 healthcare workers caring for confirmed Covid --
13 confirmed or suspected Covid-19 patients.
14 **MS CAREY:** And, presumably, respirators in areas where AGPs
15 were being performed?
16 **DR WARNE:** Yes, throughout.
17 **MS CAREY:** Can I ask you this, then: if there were
18 sufficient supplies and a healthcare worker just would
19 prefer to wear a respirator because it made them feel
20 safer -- forget whether the lab or the science proves
21 it -- do you think that is something that should have
22 been enabled, had the supplies been there?
23 **DR WARNE:** If I was in this position in, you know, March
24 2020, I think that it would be difficult to say. With
25 the benefit of hindsight and in future pandemics, the

1 answer would be yes, depending on which patient group
2 I was looking after. So for confirmed Covid patients,
3 absolutely; for others it's more unclear.
4 **MS CAREY:** Can I ask you this then, please, Dr Warne, based
5 on the lack of high-quality trial evidence but the other
6 laboratory trial evidence or the observational studies,
7 does it come to this: do we know from the data whether
8 FFP3 would have reduced the number of cases of Covid-19
9 in healthcare workers?
10 **DR WARNE:** So we don't know that for sure. I suspect it
11 would have reduced it by a proportion of cases but there
12 are other factors that contribute to healthcare workers
13 acquiring Covid-19. So that relates to compliance with
14 PPE, and whether they would have tolerated these kind of
15 respirators, an acknowledgement that transmission to
16 healthcare workers came from sources other than Covid-19
17 patients, including other healthcare workers, and that
18 there were issues with other issues regarding training
19 and other compliance issues with PPE that need to be
20 taken into consideration.
21 **MS CAREY:** Given that answer, do we know from the data
22 whether FFP3 wearing would have reduced the number of
23 hospital-acquired infections, whether acquired by the
24 healthcare worker or acquired by the patient?
25 **DR WARNE:** The majority -- as we will come to later -- of

1 patient healthcare-associated infections comes from
2 other patients. So the use of FFP3 respirators by
3 healthcare workers is unlikely to have substantially
4 changed the number. It may have done a small amount.
5 **MS CAREY:** Would you recommend that the current IPC
6 guidelines are updated to recommend routine use of FFP3?
7 **DR WARNE:** For the care of patients with confirmed
8 respiratory --
9 **MS CAREY:** Or respiratory virus?
10 **DR WARNE:** Yes, I would.
11 **LADY HALLETT:** I think Dr Shin wanted to say something.
12 **MS CAREY:** So sorry. Yes, Dr Shin.
13 **DR SHIN:** I broadly agree but I think we also take into
14 account the pathogenicity of the virus we're talking
15 about. For example, if it was rhinovirus, which is the
16 common cold virus, then I wouldn't advocate FFP3 for
17 that. But, yes, Covid and flu and potentially other
18 viruses, like parainfluenza virus, there are four types,
19 immunocompromised patients can be quite seriously ill
20 with that, so I think there's a bit of a nuance here,
21 basically.
22 **MS CAREY:** Understood.
23 May I turn to AGPs, which we've touched on, and I'm
24 at paragraph 6.4, which I think is you, Dr Warne. Can
25 I just ask you this: we are aware that there was, during

1 the pandemic, an independent high-risk AGP panel set up
2 by, I think, the Chief Medical Officer, which it
3 reported to in due course. But I think you say at the
4 outset that there is little scientific consensus on
5 which procedures are aerosol generating. Can you just
6 help us: why is there no consensus about this?
7 **DR WARNE:** So there are a number of medical procedures
8 involving the airway or involving the upper GI tract,
9 the mouth, the oesophagus, and so on, which potentially
10 are at risk of producing aerosols and, therefore, are
11 potentially a higher risk to healthcare workers in the
12 vicinity of those procedures being performed. There is
13 little -- some of those procedures, there is little
14 consensus on which ones produce an aerosol and why they
15 produce an aerosol, so if, for example, a number of
16 these procedures are associated with aerosol generating,
17 potentially because they cause coughing, so endoscopy,
18 et cetera, which as evidence has come through the
19 pandemic and been reviewed by Professor Beggs, I think,
20 last week, that coughing is in itself probably
21 an aerosol-generating event.
22 **MS CAREY:** Yes, I think you make the point in the report
23 that tracheal intubation, ie putting the tube in,
24 produced very low quantities of aerosolised particles
25 but extubation, I presume taking the tube out,

1 particularly when the patient coughed, produced
2 detectable aerosols which was 15-fold greater than
3 a normal cough.
4 Is it quite common, when they're taking the tube
5 out, for a patient to effectively cough it up? I don't
6 mean that quite as grossly as it sounded.
7 **DR WARNE:** Yes.
8 **MS CAREY:** I see.
9 Cardiopulmonary resuscitation, there has been
10 conflicting guidance, I think you say, between the IPC
11 cell and other organisations in the UK as to whether
12 that should or shouldn't be an AGP. Can you just
13 summarise the competing arguments, if you like?
14 **DR WARNE:** So resuscitation guidance in the UK is provided
15 by the Resuscitation Council. One of the complications
16 with resuscitation attempts is that they are essentially
17 a series of interventions. So the actual chest
18 compressions, potentially intubation, line insertion,
19 some of which are potentially aerosol-generating
20 procedures and some of them aren't.
21 When the initial list of AGPs was produced at the
22 start of the pandemic, cardiopulmonary resuscitation was
23 not on it and that led to conflicting guidance produced
24 from the IPC cell, from NHS and PHE, and the Resus
25 Council. So the Resus Council advised the use of

1 respirators in all resuscitation attempts and that
2 conflicted with guidance produced by the other bodies.
3 **MS CAREY:** May I just ask you about CPR. To the layperson,
4 one might think of someone putting their hands on
5 a person's chest. Does that produce aerosols or do we
6 know if it does?
7 **DR WARNE:** So what you're essentially doing is forcing
8 somebody to breathe. In any resuscitation attempt in
9 hospital you would have a lot of people there doing
10 different tasks often simultaneously, so when you have
11 chest compressions coming on the chest, you would also
12 have somebody trying to intubate the patient, to put
13 a tube down, doing other procedures simultaneously. So
14 while some of those procedures, including intubation,
15 are, you know, concerned with aerosol-generating
16 procedures, it's difficult to disassociate chest
17 compressions, intubation, et #cetera, because they're
18 all happening at the same time.
19 **MS CAREY:** I think, my Lady, we're going to hear from
20 a number of the different parties there that Dr Warne
21 mentioned, so I'll leave that topic there.
22 I think just, finally, Dr Warne, your
23 paragraph 6.50, where you looked at a number of studies
24 that were trying to work out which procedures were more
25 aerosol generating, and what was the outcome at

1 paragraph 6.50?
2 **DR WARNE:** So, as I mentioned, a number of these procedures
3 are associated with coughing, and some of these
4 laboratory studies that you refer to show that it's
5 coughing that produces more aerosols. Anything that
6 induces coughing, whether that's an intubation or if
7 it's a physiotherapist trying to induce coughing to help
8 somebody clear their chest, these are all likely to be
9 associated with aerosol generation.
10 **MS CAREY:** What about if it's not something being done to
11 you that produces the coughing but you're just coughing
12 because you've got Covid and you don't feel very well?
13 **DR WARNE:** So the evidence from these studies, which wasn't
14 available at the start of the pandemic, is that coughing
15 is, in and of itself, likely to produce as much or more
16 aerosol than many of the procedures on the list of AGPs.
17 **MS CAREY:** So if it is right to draw a distinction between
18 FFP3 and AGPs, actually it's not a great distinction
19 because, on that basis, you should be having FFP3 around
20 anyone who's coughing.
21 **DR WARNE:** Yes, bear in mind that two in three people who
22 come to hospital with Covid present with coughing that's
23 a high proportion of -- that's a high risk, just on the
24 general ward.
25 **MS CAREY:** My Lady, it's a little early but I'm moving on to

1 IPC guidelines and quite a large body of the report, and
2 turning to Professor Gould. So I wonder if that might
3 be a convenient moment or I can carry on, if you wish,
4 and deal with some of it.
5 **LADY HALLETT:** No, I'm sure the stenographer will be
6 grateful, given some of the words that our experts have
7 been using.
8 **MS CAREY:** Yes.
9 **LADY HALLETT:** Right, I shall return at 11.20.
10 **MS CAREY:** Thank you very much.
11 **(11.03 am)**
12 **(A short break)**
13 **(11.20 am)**
14 **LADY HALLETT:** Ms Carey.
15 **MS CAREY:** Thank you.
16 Can we turn, please, to chapter 3 in the report, and
17 I think, Professor Gould, these questions are mainly
18 going to be directed at you. I understand that people
19 are finding it difficult to hear, so -- I know it's not
20 much space -- could you perhaps move your chair forward
21 a little bit. And if anyone can't hear, I'm sure we'll
22 get a message.
23 Professor Gould, I suppose some background, really,
24 it's your page 38 that we're starting at.
25 We've heard reference already in the Inquiry to the

1 National Infection Prevention and Control Manual, the
2 NIPCM, which was first published in Scotland but has
3 subsequently been rolled out across the UK. It was
4 adopted, I think, in Wales first, is that correct, in
5 2018?
6 **PROFESSOR GOULD:** Yes.
7 **MS CAREY:** In England pre-pandemic it was Public Health
8 England guidelines were used; is that correct?
9 **PROFESSOR GOULD:** A combination of guidelines were used,
10 including Public Health guidelines.
11 **MS CAREY:** Thank you. Then England moved to the NIPCM in
12 April 2022; is that correct?
13 **PROFESSOR GOULD:** Yes.
14 **MS CAREY:** In Northern Ireland, Public Health Agency
15 guidelines applied pre-pandemic. They updated their
16 manual in 2023 and based the update on the NIPCM; is
17 that correct?
18 **PROFESSOR GOULD:** That's correct.
19 **MS CAREY:** I just want to check this: notwithstanding that
20 NIPCM is either the manual or underpins the manuals in
21 the respective countries, I'm asked to ask you whether
22 you are aware that the NIPCM for England has its own
23 governance structure, notwithstanding that it's based on
24 the NIPCM Scotland; were you aware of that?
25 **PROFESSOR GOULD:** Yes.

1 **MS CAREY:** Thank you. Just for the record, we are aware
2 that the UK IPC guidelines were published in the name of
3 all four public health agencies and the Department of
4 Health and the NHSE.
5 At the outset, can I ask you whether you think, in
6 your experience, consultation with stakeholders is
7 important when developing guidelines such as IPC
8 guidelines.
9 **PROFESSOR GOULD:** Very important indeed, because the
10 stakeholders are the people who -- they will include the
11 staff who will have to put them into place, and they
12 will include the patients who will have to have them
13 used on them, and the patients' families, and other
14 groups with specific information that would wish to feed
15 into guidelines. So stakeholder involvement would be
16 essential.
17 **MS CAREY:** At what stage would you recommend that there
18 should be stakeholder engagement?
19 **PROFESSOR GOULD:** From the outset, if at all possible.
20 **MS CAREY:** In the room drafting the guidelines, as it were?
21 **PROFESSOR GOULD:** Yes.
22 **MS CAREY:** How practical is that? Clearly in pre-pandemic
23 times there may be more leeway in terms of pressures of
24 time.
25 **PROFESSOR GOULD:** I think these days it would be more easily

1 done by previously, because people would do it by video
2 conferencing. So it would be, these days, more
3 practical.
4 **MS CAREY:** Compliance or otherwise with the guidelines and
5 the role of regulators, can we just consider that,
6 please. I think you say in your report at
7 paragraph 3.14 that:
8 "The regulatory bodies ... play an important role in
9 ensuring that adequate IPC standards are in place."
10 But I just want to be clear about what is mandatory,
11 what is guidance, what is the sanction if you don't
12 follow IPC guidance.
13 So could I start with England, please. I think you
14 said England is mandatory.
15 **PROFESSOR GOULD:** Mandatory means that you have to do it, so
16 you would have to show that you had -- you would have to
17 be able to demonstrate to the regulatory bodies that you
18 had the guideline in place and that people knew what it
19 was and where it was and how to find it. But making
20 sure that they followed everything on it would be
21 another story, because they would have to have the time,
22 the resources and all the other things that is
23 necessary. If the hand hygiene gel is not there, you
24 cannot use it.
25 **MS CAREY:** We've seen I think in some of the IPC guidance

1 the words "must be used", indicating a sort of
2 mandatory, but what happens if you don't follow the
3 guideline?
4 **PROFESSOR GOULD:** If the regulatory body comes and you are
5 not adopting the guidelines or you are seen not to be
6 adopting the guidelines then you will be penalised.
7 **MS CAREY:** In Scotland you set out that the NIPCM manual has
8 a disclaimer on it and it reads as follows:
9 "When an organisation, for example health and care
10 setting, uses products or adopts practices that differ
11 from those stated in [the manual], that individual
12 organisation is responsible for ensuring safe systems of
13 work including the completion of a risk assessment
14 approved through local governance procedures."
15 I think there's also that wording I think on the
16 bottom of the English NIPCM. Not mandatory, then, you
17 can deviate from it providing you've got a safe system
18 of work including, for example, a risk assessment. Is
19 that how I should read that?
20 **PROFESSOR GOULD:** Yes. Healthcare is dynamic, new products,
21 new ways of working are introduced all the time,
22 guideline development is complex, it is time consuming,
23 even if you do it by video conferencing, and you can't
24 mandate for every occasion. So if you were going to
25 introduce new equipment or a new way of doing something,

1 you would have to be able to demonstrate that you had
2 thought about infection prevention before you did it,
3 and you could argue that what you were doing was safe
4 and sensible.
5 **LADY HALLETT:** Just before you go on, Ms Carey, I may have
6 misunderstood. I thought you said the English guidance
7 was mandatory but the Scottish had the disclaimer, but
8 then you added: but the English guidance also has
9 a disclaimer.
10 **MS CAREY:** It does have a disclaimer on the bottom of it,
11 but it does say this "should be adopted as mandatory".
12 So perhaps that's not entirely -- let me read it out for
13 clarity's purposes, so the website on the NIPCM on the
14 NHS England website states that NIPCM:
15 "... should be adopted as mandatory guidance in NHS
16 settings or settings where NHS services are delivered,
17 and the principles should be applied in all [healthcare]
18 settings."
19 That's how it reads. But I think there is the
20 caveat added, I will find it at some point in
21 a convenient break.
22 Can I park England for a second and ask you about
23 Wales, please. I think you say this: the web pages for
24 the NIPCM in Wales state that the manual, and indeed
25 there's a care home manual, "are considered best

1 practice".
2 **PROFESSOR GOULD:** Yes, guidelines are considered best
3 practice, the best way of doing things. They don't talk
4 about mandatory so much on the Welsh guidelines.
5 **MS CAREY:** No. So how does one enforce best practice?
6 **PROFESSOR GOULD:** It would sometimes be very difficult, but
7 then it would be difficult in any -- whichever nation
8 you were in if you didn't have the time or you didn't
9 have the resources to put the guideline in practice. If
10 you didn't have the right equipment then it would be
11 very hard wherever you worked. And that would be the
12 same in Wales and anywhere else.
13 **MS CAREY:** In Northern Ireland, the webpages state:
14 "Healthcare organisations may adopt this advice and
15 guidance in Health and Social Care Trusts, Primary Care,
16 Private Clinics and Voluntary sectors ..."
17 So clearly, there, discretionary, not mandatory?
18 **PROFESSOR GOULD:** The Northern Ireland manual says
19 substantially less than the other three manuals, and
20 it's harder to draw inferences from them about what is
21 expected, except that they are clearly drawn from the
22 Scots ones.
23 **MS CAREY:** Do you think that that's helpful?
24 **PROFESSOR GOULD:** It would depend how much guidance you
25 wanted, it would depend how confident you were.

1 **MS CAREY:** Variation, then, in the terminology used across
2 the four nations. Do you think that leads to
3 an inconsistency of approach between the four countries?
4 **PROFESSOR GOULD:** There could be slight inconsistencies, and
5 certainly it is confusing when the manual says that it's
6 mandatory and there is a disclaimer there as well. That
7 is -- that's difficult.
8 **MS CAREY:** In addition to the NIPCM and the equivalents
9 thereof, can you also have local guidelines?
10 **PROFESSOR GOULD:** You can have local guidelines that are
11 adopted from the national guidelines, but then there are
12 other guidelines as well as the national infection
13 prevention and control manuals.
14 **MS CAREY:** Yes, there are a number of guidelines I think we
15 may look at produced by various societies, royal
16 colleges and the like, understood.
17 **PROFESSOR GOULD:** Yes.
18 **MS CAREY:** Can you help with this: we know that during the
19 pandemic the regulator stopped visiting healthcare
20 settings in particular hospitals; do you think that had
21 an effect on whether IPC measures were being properly
22 undertaken and conducted? Is that something you can
23 help us with, Professor Gould?
24 **PROFESSOR GOULD:** I think Dr Warne might be better, in
25 a better position.

1 **DR WARNE:** I think it's very difficult to say, because any
2 kind of visit from the regulators produces additional
3 burden and stress on these departments, who are already
4 incredibly under pressure. I think there are other ways
5 that you could measure infection control interventions
6 and compliance, but, bearing in mind the guidance was
7 changing frequently, I'm not sure how useful that would
8 have been. It's beyond my area of expertise.
9 **PROFESSOR GOULD:** I can remember examples from clinical
10 practice. I was doing a research project throughout the
11 Covid period and I was particularly speaking to people
12 on the surgical wards. They said that parts of their
13 ward had been commandeered for other purposes, so the
14 room in which they normally did surgical dressings --
15 this was a complex plastic surgery ward, patients were
16 at very high risk of infection, with very severe
17 consequences if they became infected -- the room which
18 they reserved for doing the dressings in had been
19 changed into a room where computers were present to
20 record epidemiological data, so the dressings were being
21 done at the bedside and locally the nurses thought that
22 there were more infections result of that, and
23 ergonomically it was more difficult to do those
24 dressings. I don't have any hard evidence of the
25 infection rates but that example struck -- to me it was

1 a very interesting example and it stuck in my mind.
2 **MS CAREY:** The development of the guidelines, and I think
3 you set out a summary and then I'll work backwards, if
4 I may, but, Professor, you say this:
5 "Guideline development is time-consuming ... [it is
6 not practical] in an emergency such as a pandemic when
7 information is needed as soon as possible."
8 And I think you set out in your report there are
9 a number of ways of drafting the guidelines but there's
10 two I'd like to look at in particular, which is
11 a literature review-based guideline and a rapid
12 review-based guideline.
13 So taking a literature review first of all, what is
14 a literature review?
15 **PROFESSOR GOULD:** A literature review is a summary of all
16 that has been written on a subject. There are different
17 sorts of literature reviews, but in this case people
18 would be talking about a systematic literature review,
19 which is one in which all sources of evidence have been
20 considered.
21 **MS CAREY:** How long does that take?
22 **PROFESSOR GOULD:** It can take a very long time, depending on
23 the amount of literature that has been written. So on
24 a topic like hand hygiene -- and I've been involved in
25 the writing of hand hygiene guidelines -- when an

1 enormous amount has been written, it can take you over
2 a year. You can speed the process up if you have to,
3 remembering that guideline development need not
4 necessarily be a full-time occupation, often people do
5 it alongside -- you know, it's something you do
6 alongside your job very often, or you might work in the
7 university and you might do it as part of your academic
8 activities, but practitioners will be involved in it as
9 well.
10 **MS CAREY:** A rapid review?
11 **PROFESSOR GOULD:** A rapid review is supposed to be based on
12 the literature but is streamlined, it's an accelerated
13 process.
14 **MS CAREY:** How long does a -- I hesitate to use "average
15 rapid review", if there be such a thing, but how long
16 would a rapid review take?
17 **PROFESSOR GOULD:** It's defined as something you would do in
18 about three months, but rapid review, some are much more
19 rapid than others. A lot, again, would depend on how
20 much had been written. In some areas, you know, in the
21 case of Ebola, in the Ebola guideline development, in
22 which I was not personally involved, not very much was
23 written, and so there wasn't actually very much to
24 review, so looking at what had been written would have
25 occurred much more rapidly.

1 **MS CAREY:** I've made reference there to manuals and
2 guidelines and indeed guidance, and help us with what
3 distinction, if any, there is between those things.
4 Perhaps start with a guideline. How do you perceive
5 a guideline to be defined?
6 **PROFESSOR GOULD:** A guideline is usually considered to be
7 a general outline of what should be achieved. It's
8 usually supposed to represent best practice, you know,
9 what you would do under ideal circumstances for
10 everybody to avoid unwarranted variations in practice so
11 that all patients are treated the same.
12 So deviation from a guideline ought to be possible
13 if you had to. For example, if a new way of doing
14 something evolved, if a new piece of equipment was
15 evolved, you would look at the guideline but you would
16 use the guideline to inform what you did, remembering
17 that the guideline couldn't be updated every
18 five minutes.
19 A manual is -- infection prevention experts appear
20 to use the word "manual" and "guideline" much more
21 interchangeably and synonymously, but in lay parlance
22 a manual would be a how-to-do-it thing, rather like
23 a recipe, rather than general principles. So a manual
24 would tell you the different stages of a procedure and
25 what you were doing.

1 **MS CAREY:** Is there any difference that you can determine
2 between a guidance and a guideline?
3 **PROFESSOR GOULD:** As far as I can see, and I have tried to
4 find the difference between them, they are used
5 synonymously.
6 **MS CAREY:** Now, help us, please, if you wouldn't mind,
7 Professor, with your paragraph 4.4 where you set out the
8 WHO criteria for developing IPC manuals, which I think
9 came in in 2018.
10 Can we perhaps put it on the screen. It's
11 INQ000474282_42, excuse me.
12 If we could go to the bottom of that page, and
13 paragraph 4.4, I think the definition is set out.
14 That's it, there we are:
15 "The WHO has published criteria for developing IPC
16 manuals ... The WHO criteria state that 'The manual is
17 not intended to be a prescriptive list of "must do's".
18 Instead, it provides a stepwise approach to
19 implementation based on the evidence and experience of
20 worked in a number of settings and introduces examples
21 and ideas from healthcare facilities [from] around the
22 world which can be used by IPC leads/focal persons and
23 teams within health care facilities'."
24 Can you help, what is a stepwise approach?
25 **PROFESSOR GOULD:** Well, first of all I would like to point

1 out that this manual was written with low-income
2 countries more in mind than with high-income countries,
3 but it seemed quite important to write about manuals,
4 given the title of the guidance that we have in the UK.
5 But step by step would indicate there was more directive
6 behind it rather than a guideline. So this kind of
7 a manual I think would be telling you how to put
8 a guideline in place. It would be saying, you know, you
9 have to involve stakeholders, you have to go through
10 these processes, but it wouldn't be, I think, like
11 a recipe book, remembering that these manuals would have
12 to apply in Africa, in other parts of the world that
13 would be very different.
14 **MS CAREY:** Thank you.
15 You say:
16 "The WHO advocates ... a clear summary of its core
17 components, identification of barriers and practical
18 solutions ..."
19 And then this:
20 "... and the importance of 'winning hearts and
21 minds' ..."
22 And you say:
23 "The phrase 'winning hearts and minds' is used to
24 describe ..."
25 Is that a quote?

1 **PROFESSOR GOULD:** Yes.
2 **MS CAREY:** "... the 'convincing narrative' that must be put
3 in place ..."
4 Why is it a question of winning hearts and minds?
5 **PROFESSOR GOULD:** Because emotionally and intellectually
6 people need to accept that the guideline genuinely does
7 represent best practice, that it is based on evidence
8 that is of the best quality where that evidence exists,
9 and people have to want to do it and they have to feel
10 emotionally able to do it. If they're given a guide --
11 if people are instructed to do something and they feel
12 that it's not right, then they still may not follow it,
13 they may improvise, they may do something different, or
14 they may simply not adopt the guideline at all.
15 **MS CAREY:** When dealing with something, though, as
16 fundamental as infection prevention and control,
17 I understand the desire to win the hearts and minds
18 battle but is it not just a case of "Do what you're told
19 because that's what the guidance tells you to do"?
20 **PROFESSOR GOULD:** People don't behave like that, sometimes
21 they can't follow the guidance if they don't have the
22 right equipment anyway.
23 **MS CAREY:** There are, as we alluded to earlier, a number of
24 guidelines produced by NICE, professional bodies, the UK
25 IPC cell. You say in your report there are differences

1 in the way that various bodies produce and generate
2 guidelines, and we've touched on already the use of
3 randomised control trials and why they are considered
4 the gold standard. Are they relevant when it comes to
5 looking at the UK IPC cell guidelines or not?
6 **PROFESSOR GOULD:** They're relevant, but infection prevention
7 interventions are public health interventions.
8 Randomised control trials were developed to test
9 pharmacology interventions such as vaccines, such as
10 drugs, and there the intervention is aimed at individual
11 people, whether the person getting the drug gets better
12 or otherwise, is protected by the vaccine or otherwise,
13 whereas infection prevention and control guidelines are
14 really public health interventions. And it's much more
15 difficult to subject those to randomised controlled
16 trials. You can do it, but there will be more flaws.
17 **MS CAREY:** You were speaking now about the kind of evidence
18 that might underpin a guideline and I think you say this
19 in your report:
20 "Professional groups view evidence differently.
21 Medical staff tend to be interested in how evidence has
22 been generated and value evidence derived from the
23 findings of randomised controlled trials. Nurses appear
24 to be more interested in how evidence can be used to
25 support practice. They appear to place less emphasis on

1 how it is generated than doctors ..."
2 Does that not cause a slight disconnect when one
3 thinks about winning hearts and minds? The nurses just
4 want to be told what to do but the doctors want to
5 understand how we've ended up in this position?
6 **PROFESSOR GOULD:** I don't think nurses necessarily want to
7 be told what to do, I think that they do like to think,
8 but I think one does have to look at the difference
9 between the preparation of medical staff and nursing
10 staff.
11 Medical staff have a much longer preparation time,
12 they learn much more about epidemiological matters, they
13 learn much more about evidence-based practice and
14 research. A medical degree takes five or six years to
15 complete. A nursing degree takes three years, and half
16 of that is spent in practice placements, the other three
17 years *(sic)* is theory.
18 There is input on evidence-based practice in
19 a nursing course, but it cannot be at the same high
20 level that doctors have, and nurses don't necessarily
21 have the scientific background always. This is
22 a generalisation. But it is quite a lot harder, I would
23 say, to teach evidence-based practice to nurses than to
24 doctors, and I have done both. In my last job at
25 Cardiff University I taught the medical students

1 evidence-based practice. Since the pandemic I have
2 taught nurses evidence-based practice. It is actually
3 quite a lot harder with nurses because you have to
4 provide much more background material.
5 **MS CAREY:** Understood.
6 There are, is that correct -- or there is, I should
7 say, WHO guidance on how to produce guidelines during an
8 emergency; is that correct?
9 **PROFESSOR GOULD:** There are.
10 **MS CAREY:** I think you said in your report that effectively
11 they have "specific recommendations" as to how
12 guidelines should be produced:
13 "According to ... international standards, [it]
14 should take place in two stages."
15 What are those two stages, please?
16 **PROFESSOR GOULD:** First of all you should do a systematic
17 review or a review of the literature as far as you can,
18 if that literature exists, remembering it may change as
19 the situation evolves. And secondly, you should develop
20 the guidelines from the review of the evidence, such as
21 it is.
22 **MS CAREY:** Translating that to the Covid, though, pandemic,
23 where we're having a novel pathogen, how, practically,
24 would that happen in these circumstances?
25 **PROFESSOR GOULD:** It will be challenging. It was

1 a challenge. I think that -- well, it was a novel
2 challenge, but not unprecedented, because the World
3 Health Organisation guidelines are devised not just to
4 look at pandemics, but any kind of emergency, so in the
5 case of upset of infrastructure to do with earthquakes
6 or whatever, they're designed for that as well. But
7 I think one has to realise that in an emergency
8 situation, information is unfolding very quickly, which
9 is why rapid reviews are often used. But the World
10 Health Organisation does -- and other organisations are
11 very clear about the fact that rapid reviews should not
12 replace full-scale systematic reviews when time and
13 resources allow.
14 **MS CAREY:** A shortcut may be taken at the start of
15 a pandemic, then --
16 **PROFESSOR GOULD:** Yes.
17 **MS CAREY:** -- but with the knowledge that in due course you
18 should be conducting a more full-scale review.
19 **PROFESSOR GOULD:** Yes.
20 **MS CAREY:** Is there any guidance as to how soon after the
21 rapid review the full-scale review should take place?
22 **PROFESSOR GOULD:** Yes, the organisations are fairly clear
23 about that: they say that after three months you should
24 update a rapid review and the systematic review should
25 be available in a year. The World Health Organisation

1 say that there should be an interim report as well.
2 But remembering also that when you do a review of
3 the literature, that review is done electronically; it
4 is possible to update the review at any time, you would
5 simply have to run it again.
6 **MS CAREY:** Can I ask you, please, about challenges to
7 sort of implementation of guidelines. I think you've
8 already told us that successful uptake depends on the
9 front line believing in the guidelines, presumably being
10 clear in the guidelines, and you make the point that
11 guidelines that refer you to another guideline or
12 another website are not helpful, particularly in
13 a pandemic.
14 Were there examples of that that you can think of in
15 the IPC guidelines at the start?
16 **PROFESSOR GOULD:** There were lots of complaints throughout
17 the pandemic that the guidelines changed, and of course
18 that made it very difficult for people, but some of that
19 was inevitable. For example, at the beginning of the
20 pandemic, people genuinely did feel that there was
21 a strict dichotomy between droplet spread and aerosol
22 spread, which I think there was -- well, I know that
23 there was evidence that there was no such dichotomy but
24 it was widely held that there was. More work was done
25 throughout the pandemic and the guidelines had to be

1 updated accordingly.
2 **MS CAREY:** You say this:
3 "Guidelines that instruct the user to take
4 an additional action or decision are equally unlikely to
5 meet health professionals' needs. This is another
6 common feature of IPC guidance. All too frequently
7 users are instructed to make a 'risk assessment' ..."
8 Now, we've touched on it already in relation to the
9 Scottish NIPCM, for example, but help us, why is it not
10 helpful to tell people to conduct a risk assessment if
11 that would help keep them safe?
12 **PROFESSOR GOULD:** If people had the skills and the knowledge
13 and the expertise to do a risk assessment, that would be
14 fine. But they might not have, or they might be so
15 anxious that they couldn't be thinking rationally.
16 There is risk assessment, I think, at an organisational
17 level, when people have time to reflect among one other,
18 and there is a risk assessment that you do at the
19 bedside, when you're all on your own, in a novel
20 situation, the guideline is in your head but there are
21 all sorts of things going on and you may not be able to
22 follow it. So reading in a guideline "Go away and do
23 a risk assessment" is not always very helpful to people.
24 **MS CAREY:** Do you think that the IPC guidelines that
25 recommended a risk assessment were useful?

1 **PROFESSOR GOULD:** I think that's a very broad question.
2 I think sometimes they were probably useful and
3 sometimes not, depending on who was reading them.
4 When I was doing work for this, I put myself in the
5 position of thinking what it would be like if I was
6 still a ward sister in charge of a ward right at the
7 front, and I think it would be very difficult. Some of
8 the staff would be confident at doing a risk assessment,
9 and some others would not.
10 I noticed that in his expert statement,
11 Dr Barry Jones said it's particularly difficult with
12 aerosol-generating procedures because, after all, the
13 person at the bedside can't count the number of virus
14 particles that are present, they can't see them and they
15 can't smell them either, and so that makes life very
16 difficult. That would be true of other hazards such as
17 radioactivity in healthcare as well, it's not just
18 unique to infection, but you are asking people to cope
19 with the unknown. And remember that not all people at
20 the front of -- at the bedside are going to be qualified
21 professionals who have --
22 **MS CAREY:** Well, quite.
23 **PROFESSOR GOULD:** -- who have had any infection
24 prevention --
25 **MS CAREY:** We have heard already that some of the IPC

1 guidance, I think it's in January 2022, included
2 reference -- and that was the seasonal guidance, not
3 just Covid-specific -- included reference to IPC
4 measures that should be taken whether the virus was
5 wholly airborne or predominantly airborne. Do you think
6 reference to "wholly" and "predominantly" is helpful to
7 the nurse at frontline?
8 **PROFESSOR GOULD:** Well, they're vague terms, you can't
9 really quantify them.
10 **MS CAREY:** Speaking of which, may I ask to be put up on
11 screen, please, INQ000421245, and the language used,
12 because we have an answer to your Ladyship's query.
13 This is the NIPCM for England, and if we could just
14 scroll down, it says the aims are to:
15 "• provide an evidence-based practice manual for ...
16 those involved in care provision in England and should
17 guidance in NHS settings or settings where NHS services
18 are delivered and the principles [that] should be
19 applied ..."
20 If you go down to the "Audience and target groups",
21 there is further reference to "should be applied".
22 And if we could go over the page to page 2, and at
23 the bottom of the page I think it is:
24 "When an organisation, eg, an NHS trust, uses
25 products or adopts practices that differ from those

1 stated in this manual, it is responsible for ensuring
2 safe systems of work, including the completion of a risk
3 assessment approved through local governance
4 procedures."
5 So not dissimilar to the disclaimer on the bottom of
6 the Scotland one.
7 I suppose it comes back to her Ladyship's question:
8 how helpful is it to have, on the face of it, what looks
9 like mandatory guidance but then a disclaimer on page 2?
10 Is that useful, is it confusing?
11 **PROFESSOR GOULD:** Potentially, of course, it is confusing,
12 but I think you have to have the disclaimer because
13 healthcare is dynamic, because new ways of doing things,
14 new equipment, are introduced, and no guideline can ever
15 cover every eventuality, something different is always
16 going to happen, something unique or -- you can't -- you
17 could take all day, you could take all year, you cannot
18 cover for every eventuality.
19 **MS CAREY:** Having looked at some of the terminology and the
20 advantages and disadvantages of having mandatory and
21 a disclaimer allowing for a deviation from practice, do
22 you think that the guidelines were effective at ensuring
23 that black, Asian and minority ethnic healthcare workers
24 understood the need for good infection prevention and
25 control guidelines and took into account their

1 perspectives?
2 **PROFESSOR GOULD:** Well, I think again that's a very broad
3 question because much depends not just on people's
4 ethnicity but on people's professional backgrounds and
5 on the procedures that they are doing. So somebody --
6 I mean, people's ethnicity did affect their
7 susceptibility to infection, and there's no getting away
8 from that, but a lot would depend on what those people
9 were doing, whether they were qualified professionals,
10 whether they were unqualified professionals and what
11 kind of setting they were working in. So I think you
12 can't just look at ethnicity, you've got to look at all
13 those other things as well.
14 **MS CAREY:** I asked you about engagement with stakeholders
15 and didn't specify which, but do I assume that that
16 would include within those, those within -- healthcare
17 workers within black, Asian and minority ethnic --
18 **PROFESSOR GOULD:** Yes, they would.
19 **MS CAREY:** Yes.
20 May I ask you about a slightly different topic, and
21 something that we've heard about called the GRADE
22 framework, but we haven't really looked at it yet, and
23 it's at your paragraph 4.36.
24 It might be helpful to just put that up on screen,
25 actually, but you say:

1 "A structured approach is advocated when formulating
2 guideline recommendations. Ideally it should involve
3 the use of an evidence-to-decision-framework."
4 Could we put up, please, INQ000474282_49, which is
5 Professor Gould's report.
6 Paragraph 4.36, at the bottom there:
7 "A structured approach is advocated ..."
8 Then there is reference to:
9 "The Grading of Recommendations, Assessment,
10 Development and Evaluation (GRADE) ... [being] the most
11 widely used framework."
12 And it identifies four levels of evidence: very low,
13 low, moderate and high.
14 Can you help us with GRADE and how evidence might be
15 upgraded or downgraded and how it impacts with the
16 guidelines?
17 **PROFESSOR GOULD:** Yes. If you look at the evidence that's
18 come out of the literature review, you have to have
19 a method of -- you can't just look at the literature
20 review and pick out individual points and say "Well,
21 I like that and so I'm going to put that in my
22 guideline". It has to be auditable. So people have to
23 know how you reached your conclusion, it has to be clear
24 to other people, it has to be transparent to everybody
25 taking part and to the people who are going to use that

1 guideline and have it used on them.
2 You would look at the guideline, the guideline might
3 say: everybody needs to wear a high-grade face mask.
4 That would be based on the findings of high-quality
5 evidence, just supposing, supposing it existed. But
6 then it might be very difficult to provide everybody
7 with a high-quality face mask because they might just
8 not be available. So you would downgrade that
9 recommendation, but you would have to say why.
10 Some recommendations might not be acceptable to all
11 people, and so you would have a discussion in your
12 group, in your discussion group, about why you thought
13 that something wouldn't be acceptable, and that would be
14 where stakeholders would come in. Stakeholders might
15 say: well, this would be desirable but ordinary people
16 won't do this because of whatever reason.
17 So you can upgrade or downgrade your recommendation,
18 but you have to show how you reached that conclusion.
19 **LADY HALLETT:** Could you speak a little more slowly, please.
20 **PROFESSOR GOULD:** Yes, I'm so sorry.
21 **LADY HALLETT:** It's all right, no, we all do it.
22 **MS CAREY:** A show your working?
23 **PROFESSOR GOULD:** Yes, you have to show how you got there.
24 **MS CAREY:** Now, you say some recommendations might not be
25 acceptable to all people. Can you think of an IPC

1 measure where there might be unacceptability to some
2 people?
3 **PROFESSOR GOULD:** Yes. IPC guidelines state that alcohol
4 hand rub should be used in the clinical situation to
5 prevent the spread of bacteria and viruses, but if
6 somebody touched something very dirty they might
7 emotionally think it would be nicer to use soap and
8 water, so they might very well do that instead of using
9 alcohol hand rub.
10 There have been cases where new policies of
11 infection prevention and control have been introduced
12 into NHS trusts, people have introduced a new
13 disinfectant, and people have said "No, I like the old
14 one and I'm going to bring in the old one from home",
15 and people do.
16 **MS CAREY:** You make the point in your report that no matter
17 how rigorously undertaken systematic reviews are, they
18 might not yield the required evidence.
19 **PROFESSOR GOULD:** They might not.
20 **MS CAREY:** So how are guidelines drafted and come into being
21 where there isn't a body of evidence following
22 a literature review?
23 **PROFESSOR GOULD:** Where there isn't a body of evidence then
24 you would rely much more on expert opinion. And if you
25 can't have the results of randomised controlled trials,

1 you would go lower down in the hierarchy of evidence to
2 look at retrospective cohort studies, as we've heard
3 already, or you might look at case series analyses, but
4 even where those -- they may not exist, they very likely
5 don't in the case of infection prevention, so you would
6 call on professional experts and lay stakeholders who
7 had had experience of the infection and ask those people
8 for their expert opinion. But expert opinion is not the
9 same as evidence.
10 **MS CAREY:** So turning to the Covid pandemic then and the
11 guidelines at the start, are you able to help us with --
12 there's guidelines that came out in March 2020, and put
13 the HCID ones to one side from January, but by
14 March 2020 were those guidelines based on literature
15 reviews or rapid reviews, can you help?
16 **PROFESSOR GOULD:** They were based on rapid reviews.
17 **MS CAREY:** And in your opinion, was that an acceptable
18 practice given the emergency nature of the situation we
19 were in?
20 **PROFESSOR GOULD:** At the beginning of the pandemic I think
21 there was no help but to use rapid reviews, people had
22 to use the information that was there and they used
23 information from pre-existing respiratory infections,
24 predominantly SARS and MERS. But as the pandemic wore
25 on, then I think that those rapid reviews could have

1 been better updated. What happened was that rapid
2 reviews were generated a lot of the time or were added
3 to, but no full-scale systematic reviews took place.
4 **MS CAREY:** When do you say that should have happened?
5 **PROFESSOR GOULD:** Well, according to the guidelines that
6 come from the World Health Organisation and other
7 organisations, after about 12 months.
8 **MS CAREY:** That would take us to March 2021, where we would
9 have been through wave 2.
10 **PROFESSOR GOULD:** Yeah.
11 **MS CAREY:** Is there any merit, do you think, in the
12 guidelines being reviewed in the summer of 2020 when
13 there was a lull, my word, perhaps not the scientific
14 one, between wave 1 and wave 2 starting?
15 **PROFESSOR GOULD:** If there was a lull it would have been
16 a good opportunity for people to have used their time,
17 if they had any, to produce guidelines or to think about
18 guidelines.
19 **MS CAREY:** Can I ask you, please, about ARHAI Scotland and
20 rapid reviews, and I think you are aware that they had
21 conducted a number of rapid reviews, and some of those
22 rapid reviews were appended to IPC cell minutes.
23 **PROFESSOR GOULD:** They were.
24 **MS CAREY:** Did you have any concerns about the use of ARHAI
25 rapid reviews being used by the UK IPC cell?

1 **PROFESSOR GOULD:** I had reservations about it, because of
2 the way that those rapid reviews were undertaken, and
3 they weren't updated as they should have been.
4 **MS CAREY:** Help us with that, what were your concerns? Why
5 did you have them about the ARHAI rapid reviews?
6 **PROFESSOR GOULD:** They were undertaken in a manner that
7 wasn't very comprehensive or systematic. They were
8 undertaken predominantly by one or two people.
9 A limited amount of -- when you do a review of the
10 literature, you look at a number of databases. Many
11 databases exist. They looked at a restricted number of
12 databases and some of the databases that were omitted
13 were ones that would have contained key information,
14 particularly about transmission.
15 Stakeholder -- I mean, I could talk for quite a long
16 time. Stakeholder opinion doesn't -- as far as I could
17 see, wasn't taken into consideration. It would be
18 difficult in the middle of a pandemic to include
19 stakeholders, but something could have been done.
20 The presentation of the guidelines was quite
21 difficult as well. That was perhaps not such a problem
22 with the IPC cell as it was for people trying to put the
23 guidelines into practice.
24 **MS CAREY:** In your report, I won't go to it, but you set out
25 at table 1 at page 54 summaries of evidence and

1 recommendations that ARHAI Scotland rapid reviews
2 produced. Can I ask you this, though: I think you said
3 that there is little detail that was provided about the
4 processes used by ARHAI Scotland to search the
5 literature, select the works, critique them, resulting
6 in a lack of the convincing narrative that the WHO
7 guidance advocated. It resulted in maybe a lack of
8 trust expressed by health professionals themselves and
9 their representative bodies.
10 **PROFESSOR GOULD:** Yes. If a review isn't -- if guidelines
11 and reviews are not undertaken in a systematic way, if
12 they take place quickly in a piecemeal way, they're more
13 likely to contain bias, they're more likely to be
14 influenced by other factors than the ones that we're
15 looking at and health professionals did realise that,
16 they did realise that shortcuts had been taken. Some
17 shortcuts are more permissible than others and it's not
18 a very good idea to go on repeating the same shortcuts
19 and I think that people thought that more comprehensive
20 literature should have been reviewed and they would have
21 had more faith if they didn't.
22 Having said that, I think it would be fair to say
23 that people's reactions were often very emotional but,
24 nevertheless, intellectually, people didn't always trust
25 the guidelines.

1 **MS CAREY:** That brings me on to your work, Professor,
2 I think, in 2021, when you were commissioned by the
3 Royal College of Nursing to conduct an independent
4 review of IPC guidelines. Help us with what were you
5 asked to look at and why were you asked to look at the
6 guidance.
7 **PROFESSOR GOULD:** I was asked by the Royal College of
8 Nursing, the RCN, specifically to look at the ARHAI
9 guidelines. I wasn't asked to look at anything from
10 NERVTAG, I wasn't asked to look at anything from the IPC
11 cell, I was specifically asked to look at the most
12 recent ARHAI guideline, which was the one that was
13 produced in February that year, I think 5 February, and
14 I was asked to look at it in detail and to look at the
15 methods that were used to construct it.
16 **MS CAREY:** When you looked at it, what did you conclude?
17 **PROFESSOR GOULD:** It didn't look like -- it didn't resemble
18 what I was expecting.
19 **MS CAREY:** In what way?
20 **PROFESSOR GOULD:** It wasn't of the quality that I would have
21 expected, given it certainly wasn't of the quality of
22 systematic review, but it wasn't of the quality of
23 a well conducted accelerated review either. The methods
24 weren't described in any very great detail and it was
25 very hard for me to work out exactly how the information

1 contained in it had been reached.
2 **MS CAREY:** Can I ask you this: I understand the arguments
3 you make about driving, effectively, the reader to the
4 conclusion that it makes, but do you think perhaps there
5 is an overfocus here on how you get there; if it gets
6 the right result does it matter in an emergency how you
7 get there?
8 **PROFESSOR GOULD:** But in an emergency you don't know what
9 the right result is, so you don't know.
10 **MS CAREY:** So, in relation to the ARHAI Scotland review, do
11 you think they got to the wrong result because they
12 hadn't followed the right process?
13 **PROFESSOR GOULD:** Some of the time I think that they did.
14 **MS CAREY:** How did that affect, if at all, the UK IPC cell
15 guidance?
16 **PROFESSOR GOULD:** It would be hard to know, because I looked
17 at the IPC guidance in the documents that I was sent,
18 but it would be hard to look at how they were -- a lot
19 of it documented conversations that appeared to have
20 taken place very quickly. In looking at them, I never
21 found any detailed discussion. I didn't find any
22 evidence that people have said, "Oh, we looked at the
23 ARHAI guidance on such and such a day and we have been
24 through it and we've reached this conclusion". A lot of
25 it seemed to be off-the-cuff decisions, I might be wrong

1 because I wasn't there, but that is the impression that
2 I get.
3 **MS CAREY:** That brings me on to a rebuttal of the RCN report
4 that you had undertaken, which was issued, I think, by
5 NHS NSS, so National Services Scotland, and I think they
6 were critical of your report, saying it incorrectly
7 assumes that the UK IPC guidance is based on the ARHAI
8 rapid review, and the rebuttal also stated that the RCN
9 report incorrectly asserts that Scotland's NIPCM is
10 based on rapid review methodology, "The origin of this
11 statement is unclear".
12 Can you help disentangle the rebuttal from what you
13 were asked to do and what actual happened.
14 **PROFESSOR GOULD:** The rebuttal didn't really make a great
15 deal of sense to me because I had been asked to look at
16 the ARHAI guidance, I hadn't been asked to look at any
17 other, but also it itself appeared to contain, well,
18 incorrect information because never in the work that
19 I wrote for the Royal College of Nursing did I even
20 mention the word "manual". I didn't mention the
21 national infection prevention and control manuals,
22 I wasn't asked to and I didn't mention them.
23 **MS CAREY:** Crossed purposes or crossed wires maybe?
24 **PROFESSOR GOULD:** Well, the impression that I got was that
25 somebody had looked at what I had written and had taken

1 fright and decided that they didn't like it very much.
2 The rebuttal was quite brief but a lot of it didn't make
3 a lot of sense to me.
4 **MS CAREY:** Do you think, having been on the inside of this,
5 that, forget the rights and wrongs, but the arguing
6 about whether who was right and who was wrong was
7 a distraction to those who were actually trying to bring
8 in better protection for healthcare workers?
9 **PROFESSOR GOULD:** I think it probably was.
10 **MS CAREY:** Standing back, then, taking your observations
11 about systematic reviews, rapid reviews, the need for
12 clear guidance, in the event of the next pandemic that's
13 novel and there isn't an evidence base, what would be
14 your sort of summary of how IPC guidance should be
15 developed?
16 **PROFESSOR GOULD:** It would be a good idea to have thought
17 about what might happen before the eventuality. So it
18 would be a good idea to be able to draw upon a panel of
19 people who could produce this guidance and could produce
20 it rapidly.
21 Now, rapid reviews are problematic because nobody
22 agrees what is a good one. Three organisations
23 globally, internationally, have written about rapid
24 reviews and their views are more or less all the same,
25 and they all recognise that shortcuts can be taken but

1 they don't endorse any of the shortcuts.
2 We would probably benefit if people could have
3 a greater debate about what makes a good rapid review
4 and what doesn't. The situation is complicated because
5 what might be permissible in one situation might be not
6 such a good idea in another. Looking at, you know --
7 one of the criteria of a rapid review is that you only
8 look at publications in one language. That probably
9 doesn't matter all that much because most people aim to
10 get their publication in an English journal and most
11 journals, wherever they're produced in the world, are
12 actually published in English, which many people don't
13 realise.
14 But restricting the number of databases in the case
15 of Covid probably did matter. So I think you would want
16 to be aware -- the panel of people doing this would need
17 to be aware of the shortcuts of rapid reviews and there
18 would have to be a group of people who were able to jump
19 off the mark very quickly and produce guidance very
20 swiftly, and you would need a panel of stakeholders that
21 you could refer to as well.
22 **MS CAREY:** Well, I was going to ask that. So who do you say
23 should be on the panel?
24 **PROFESSOR GOULD:** You'd have to have, obviously, people who
25 are guideline developers, who are technically expert,

1 but you would need to have technical experts in the type
2 of infection as well that you thought it was, and you
3 would need to have people there who were going to put
4 the guidelines into practice, which would be
5 practitioners in the various groups, and patients and
6 families as well, lay representatives, and people from
7 the professional bodies.
8 **MS CAREY:** Why do you include in it the patients and
9 families?
10 **PROFESSOR GOULD:** Because they're going to have the
11 guidelines used on them, and they deserve a voice.
12 **MS CAREY:** Thank you, Professor.
13 Can I turn to some challenges in the implementation
14 of guidance, and I think this is your area of the
15 report, Dr Shin, and I'm in chapter 12, if it helps you.
16 We've obviously already considered with Professor
17 Gould just there some of the terminology and how helpful
18 or otherwise that is, but can I go back to basics and,
19 when a new guideline came out, was that communicated to
20 the trust, the hospital and then, indeed, the staff who
21 had to implement it?
22 **DR SHIN:** So there was a now well rehearsed method, so it
23 came out, basically, from a national body, be it NHS
24 England or UKHSA or PHE. It would then be -- in England
25 it would then be transmitted to a regional organisation,

1 for example, NHS England London for example, and then to
2 the NHS Trust within that region, say London, for
3 example, and then to --
4 **MS CAREY:** So it goes national, regional --
5 **DR SHIN:** Then hospital.
6 **MS CAREY:** We saw yesterday a CAS communication, a central
7 alerting system. Is that how you were alerted to the
8 fact guidance was coming?
9 **DR SHIN:** That's one method, we've had some recently, but
10 there are other methods too, for example, IPC networks.
11 Another complication is that in England NHS systems are
12 now organised in bodies called integrated care systems,
13 of which London has five, for example, and that's
14 another way of cascading information.
15 So in terms of cascading, there is no reason to be
16 concerned about that because information would
17 definitely get cascaded. Once it reaches hospital then
18 it would arrive on, for example, something like my desk
19 or my colleagues and be cascaded internally within --
20 mainly within senior leadership and then we discuss how
21 we can implement that, whether we can implement that and
22 also when, and then we communicate we work closely with
23 our communication colleagues, make sure it gets
24 cascading out through the formal communication method,
25 which might be email, daily bulletins, but also through

1 professional networks within the hospital, for example
2 matron huddles, through all staff or, for example, all
3 consultant emails, that kind of thing.
4 **MS CAREY:** So pausing there, if you got some guidance that
5 came out on a Friday afternoon, and we've heard a number
6 of examples of that, indeed we saw one coming out at
7 4.43 on a Friday, what do you practically do as the
8 DIPC?
9 **DR SHIN:** Get a large cup of coffee, I think!
10 This was a feature which many, many witnesses and
11 many of my colleagues at the time we -- it did occur
12 quite frequently, I'm not quite sure why it has to come
13 out on a Friday. It was difficult because, on a Friday,
14 everybody is preparing to go home so we would stay and
15 deal with it and have those conversations I've described
16 as quickly as we can, and then probably deal with it
17 more completely on Monday morning to generate a plan on
18 how we would cascade that.
19 Sometimes the guidance was quite urgent and it
20 would -- maybe really important, new information came
21 out and we would have to cascade it as best we can
22 potentially on a Friday evening.
23 **MS CAREY:** So we were looking yesterday at the acute
24 shortages guideline, when there was a shortage of gowns,
25 and that came out at 4.43 on a Friday afternoon. How

1 did you get that down to the staff that weekend?
2 **DR SHIN:** That kind of example would be done with
3 difficulty. We would have, you know, on-call teams,
4 site management, in our hospital, I'm sure in many
5 others, there are weekend operational meetings, which
6 I attended during the pandemic, and we just have to use
7 every method we can to get the message out. But that
8 Friday afternoon/evening is just not a good time to
9 disseminate this kind of guidance.
10 **MS CAREY:** I don't know if there is ever a good time to
11 disseminate the acute shortages guidance.
12 **DR SHIN:** On those particular examples I can understand but
13 a lot of time, when you look at the guidance, it was not
14 clear to me and many of my colleagues why it was so
15 urgent it had to come out on a Friday afternoon but that
16 example you gave, yes, I can see why that's --
17 **MS CAREY:** Would it have made a difference if it came out at
18 9.00 am on a Monday morning in the pandemic?
19 **DR SHIN:** For that particular example, that would have come
20 out whenever the need arose but there were other times
21 where there were changes in, I don't know, pathways, for
22 example, and why that was so urgent to come out on
23 a Friday afternoon was not always clear.
24 **MS CAREY:** Do you think it would have made a difference to
25 you on the ground if it had come out on a Monday

1 morning?
2 **DR SHIN:** It just would have made implementation easier and
3 been less stress for all staff and maybe less stress,
4 less confusion, because one of the things we discussed
5 was how can we get this out clearly to the right people
6 at the right time and, if you're doing it all in a rush,
7 in a panic on Friday afternoon when, you know, emergency
8 departments are often, traditionally quite busy anyway,
9 and also staffing -- staffing at the weekends and
10 evenings is less, it's just not a good time to implement
11 guidance. But when it is urgent like the example you
12 gave, then that's understandable.
13 But the short answer, yes, just not -- just don't do
14 it on a Friday afternoon, basically.
15 **MS CAREY:** I think we've got that message.
16 Help us with this, though, putting aside when the
17 guidance came out, there were clearly lots of different
18 pieces of guidance, and do you think that having so many
19 iterations of the guidance was confusing or is it just
20 something that has to happen as science evolves and
21 supplies evolve and the guidance changes?
22 **DR SHIN:** I mean, in a way, the answer is all of the above.
23 If the evidence changes significantly, as we've heard,
24 then it's right and proper to create, to generate and
25 cascade correctly formatted guidance. But there was

1 some -- in reviewing the documents in our report, in
2 preparing for this, there were occasions when new
3 iterations came out it was quite hard to see the
4 differences, and later on in the pandemic it was
5 highlighted which bits changed but sometimes the changes
6 were quite subtle, so it did beg the question sometimes:
7 why is this version needed?
8 **MS CAREY:** Can you give an example? If you can't --
9 **DR SHIN:** I can't give a specific one but sometimes --
10 **MS CAREY:** -- can you have a think over lunch and we might
11 return to that?
12 **DR SHIN:** Potentially, potentially.
13 **MS CAREY:** The reason I ask is this: there's a question mark
14 for a number of core participants, about having so many
15 versions of the guidance might have made it confusing
16 for the staff having to implement the guidance. Do you
17 have any observations on that comment?
18 **DR SHIN:** Yes, you see it also in non-Covid examples as
19 well, where we disseminate guidance it's quite common
20 for people to print it out and stick it on a wall in the
21 ward. So you can easily see how you can easily end up
22 with an old version. So we tend to discourage -- well,
23 officially we discourage printing, we disseminate
24 everything -- everything is electronic these days, as we
25 discussed, but on wards where it's busy, having a notice

1 on the wall is one way of communicating to staff but
2 that can easily become out of date.
3 **MS CAREY:** I think you were made aware of a problem in Wales
4 where, at some point during the pandemic, actually
5 Public Health England guidance started coming out on
6 a Thursday but Public Health Wales guidance came out the
7 following Friday, causing an unnecessary level of
8 anxiety through the staff because they weren't sure
9 whether the Thursday guidance was then going to be made
10 to come in in Wales.
11 Do you have any views about whether there should be
12 a unified approach to the announcement of new IPC
13 guidance?
14 **DR SHIN:** Between devolved administrations, do you mean?
15 That I find it hard to comment on but I can give you
16 examples, even within England or within London, where if
17 there's cascading of slightly different rates, we
18 have -- you know, many colleagues have maybe partners or
19 family members or friends who work in other hospitals
20 and they may have implemented at a different rate or
21 speed and also differed in the degree to which they
22 adopted the guidance and that has -- a lot of has --
23 related to PPE, for example, and that has led to
24 difficult conversations about, "Well, the hospital down
25 the road is doing it this way, why are we doing it

1 another way", or "They did this last Thursday and why
2 are we doing this on Tuesday".
3 So those kind of conversations, so I think a bit
4 more uniformity of the way it's cascaded would be
5 helpful but I'm not saying that that happened by any
6 design. Probably it was more done by accident.
7 **MS CAREY:** How did you deal with that?
8 **DR SHIN:** So coming back to the integrated care system, one
9 example where this was helpful was that we had a network
10 with IPC of DIPCs, and I'm sure there were other
11 professional groups as well. So when one of these major
12 guidance changes arrived, we would quickly -- well,
13 basically email each other or phone each other and say
14 "This is what's come, this is the recommendation, how
15 are you going to deal with this". That didn't mean that
16 we all had to adopt the same thing at the same time but
17 it was helpful to be aware that another hospital might
18 do it slightly differently, so that when we get that
19 feedback from staff to say, well, that hospital is doing
20 it differently, we're aware of it and we have some kind
21 of logical reasoning, hopefully, to explain the
22 difference.
23 **MS CAREY:** I wanted to ask you about feedback actually
24 because, if you got feedback that a guideline had come
25 out but wasn't helpful, didn't work in practice, is

1 there any system in place for you relaying back to NHS
2 England in this example "That just doesn't work for us"?
3 **DR SHIN:** We -- again, so this is for -- if I can call it
4 ICS because it's quicker.
5 **MS CAREY:** Integrated care system.
6 **DR SHIN:** Yes, integrated care system, ICS.
7 We had some mechanisms through links with NHS
8 England and UKHSA to feed back but, when we did that, we
9 did that with not much expectation that it would change
10 anything but just for feedback that we felt this was
11 difficult to implement, but if -- in each hospitals we
12 made decisions -- coming back to look at risk
13 assessment -- made decisions about to what extent we can
14 implement that guidance.
15 **MS CAREY:** Can I ask a slightly broader question. We looked
16 at some of the problems the terminology used in IPC
17 guidance can cause, "predominantly", "wholly", and the
18 like, but do you think that routes of transmission do
19 have a role in IPC guidance and it may be one that all
20 three of you would like to consider but, starting with
21 you, Dr Shin, do you think it should set out, we think
22 it's droplet borne or maybe aerosol borne or might be
23 contact?
24 **DR SHIN:** I think differentiating for contact transmission
25 and the other methods, the other routes of transmission,

1 that is an important distinction. I think many of us
2 would be aware, perhaps everyone's aware, that the WHO's
3 advocating for more simple nomenclature, so just
4 airborne, moving away from, as we've heard, the very
5 complicated technical difference between droplets and
6 aerosols and particle sizes, et cetera, which Professor
7 Beggs' report has an excellent summary of.
8 So I think contact versus airborne would be a useful
9 distinction. Talking about being clinically entrenched,
10 I grew up as a virologist with droplet and aerosol and
11 I think that actually particles are of different sizes,
12 so that is not -- it is valid to talk about that, from
13 a virological perspective and maybe an academic
14 perspective.
15 But, from the point of view of deploying this on the
16 wards in our hospitals, I think a simplification of
17 nomenclature would be helpful to avoid the confusion and
18 all the unnecessary debate and, you know, confusion on
19 the front line would be the last thing we want.
20 So, even though I've got reservations about moving
21 to just calling it airborne, I think, from delivering
22 good IPC practice, protecting staff and patients, moving
23 to the terminology of airborne is a reasonable
24 compromise and step to take to try and avoid confusion
25 that we've experienced in this pandemic.

1 **MS CAREY:** Professor Gould, can I ask you, since you're
2 an educator of people that have to use the IPC guidance,
3 do you have any views on this?
4 **PROFESSOR GOULD:** I think simplification would be a good
5 thing, particularly remembering that many people who
6 deliver care on the frontline are unqualified support
7 staff in any case and they will not have had any formal
8 preparation in infection prevention at all. So
9 a simplification would be very useful.
10 **MS CAREY:** Given, though, that we have standard IPC measures
11 and then transmission based, doesn't there need to be
12 some reference to the mode of transmission?
13 **PROFESSOR GOULD:** Yes, I think that there does. Whether
14 something is spread by direct contact or through the air
15 is important, and remembering also that most infections
16 that are spread in hospital that cause problems on
17 a day-to-day measure are spread predominantly by hands
18 and by contaminated surfaces.
19 **MS CAREY:** Any agreement or disagreement from you?
20 **DR WARNE:** I do agree and I would just add that we've laid
21 out in the report that there are downsides of wearing
22 respirators. So for pathogens where there is no risk of
23 an airborne route, so for example MRSA, we should have
24 separate contact and airborne precautions.
25 **MS CAREY:** Well, can I turn to adherence or lack thereof,

1 and I think this may still be you, Dr Shin, in
2 paragraph 12.7 in the report. I think set out there
3 that there was, anecdotally, reports of incomplete
4 adherence to recommended RPE by clinical staff. You
5 acknowledge that it would have varied greatly across the
6 NHS, but the reasons for that might include lack of
7 training, variable quality of the training, perceived
8 lack of PPE supply in the organisation, lack of
9 confidence in the recommended PPE, and you say there
10 varying social pressure to adhere to PPE policy.
11 What did you mean by that?
12 **DR SHIN:** I think the best way to respond to that is that
13 I think missing off that list, an important factor
14 affecting adherence, was basically the discomfort
15 related to RPE, and I think that would be a big factor.
16 I find it ironic that, when we had lower levels of
17 expected face coverings or PPE or RPE, when there was
18 pressure to move to respirators and then we respond to
19 that and when we did change to respirators because our
20 ventilation was poor, there was then push-back asking us
21 to move in the other direction because people were
22 finding RPE so uncomfortable.
23 It's physically uncomfortable, it's tight, breathing
24 is difficult, communication is difficult and, as we've
25 said in our report and I don't know if we're coming onto

1 it separately, specifically, but, you know, quite a few
2 staff experienced skin --
3 **MS CAREY:** Yes.
4 **DR SHIN:** -- lesions, you know, pressure sores, where you've
5 got prolonged apparatus on your face, quite tight, and
6 it can -- and quite a few staff experienced this -- lead
7 to pressure sores on the nose, which is very
8 uncomfortable, risk of infection and it could be
9 potentially quite serious.
10 So I think those are the factors and many staff
11 reported feeling headaches after prolonged usage, which
12 you can understand why that affected adherence. But,
13 you know, it was kind of a lose/lose. When we had lower
14 standards of RPE, there was pressure to move up and then
15 when we adopted it, there was pressure to move down.
16 **MS CAREY:** Would you say lose/lose or being caught between a
17 rock and a hard place?
18 **DR SHIN:** Lose/lose, yes, rock and hard place.
19 **MS CAREY:** In the report, you set out that there was
20 a survey conducted in 2020 of over 1,000 UK healthcare
21 workers. They found self-reported adherence to PPE to
22 be 80%. Adherence was greater in the older healthcare
23 workers in situations where PPE supply was good and
24 where PPE training was perceived to be good.
25 Do you have any observations on why it would be that

1 older healthcare workers were more adherent than the
2 younger ones?
3 **DR SHIN:** I think this brings us to another factor,
4 influence adherence. As we've heard earlier today, it
5 was also linked to the perceived risk to the user. So
6 we quickly knew in the pandemic that older persons were
7 at greater risk of more severe disease and age was a
8 significant -- I think it's over 50 was the cut-off, so
9 it doesn't surprise me that older staff, who felt at
10 a greater perceived risk themselves, had a greater
11 adherence to RPE.
12 **MS CAREY:** We have referred a number of times now to
13 challenges in rolling out IPC, and I think you reference
14 in the report the size of the IPC teams, and I'm at your
15 paragraph 12.12, but I think you say in your experience
16 large teaching hospitals tend to have IPC teams of
17 adequate size and expertise in non-pandemic times, but
18 even those relatively well-resourced IPC teams were
19 stretched during the period.
20 Give us an example perhaps of your hospital,
21 Dr Shin, how big is the IPC team in your hospital, in
22 your trust?
23 **DR SHIN:** So in my trust, we have -- well, there's myself,
24 we have a nurse-led team, approximately 15 -- it does
25 change from time to time, approximately 12 to 15 nurses

1 of varying seniority, from very senior to colleagues who
2 have just joined us -- I'm glad they have joined us. We
3 also have, I think, probably the relative luxury of
4 an epidemiologist, who only deals with IPC matters, who
5 was very helpful generating data during the pandemic,
6 but also before the pandemic on non-Covid matters. We
7 also have, for example, analysts -- I've talked about
8 analysts, data analysts, who deal with audit data,
9 surgical site infection data, so not necessarily Covid
10 related.
11 In addition we have subject matter experts, we have
12 two infection control doctors, who are consultant
13 microbiologists and infectious disease physicians, and
14 we have support from consultant virologists, so my
15 colleagues in virology. So it's quite a sizeable --
16 **MS CAREY:** How many people is that trying to roll out -- how
17 many patients have you got in your trust, give us a --
18 **DR SHIN:** We have approximately between 1,000 and 1,100
19 beds. It does fluctuate slightly so it's approximately
20 1,100 beds.
21 **MS CAREY:** It gives us an idea.
22 There are obviously challenges during the pandemic
23 to the supply and distribution --
24 **LADY HALLETT:** Sorry, just before you go on to that.
25 Dr Shin, you're a large London teaching hospital, so

1 dare I say I'm going to assume that the NHS other
2 hospitals around the country aren't quite as well
3 staffed by IPC experts, or ...
4 **DR SHIN:** I mean, it would be proportionate but I think we
5 are relatively well resourced and I think most London
6 teaching hospitals have similar resource. I'm sure it
7 would vary a lot but I think there will be smaller
8 non-teaching hospitals which have maybe
9 disproportionately smaller teams. So I think there will
10 be quite a lot of variation across the country but
11 I can't speak to exact details.
12 **LADY HALLETT:** Thank you.
13 **MS CAREY:** Challenges in relation to supply and
14 distribution, and I think you say, between the three of
15 you, you have no personal experience of PPE supplies not
16 arriving or being exhausted in your NHS trusts, you're
17 not aware of any examples of specific NHS trusts running
18 out of PPE. Some specific products ran out, if
19 I understand it correctly, but alternative PPE was
20 sought and supplied.
21 But you are aware of the concerns outside of your
22 trusts -- I see nods from both you and Dr Warne -- and
23 can I ask you please about a survey conducted, I think,
24 by the BMA, the RCN and the Royal College of Physicians,
25 and could we have up on screen, please,

1 INQ000474282_128.
2 Could we highlight figure 14, please. I'd just like
3 your help, Dr Shin, with what the survey found. I think
4 it was conducted in 2020 and it set out the findings of
5 the different, three different groups contributing to
6 this. Do I take it that, if we take eye protection,
7 that in high-risk environments the Royal College of
8 Nursing reported that 22% of the people responding had
9 difficulties obtaining eye protection? Am I reading
10 that correctly?
11 **DR WARNE:** That's correct, that's -- the respondents came
12 from frontline healthcare workers, so the nursing team
13 in that regard, yeah.
14 **MS CAREY:** Then it speaks for itself, going down, in
15 a high-risk environment; what do you understand that to
16 mean, an AGP hotspot?
17 **DR WARNE:** Exactly.
18 **MS CAREY:** Right. Seemingly no issues with face masks in
19 high --
20 **DR WARNE:** I suspect that was because it wasn't included in
21 the survey or, no, actually, in that particular regard
22 because respirator masks would have been recommended
23 rather than face masks, hence it's not relevant to that.
24 **MS CAREY:** There were reports of difficulties with
25 respirator masks across all three contributors to

1 varying degrees. No training on safe donning and
2 doffing -- putting on and taking off -- as a problem.
3 Then a distinction drawn between an environment with
4 possible or confirmed cases, presumably to mirror the
5 distinction in the IPC guidance; is that how you read
6 it?
7 **DR WARNE:** Yes, so this has been people caring for confirmed
8 or possible Covid cases but not in an AGP environment.
9 **MS CAREY:** There, there were reports of insufficient PPE in
10 relation to eye protection across all three
11 contributors, plus now UNISON had responded to parts of
12 the survey. Face masks and indeed problems with gloves.
13 Again, some gaps there. Do you take the gaps because
14 they weren't asked in the survey?
15 **DR WARNE:** Because at that time these items of PPE were not
16 recommended for routine use in these environments.
17 **MS CAREY:** Yes, correct, thank you. So, although you don't
18 have personal experience of supply issues, clearly there
19 were reports of them from a number of significant bodies
20 representing healthcare workers.
21 Just can I ask you anecdotally, if I may, did you
22 hear reports from your colleagues in other hospitals and
23 trusts, Dr Warne, of difficulties?
24 **DR WARNE:** Yes, so, first of all, there was always
25 a perception that the supplies of PPE were always low,

1 they were particularly resilient in each trust but in
2 certain trusts, including mine, there were no reports
3 that they completely ran out. The Royal College of
4 Physicians and others have released information about
5 the variable quality, some of which was perceived to be
6 not fit for purpose that was supplied. This is from the
7 first wave of the pandemic, in particular, in March and
8 April 2020.
9 And the reports on social media and various other
10 outlets, both anecdotal and systematically collected by
11 these organisations and others showed concerns that
12 frontline healthcare workers felt that the availability
13 or quality of the PPE, or the training associated with
14 it, was not adequate.
15 But the detail on that is lacking. We don't know --
16 the definitions here are unclear and, as referenced in
17 the report, the National Audit Office, who surveyed some
18 NHS providers, stated that the supply chains to those
19 trusts -- the PPE never ran out. So it's unclear why
20 there is this disconnect between what the procurement
21 chain is saying and what the frontline healthcare
22 workers are saying.
23 **LADY HALLETT:** Can I go back to what the human chain, as you
24 call it, was saying about your fellow professionals.
25 You said that there was a perception the supplies were

1 always low, and I missed it and I think the stenographer
2 missed it, did you say there weren't reports of anyone
3 completely running out or there were reports of
4 hospitals --
5 **DR WARNE:** So I can't speak for any other trusts; I'm not
6 aware of any PPE shortages of any particular items in my
7 trust but certainly there was perception of other
8 healthcare workers at other trust that there was lack of
9 availability on the frontline.
10 **MS CAREY:** Dr Warne, you mentioned quality issues there and
11 it's touched on in the report because, at
12 paragraph 12.18, there was concern about some of the flu
13 pandemic stockpile and the quality of FFP3 respirators.
14 I think the report says this:
15 "The national stockpile had been built up over
16 several years for the next pandemic. Unfortunately,
17 many NHS hospitals reported that these masks were in
18 poor physical condition and could not be used.
19 For example, some of the masks had begun to partially
20 disintegrate. [There was] visible deterioration of the
21 fabric and elastic head straps of these masks."
22 I think you wanted to add some context to that,
23 Dr Shin?
24 **DR SHIN:** Yes, just reflecting on re-reading the report,
25 that's probably an overly black and white description.

1 On reflection, we're aware that some trusts were in
2 receipt of supplies of these pandemic stockpile
3 respirators, which were of acceptable standard and were
4 used but it reminded me and my colleagues that one of
5 the controversies at the time was that a lot of the
6 stock was actually time expired and many recipients
7 found that new expiry date stickers had been applied
8 which undermined confidence in that PPE.
9 **MS CAREY:** So it said it's expired in 2015 and here you were
10 in March 2020 with a new stamp on it?
11 **DR SHIN:** Yeah.
12 **MS CAREY:** Was it communicated to healthcare workers that,
13 although a new stamp had been applied, it was therefore
14 approved? Had that message got through?
15 **DR SHIN:** I recall some communications about that but how
16 clear that was I'm not certain.
17 **MS CAREY:** Just finally on this topic, we have been looking
18 at problems in relation to masks and other PPE but can
19 I ask you about respiratory hoods. I think you say
20 there that there is a challenge in relation to those;
21 what are the challenges in relation to respiratory
22 hoods?
23 **DR SHIN:** So there are multiple challenges. Again, coming
24 back to logistics, trusts and hospitals probably had
25 very small numbers of them, if any, and they would have

1 had to have purchased potentially significant numbers.
2 We bought a few hundred, and everyone -- so was everyone
3 else. That's one challenge. (2) you would need to, you
4 know, train staff on how to use them. They're actually
5 quite a complicated piece of equipment, they have, you
6 know, a hose to a pump and a filter with a power supply,
7 so they've got bulk, they're heavy and, if you look at
8 them, they basically surround the head, so that's not
9 good for communication, from verbal, maybe even
10 non-verbal communication, and if -- and they're often
11 used, for example, in critical care, as an example,
12 I'm aware of their being used quite widely.
13 In that setting, where people -- they've got lots of
14 very sick, acutely ill patients, deteriorating patients,
15 any impediment to communication between team members is
16 probably not ideal at all.
17 **MS CAREY:** I think you say they need to be cleaned after
18 each use --
19 **DR SHIN:** Absolutely.
20 **MS CAREY:** -- and they need to be maintained, not just
21 cleaned?
22 **DR SHIN:** Exactly. So all of these things, when --
23 you know, you can view these PAPR hoods as the solution
24 to this problem of staff not getting fit tested or
25 unable to find a mask, but although they bring that PPE

1 protection for that episode of giving a patient care,
2 they bring with them a lot of attendant
3 behind-the-scenes challenges which are not evident when
4 you first reach for this as a solution.
5 **MS CAREY:** Yes.
6 My Lady, I'm moving on to a different topic.
7 **LADY HALLETT:** Yes, of course.
8 **MS CAREY:** Would that be a convenient moment for lunch?
9 **LADY HALLETT:** I shall return at 1.35.
10 Once Ms Carey has finished with her questions,
11 obviously there are questions coming from core
12 participants, could I ask each advocate who has been
13 given permission to ask questions to work out which
14 expert would be best able to deal with their questions,
15 otherwise the questions are going to come at the experts
16 and we're not going to know who is meant to be answer --
17 **MS CAREY:** If I can assist I'll happily do so.
18 **LADY HALLETT:** If you can. It's just that it might be
19 easier for the experts and easier for me.
20 **MS CAREY:** Quite, yes.
21 **LADY HALLETT:** Thank you. 1.35, please.
22 **(12.36 pm)**
23 **(The short adjournment)**
24 **(1.35 pm)**
25 **LADY HALLETT:** Ms Carey.

1 **MS CAREY:** Thank you, my Lady.
2 I think, Professor Gould, I'm turning to you next,
3 and questions in relation to educating the workforce
4 about infection prevention and control, and they are in
5 chapter 10 of the report, for those who are following in
6 the paper copy.
7 Can I ask you firstly about nurses. Do they have
8 IPC training during their degree or any of the practical
9 stages of their learning?
10 **PROFESSOR GOULD:** They do. In the nursing and midwifery
11 regulations that cover basic nurse education,
12 pre-registration nursing education, infection prevention
13 has to be covered and then they get practical experience
14 of it in the clinical areas.
15 So they will get classroom practice, but what they
16 will get in the practice areas depends quite a lot on
17 where they go.
18 **MS CAREY:** Quite.
19 I think you said in your report that the NMC, the
20 regulator curriculum, does not provide specific details
21 of what aspects of IPC should be included or when or
22 how; is that correct?
23 **PROFESSOR GOULD:** That's correct.
24 **MS CAREY:** So, with your experience, can I ask you, how does
25 that play when you are trying to teach the nurses?

1 **PROFESSOR GOULD:** With difficulty, because you never know
2 who's been exposed to what, and very often what people
3 have seen in the clinical placements isn't reflected in
4 what the university teaches.
5 **MS CAREY:** Do you think there should be an attempt by the
6 regulator to standardise what IPC is taught and how?
7 **PROFESSOR GOULD:** A degree of standardisation would be
8 helpful because then you would know that the basics had
9 been covered.
10 **MS CAREY:** And the basics, in terms of the Covid pandemic,
11 what would you have in mind for a respiratory virus on
12 the next time there's a pandemic?
13 **PROFESSOR GOULD:** The basics for any infection prevention
14 and control teaching that anybody would have, whether
15 related to respiratory infection or anything else, would
16 be you would have to teach people about the chain of
17 infection. So you would need to teach them where the
18 infection comes from, where the reservoir of it is,
19 whether it's other people or the environment, how it
20 escapes from that source, how it's spread, how it gets
21 into the next host, and the damage it does there.
22 Because if you know the chain of infection you know how
23 it can be broken: by hand hygiene, by wearing PPE, by
24 a combination of things.
25 **MS CAREY:** Do you know why there isn't a degree of

1 standardisation or reference to this in the NMC
2 curriculum?
3 **PROFESSOR GOULD:** I don't.
4 **MS CAREY:** Okay, fine.
5 Healthcare assistants, can I ask you about any
6 training they receive in relation to IPC?
7 **PROFESSOR GOULD:** It would very much depend on where they
8 were. It would depend on the organisation for which
9 they worked, it would depend on the enthusiasm of the
10 local infection prevention teams and the other people
11 they come into contact with, and it would depend quite
12 a lot on how motivated they were. Some can be very
13 interested and know a lot, others much less.
14 **MS CAREY:** Do you think there is a need for any degree of
15 standard training in relation to healthcare assistants?
16 **PROFESSOR GOULD:** Yes, it would be useful.
17 **MS CAREY:** Would that be a matter for their regulator?
18 **PROFESSOR GOULD:** They don't --
19 **MS CAREY:** They're not regulated --
20 **PROFESSOR GOULD:** They're not regulated --
21 **MS CAREY:** No, I was trying to think --
22 **PROFESSOR GOULD:** Not in this country. Some other
23 countries, but not in the UK.
24 **LADY HALLETT:** Can I just ask, before we go further down
25 this line, was there any effect, causal effect, in the

1 pandemic as a result of this lack of standardisation or
2 regulation? Because, you know, this is all about the
3 impact of the pandemic, so I just think we need to be
4 careful about what, in a perfect world, the training
5 would consist of and whether there was a causal effect
6 because there wasn't standardisation of training.
7 **PROFESSOR GOULD:** I think if you inform people, if you
8 inform people properly, you can allay their fears. So
9 if people had had some knowledge and had known about
10 where to go and get it, that would have been helpful.
11 **LADY HALLETT:** Thank you.
12 **MS CAREY:** Thank you.
13 I think you say there have been arrangements for --
14 IPC education and training have been updated since the
15 pandemic --
16 **PROFESSOR GOULD:** They have.
17 **MS CAREY:** -- and you set those out in your report. Indeed
18 they're different in all four nations of the UK, but
19 I don't need to ask you about that.
20 Can I ask you about, though, non-clinical staff and
21 any education and training that they receive, porters,
22 cleaners and the like; are you aware of any IPC training
23 for them?
24 **PROFESSOR GOULD:** When somebody moves to a new employer --
25 when somebody begins to work in healthcare first of all,

1 they have to have induction training, and that is the
2 same for all staff, whether they're qualified or
3 unqualified. So what they make of it would depend on
4 the way that it's put across, and on how relevant it's
5 made to be.
6 **MS CAREY:** Okay.
7 Can I turn to a different topic, please, and could
8 I have up on screen INQ000502072.
9 It's the timeline of some of the changes to the IPC
10 guidance. I make it clear it's not every change to IPC
11 guidance.
12 Dr Shin, can I ask you just very briefly about
13 high-consequence infectious diseases. It's at chapter 6
14 in your report, but given that you were on the ACDP it
15 may be you don't need to turn up the pages.
16 There are specific rules, as we understand it, that
17 pertain to HCIDs; is that correct?
18 **DR SHIN:** That's correct.
19 **MS CAREY:** We know it was classified in January and then
20 declassified on 19 March 2020.
21 **DR SHIN:** Yes.
22 **MS CAREY:** Is this right, the rules include FFP3 to be worn,
23 and indeed I think there's a whole kit of PPE.
24 **DR SHIN:** Yes.
25 **MS CAREY:** There are only a small number of HCID units

1 across the UK.
2 **DR SHIN:** There are a few specialised units and there were
3 some, if I can call it, less specialised units, but,
4 partly due to the pandemic, the number of HCID units in
5 total has increased but the two units of -- I think
6 referred to as high-security units are at the
7 Royal Free, which has been there for quite a long time,
8 and I think now Liverpool. There are some other units
9 which can handle airborne HCIDs, for example St Thomas'
10 is one example, so they can handle very severely ill
11 respiratory virus cases, for example if there was a MERS
12 coronavirus. So there is a network across the UK.
13 **MS CAREY:** Were you part of the ACDP when the decision was
14 taken to declassify HCIDs?
15 **DR SHIN:** I was not in that meeting.
16 **MS CAREY:** All right. But are you aware of the reasons why
17 it was declassified?
18 **DR SHIN:** In broad terms.
19 **MS CAREY:** All right. Can you just outline that to us in
20 broad terms, please.
21 **DR SHIN:** So my understanding is that it was a decision not
22 indicating that there was a change to the severity of
23 the infection but it's more linked to the fact that
24 basically HCIDs framework is there for us to handle
25 unusual imported cases, for example a suspected Ebola or

1 a suspected Lassa fever or avian flu, et cetera, for
2 small numbers of sporadic cases.
3 Quite clearly from -- by March and April 2020 we
4 were facing a large pandemic and very large-scale
5 infection, which was not what the HCID network was
6 designed for. So it was not the right approach to the
7 situation as it was evolving at that time.
8 **MS CAREY:** I think you say later on in your report that,
9 from your perspective, initially classifying Covid as
10 an HCID was an example of the precautionary principle in
11 practice; do you agree with that?
12 **DR SHIN:** Very much so. The HCID precautions are very
13 stringent and it's basically -- when we say something is
14 an HCID or we suspect a patient of having it, it's
15 basically like a red alert to tell everyone: this
16 patient, this case, needs an extraordinary response.
17 **MS CAREY:** Can I ask you this, please: once Covid was
18 declassified, was there anything to do with the -- did
19 the declassification decision have anything to do or
20 prevent the IPC guidance recommending FFP3?
21 **DR SHIN:** I don't think I have enough knowledge to answer
22 that question --
23 **MS CAREY:** Fine.
24 If we look at the timeline: clearly 10 January,
25 there, there's the HCID precautions.

1 13 March, so just before it was declassified, there
2 was some guidance that recommended airborne precautions
3 in hotspots where AGPs are being conducted, and then
4 FRSMs for routine care. And then Covid was
5 declassified.
6 I think in your report you make the point that at
7 the time the decision was taken to declassify it as
8 an HCID, it was possible to separate that decision from
9 the need to retain enhanced PPE if considered
10 appropriate.
11 I'm reading from your paragraph 6.9 if that helps.
12 **DR SHIN:** I think the question of what happened with the PPE
13 is, you know, a difficult one which -- you know, was --
14 probably the entirety of this module perhaps, and the
15 exact decision-making for that was -- I'm not that privy
16 to.
17 **MS CAREY:** All right, fine, thank you very much.
18 I can take that timeline down, thank you very much.
19 May I turn to another topic though that you did deal
20 with in the report, and that of visiting guidance.
21 Clearly it's a difficult decision, but can you just
22 help, do I understand it correctly that even outside of
23 the pandemic there have been visiting restrictions
24 imposed in relation to other viruses? Help us with
25 that, please, just give us some examples.

1 **DR SHIN:** So, for example -- the most obvious example of
2 when visiting is restricted would be during an outbreak,
3 for example of flu, of norovirus, even measles and other
4 infections, so in that case restrictions are brought in
5 to protect anyone entering that ward, which would
6 include visitors and members of the public, who could
7 then be put at risk, and we tried to avoid that as much
8 as possible.
9 **MS CAREY:** So they could be solely to prevent visitors
10 coming to specific ward. Have you known them to prevent
11 people coming to the hospital in its entirety?
12 **DR SHIN:** Not in my working life.
13 **MS CAREY:** All right.
14 We know, however, there were visiting restrictions
15 preventing visitors save for three at the beginning,
16 exceptional circumstances, end-of-life care, when the
17 woman was in labour, and I think a parent accompanying
18 a child or a baby that was requiring treatment.
19 Can I ask you about that decision. It obviously has
20 caused a great deal of upset.
21 **DR SHIN:** Yes, and we -- I think everyone working in the NHS
22 understands the reasons why that's caused so much
23 controversy and upset, but the decision-making to
24 restrict visiting in that manner and to only allow those
25 specific circumstances, especially end-of-life care and

1 paediatric -- neonates, newborn babies and in labour,
2 that was done really to protect members of the public
3 and visitors.
4 So a balance had to be struck somewhere and where
5 the balance lay was -- in those particular circumstances
6 it was felt that the risks of infection were outweighed
7 by the benefit of having -- you know, allowing the
8 family, for example, to be there when a patient -- end
9 of life, obviously that is a very major life event,
10 obviously, and the other examples. So that was where
11 the line was drawn.
12 **MS CAREY:** Yes.
13 **DR SHIN:** But I think some form of control was reasonable,
14 logical and I think the right -- probably the right
15 decision. As we keep saying, we were facing this new
16 rapidly-rising infection with high mortality we've seen
17 and, you know, a very dangerous foe, so to take
18 stringent measures at the beginning was I think, on
19 reflection, a reasonable step to take.
20 **MS CAREY:** There may be a distinction drawn by many between
21 a visitor and a carer, carers providing help to feed the
22 patient, communicate with the patient. Do you think
23 perhaps there should have been more acknowledgement in
24 the exceptions to the visiting restrictions to let
25 carers attend on their loved one?

1 **DR SHIN:** I think there could have been, so especially if
2 the carer is somebody who is already living with the
3 patient --
4 **MS CAREY:** Quite.
5 **DR SHIN:** -- coming with Covid, for example, they already
6 had the same exposures and risks already. So I think
7 that is reasonable to say that a carer in that situation
8 could be allowed in and I'm sure lessons will be learned
9 about that scenario.
10 **MS CAREY:** It was my fault, it was a bad question, because
11 I actually wanted to ask you whether a carer should be
12 let in, whether a loved one or someone who comes in and
13 routinely provides care for -- would you draw
14 a distinction if they're providing care and they know
15 the patient well?
16 **DR SHIN:** So late -- maybe perhaps later in the pandemic,
17 we -- forgive my hospital example, we have, you know,
18 like many other trusts, have elderly care with a lot of
19 dementia patients, and in that setting we have been
20 quite flexible in allowing carers and relatives to come
21 in to see those patients with dementia, for example,
22 because that helps reduce confusion, disorientation,
23 distress, et cetera. I don't know if that's an adequate
24 answer to your question.
25 **MS CAREY:** I suppose really it was whether, in the event of

1 another pandemic, we widen the exceptions to the
2 visiting restrictions to allow carers to come in for
3 people with dementia, for example, or those with
4 learning disabilities, and take a slightly more
5 purposive approach and be less restrictive.
6 **DR SHIN:** Do you mean carers who are not family members?
7 **MS CAREY:** Yes.
8 **DR SHIN:** I see. I think you could argue that, because if
9 they're seeing patients, say, daily, and they've got the
10 same exposure anyway, I think that is something that
11 could be looked into.
12 **MS CAREY:** All right, thank you.
13 Can I take it that you do not consider it reasonable
14 to have patients wearing FFP3?
15 **DR SHIN:** I think given all the difficulties we have
16 discussed about FFP3 logistics and provision to
17 healthcare workers testing mask types and all of those
18 challenges, I think that's one good argument against
19 that.
20 In addition we've also mentioned the discomfort of
21 wearing FFP3 masks, so it's -- I think respirators
22 should be used when they are absolutely necessary and
23 for visitors -- for short-term visitors or for patients
24 who are already unwell, et cetera, I think an FRSM would
25 be a reasonable measure in that case. And even --

1 FRSMs, even that are not tight fitting, et cetera, to
2 wear one for, say, 24 hours apart from when you're
3 eating and drinking, it's also quite uncomfortable, so,
4 you know, we always try to take steps to reduce
5 discomfort in our patients.
6 **MS CAREY:** I think you looked into the impact that a range
7 of interventions had on the first wave, and there was
8 a study conducted that concluded that sustained visiting
9 restrictions were likely to have reduced nosocomial
10 transmission but its implementation was likely of less
11 impact than other IPC measures such as universal mask
12 wearing and isolation of infected healthcare workers.
13 So is that potentially a study that supported the
14 implementation of visiting restrictions?
15 **DR SHIN:** I would say so but it also illustrates the fact
16 that with IPC it requires the application of multiple
17 measures.
18 And we also, just to give another example, before
19 the pandemic, a number of trusts use visitor
20 restrictions for neonatal intensive care units, because
21 if they bring siblings in, who often have other
22 respiratory viruses, that poses a risk to the babies in
23 that unit. So that's another pre-pandemic example where
24 some form of visitor restriction was applied.
25 **MS CAREY:** Can I -- it might be a question for you,

1 Dr Warne, but thinking about the patient on the ward in
2 end-of-life situation, where visiting restrictions were
3 either severely limited or we have heard examples where
4 there were no visitors allowed, can you help from your
5 experience how the staff communicated with the families
6 of the loved ones of a dying patient?
7 **DR WARNE:** So I worked in a department where it was the job
8 of the doctors every afternoon to update relatives who
9 weren't able to visit the ward. And that formed
10 a significant proportion of their working day. I think
11 it was one of the most difficult aspects for doctors
12 working in that environment during the pandemic.
13 This is something we just do not normally do. We
14 usually would update people -- relatives who have had
15 the opportunity to see their loved ones in a ward
16 setting and be able to update them in person. Doing it
17 by telephone was an incredibly impersonal experience for
18 many people and, I think, quite distressing for junior
19 doctors and other healthcare workers.
20 **MS CAREY:** Finally this, I'm asked to ask about a slightly
21 different scenario where there is a cultural importance
22 among a number of communities, in particular among
23 black, Asian and minority ethnic communities who rely on
24 social networks for healing and whether there should be
25 a relaxation, I suppose, on the visiting restrictions to

1 allow members of those communities to visit.
2 Do any of you have experience of trying to deal with
3 people from those communities being prohibited from
4 coming in and seeing their loved ones? Do you think we
5 should expand the numbers of visitors to try and
6 incorporate communities like that that have that
7 cultural importance?
8 **DR WARNE:** I don't think I have any direct experience,
9 particularly based on ethnicity. I think that we
10 haven't talked about ways that we could make that
11 experience safer, apart from the use of FFP3 masks. So,
12 ideally, we would, for example, have people in end of
13 life in side rooms, away from other patients, away from
14 other potential sources of infection, which might make
15 it safer for visitors coming to the hospital, and there
16 are potentially other ways that we could do that to make
17 that experience safer for the other visitors, as well as
18 staff and other patients. But I've not seen any
19 systematic studies by which that's been studied and
20 which we can provide evidence for today.
21 **LADY HALLETT:** I think also that's an extraordinarily
22 difficult territory to work out how you would say
23 a particular group, because in Northern Ireland I was
24 told that a great deal of importance is placed on
25 end-of-life care and death and funeral rites. I'm not

1 sure I can go down that path, Ms Carey.
2 **MS CAREY:** No, there may be lots of people wanting
3 exceptions to the visiting restrictions and I suspect
4 that reality comes as where is the line drawn. It was
5 drawn in this pandemic with end-of-life care, women in
6 labour and babies and children, and the question is
7 really is the line drawn there or slightly differently
8 in the next time?
9 Yes, Dr Shin?
10 **DR SHIN:** I think this would be really difficult because
11 let's say a four-bedded bay, a Covid bay, and you would
12 say to one set of relatives "You can come in because
13 you're from a certain background", and the patient
14 opposite can't. That would be extremely inequitable and
15 difficult to implement and difficult to defend, I think.
16 **MS CAREY:** Understood.
17 We mentioned there other IPC measures and so can
18 I ask you about this, Dr Shin, and it's in section 9 of
19 your report, and you deal there with a number of
20 measures that now we are quite familiar with in the
21 Inquiry.
22 I'll deal with testing separately, if I may, but
23 I think you said that, clearly, there's a variety of
24 interventions that were taken to try and reduce
25 transmission of Covid but there is variation in the

1 breadth and quality of the evidence underlying these
2 measures. Can you help us with what you were meaning
3 there?
4 **DR SHIN:** I think that certain measures like, for example,
5 social distancing, which I think probably were quite
6 effective but getting the evidence for that in a real
7 world setting is difficult. Although you said testing
8 would be managed -- handled separately, that was a very
9 important IPC strategy to use -- utilise testing and
10 surveillance testing of asymptomatic patients and staff
11 was a really important revolution when it arrived.
12 **MS CAREY:** There was, I think, as you set out at
13 paragraph 9.2, that whatever the individual
14 contribution, it's likely that a combination of
15 approaches were effective in reducing transmission. Is
16 it right that UKHSA did a modelling study that concluded
17 that the combination of interventions used to reduce
18 nosocomial transmission between March 2020 and July 2022
19 averted 400,000 infections in patients and 410,000
20 infections in healthcare workers?
21 Based on that study, did you therefore conclude it's
22 likely that the combination will be needed again in the
23 event of a future pandemic?
24 **DR SHIN:** Is that to me?
25 **MS CAREY:** Yes, or either of you.

1 **DR WARNE:** Yes, I think that it's highly likely you will
2 need a combination of different measures. The study
3 points out that it's quite difficult to pull out the
4 relative contribution of each measure and its importance
5 because they were often introduced together. It's
6 highly likely we will need a wide range of interventions
7 again in any future pandemic.
8 **MS CAREY:** One of the measures we spoke of there was the
9 social distancing and I would like to ask about the
10 practicalities of that in the hospital. What about in
11 staff-only areas: how easy or otherwise is it to have
12 social distancing in staff-only areas?
13 **DR SHIN:** So I did work on groups which dealt with this and
14 I think it was feasible. So, as you know during
15 lockdown, many of the non-clinical staff worked from
16 home and technology allowed that to happen quite
17 efficiently and when we started having staff return to
18 the office, we just worked out what was the staffing
19 density which would comply with social distancing
20 requirements, and we worked out, you know, staff had
21 rotas saying "You come in on these days", and in the end
22 we would make sure we exceed that number, which would
23 breach social distancing.
24 In addition, for example, most meetings which were
25 previously all face to face, like this, we moved very

1 quickly to online meetings and so, again, technology
2 helped with that measure. So for non-clinical areas
3 I think social distancing was actually quite achievable.
4 **MS CAREY:** And presumably used up areas in the hospital
5 estate that might have been given over for lecture
6 theatres, that kind of arrangement.
7 Protecting clinically vulnerable staff. I think
8 it's right that you say that if the staff were on the
9 shielded patient list then, clearly, they had to stay at
10 home. What about those staff who weren't on the
11 shielded patient list but who otherwise had
12 vulnerabilities, they were either clinically vulnerable
13 or had other comorbidities; what was the position in
14 relation to them?
15 **DR SHIN:** So in that intermediate group, if I can call it
16 that, some of the measures used were, for example,
17 deploying them to non-Covid wards. So, as we've
18 discussed, we would have Covid wards and non-Covid and
19 acute areas and non-acute pathways and, for those
20 higher-risk staff, they would be deployed to either
21 wards which were areas where staff and patients were
22 well screened and with no expected Covid patients
23 and/or, for example, outpatients.
24 **MS CAREY:** Would the staff who are vulnerable but not on the
25 shielded patient list, would they be risk assessed to

1 work out the safest place in the hospital, the least
2 unsafe place in the hospital that they could go?
3 **DR SHIN:** Yes, we were basically told to do risk assessments
4 for, I think, all staff actually but that was a very big
5 exercise run by occupational health and others to risk
6 assess -- I think it was all staff and that helped
7 decide where it was safe or not safe for them to work.
8 **MS CAREY:** You said in the report certainly those with other
9 risk factors, such as male gender, older age, as we've
10 looked at, being of black, Asian and minority ethnic
11 background, with chronic diseases like diabetes/asthma,
12 it was potentially quite a large cohort of vulnerable
13 people that had to be risk assessed. I didn't ask: how
14 long does it take to be risk assessed?
15 **DR SHIN:** So if I give you an example, in my own trust we
16 had a pro forma, which I think was probably shared at
17 least regionally, and that needed probably a meeting of
18 some kind between the line manager and the member of
19 staff to go through and, if anything was uncertain or
20 complicated, that would go to occupational health but it
21 was basically a tick-box pro forma, leading to --
22 I think it was a score and the -- because the OH team is
23 quite small and there is no way -- we have more than
24 11,000 staff, so our small OH team can't do that. So it
25 was devolved to local management to do that.

1 **MS CAREY:** I think you make the point that the roll-out of
2 the vaccine in early 2021 reduced the risk to a number
3 of NHS staff, including clinically vulnerable, and that
4 coupled with adjustments, the risk assessments,
5 redeployment areas, was a measure that was included to
6 try and help keep them safe from Covid.
7 Can I ask about the impact on occupational health,
8 we haven't considered that yet within the Inquiry. Just
9 help us: how big a team is an occupational health team?
10 **DR SHIN:** That varies a lot and, during the pandemic, our
11 occupational health department had a lot of high staff
12 turnover.
13 **MS CAREY:** Right.
14 **DR SHIN:** Considering the size of my trust and my experience
15 working in other trusts, occupational health teams tend
16 to be relatively quite small, surprisingly small, and
17 they have, as I said, a lot of -- a high staff turnover,
18 especially, if I give a specific example of medical
19 staff, I find the turnover there very, very high and
20 often they're part-time as well.
21 So I think for many trusts they would struggle to
22 provide adequate OH coverage in normal times, and we've
23 quoted, I think, one paper which we found where one of
24 the occupational health doctors, or a team of them, said
25 their workload increased 20-fold during the pandemic.

1 How they cope with that, I don't know.
2 **MS CAREY:** I won't go through all of the other ways that
3 attendance was reduced in hospitals. Some of them are
4 obvious like the use of remote appointments, working
5 from home.
6 Can I ask about blue and green pathways. I think
7 some might be red and green, depending on which nation
8 or indeed which region that we're talking about, but was
9 the idea to keep non-Covid patients away from Covid
10 patients; how easy in practice though was that to bring
11 into effect?
12 **DR SHIN:** So, as you said, the nomenclature changes so we
13 have different colour codes, for example. Basically,
14 it's about separating acute patients, acutely ill
15 patients from elective patients coming for surgery, for
16 example, or diagnostic, radiology scans, that kind of
17 thing.
18 In many hospitals, as we said, I think many
19 hospitals have multiple sites, so that starts to make it
20 become feasible and that's what we did. So our main
21 site, which had an emergency department, was clearly,
22 probably not suitable or ideal for an elective pathway
23 and we moved some of them to other sites which didn't
24 have an emergency department. So, I think each trust
25 would have been very different and I'm sure the

1 experience across the UK -- the principle was to
2 separate the acutely unwell patients, especially Covid
3 patients, from the well, elective patients.
4 **MS CAREY:** So if, once there was a reinstatement of elective
5 surgery and treatment, I think you said there a negative
6 PCR was required two days before the planned elective
7 procedure and, if obviously it was negative the
8 procedure could go ahead and, if positive, the treatment
9 cancelled or the surgery cancelled?
10 **DR SHIN:** Postponed.
11 **MS CAREY:** Thank you.
12 Clearly though, within the two days, one could be
13 negative on the day you take the test but catch Covid
14 then the next day. How was that managed, if at all, for
15 those coming back for an elective procedure?
16 **DR SHIN:** That's a very difficult eventuality which we did
17 see and that was hard to manage. If I remember
18 correctly, we also had, for some patients, a rapid PCR
19 on the day of the procedure, literally hours before the
20 procedure, because we were able to -- once testing was
21 scaled up, as Dr Warne mentioned the importance of
22 scaling up testing -- when we had sufficient rapid
23 testing capability patients may even come in, say, two,
24 three, four hours before the procedure to get a final
25 PCR and if that's green -- negative, then they can go

1 ahead.
2 And that -- although that gave some reassurance, it
3 was also really stressful for the patient but, as you
4 said and as we've described, the incubation period being
5 quite long, there is no guarantee that they would then
6 not subsequently develop Covid and we were aware of that
7 but all we wanted to show was that, on the day of the
8 procedure, that they didn't have detectable Covid at
9 that time.
10 **MS CAREY:** I think you make the point in your report that
11 the roll-out of the rapid testing in particular gave
12 reassurance to immunocompromised patients who were
13 obviously worried about coming to hospital and
14 contracting Covid.
15 I suppose that really brings us on to testing and
16 I suspect turning to you, Dr Warne, there is various,
17 I think, basics we may need to cover.
18 Can I start, please, with a summary of the
19 differences between PCR tests and lateral flow devices?
20 If it helps you it's 9.3 in the report.
21 **DR WARNE:** Those are two different ways of testing for
22 Covid. So, normally, a nose and throat swab, for both
23 methods, the PCR test is a molecular test for looking
24 for the specific RNA -- the specific part of the virus,
25 which is very accurate. So we're looking specifically

1 for Covid and it's got a high sensitivity. So it's
2 picking up a large amount of the true positives.
3 Lateral flow tests, which we probably all know and
4 love, have a similar principle to a pregnancy test, you
5 can take them at home, they're much easier and faster to
6 get a result, but they're less accurate. So while
7 they're useful for screening, for certain purposes, they
8 had probably less utility as a diagnostic test in
9 hospital.
10 **MS CAREY:** Can we just be clear about the use of the term
11 "sensitive" here; what does it mean in the way that
12 you're using it?
13 **DR WARNE:** So all the people who genuinely have Covid what
14 proportion of those patients will it detect. So, for
15 the PCR, we'll be picking up over 95% potentially, if
16 the swab is taken properly; lateral flow tests, there is
17 a much wider quoted range, so from 40% up to 90% plus.
18 **MS CAREY:** So there are pros and cons to each, if I may put
19 it like that?
20 **DR WARNE:** So the PCR test, depending on how you do it, if
21 it's being done in a main laboratory, you might get
22 a result 24 hours later. As newer, rapid diagnostic
23 testing platforms came on later in the pandemic, you
24 might get the result in within an hour. Lateral flow
25 test is very quick but less accurate.

1 **MS CAREY:** Clearly testing played a role initially in the
2 pandemic to confirm that the patient had, in fact, got
3 Covid because I think you make the point in the report
4 that a number of the symptoms alone -- coughing,
5 sneezing, feeling unwell -- are capable of being any
6 number of different diseases or viruses.
7 Turnaround times, can you help us with, once the
8 rapid Covid test came in, what was the turnaround time
9 for those tests?
10 **DR WARNE:** So potentially less than an hour from the point
11 that the test is being done.
12 **MS CAREY:** I think you say in your report easy to use and
13 they could be deployed to areas in the hospital near the
14 patient.
15 **DR WARNE:** Exactly right.
16 **MS CAREY:** Then if a patient came in for a procedure, had
17 a rapid test and tested positive, were they literally
18 sent home?
19 **DR WARNE:** If they were otherwise well, then yes. I tend to
20 follow national guidance on self-isolation et cetera.
21 **MS CAREY:** Then cleaning of the areas where they had been,
22 and the like, understood, right.
23 Can I ask you about testing of healthcare workers,
24 and I think there was testing but you say in your
25 report, at paragraph 9.25:

1 "Routine symptomatic testing or asymptomatic
2 screening for respiratory virus infections in healthcare
3 workers was not performed in the UK prior to the
4 pandemic."
5 Is that correct?
6 **DR WARNE:** Yes.
7 **MS CAREY:** So, once testing came in, it was new to
8 healthcare workers, as much as it was to the rest of us?
9 **DR WARNE:** In the sense that, yeah, you're testing people
10 who don't otherwise need to come into hospital,
11 absolutely.
12 **MS CAREY:** You make the point that during March and April
13 2020 there was a large increase in PCR testing for Covid
14 across the UK, and then we know there are various dates
15 when different people were tested, including differences
16 between symptomatic and asymptomatic. I think you said
17 in the report that, for asymptomatic, there was a pilot
18 of testing in March to May 2020; can you help with that?
19 **DR WARNE:** So a number of trusts recognised early on the
20 importance of asymptomatic screening for healthcare
21 workers or diagnostic testing. So, firstly, they
22 recognised that some of our healthcare workers would be
23 asymptomatically carrying and potentially transmitting
24 the infection to vulnerable patients, other healthcare
25 workers. They also recognised that, following

1 government advice to self-isolate, if you had any of
2 these symptoms, that a large proportion of those would
3 not have Covid, they would have one of the other
4 conditions, and you were potentially losing a large
5 amount of your workforce who did not have Covid. So,
6 therefore, the importance of distinguishing those that
7 did and did not have Covid was really important to
8 ensure that you were isolating the right healthcare
9 workers and the others can return to work.
10 **MS CAREY:** Yes.
11 **DR WARNE:** But that wasn't widely available, it was piloted
12 in a small number of trusts, particularly those who had
13 more testing capacity, potentially more academic
14 laboratories to help to support testing capacity.
15 **MS CAREY:** Do you know was that rolled out, even though it
16 was a small pilot was UK-wide or was this England only;
17 can you help?
18 **DR WARNE:** I'm aware of a number of pilots that were
19 conducted in England. I'm not sure about the rest of
20 the UK. When lateral flow tests were much more widely
21 available later in the pandemic, they were rolled out to
22 everybody, all healthcare workers across the four
23 nations, implemented in slightly different ways.
24 **MS CAREY:** You make reference in your paragraph 9.26,
25 Doctor, to a modelling study that has shown that

1 periodic testing of healthcare workers has a small
2 effect on the number of hospital acquired Covid-19 cases
3 in patients but reduces infection in healthcare workers
4 by as much as 37%, which results in, as you say, only
5 a small proportion of staff absences.
6 Just help us put that into the real world.
7 **DR WARNE:** You might come on to this in a moment but the
8 majority of patient's hospital acquired infections were
9 acquired from other patients during the pandemic,
10 whereas with healthcare workers, there was a lot of
11 healthcare worker to healthcare worker transmission. So
12 by understanding who was asymptomatically infected in
13 your healthcare workers and isolating them effectively,
14 you reduced that healthcare worker to healthcare worker
15 transmission and, therefore, helped to prevent
16 healthcare worker infections.
17 **MS CAREY:** I think in your report, as we've looked at the
18 potential pros and cons, if I can call it that, between
19 lateral flow devices and PCR tests, you say there has
20 been no comparison made between the testing approaches
21 and, therefore, their relative contribution and, indeed,
22 cost as an IPC measure remains poorly studied.
23 Why is it important for there to be a comparison
24 between testing approaches?
25 **DR WARNE:** They have big cost implications that each of them

1 has different advantages and disadvantages, depending on
2 how you use them, and there are a number of different
3 commercially available tests, or tests available in any
4 kind of way. So making direct comparisons between
5 lateral flow tests, of which there are many, many
6 brands, and PCR tests, of which there are different
7 approaches, is very difficult to do.
8 Also the frequency, so how often you're testing, if
9 you're testing once a week, you know, you have an entire
10 week in which to develop symptoms, you might get missed.
11 Doing it every day or even multiple times a day is
12 perhaps impractical for a variety of reasons.
13 So to understand this to the best that we can, for
14 any future pandemic, we probably need to do more work
15 and, as technology advances and new diagnostics are
16 available, they too will need to be appraised in any
17 future pandemic and this is an area of great and quite
18 rapid scientific development.
19 **MS CAREY:** It brings me on to transmission of Covid in
20 hospitals and your chapter 11, please. I think you make
21 the point at the outset that there is a focus on the
22 transmission of Covid within hospitals, obviously
23 because we want to keep people safe in hospitals, but
24 I think some of the data that we're going to look at is
25 only available in hospitals or the majority of it is

1 only available in hospitals; why is that?
2 **DR WARNE:** There's a number of different reasons. So
3 firstly, the hospitals we have high-quality data on
4 where a patient is at any one time, or indeed
5 a healthcare worker, and they are essentially in your
6 hospital for a long period of time, you have their test
7 results that you can link that information to, you have
8 a large amount of information about those individuals
9 and, therefore, can study them and how they transmit
10 within the hospital. That's much less easy to do in
11 primary care where the patients are only there for very
12 short periods of time or in social care, where perhaps
13 you don't collect that information or can tie it to
14 their test results in the same way.
15 **MS CAREY:** Understood.
16 **DR WARNE:** I would say that there is an historic bias
17 towards infection control studies in secondary care in
18 hospitals and that primary care/social care are much
19 less well studied and published on.
20 **MS CAREY:** You make the point that healthcare-associated
21 transmission was a feature of hospitalised cases for
22 SARS, I think, and MERS. What about flu?
23 **DR WARNE:** The evidence base for flu is much smaller. There
24 was an increasing evidence base that hospital
25 transmission of flu was important, and we have data from

1 our own trust and from other hospitals in the UK, from
2 the years prior to the pandemic, which showed that flu
3 was probably an underappreciated hospital associated
4 infection.
5 **MS CAREY:** Okay.
6 **DR WARNE:** The quoted numbers are very variable depending on
7 the type of hospital.
8 **MS CAREY:** But it's not new that people go into hospital,
9 nonetheless contract a virus?
10 **DR WARNE:** No, or indeed any other hospital-associated
11 infection.
12 **MS CAREY:** All right. In relation to Covid, I think you
13 said that the first study on Covid-19 was published from
14 Wuhan in February 2020; is that correct? And it stated
15 that 41% of all cases identified in patients and
16 healthcare workers were hospital-acquired infections.
17 So early on in the pandemic, we were aware that there
18 was the possibility of Covid transmitting in this way.
19 Can I ask you about your paragraph 11.3 though, and
20 can you just set out for us why it is challenging to
21 work out the location where SARS or Covid is acquired?
22 **DR WARNE:** The main reason relates to the incubation period
23 which we talked about right at the start of today's
24 hearing. So the time from somebody catching Covid and
25 then to developing symptoms ranges from two to 14 days,

1 the average being approximately six days at the start of
2 the pandemic. That means that if you developed symptoms
3 of Covid on day 6 of an admission, you had
4 an essentially 50/50 chance of acquiring it in hospital
5 or in the community, and in that preceding six days you
6 may have moved several areas in the hospital, the
7 preceding 14 days you may have had a number of different
8 exposures in the community. It's often very difficult
9 to tie down exactly the point at which you would have
10 acquired Covid.
11 By comparison, influenza the average incubation
12 period is about a day, one to two days, so a much
13 shorter space of time for us to look back and say,
14 "Where was the patient, who did they come into contact
15 with, how do we investigate and manage this problem?"
16 **MS CAREY:** That brings us on to -- can I have on screen,
17 please, INQ000474282_103 and table 2. I'd like to look
18 at the way in which Public Health England assigned the
19 likelihood of an infection being in hospital, against
20 that background of the incubation period.
21 My Lady, we touched on this briefly yesterday with
22 Professor Hopkins and some of the data and I skated
23 through what the definitions were.
24 With your help, Dr Warne, can you help us with HOHA
25 or hospital onset definite healthcare associated?

1 **DR WARNE:** These are patients that tested positive 15 days
2 or more into their admission, so beyond the longest
3 possible incubation period of the virus. So they
4 acquired it in hospital.
5 **MS CAREY:** Probable healthcare associated?
6 **DR WARNE:** So these are patients who tested positive between
7 days 8 and 14 of their admission, where the balance of
8 probability is that they acquired it in hospital but not
9 for definite.
10 **MS CAREY:** Right. Then indeterminate?
11 **DR WARNE:** So this is where people tested positive from day
12 3 to 7 of admission, so where initially the balance of
13 probability was that it was acquired in the community.
14 **MS CAREY:** Right. Community onset possible healthcare
15 associated: help us with the definition there?
16 **DR WARNE:** So these are patients who tested positive within
17 two days of being admitted that had recent by been
18 discharged from hospital. So, very early in the
19 pandemic, it became clear that a number of people were
20 being readmitted to hospital, having acquired their
21 Covid on their prior admission, going into the community
22 and coming back. This category was intended to capture
23 those patients.
24 **MS CAREY:** Understood. Then community onset community
25 acquired?

1 **DR WARNE:** So these are people who tested positive in the
2 first two days of their admission but had not had any
3 prior healthcare contact.
4 **MS CAREY:** So you have effectively got reasonable certainty
5 at the top end and reasonable certainty at the bottom
6 end of the table but slightly greyer areas depending on
7 the day of testing in the middle. Understood.
8 Now, translating that to the data that there is no
9 relation to Covid, can you just help with some
10 advantages of those definitions and then some
11 disadvantages or caveats to those definitions?
12 **DR WARNE:** So the advantage is that that kind of data can be
13 collected at a national level at scale because there are
14 national databases of hospital admissions and discharges
15 and there are national databases of testing. If you put
16 those two together, suddenly you have data from all the
17 admissions in the country and you can use that to
18 compare hospitals, regions, interventions over the
19 course of the pandemic, so at a surveillance level it's
20 helpful.
21 The disadvantages are that it works less well on
22 an individual level. If you want to know when
23 an individual caught Covid, you can't necessarily use
24 this unless it's in those extreme ends of community or
25 hospital onset. It's also limited by things like

1 testing availability: if there is a delay in testing for
2 any reason then you may be put into the wrong category
3 by mistake. Also limitations on, finally, the
4 definition of indeterminate being seven days. As the
5 pandemic progressed the newer variants had a shorter
6 incubation period --
7 **MS CAREY:** Right.
8 **DR WARNE:** -- so went down from probably around six days at
9 the start to about three and a half days with Omicron,
10 which meant that you would be miscategorising a lot of
11 people as community acquired who more likely would be
12 hospital acquired.
13 **MS CAREY:** Understood. All right, can I ask you this: these
14 were categories used by Public Health England were there
15 similar categories and definitions applied across the
16 UK?
17 **DR WARNE:** There were indeed, there were some slight
18 caveats, and the example is that, in Scotland,
19 I understand that they did not use the possible
20 healthcare associated -- community onset possible
21 healthcare associated because they could not easily or
22 readily identify preceding admissions in those patients.
23 So there are some slight nuances but, overall, they were
24 consistently used across the UK to the best of my
25 knowledge.

1 **MS CAREY:** With the definitions in mind, the caveats in mind
2 though, I think you in the report tried to estimate the
3 number of hospital acquired SARS-CoV-2 infections. Can
4 I ask you about your summary please at paragraph 11.17.
5 I think, essentially, having set out a number of
6 different studies and the like, you said estimates of
7 the proportion of Covid infections acquired in hospital
8 ranged between 5 to 20% of all Covid-19 cases identified
9 in acute hospitals; is that correct? It's quite a wide
10 range there.
11 **DR WARNE:** Yes.
12 **MS CAREY:** But doing your best, did you come to the
13 conclusion that, overall, it was highly likely that the
14 true number of patients who contracted
15 a hospital-acquired Covid infection in the UK was well
16 over 100,000?
17 **DR WARNE:** Yes.
18 **MS CAREY:** Are you able to help us with sort of what was
19 like the lowest estimate and what could be the highest
20 estimate, based on the modelling studies that you looked
21 at?
22 **DR WARNE:** So the lowest proportion that's quoted in these
23 studies -- and this is a combination of big national
24 datasets and smaller individual hospitals, and
25 everything in between -- the lowest that it's come to is

1 5%, the highest is 20, but some modelling estimates are
2 actually much higher than that because we don't take
3 account, for example, of people who catch Covid but
4 don't develop symptoms until they get into the
5 community. So in some studies it's even higher than
6 that 20% figure.
7 **MS CAREY:** When you say well over 100,000?
8 **DR WARNE:** Data from NHS England, which is included in the
9 pack for this hearing states that in England alone, up
10 until June 2021 there were 65,000 hospital acquired
11 infections, either falling into the first two
12 categories, the definite or probable, and that's only up
13 until June 2021 and only in England. So I think that
14 both national data and the data from this, the estimates
15 from this, converge on that figure of being well in
16 excess of 100,000 people.
17 **MS CAREY:** If we think about -- I don't know if you heard
18 Professor Hopkins' evidence yesterday in relation to
19 some Public Health England data that looked -- that
20 found that between March 2020 and April 2021, for
21 hospital onset definite healthcare associated figures,
22 they were nearly 30,000, of which 9,854, almost a third
23 of those people died.
24 **DR WARNE:** Yes.
25 **MS CAREY:** That's just to sort of try and bring the two

1 strands together.
2 In the report, with that sort of headline figure in
3 mind, you looked at variation by patient population.
4 It's at your paragraph 11.15, but help us with some of
5 the variations that were noted across the patient
6 populations.
7 We were aware of age --
8 **DR WARNE:** Yes, so age is an important factor that they were
9 more likely to have hospital-acquired infections. The
10 type of hospital affected the proportion of
11 healthcare-associated infections. So, for example,
12 those in community hospitals, excepting community cases
13 of Covid, had an overall lower proportion, whereas
14 mental health trusts, community trusts, where patients
15 are resident for longer and they wouldn't generally
16 admit community-acquired cases, in turn had a higher
17 proportion.
18 But also patients with a higher number of
19 comorbidities were also more likely to have
20 a hospital-associated infection.
21 **MS CAREY:** In that regard you say that they are more likely
22 "the proportions of patients with a Charlson index".
23 I don't know what that is. Could you help us?
24 **DR WARNE:** The Charlson index is a well established term
25 used in epidemiology. It's a simple scoring system

1 where the more comorbidities you have, the higher your
2 score. So, for example, you might get a set number of
3 points for a cancer diagnosis or diabetes, and the more
4 comorbidities you have the higher your score.
5 **MS CAREY:** All right.
6 So if you are old, more risk of contracting it in
7 hospital, co-morbid -- at higher risk, understood, and
8 depending on, potentially, where you were a patient,
9 at higher risk?
10 **DR WARNE:** Yes.
11 **MS CAREY:** We looked yesterday, and I don't need to look at
12 it with you, but geographical variations existed,
13 certainly in terms of England. The outcomes of patients
14 with healthcare-acquired Covid, I think you say it's
15 challenging to work out the outcomes. Can you help us
16 with your summary at paragraph 11.26?
17 **DR WARNE:** Yes. So the crude, so in terms of outcomes that
18 we measure, mortality is the one that we can most
19 readily measure and it's the one that's been most widely
20 reported. The mortality in people with
21 hospital-acquired Covid at the start of the pandemic was
22 very high, in excess of 40% in some weeks. Some studies
23 that found that if you adjusted for other things that
24 dispose you to severe Covid, like age, like
25 comorbidities, actually that adjusts out to be the same

1 as a community-acquired infection, it's just that our
2 hospitals are full of people who are older, vulnerable,
3 have comorbidities.
4 **MS CAREY:** So it's very difficult to work out the outcomes
5 I think for the reasons.
6 What about -- I think in your report you included
7 some data from Scotland. Are you able to summarise that
8 for us and what you could tell us about the outcomes?
9 **DR WARNE:** Yes. So we have peer-reviewed studies published
10 from England, Scotland and Wales which look at issues of
11 hospital-associated infection, so if we look at -- so
12 it's in paragraph 11.21 here, that's where they quote
13 that if you adjust for age and morbidity, actually the
14 mortality in patients with hospital-associated Covid
15 isn't necessarily different from community-acquired.
16 They also point out that -- in subsequent -- no,
17 apologies, that's a separate study.
18 **MS CAREY:** I was just looking at the Scottish data.
19 **DR WARNE:** In figure 12 in this report.
20 **MS CAREY:** Yes.
21 **DR WARNE:** This was the point I was wanting to make. That
22 the mortality, the number of patients that died of
23 hospital-acquired infection changed over the course of
24 the pandemic. So while it was very high with the
25 original variant of the virus, with each subsequent new

1 variant, Alpha, Delta, Omicron, the mortality for each
2 of these different categories reduced.
3 **MS CAREY:** Can you help us with why that might be or the
4 reasons why?
5 **DR WARNE:** It's probably a combination of things. There was
6 a significant drop in mortality associated with
7 vaccination, once the vaccines were rolled out. There
8 also appeared to be -- each subsequent variant to
9 an extent was less virulent than the prior one, so less
10 likely to cause severe disease.
11 **MS CAREY:** I think you said in the report that there was
12 an ARHAI study that found that inpatients who had been
13 vaccinated with either one, two, or three or four doses
14 had lower odds of death within 28 days compared with
15 those who had not been vaccinated.
16 **DR WARNE:** Yes.
17 **MS CAREY:** Understood.
18 I think those are dealing with outcomes of patients.
19 Can I ask you about infections of healthcare workers
20 that were in hospitals, please. Again, can we look at
21 the summary of your conclusions and then perhaps work
22 back and look at some of the examples.
23 What were you able to ascertain in relation to Covid
24 infections acquired in hospital by healthcare workers?
25 **DR WARNE:** So the rates of infection -- a number of studies

1 have shown that the rates of infection in healthcare
2 workers are higher than the general population, and that
3 this is associated with higher rates of staff absence,
4 and that that is a combination of the direct infections
5 with the virus but also due to other issues, so
6 exacerbations of mental health, a range -- stress,
7 burn-out related to Covid-19.
8 **MS CAREY:** Go on. Did you want to add something?
9 **DR WARNE:** Not yet.
10 **MS CAREY:** All right.
11 So higher rates of infection in healthcare workers
12 than in the general population, and I think there are
13 various studies that you have set out. There was
14 a particular study done though by the Nuffield Trust on
15 staff absences, and I want to be clear about whether
16 that deals with staff absences over the pandemic because
17 of the pandemic, as in directly people got Covid, or
18 were a consequence/byproduct of the pandemic.
19 Can you have a look, please, at your paragraph 11.29
20 and help us with what the Nuffield Trust found?
21 **DR WARNE:** So this is a report which looked at staff
22 absences in the UK pre -- during the pandemic, and they
23 show data in figure 13 from 2014 up until mid-2022.
24 What they show is that pre-pandemic there were staff
25 absences that peaked every winter and that these were

1 between 4 and 5% of staff at any one time, likely
2 an underestimate because of under-reporting.
3 With each wave of the pandemic, the first and second
4 wave, there was a spike in absences.
5 **MS CAREY:** Yes.
6 **DR WARNE:** Likely they attribute to direct infection of the
7 virus, but then with the advent of Omicron that -- the
8 rates were persistently increased, they didn't go back
9 to their normal baseline. And the report gives a number
10 of reasons for this, including the direct effect of
11 Covid or Covid complications, chest infections, but also
12 higher rates of mental health problems, burn-out,
13 stress, and a range of other conditions which are
14 perhaps not directly related to the infections caused by
15 Covid but a lot of the side effects of the pandemic.
16 **MS CAREY:** So if I understand you correctly, is it possible
17 to say then that where there is an absence, whether it's
18 because the person's got sick from Covid or it's -- do
19 we know whether they have gone off sick because of the
20 stress, they've burnt out, can you draw that distinction
21 from the data alone?
22 **DR WARNE:** There are problems with the way that it's
23 reported, et cetera, but if you look at paragraph --
24 sorry, (e) here, they suggest that as much of that --
25 that rates due to infection, cough, flu-like illnesses

1 up -- increased to 27% compared to 10% in pre-pandemic
2 times, but mental health increased 26% over the same
3 period. So it's probably a combination of different
4 factors.
5 **MS CAREY:** I'm asked to ask you this, whether there is
6 a link between the high rates of infection in healthcare
7 workers and the failure to recognise airborne
8 transmission of Covid.
9 Are you able to opine on that at all or is it simply
10 not possible to say?
11 **DR WARNE:** Would you mind repeating the question?
12 **MS CAREY:** Yes, it was: is there any link between the high
13 rates of infection in healthcare workers and the failure
14 to recognise airborne transmission of Covid prior to
15 early 2022?
16 **DR WARNE:** I think it's a very complicated area to address,
17 and later in the report we address the various ways by
18 which healthcare workers may become infected.
19 I don't -- there are a number of different steps
20 between the recognition that Covid may be airborne
21 through to rates of healthcare worker absence, and that
22 path is quite complicated, so I don't think it's
23 direct --
24 **MS CAREY:** Is there any data that would suggest there is
25 a link between higher rates of Covid infections acquired

1 in hospital for healthcare workers and a rise in
2 community infections?
3 **DR WARNE:** The other way round is true, that if there are
4 higher rates in the community there are higher rates in
5 healthcare workers.
6 **MS CAREY:** Acquiring it in hospital. That's what I was
7 trying to get at, it's my fault.
8 **DR WARNE:** No, I see. So the data that -- isn't really
9 included in the report, and that I've read, suggests
10 that the chance of healthcare worker infections --
11 acquiring it in the community is higher at times of high
12 community prevalence. When community prevalence falls
13 and you have persistent transmission in hospital, the
14 chance of getting it in hospital is higher.
15 **MS CAREY:** The sources of transmission, please, in hospital.
16 In your report you separate individual factors from
17 environmental factors. Can I ask you about, firstly,
18 individual factors. It's at your page 123.
19 Obviously there's a number of ways one can acquire
20 the infection but what are the individual factors,
21 please?
22 **DR WARNE:** For patients or for healthcare workers?
23 **MS CAREY:** Dealing with patients firstly.
24 **DR WARNE:** So we know the majority of patients who acquired
25 Covid in hospital are infected by other patients. One

1 of the major issues is not recognising a patient who
2 developed Covid while they were in hospital, and
3 spreading it before their diagnosis was made.
4 We know that on arrival to the hospital, sometimes
5 if there was limited isolation capacity in assessment
6 areas, that people with Covid and without Covid would be
7 cohorted together in the same space while they were
8 awaiting test results to guide them towards either
9 a Covid ward or a non-Covid ward.
10 We know there are patients who did not present with
11 typical symptoms of Covid, where a diagnosis was not
12 considered. So, for example, particularly in elderly
13 populations, they may present with atypical symptoms
14 like diarrhoea or gastrointestinal symptoms rather than
15 the classic fever, cough, breathlessness.
16 And we have alluded to it before, but the
17 asymptomatic rates are incredibly important in patients,
18 in staff and potentially in visitors.
19 **MS CAREY:** You separated the individual factors between
20 patients and healthcare workers. Is there anything you
21 would like to say about healthcare workers and the
22 individual factors or is that more the environmental
23 factors?
24 **DR WARNE:** So the same applies to healthcare workers, the
25 rates of asymptomatic or presymptomatic infection in

1 potential transmission. There's a -- I think
2 a phenomenon that happened during the pandemic where
3 people with perhaps mild symptoms who were able to come
4 to work felt they were duty bound to do so to try to not
5 let down their teams, their colleagues and because they
6 felt compelled to do work for the pandemic.
7 Particularly people who had minimal symptoms or very
8 mild symptoms of Covid.
9 **MS CAREY:** Is that the phenomenon known as --
10 **DR WARNE:** As presenteeism.
11 **MS CAREY:** Presenteeism, as opposed to absenteeism. So
12 trying to do the right thing, essentially, but actually
13 bringing in -- potentially --
14 **DR WARNE:** Potentially.
15 **MS CAREY:** -- the virus. Understood.
16 Any environmental factors?
17 **DR WARNE:** Anything that facilitates meeting of people in
18 hospital where there are ineffective controls. So one
19 of the major things is about ventilation and the age of
20 the NHS estate, so you're -- with poor ventilation, so
21 that Covid can potentially remain in the air and the
22 environment for prolonged periods of time.
23 Many NHS hospitals have a limited amount of
24 side-room capacity, which makes isolation very
25 challenging. We have a number of old-fashioned hospital

1 wards where they have large open bays with large numbers
2 of patients in them, which can, again, facilitate the
3 transmission of the virus, as well as a variation in IPC
4 practices that we've already discussed and how well
5 they're utilised.
6 And Dr Shin has mentioned earlier on that towards
7 the end of the first wave of the pandemic we got better
8 at staff break-out areas and providing non-clinical
9 areas and how they should be worked. I think that at
10 the start of the pandemic we were less effective at
11 that.
12 **MS CAREY:** Okay.
13 **DR WARNE:** And that sometimes -- these -- particularly staff
14 areas are less well ventilated, can be quite cramped.
15 **MS CAREY:** I was going to ask you about is there any data or
16 anything you can add about what we know about
17 transmission in non-clinical areas?
18 **DR WARNE:** So we know that it happens, we know that -- so
19 this is areas where we might have office space,
20 for example, or break-out areas. It's very difficult to
21 try to get that kind of information because we don't
22 have the same level of data that we do about patient
23 movements, but we have identified clusters of healthcare
24 workers who don't work in clinical areas who have
25 transmitted the virus between them, so it's certainly

1 possible, as you would find in social settings in the
2 community as well.
3 **MS CAREY:** I think you make the point in your report that
4 there are certain occupational groups that had higher
5 rates of healthcare workers infections, notably domestic
6 services staff, nurses and healthcare assistants.
7 Can you help as to why there was certain groups of
8 staff that had higher rates of healthcare-acquired
9 Covid?
10 **DR WARNE:** So some of them were exposed more to Covid-19
11 patients, so these are people that work in acute
12 specialties, in front -- in emergency department,
13 for example, in acute medicine, you would receive
14 Covid-19 patients. There is an observation which has
15 been replicated on multiple instances that higher rates
16 were observed in healthcare workers from minority
17 ethnicity, even accounting for the job role which they
18 undertook, and there were rates that were higher in, as
19 you mentioned, domestic services staff, nurses,
20 healthcare assistants, porters, people who had frequent
21 direct contact with patients.
22 **MS CAREY:** Do you know if there was any data dealing with
23 healthcare-acquired infections for migrant workers?
24 **DR WARNE:** I'm not aware that specifically differentiated
25 migrant workers from other types of working.

1 **MS CAREY:** We have looked at patients, looked at healthcare
2 workers; what about the role of visitors in transmitting
3 the virus and adding to the burden of Covid being
4 acquired in hospitals?
5 **DR WARNE:** So the level of data and quality studies we have
6 on visitors is much, much, much lower than we have for
7 patients and for healthcare workers, partly because, as
8 I mentioned, we have good data on who our patients are,
9 where they are, when they get tested. The same is true
10 with healthcare workers when we introduced staff
11 screening. But we keep no records of who visits our
12 patients, we don't know what happens to them after they
13 leave the hospital, and therefore it's very difficult to
14 be able to understand the role that they have in
15 transmission events.
16 **MS CAREY:** Clearly if the visitors are asymptomatic, harder
17 still to determine any data. Understood.
18 May I just deal with a couple of discrete topics
19 before returning to the recommendations that you all
20 made at the beginning of your evidence. I'm asked to
21 ask you whether you would -- could particularise the
22 precautions that should have been recommended for
23 healthcare workers for patients that are infected or
24 suspended to be infected with Covid.
25 I don't know who feels best qualified to answer

1 that, but I think essentially I want to know what you
2 would have recommended in the IPC guidance to protect
3 those looking after infected or suspected infected
4 patients.
5 **DR WARNE:** Is that with particular regard to PPE?
6 **MS CAREY:** Yes, I would have thought so.
7 **DR WARNE:** I think we ... I can imagine this particularly
8 refers to FFP masks.
9 **MS CAREY:** Yes.
10 **DR WARNE:** I think we've already said that -- I'm of the
11 view that the balance of evidence as we have it now is
12 that FFP respirators would provide more protection for
13 healthcare workers than surgical masks.
14 In addition to the wide range of other measures that
15 were taken in terms of PPE, isolation, I would point
16 out, because it hasn't quite come up yet, is that
17 although patient to healthcare worker transmission is
18 important, in -- there is also an enormous contribution
19 of healthcare worker to healthcare worker transmission,
20 where FFP3 masks would not be recommended, and the
21 majority of that actually happens in non-Covid clinical
22 areas where FFP3 masks aren't routinely worn.
23 **MS CAREY:** Just thinking about that practically, is that
24 healthcare to healthcare in a staff room or in
25 a canteen; is that the kind of thing that you're

1 speaking of?
2 **DR WARNE:** We don't know. Potentially in staff areas,
3 potentially in canteens, potentially in a car on the way
4 to work, potentially in a clinical area where, you know,
5 PPE was not used or at least to the same extent in the
6 direct care of patients. It's not clear where that
7 happens. But we know from genomic epidemiology studies
8 that people who work together on the same ward,
9 healthcare workers can trans -- or part of the same
10 transmission network where the virus is transmitted
11 among healthcare workers in that clinical area -- or
12 they can't specify exactly where on the ward that
13 happened, or in -- outside the ward setting.
14 **MS CAREY:** Can I return to the precautionary principle, and
15 I think to you, Dr Shin.
16 Clearly it's an approach to trying to mitigate the
17 risks of the virus. You spoke about HCID being
18 an example of the precautionary principle in practice,
19 but by reference to your paragraphs 12.43 onwards, do
20 you have any observations about the use of the principle
21 or overuse of people demanding the precautionary
22 principle? Help us please with your observations.
23 **DR SHIN:** I think in retrospect, you know, I think it's now
24 clear that -- well, in my mind -- that Covid is
25 transmitted through the airborne route. So with that in

1 mind, I would agree with the earlier response that FFP3
2 would be what I recommend.
3 In terms of precautionary principle, I think it is
4 part of our recommendation that in a future pandemic
5 that we would suggest that before PPE steps down you
6 need evidence that that would -- is a safe step to take,
7 rather than step down and -- as evidence mounts that you
8 should have RPE, then do it that way, which is what
9 happened in this case. So I think if we were faced with
10 a similar situation, which I hope we're not for a long
11 time, then we would suggest that -- we can understand
12 why there are loud voices calling for precautionary
13 principle for PPE and I think that would be more -- all
14 of our workforce would be more reassured if that
15 precautionary principle was applied in a future
16 emergency so that we only step down PPE when evidence
17 showed that that was reasonable and safe to do so.
18 **MS CAREY:** So where there is an absence of evidence about
19 the route of transmission, start with the highest level
20 of protection and as you work out the routes, as the
21 evidence emerges, then make a decision to step down if
22 that's appropriate. Is that it?
23 **DR SHIN:** I think that's probably our consensus view.
24 **MS CAREY:** All right.
25 Can I return to lessons learned, your conclusions

1 and recommendations, please. I would like to ask you
2 about a few recommendations that you set out in your
3 report before coming back to the ones that you spoke of
4 this morning. I'm not going to go through them all but
5 can I ask about recommendation A, and you subdivided
6 those into various categories, and it's
7 recommendation A(v), you say:
8 "We are aware of variations in PPE adherence across
9 the NHS and even within NHS organisations ... The best
10 quality PPE will not help protect staff if they do not
11 use it, or [don't] use it properly. We recommend that
12 in a future pandemic or ... epidemic ... IPC training is
13 sufficient quality to inform [healthcare workers] the
14 threat posed, what PPE to use, why and when."
15 It may be your remit, Professor Gould, but why are
16 you -- how is that going to be sort of achieved, is
17 essentially what I wanted to ask.
18 **PROFESSOR GOULD:** Could you repeat the --
19 **MS CAREY:** Yes, if you have a look, please, at your
20 page 134, and recommendation A(v) -- and if it's not
21 you, one of the doctors, I know, will step in, but ...
22 **PROFESSOR GOULD:** It wasn't my particular recommendation.
23 **MS CAREY:** But if we're trying to get staff to adhere to
24 PPE, clearly training is a part of that, and would that
25 go back to training from the get-go when people are

1 trying to become nurses, healthcare assistants --
2 **PROFESSOR GOULD:** Yes, people would need adequate training
3 so that one could build on it later on when they come
4 into practice.
5 **MS CAREY:** And what about those who are already practising?
6 **PROFESSOR GOULD:** They would need updates.
7 **MS CAREY:** Yes.
8 **PROFESSOR GOULD:** And they would need regular updates.
9 **MS CAREY:** And is there a sort of continuing professional
10 development regime that could accommodate?
11 **PROFESSOR GOULD:** There should be. And of course it has
12 been renewed with the new recommendations -- the new
13 educational approaches to do with the launch of the
14 national manuals. A lot, I would suspect, probably
15 still depends on the particular organisation where
16 people work.
17 The other thing is that with equipment that people
18 don't use very often, they have to be refreshed very
19 often how to use it because people reasonably -- quite
20 reasonably -- forget, so they would have to have regular
21 updates.
22 **MS CAREY:** We referred there to nurses and other members of
23 clinical staff having training. What about training for
24 non-clinical staff? Is that realistic? How practical
25 is that?

1 **PROFESSOR GOULD:** It would depend on the degree of -- it
2 would depend on what they did, but if people are going
3 to come into contact with patients then, yes, they would
4 require training. People who never see a patient, it
5 would not be relevant to them.
6 **MS CAREY:** What about outsourced workers?
7 **PROFESSOR GOULD:** Could you give me an example?
8 **MS CAREY:** It was one of the questions I was asked to ask
9 while I was on my feet, so no, but I would imagine those
10 that aren't trained within the NHS. As I understand it
11 a number of workers working in healthcare aren't
12 employed by NHS trusts but are outsourced from agencies
13 and the like. I'm just trying to think about
14 practicalities of training for that cohort of staff.
15 **PROFESSOR GOULD:** I would think that people like agency
16 nurses. Many -- many NHS organisations have what they
17 call bank staff, which will be people who work on
18 a regular or irregular basis but they draw on the same
19 people. Those people should have training.
20 Many years ago I was a bank nurse myself and people
21 did receive training before they were able to join the
22 scheme, and in an ideal world they would have updating.
23 But it also needs to be pointed out that many people
24 who do agency work and bank nurse work are employed
25 full-time elsewhere and would be -- they would have,

1 you know, a regular job as well, so they would receive
2 their updating there.
3 **MS CAREY:** Thank you.
4 There was a recommendation at D for a single source
5 of official IPC guidance to be available throughout the
6 UK, and the first question I suppose really is: what is
7 meant by a single source?
8 **PROFESSOR GOULD:** Well, the principles of infection
9 prevention are the same everywhere. The principles of
10 breaking the chain of infection are the same everywhere,
11 so it would be sensible to have one single source
12 instead of dividing up efforts and producing multiple
13 sources.
14 **MS CAREY:** Given that health is devolved though, I suspect
15 the question really is how achievable is that, given
16 that each nation is responsible for their own healthcare
17 systems.
18 **PROFESSOR GOULD:** Well, I think that people in those
19 four nations do speak to one another, so I would think
20 that that probably wouldn't be out of this world.
21 I think it would be achievable.
22 **MS CAREY:** Is it necessary, given that the NIPCM either is
23 the manual or is the manual upon which the other
24 guidelines are based, do you still think that it is
25 necessary to have a single source of IPC guidance?

1 **PROFESSOR GOULD:** I suppose I have a nice tidy mind, so --
2 but, in fairness, the manuals don't try to propose
3 different principles, so I think that you would want
4 a degree of commonality between all of them, it wouldn't
5 do if they all looked differently, and of course people
6 do move between the nations that they work in.
7 **MS CAREY:** Your recommendation E, Professor, I think, may in
8 part align with your recommendation for guidelines to
9 win hearts and minds. You asked for education and
10 training for all staff, and I think we've covered the
11 reasons for that. But given everything we've discussed
12 today, is there anything particular that you think would
13 help win the hearts and minds and help the guidelines to
14 be more closely followed and more bought into, for want
15 of a better phrase?
16 **PROFESSOR GOULD:** Education for people before they come into
17 their professional roles in the universities is not
18 particularly good. I know more about nursing because
19 I am a nurse, but I did try very hard when writing the
20 documents to find out about the other professional
21 groups. So I tried to find out what physiotherapists
22 are taught, remembering that physiotherapists do a lot
23 of respiratory interventions and would be in the firing
24 line, and it was very hard indeed to find somebody who
25 could tell me about the physiotherapy curriculum, and

1 that was true of many of the other professions.
2 So it does worry me that we don't know or we can't
3 easily get hold of what people are taught. It would be,
4 I think, an advance if people had a better basis for
5 infection prevention in pre-registration training.
6 I know that there is a lot of variations between
7 universities and the number of hours that are put in.
8 **MS CAREY:** Thank you.
9 One of the other recommendations, recommendation J,
10 is that you recommend there should be a single UK-wide
11 organisation or process with oversight of
12 healthcare-associated infection.
13 I don't know if this is your remit, Dr Warne, but
14 what was envisaged by that recommendation?
15 **DR WARNE:** All of the -- to be able to understand infection
16 prevention and control we need to understand the
17 numbers, the surveillance, the numbers of
18 hospital-acquired infections, the interventions which
19 may be used to reduce them. That requires collation of
20 a wide range of data sources, literature reviews we've
21 already discussed as -- in a rapidly moving field, and
22 decision-makers and people who produce guidelines, that
23 needs a consistent unified process, even if it's
24 slightly different people or different groups of people
25 who do each of those things, to ensure that that

1 guidance is consistent and the best quality that we can
2 provide.
3 **MS CAREY:** Finally you, Dr Shin, earlier this morning you
4 advocated for better understanding of ventilation in
5 hospitals. We haven't touched on it, but we're aware of
6 HEPA filters, UV lights, where it's not possible to tear
7 down a roof and install new ventilation. Why is it that
8 you have proposed as your headline recommendation better
9 research and better understanding of the role of
10 ventilation?
11 **DR SHIN:** So it was ventilation and isolation. But in terms
12 of ventilation, this being a respiratory virus, that was
13 obviously a very significant risk factor for the NHS.
14 Many hospitals are old and are not well suited to face
15 such a -- a threat like this, so in the future it would
16 be much better if we can -- ideally, long term,
17 hospitals should have improved ventilation in general,
18 as you hinted. We know that's difficult. So there are
19 short-term solutions, for example portable HEPA-filtered
20 air filtration units are one possible short-term
21 measure. And in Professor Beggs' report, he talks about
22 an ultraviolet -- a high-mounted ultraviolet filtration
23 system, which looks to me, as a non-engineer, like it
24 might be something feasible to retrofit to some
25 high-risk ward areas in hospitals.

1 So I think risk mitigation measures should be looked
2 at to make sure that our environments are safer, but
3 I don't want to lose sight of increased isolation
4 capacity as part of the recommendation as well.
5 **MS CAREY:** Yes.
6 Apart from building more hospitals, I was just
7 trying to think about how, practically, you could
8 recommend that -- you say:
9 "We recommend that the overall NHS isolation
10 capacity should be increased over the next
11 5-10 years ..."
12 Apart from the rebuilding programme, how else might
13 that be achieved?
14 **DR SHIN:** So we are trying to do something like this at the
15 moment with limited resources. What might be possible
16 is for certain ward designs -- which are very open plan,
17 open layout -- which might be convenient for peacetime,
18 but in a pandemic situation that is a risk, so it could
19 be possible to increase segmentation within the ward,
20 which is kind of a halfway house, to full isolation, but
21 it would probably reduce risk.
22 So instead of having, like, three or four bays,
23 having, you know, a domino effect of infections, you may
24 be able to contain it, say, in one bay, rather than
25 allow it to spread further.

1 So I think we'd have to -- I think we should look at
2 all of our hospital estate and say: what can we
3 reasonably do in a short space of time and also long
4 term?
5 **MS CAREY:** Thank you very much.
6 My Lady, those are all the questions I have for the
7 experts.
8 **LADY HALLETT:** Thank you very much.
9 I hope you were warned that we have another break in
10 the afternoon, but I promise you the next session will
11 be the last and you will be gone this evening.
12 So I will return at 3.10.
13 **MS CAREY:** Thank you, my Lady.
14 **(2.55 pm)**
15 **(A short break)**
16 **(3.10 pm)**
17 **MS PEACOCK:** I ask questions on behalf of the Trades Union
18 Congress.
19 I would like to address the infection risk
20 associated with specific healthcare roles. In your
21 report in section 11, and in Dr Warne's evidence today,
22 it has been explained that certain occupational groups
23 had higher rates, most notably domestic services staff,
24 nurses and healthcare assistants, and you also mention
25 porters and certain therapist roles.

1 Dr Warne has mentioned in evidence the influence of
2 having more exposure to Covid-19 patients, and in your
3 report in section 10 Professor Gould, as the lead
4 author, explains that nurses and healthcare assistants
5 provide most of the frontline care: it is here that the
6 risk of spreading and contracting Covid is highest.
7 My question, however, focuses specifically on
8 domestic services staff and porters. Are you able to
9 identify any aspect of the role or the working
10 conditions of domestic service staff and porters which
11 may contribute to the higher rates identified?
12 I think it's for Dr Warne, but perhaps also
13 Professor Gould.
14 **DR WARNE:** So I am not aware of any report that specifically
15 addresses that exact question, but we know that the
16 majority of healthcare worker infections that are
17 attributed to patient transmission are in non-Covid
18 clinical areas, and what those staff members that you've
19 mentioned have in common is that they move between
20 clinical areas. So, for example, the role of a porter
21 is to take patients between clinical areas -- part of
22 their role is to move between different clinical areas
23 with patients.
24 So -- and we know that staff that move between
25 clinical areas, from other studies, are at higher risk

1 of acquiring Covid. So that is potentially one route
2 but, again, I have not seen any specific study that has
3 addressed that.
4 I might pass it on to my colleagues: have you
5 noticed or seen any ...?
6 **PROFESSOR GOULD:** I've never seen anything written about
7 that. I would agree with what has been said. I can't
8 think of any other logical reason. These people are --
9 you now, they are peripatetic, they go around the
10 hospital. They would also come into contact with
11 visitors in general hospital areas, and that might have
12 some contributory effect.
13 **MS PEACOCK:** Thank you.
14 Just to perhaps drill down into what could be a
15 potential other area just to test it: if workers within
16 a particular role have less access, for example, to
17 training on IPC measures, to IPC guidance or to PPE,
18 could that also be a feature of higher infection risk in
19 a particular role?
20 **DR WARNE:** So, perceived lack of access to PPE and lack of
21 training has been identified as a risk factor for
22 healthcare worker infection in the first wave, but
23 that's based on self-reporting of training and
24 self-reporting of PPE access.
25 So, again, I'm not necessarily aware of any studies

1 that have systematically looked at that.
2 **PROFESSOR GOULD:** No, neither have I.
3 **MS PEACOCK:** Thank you.
4 Building on some of the evidence today around the
5 essential role of IPC leads and teams and the importance
6 of clearly communicating guidance to workers, are there
7 any additional challenges faced in reaching non-clinical
8 staff who were not directly employed by the trust? So,
9 for example, outsourced and agency cleaners and porters.
10 Professor Gould has mentioned bank staff receiving
11 training, but where the staff are not employed by the
12 NHS but by another company, such as a company providing
13 cleaning staff, as far as you're aware, does that
14 introduce additional challenges in ensuring they hear
15 about updates to guidance or specific plans for
16 approaching IPC within that hospital?
17 **PROFESSOR GOULD:** It would be a complication, but most
18 reputable cleaning companies would provide trained
19 staff, so they will be trained as cleaners and they
20 would be trained with infection risks.
21 **MS PEACOCK:** And to your knowledge, how good is --
22 apologies.
23 **DR SHIN:** Just to add to that, I think it's a particular
24 consideration with outsourced staff and the groups
25 you've mentioned, and we have some of those, and the

1 communication cascades, which we talked about earlier
2 today, is -- a lot of it's by email and our emails are
3 nhs.net, and whether staff not employed by our trust get
4 those nhs.net emails I'm not certain, and that could be
5 an area where the communication is not as efficient as
6 we'd like, potentially. But I don't know for certain
7 that's the case. But I'm sure that would vary a lot
8 from hospital to hospital.
9 **MS PEACOCK:** And to your knowledge, is there sufficient
10 oversight of the training and the guidance and these
11 emails that are being provided? Could that be improved
12 upon?
13 **DR SHIN:** So the emails I'm talking about are really
14 highlighting to staff that there's a change to guidance
15 which are usually often put on our hospital intranet,
16 which is accessible to our staff, meaning primarily NHS
17 employed staff, and the level of access to those online
18 resources in our hospital for the outsourced staff I've
19 mentioned, again I'm not -- I don't have enough
20 knowledge to date to answer that question now.
21 **MS PEACOCK:** So is it a fair summary that there may be
22 additional challenges to getting messages and training
23 to these staff, and there might not be the right level
24 of oversight as to what information and updates they are
25 receiving?

1 **DR SHIN:** That is a possibility.
2 **MS PEACOCK:** I'm grateful, my Lady, those are my questions.
3 **LADY HALLETT:** Thank you very much, Mrs Peacock.
4 Ms Weeraratne.
5 **Questions from MS WEERERATNE KC**
6 **MS WEERERATNE:** Thank you.
7 Good afternoon. I ask questions on behalf of Welsh
8 bereaved families. Many members of this group
9 experienced loss of loved ones through nosocomial
10 infection.
11 My first question is on the precautionary principle,
12 which I believe should be addressed to Dr Shin. You
13 considered that -- and we were taken to it by CTI -- at
14 paragraph 12.42 of your report onwards.
15 At 12.43 you say that the precautionary principle is
16 an approach to risk mitigation in the face of
17 potentially serious threats amid scientific uncertainty.
18 Following on from, that you say at 12.45 that it is
19 harder to apply the precautionary principle when the
20 threat is on a massive scale because it risks exhausting
21 supplies of PPE for which the precautionary principle
22 advocates.
23 Now, I know you have made some recommendations,
24 which you have also already been taken to, in relation
25 to the declassification of the pathogen and HCIDs and

1 commensurate levels of PPE, but I'm asking you about
2 12.45, leaving aside HCIDs, and more broadly.
3 So my question is: do you agree that, firstly and
4 put simply, assessing a risk or threat and uncertainty
5 in scientific evidence and applying the precautionary
6 principle, that is a different and prior process to the
7 drafting of suitable IPC guidance to meet that risk;
8 would you agree?
9 **DR SHIN:** I think I agree with what you've said, yes. We've
10 said in the previous session that we would, in a future
11 pandemic, support the precautionary principle and only
12 step down measures like PPE and other IPC measures when
13 evidence -- there's evidence that that's safe to do so.
14 But, as we said -- and you just highlighted that
15 section of the report -- if and when the risk we're
16 trying to control is on a massive scale like in this
17 pandemic and we face supply challenges that we've
18 discussed earlier today, then it may be impractical to
19 do that, even though that's what is recommended and what
20 everyone intends --
21 **MS WEERERATNE:** Yes.
22 **DR SHIN:** -- to do so.
23 **MS WEERERATNE:** I'm so sorry, I've only got limited time, so
24 I'm just going to jump back to my question, and that's
25 really that: whilst there's a relationship between PPE

1 supplies at some point and the risks that's assessed,
2 but my question was that at the point of assessing the
3 risk and the uncertain scientific evidence, that that is
4 a prior process to considering suitable IPC guidance to
5 meet the risk, including availability of PPE.
6 **DR SHIN:** I'm not sure how you can separate the availability
7 of the PPE. If you make guidance which cannot be
8 implemented, and --
9 **MS WEERERATNE:** So that's the guidances, I'm saying
10 a separate process to the risk assessment. Risk
11 assessment comes first, and then you turn to guidance
12 and availability of PPE.
13 **DR SHIN:** Yes.
14 **MS WEERERATNE:** Would that be right? Two stages, in effect.
15 **DR SHIN:** That's a fair assessment, but then we've also
16 heard today that even if guidance is published there is
17 often, you know, a caveat at the end saying there can be
18 local risk assessment which may affect how this is
19 applied locally, for example.
20 **MS WEERERATNE:** Yes, so we're then looking at application of
21 the principle. I was looking more at the actual risk
22 assessment prior to the application or the
23 implementation.
24 **DR SHIN:** Yes.
25 **MS WEERERATNE:** So there was a two-stage process. I think

1 you have agreed with me, Dr Shin, I'm going to move on.
2 **DR SHIN:** I think I'm generally agreeing with what you're
3 saying, yes.
4 **MS WEERERATNE:** Thank you so much. Because again, once the
5 precautionary principle applies because there's a
6 serious threat -- and I think you said there's -- you
7 described it earlier today as facing a rising tide of a
8 very dangerous, lethal virus in early 2020 -- and then
9 the uncertain science, then you look at what measures
10 and steps are appropriate and available to guard against
11 that risk that's identified. A slightly different way
12 of putting the same point.
13 **DR SHIN:** I think we're agreeing.
14 **MS WEERERATNE:** Yes, okay.
15 So let me then move on, then. So if you end up in
16 a position where there precautionary principle clearly
17 applies, but you require a level of protection through
18 PPE that's known to be in short supply, I think you will
19 agree -- because I'm going to quote something that you
20 have written -- that policymakers have a responsibility
21 to be transparent about decision-making, including
22 whether logistical challenges or resource constraints
23 have influenced their decisions. Is that right?
24 **DR SHIN:** Again, I think we're broadly agreeing here.
25 **MS WEERERATNE:** Good. Well, I do quote that from your

1 recommendation, actually, so I'm expecting and hoping
2 that you agree.
3 **DR SHIN:** On that point, I think a point we're trying to
4 make is that when guidance et cetera is produced, we've
5 argued for greater transparency in how that's arrived at
6 and also who's involved in drawing up that guidance.
7 So, again, I think we're broadly speaking on the same
8 page.
9 **MS WEERERATNE:** Yes, I think that's right, but -- so I call
10 it the honesty principle, which is I'm going to ask you:
11 does it lead to less confusion and better understanding
12 all round for practitioners and governments to have that
13 kind of openness and transparency?
14 **DR SHIN:** Yes.
15 **MS WEERERATNE:** Thank you.
16 So I'm going to move on, then, to my next question,
17 which is -- hopefully in time -- at paragraph 9.27,
18 which is Dr Warne.
19 In that paragraph, Dr Warne, that --
20 **DR WARNE:** Yes.
21 **MS WEERERATNE:** -- applies to guidelines for the roll-out of
22 asymptomatic staff testing using lateral flow devices,
23 and that was published by the NHS in November 2020,
24 making twice-weekly screening available for all NHS
25 staff and acute hospitals across the UK.

1 You see that?
2 **DR WARNE:** Yes.
3 **MS WEERERATNE:** So, however, it appears that in Wales
4 asymptomatic staff testing was not in fact started until
5 the middle of March 2021, and possibly not as late as
6 July 2021 in some areas.
7 So the question is: do you agree that this delay in
8 implementation exposed patients to the risk of infection
9 from healthcare workers?
10 And in asking that question, I bear in mind what
11 you've said about the transfer of infection from
12 healthcare workers to healthcare workers and patients to
13 patients in your earlier evidence.
14 **DR WARNE:** So I think they would have increased the risk of
15 transmission from healthcare workers -- asymptomatic
16 healthcare workers to patients. The absolute increase
17 in numbers may have been small in comparison to other
18 routes of transmission, but there is an increased risk.
19 **MS WEERERATNE:** An increased risk, thank you very much.
20 Again to you, Dr Warne: on hospital-acquired
21 infection rates, at paragraph 11.16.3 of your report you
22 provide some statistics about hospital onset cases
23 during the first wave in England, represented by 5.3% of
24 all laboratory confirmed Covid cases.
25 Are you with me?

1 **DR WARNE:** Yes.
2 **MS WEERERATNE:** And in Scotland, being 6.4% of all confirmed
3 cases, and in Wales being 10.5% of all laboratory
4 confirmed Covid-19 cases.
5 **DR WARNE:** Yes.
6 **MS WEERERATNE:** Again understanding that you have expressed
7 some caution on that data in that paragraph, and noting
8 what you say about the lower proportion in England, do
9 you have any theory or hypothesis as to why, by this
10 measure at least, the rates of hospital-acquired
11 Covid-19 were so much higher in Wales?
12 **DR WARNE:** So that may be a reflection of the studies, the
13 way they were conducted, rather than a true reflection
14 of the number of hospital-acquired infections in Wales.
15 That's why I'm reluctant to draw a direct comparison
16 between the three devolved nations in that regard,
17 because there are a number of different factors that may
18 influence it.
19 **MS WEERERATNE:** All right. So are you able to consider what
20 range of factors might affect the figure in Wales?
21 **DR WARNE:** So, first, obviously it's potentially true that
22 there was a genuinely higher rate of hospital-acquired
23 infection in Wales and that may reflect, for example,
24 the community-acquired infection rates across Wales
25 which were, I believe, lower in the first wave than they

1 were in other parts of the UK, therefore the proportion
2 of hospital-acquired infections would appear larger.
3 It's difficult without having the full data, and there's
4 probably a number of factors that could influence that.
5 So again I would draw -- I would be very careful in
6 drawing direct comparison between those three figures.
7 **MS WEERERATNE:** Thank you.
8 My Lady, I have one short question.
9 So I've one final question to Professor Gould, in
10 that case, and it's on training, Professor Gould.
11 So at paragraph 12.10 of your report you cover the
12 need obviously for PPE training to be of a good
13 standard. Our question is this: do you have any
14 specific recommendations for this to include in
15 particular points on the changing scientific picture to
16 ensure buy-in to the guidance to promote staff
17 compliance in that way?
18 **PROFESSOR GOULD:** You would have to have regular
19 communication with the staff to tell them about the
20 changes in scientific thinking and regular continuing
21 professional development and there should be refresher
22 UPS and there always have been refresher updates in
23 infection prevention, I think in the past perhaps they
24 haven't been as good as they might have been throughout
25 all the four nations, but I think there is greater

1 awareness now, so I think in future there will be
2 greater awareness on CPD, continuing professional
3 updating, and people will be more likely to buy into it,
4 because now they've had the experience of going through
5 a pandemic, and they know that this is not just
6 theoretical stuff that we expect people to know, it
7 directly affects their wellbeing and that of patients.
8 **MS WEERERATNE:** Just to be clear, that also applies to the
9 changing scientific picture?
10 **PROFESSOR GOULD:** Thank you very much.
11 **LADY HALLETT:** Thank you very much.
12 Ms Sen Gupta.
13 **Questions from MS SEN GUPTA KC**
14 **MS SEN GUPTA:** Thank you.
15 I represent the Frontline Migrant Health Workers
16 Group, and our clients' members include outsourced
17 workers within the NHS system, such as agency nurses,
18 cleaners, porters, security guards, medical couriers and
19 drivers that were not directly employed by the NHS.
20 Dr Shin, we have been given to ask some specific
21 questions about testing, of healthcare workers rather
22 than patients. You were referred earlier to
23 paragraph 9.27 of the report, and I'm going to take you
24 back to that. In that paragraph, you state:
25 "Guidelines for the roll-out of asymptomatic staff

1 testing using lateral flow devices were published by the
2 NHS in November 2020, making twice weekly screening
3 available to all NHS staff in acute hospitals across the
4 UK."
5 Just earlier in your oral evidence you referred to
6 NHS employed staff. The reference in that paragraph of
7 your report to NHS staff is a reference to those
8 employed by the NHS, isn't it?
9 **DR WARNE:** So that paragraph was written by me, rather than
10 Dr Shin, so perhaps if I may answer it, if that's okay.
11 **MS SEN GUPTA:** Yes, of course.
12 **DR WARNE:** I'm not aware of the exact eligibility criteria
13 for lateral flow testing that was rolled out as part of
14 those recommendations, so I'm afraid I don't know if
15 that applied to people working within NHS institutions
16 who were employed outside of NHS employment.
17 **MS SEN GUPTA:** So you don't know whether it was extended to
18 outsourced workers?
19 **DR WARNE:** I'm afraid I don't, no.
20 **MS SEN GUPTA:** I'm grateful, thank you.
21 During the relevant period of this module, March
22 2020 to June 2022, outsourced workers who were sick and
23 unable to work because, for example, they were
24 self-isolating, were only entitled to statutory sick pay
25 of £94.25 per week. Do you agree that this low level of

1 statutory sick pay provided a disincentive to test
2 because of the resulting loss of work if required to
3 self-isolate?
4 **LADY HALLETT:** I'm sorry, which question is this that I've
5 approved, Ms Sen Gupta?
6 **MS SEN GUPTA:** It's in relation to the disincentive to test.
7 I've broken it down, my Lady, into two parts. The
8 numbering has changed in terms of our spreadsheet, I am
9 afraid.
10 **LADY HALLETT:** Could you answer the question: is there
11 a possibility that if you may be financially affected if
12 you test positive that you may not want to take the
13 test, it's a disincentive? Forget about the level of
14 statutory sick pay because that may not be for me.
15 **DR WARNE:** So we know that staff uptake when offered
16 screening was not 100% and we know that there are
17 a variety of different reasons why people chose not to
18 participate in screening programmes. I don't know --
19 I don't have any expertise in reasons for that or indeed
20 on the financial situation of people in the situation
21 that you describe and, therefore, I can't comment on
22 whether that would have influenced their decision to
23 participate in screening programmes or not.
24 **DR SHIN:** I have some limited experience of this, so
25 I recall some discussions along those lines. The short

1 answer to your question is it could be a disincentive to
2 testing but my recollection of discussion, at least
3 locally, was that that was recognised by the hospital
4 leadership and NHS system leadership and I think steps
5 were taken to try and reduce that disincentive. The
6 details of that I'm not certain of but I recall that
7 this area was recognised and discussed because staff
8 took it -- it affects the hospital because we can't
9 recruit -- we can't get staff to come on and to work as
10 agency staff, bank staff for that reason, because they
11 fear impact on their income, which is completely
12 understandable. Exact steps, I can't recall, but it was
13 recognised and steps were taken to reduce that
14 disincentive but I can't give you further detail on
15 that.
16 **MS SEN GUPTA:** Thank you.
17 In terms of regular testing, do you agree that
18 regular testing was a valuable IPC tool throughout the
19 pandemic?
20 **DR WARNE:** It wasn't available immediately at the start of
21 the pandemic. Where it was available and when it was
22 available, I think it was useful tool, IPC tool, and it
23 became perhaps less useful, for a variety of reasons,
24 the later the pandemic went on. But I think that it is
25 a very valuable tool and, if I might, all people who

1 work or visit hospital sites, they are potentially
2 capability of catching or transmitting Covid. So
3 I think it's critically important that all staff members
4 who are there should be treated in the same way with
5 regards to testing and IPC measures wherever possible.
6 **MS SEN GUPTA:** Thank you.
7 Dr Warne, at paragraph 9.25 of your report you refer
8 to the availability of testing in March and April 2020.
9 Do you agree that in March and April the limiting
10 factors for testing were capacity and cost?
11 **DR WARNE:** There are more things to that. So whilst
12 capacity and cost were certainly key features, there was
13 also elements about technical expertise required, both
14 to generate these testing platforms but also to roll
15 them out, they require special -- you need a supply of
16 testing kits in addition to the testing capacity, which
17 means you actually have to have swab in your hand. You
18 also need the organisational structure by which to
19 implement this. It's incredibly complicated.
20 **MS SEN GUPTA:** Finally, do you agree that, as at March 2020,
21 any suggestion that regular testing is of no value would
22 be wholly incorrect?
23 **DR WARNE:** Apology, would you mind repeating the question?
24 **MS SEN GUPTA:** Not at all. Do you agree that, as at March
25 2020, any suggestion that regular testing is of no value

1 would be wholly incorrect?
2 **DR SHIN:** I think we need more information, we need more
3 detail on that question. Regular testing of who and in
4 what circumstance; do you mean staff or patients,
5 asymptomatic?
6 **MS SEN GUPTA:** Outsourced workers.
7 **DR SHIN:** Outsourced workers.
8 **DR WARNE:** So we know that by early March 2020, Covid was
9 prevalent in the UK, and it was affecting wide varieties
10 of people in the community in different groups at
11 different levels across the different regions of the UK.
12 I think that, if we had the capacity that asymptomatic
13 screening of healthcare workers working in hospital, if
14 it was available, in retrospect would have been useful
15 but I think there are so many different factors to
16 consider when making that statement, I'm not sure I can
17 wholly agree or disagree with that statement.
18 **MS SEN GUPTA:** Thank you. Thank you, my Lady.
19 **LADY HALLETT:** Thank you very much, Ms Sen Gupta.
20 Right, Mr Wagner wearing the hat for Clinically
21 Vulnerable first, I think.
22 **Questions from MR WAGNER**
23 **MR WAGNER:** Correct. Thank you.
24 Good afternoon, my name is Adam Wagner and I act for
25 Clinically Vulnerable Families, a group that represents

1 people who are clinically vulnerable, clinically
2 extremely vulnerable and their families.
3 So my first question is for, I think, Dr Shin.
4 I want to ask you about paragraph 4.51 of your report,
5 please, and this is with reference -- this is a part of
6 the report where you're referring to aerosol-generating
7 procedures, and you say there:
8 "Much less attention is paid to the risk posed by
9 natural respiratory aerosols exhaled by patients,
10 healthcare workers and visitors, despite the fact that
11 these aerosols vastly outnumber those produced by AGPs,
12 [that's aerosol-generating procedures] and potentially
13 pose a greater infection risk, the much higher risk of
14 infection associated simply by occupying the same indoor
15 space as that occupied by somebody who is infected
16 suggested the routine use of RPE would have offered
17 a higher degree of protection."
18 Dr Shin, am I asking the right expert the question
19 about this section?
20 **DR SHIN:** So the quotation there is a direct reference there
21 to the report from Clive Beggs, who gave evidence to the
22 Inquiry last week.
23 **MR WAGNER:** Yes, and I think it's agreeing with Professor
24 Beggs?
25 **DR SHIN:** Yes.

1 **MR WAGNER:** So, Dr Shin or Dr Warne, whoever wants to answer
2 the question, Dr Shin, said in evidence, you were asked
3 about FFP2 and FFP3 masks, as compared to nothing, as
4 compared to no measures, and you agreed, you said it was
5 clearly true that a higher level of protection would be
6 offered by those interventions. Just considering the
7 risks of respiratory aerosols exhaled by patients and
8 visitors, so members of the public, and the FFP2 and
9 FFP3 masks, would it, in your view, have helped for
10 there to have been clear public guidance about the
11 benefits of FFP2 and/or FFP3 masks, so that when the
12 public entered healthcare settings, potentially with
13 Covid or potentially at risk of Covid, they would be
14 better educated on the benefits of those masks and be
15 able to make informed choices about what they do?
16 **DR SHIN:** Sorry, for members of the public?
17 **MR WAGNER:** Yes, so people visiting hospitals or patients.
18 **DR SHIN:** I'm not sure I fully understand the question
19 because we're never going to offer visitors, if that's
20 what you're talking about, FFP2 or 3.
21 **MR WAGNER:** Yes.
22 **DR SHIN:** Maybe I'm not understanding the question
23 correctly.
24 **MR WAGNER:** I was going to come onto that in a moment, but
25 in relation to -- I think it was Dr Warne who just said,

1 in response to the earlier question, that members of the
2 public brought Covid into hospital settings, quite often
3 logically. So if a member of the public is coming to
4 the hospital, and I extend the question in this way: if
5 they brought their own FFP2 or FFP3 mask and they wanted
6 to wear it, leaving aside mandating, just it was their
7 choice to wear it, would you agree that that should be
8 facilitated because it helps protect them and the people
9 around them?
10 **DR WARNE:** So there is clear evidence that wearing face
11 coverings reduces the risk of transmission and there is
12 evidence that FFP2 and 3 masks provide more protection
13 in that regard, predominantly from the wearer
14 coughing -- you know, really transmitting virus in that
15 way.
16 I'm not sure, at a community level, what the
17 evidence would be, whether they can comment on that,
18 bearing in mind that these would be non-fit-tested FFP2
19 and FFP3 masks and the variety of other considerations
20 for community settings. But certainly there is clear
21 benefit of wearing face masks when visiting hospital.
22 **MR WAGNER:** I think you have also said that FFP2 and 3 are
23 better, you know, obviously including if fit testing and
24 making sure you're wearing them in the right way, so if
25 a person turns up, the member of the public, with one of

1 those better masks and says "I want to wear it", is
2 there any reason why you wouldn't allow them to wear it
3 or give them, for example, a surgical mask instead.
4 **DR WARNE:** So speaking from my own hospital, I'm not aware
5 that we would have asked a visitor to change from
6 FFP2/3, should they be wearing one, to an FRSM, and I'm
7 not aware of any hospital which would have taken that
8 position, if that's what you're implying by your
9 question.
10 **MR WAGNER:** It's the evidence of some of the Clinically
11 Vulnerable Family group that that's exactly what
12 happened, that they came into hospital and were told,
13 "No, no, you've got to wear the sort of hospital issued
14 surgical mask, rather than the mask that you've come in
15 with".
16 Just following on from that, you know, talking about
17 a clinically vulnerable group, so people who know that
18 they are immunosuppressed, or whatever the reason they
19 would be particularly vulnerable to Covid, would you
20 agree that it would be important to allow them or
21 facilitate them to wear better quality masks if visiting
22 a healthcare setting when potentially there is a high
23 risk of Covid transmitting to them?
24 **DR SHIN:** I think answering the question today, I'd say,
25 yes, it's reasonable that they continue to wear that

1 mask. Now, what our position would have been in 2020 is
2 a different story. One thing I do recall is that we
3 asked visitors to wear -- if they were provided with
4 an FRSM for example to put on a new FRSM because we
5 don't know how long -- could that mask have been but
6 I will confess I've never come across even a report of
7 a visitor arriving with FFP2 or 3 or being asked about
8 that, not that I get asked about every single incident
9 at our front door but I think the basis of your
10 question, I think, is it's reasonable that if you've got
11 a vulnerable visitor coming, for them to wear an FFP2 or
12 3, it's a reasonable thing and I can't think of a good
13 reason to stop them doing that.
14 **DR WARNE:** I would add to that I think we also need to
15 consider safer ways of vulnerable patients and
16 healthcare workers entering the hospital environment
17 through a range of other measures, of which, you know,
18 PPE, potentially, is one of them. Again, it's a poorly
19 studied area and one I think that's been highlighted by
20 the pandemic that we need to take more of an interest
21 in.
22 **MR WAGNER:** Are there any measures that you could recommend,
23 simple measures that might help those clinically
24 vulnerable people coming to healthcare settings?
25 **DR WARNE:** So two examples spring to mind, one is dialysis

1 patients and the other is haem-oncology patients, so
2 patients who need to access health services for
3 life-saving treatment, and various mechanisms were used
4 during the pandemic to try and provide those hospital
5 attendances in as safe way as possible, through, for
6 example, staggered appointment times, greater social
7 distancing in waiting rooms, guiding patients directly
8 into clinic rooms, rather than being in open waiting
9 areas, et cetera, and we should be looking at restarting
10 that package of measures in the event of a further
11 pandemic, as soon as possible, for our vulnerable
12 patients.
13 **MR WAGNER:** What about the healthcare staff wearing
14 respirator masks when they're dealing with those
15 immunosuppressed or clinically vulnerable patients,
16 would that be another way you might think you could
17 reduce the risk of them getting Covid-19 or some other
18 respiratory virus?
19 **DR WARNE:** So, potentially, the evidence base is much less
20 clear, particularly for the valved FFP3 masks where,
21 when you exhale, you're potentially releasing material
22 out. So I'm not aware of any studies that have looked
23 at that particular risk. In the event that a patient is
24 wearing an FFP3 mask non-fit tested, and a staff member
25 is doing the same, what is the risk to those patients --

1 to those individuals. Theoretically, obviously, it
2 would be lower but I can't quantify that risk in
3 comparison to other measures we might take.
4 **MR WAGNER:** Thank you.
5 I want to ask you secondly about testing and I think
6 this is for Dr Warne. You have spoken about lateral
7 flow testing and about other kinds of testing. Is it
8 a one-stop shop or do you think repeat testing, testing
9 after admission of a patient, might help mitigate that
10 risk of, you know, long incubation of the virus?
11 **DR WARNE:** So we know that more frequent testing is more
12 likely to pick up asymptomatic or pre-symptomatic cases.
13 So the more frequently you do it, theoretically, the
14 less likely you are to -- the more likely you are to
15 identify those patients early and to prevent them from
16 transmitting, up to a certain point. The practicalities
17 become one of logistics, about how frequently you can
18 test people and, certainly, in our hospital, we were
19 doing it more than just on admission; we were doing it
20 at intervals during the course of their admission as
21 well, in an attempt to try to mitigate that.
22 **MR WAGNER:** Do you think, looking back, repeat testing after
23 admission could have been used more effectively across
24 the NHS to reduce transmission one way or the other?
25 **DR WARNE:** It's difficult to assess because, in doing that,

1 you immediately reduce your testing capacity or
2 screening capacity for other purposes. It is a finite
3 resource that needs to be managed in the best way
4 possible and this is where some modelling interventions
5 have been able to try to find that sweet spot where you
6 can provide the most benefit to the greatest number of
7 patients and healthcare workers. It's not
8 a straightforward question.
9 **DR SHIN:** I'll just add to that. In fact, in reality, in my
10 hospital, which has a large number of vulnerable
11 patients, we did actually have weekly PCR testing for
12 a long period and, in fact, even to this day, in our
13 haematology-oncology population, the most vulnerable, we
14 maintain once-weekly surveillance PCR testing in our
15 inpatients.
16 **MR WAGNER:** Thank you. Just one final question. In
17 relation to false negatives, is there any evidence of
18 common causal factors that might lead to false negatives
19 and if there anything that could be done if there is
20 evidence of that kind to reduce the number of false
21 negatives or false positives?
22 **DR WARNE:** It depends on the testing platform that's being
23 used. So there is, for example, evidence that if you
24 don't get enough sample when do the nasal swab, if you
25 don't put it in far enough or get enough material on it,

1 that that can lead to false negatives. That's an issue
2 about training or educating people how to use those
3 tests. Then there are the intrinsic features of the
4 test itself, some of them have better sensitivity, fewer
5 false negatives than others.
6 **MR WAGNER:** Thank you.
7 **LADY HALLETT:** Thank you, Mr Wagner.
8 Mr Simblet?
9 **MR SIMBLET:** My Lady, the questions you approved on behalf
10 of the Covid Airborne Transmission Alliance have already
11 been answered in the course of this afternoon, so I'm
12 not going to ask those questions, thank you very much.
13 **LADY HALLETT:** Thank you very much, Mr Simblet, very
14 grateful.
15 You're back up, Mr Wagner.
16 **MR WAGNER:** A bit of a gap, I have to open my computer
17 again.
18 I'm also acting for a different core participant,
19 the pregnancy, baby and parenting organisations, which
20 are a coalition of 13 charities that deal with those
21 kinds of issues, so I'm just going to ask you a couple
22 of questions, please, on their behalf.
23 So, first of all, I think this is a question for
24 Dr Shin, it's about visitors guidance. Dr Shin, do you
25 agree, as a general proposition, that it's much harder

1 to strike a reasonable balance with visiting
2 restrictions during a pandemic if there isn't clear
3 national guidance to help achieve that balance?
4 **DR SHIN:** Yes.
5 **MR WAGNER:** Following the same logic, would you agree that,
6 without clear national guidance, it would be much harder
7 for trusts to strike a reasonable balance in relation to
8 maternity and neonatal services?
9 **DR SHIN:** Yes. The short answer, yes.
10 **MR WAGNER:** I'd like to ask you about paragraph 8.22 of your
11 report, please, where you say:
12 "Overall, taking into account the exceptions made
13 for special circumstances, like end-of-life care,
14 maternity services, patients with cognitive impairment,
15 et cetera, and the fact that visiting guidance evolved
16 to be more flexible over time, we believe a reasonable
17 balance was struck but with variation in local practice
18 that contributed to differing experience."
19 Just a point of clarification: when you say
20 maternity services, did you include early pregnancy
21 services or were you focusing on childbirth itself?
22 **DR SHIN:** From my perspective, we were focusing more around
23 childbirth.
24 **MR WAGNER:** Yes. So would it be right to say that, when you
25 were reaching that conclusion that a reasonable balance

1 was struck, you weren't considering early pregnancy
2 services, so such as attending early pregnancy scans
3 with a partner?
4 **DR SHIN:** Again, from my perspective, when we were writing
5 that, I was really focusing on the childbirth phase of
6 pregnancy.
7 **MR WAGNER:** Were you including in that neonatal services?
8 You did mention it before --
9 **DR SHIN:** We mentioned it separately. Sorry, we didn't
10 mention -- I thought it was explicit but, for neonatal
11 intensive care units, it was quite common to have a more
12 flexible approach and I think we said that -- you know,
13 for example parents -- many hospitals have
14 accommodation, even, for parents to stay overnight, so
15 that they could stay near or with their babies.
16 **MR WAGNER:** So the national guidance for maternity and
17 neonatal services wasn't issued until December 2020, so
18 that's nine months after March 2020. Do you agree that
19 in the interim, there was a vacuum in relation to that
20 area of the hospital services.
21 **DR SHIN:** My recollection of that, this wasn't the focus of
22 all my workload in the pandemic period, so I can't
23 answer that specifically for my hospital. What I do
24 know is that neonatologists around the country work in
25 large networks, in regional networks and national, so

1 I would assume there's a lot of communication about this
2 very point. But I wasn't privy to those.
3 **MR WAGNER:** Would you agree that, going back to my initial
4 question, the fact there wasn't national guidance until
5 December 2020 would have left individual trusts probably
6 quite inconsistently applying what they thought was the
7 best option?
8 **DR SHIN:** Yes, potentially, but, as I mentioned, neonatology
9 units work in networks so I think there would've been
10 very quickly, hopefully -- I presume a very quick
11 arrival at some reasonable consensus about this because
12 I'm aware that they do work very closely together as
13 networks.
14 **MR WAGNER:** Sure, but that's not actually something you
15 studied for -- and didn't take evidence on that for the
16 purpose of this report?
17 **DR SHIN:** And it's not something I had any direct experience
18 of.
19 **MR WAGNER:** No. No.
20 So just sticking on visiting guidance, and just
21 looking at 8.14 of your report, where you say the extent
22 and consistency with which these restrictions were and
23 should be put in place across different clinical areas
24 is unclear, we assume that most, if not all, NHS
25 hospitals followed relevant national NHS visiting

1 guidance in the four nations.
2 On what basis did you make that assumption? What
3 was the evidential basis of assuming that most, if not
4 all, NHS hospitals followed the relevant national
5 guidance?
6 **DR SHIN:** I think I bring you to the early preamble in the
7 report where we say we can talk about our own experience
8 and also in our regions perhaps, but we can't, you know,
9 really answer for the entire -- the experience of people
10 across the entire country, and also if we looked for
11 evidence and couldn't find it, then we couldn't include
12 that, so we were applying the precautionary principle in
13 a way to that paragraph that, to the best of my
14 knowledge, that was the case but we can't speak for
15 every trust in the country. And also devolved
16 administrations, as we said before, we don't have strong
17 links, for example, with Northern Ireland. In some
18 cases, we said in the report -- for some aspects of the
19 report, pertaining to other parts of the country, so
20 that was the reason for the wording of that.
21 **MR WAGNER:** But wouldn't the precautionary principle have
22 meant that you applied the other way: that without
23 evidence of their being a sort of majority who applied
24 national guidance, you just couldn't say anything about
25 it?

1 **DR SHIN:** Yes, it was linked to the fact we can't always
2 cover all aspects of pandemic response in all parts of
3 the country.
4 **MR WAGNER:** Yes, and there is evidence -- this is the final
5 point I want to make -- from the 13 organisations that
6 I represent and their stakeholders that there was very
7 inconsistent application of principles, if I can put it
8 like that, before that December 2020 national guidance.
9 Is that something that you can speak to or not?
10 **DR SHIN:** Well, I'm not aware of that evidence that you've
11 mentioned.
12 **DR WARNE:** No, I think it's important that we start -- as
13 I said earlier in the hearing, I think that it's
14 important that we start to think more about visiting as
15 an understudied area, and one that always takes third
16 place to patient and healthcare worker care, but one
17 that we should consider further in future pandemics.
18 I'm not sure how best to do that, but I think that the
19 reports produced by the organisations you represent are
20 probably a good way of starting that process now.
21 **MR WAGNER:** I think it was you, Dr Warne, who mentioned
22 earlier -- you were talking about carers being a sort of
23 special category of visitors where they're providing
24 care to the individuals -- it may have been Dr Shin
25 actually, but would you put, in relation to neonatal

1 care or maternity services, the parents of the child, of
2 the baby, in a similar category as carers, rather than
3 just, sort of, visitors?
4 **DR WARNE:** So I think that there are a number of different
5 visiting groups of visitors that you could include. You
6 have to consider -- and it's important to consider them,
7 including carers and -- and whether I'd include them in
8 the caring group or not is a bit unclear because, you
9 know, some people might say they fit more into the role
10 of parents or paediatric considerations.
11 You have to take -- I'm a bit cautious around
12 maternity services because we know that there are some
13 pandemics that have happened in the recent past where
14 pregnant women and people in the immediate post-partum
15 period are at increased risk of severe disease. So
16 swine flu, for example, I clearly remember looking after
17 pregnant women, who were otherwise fit and well, in
18 intensive care with a disease that was widely considered
19 to be relatively mild.
20 So we have to take each pandemic on its own merits,
21 and I think that we should take these considerations now
22 but we need to be careful how we apply them to any
23 future pandemic.
24 **LADY HALLETT:** Thank you, Mr Wagner.
25 **MR WAGNER:** Thank you.

1 **LADY HALLETT:** Ms Mitchell.
2 **Questions from MS MITCHELL KC**
3 **MS MITCHELL:** I appear as instructed by Aamer Anwar &
4 Company on behalf of the Scottish Covid Bereaved.
5 I think my questions are probably most suited to
6 Professor Gould, but if I'm not right in that, please do
7 intervene.
8 My first question is in relation to the
9 practicalities of IPC, particularly as it relates to
10 visitors.
11 In your report you identify that there are
12 practicalities which have to be overcome, for example
13 patients taking off masks because they need to eat. One
14 of the practical examples that was given to us
15 repeatedly by the Scottish Covid Bereaved was examples
16 of seeing visitors and perhaps people from various
17 different wards coming out of the hospital to smoke or
18 to get some air or both, mixing with one another and
19 then going back separately to the wards.
20 Do you agree, when we go forward and look at IPC in
21 the future, that any guidance needs to emphasise the
22 movement of people not only within the hospital but from
23 within the hospital to outside and back again?
24 **PROFESSOR GOULD:** I think that it would be a very reasonable
25 area to look at and to consider, but I don't have any

1 hard figures about what was -- it's not something
2 I've seen written about very much.
3 I'm aware very much that in many hospitals in many
4 European countries, patients spend more time outside of
5 the hospital than they do in it, if they're mobile, and
6 it apparently makes no difference on infection rates.
7 **MS MITCHELL:** Well, that's very --
8 **PROFESSOR GOULD:** But that's not in relation to Covid, that
9 is in relation to healthcare-associated infection more
10 generally. But I think it's an important and
11 interesting point that you bring, and I think that it
12 probably should be given consideration in future
13 guidelines.
14 **MS MITCHELL:** Moving on, the evidence of Dr Warne earlier on
15 said that you've no records of who visits patients, and
16 what you've already said in relation to visitors perhaps
17 already answers this next question, but was there any
18 work done to ascertain if visitors were adhering to IPC
19 guidelines when they were visiting?
20 **PROFESSOR GOULD:** Not that I'm aware of, no. It wasn't
21 an area, again, that received a great deal of attention.
22 **MS MITCHELL:** The reason I ask that is that the
23 implementation and the differences between
24 implementation of IPC visiting guidelines were noticed
25 by the Scottish Covid Bereaved, and they considered that

1 there was significant differences in between different
2 hospitals, even in between different wards, as to how
3 those policies and procedures were implemented and, as
4 a result of that, it has caused significant upset and
5 significant concern to the Scottish Covid Bereaved,
6 for example, a number of end-of-life visits weren't
7 permitted during 2020, there was an inconsistency in
8 approach of things like how many people could visit, for
9 how long and what setting, what protection they can
10 wear.
11 First of all, my question is: do you accept that
12 there was a wide variation in the implementation of IPC
13 guidance?
14 **PROFESSOR GOULD:** Certainly there were variations reported
15 among healthcare staff, but I'm not aware of anything
16 written very much about visitors. That may be my
17 ignorance but I have not read very much about that.
18 **MS MITCHELL:** Again, would that point to an area of IPC that
19 should be considered more --
20 **PROFESSOR GOULD:** I think it would be a good idea to
21 consider it more in the future, yes.
22 **MS MITCHELL:** Thank you.
23 Finally, and sort of moving on from the point that
24 you've just made there, I was so interested to hear
25 about your hearts and minds argument to engage people in

1 these sorts of policies.
2 Would having one set of guidelines that we could say
3 to people these are being implemented consistently and
4 uniformly be a good idea to ensure compliance to make
5 people think "I'm doing this and other people are doing
6 the same thing"?
7 **PROFESSOR GOULD:** We could never ensure compliance, because
8 we don't live in that kind of a world, but if people
9 know why they are doing something, and agree with it,
10 I think you would be more likely to have their hearts
11 and minds, yes.
12 **MS MITCHELL:** I'm obliged, my Lady, those are our questions.
13 **LADY HALLETT:** Thank you very much, Ms Mitchell.
14 I think that completes the questions that people
15 wanted to ask. I am really grateful to you. I don't
16 know if it's easier sharing the burden after a long day
17 of intensive questioning or whether it's harder, I don't
18 know, but thank you all very much indeed for all your
19 help in preparing the report and for all your help
20 today, I'm very grateful to you.
21 **(The witnesses withdrew)**
22 **LADY HALLETT:** Right, it's 10.30 on Monday.
23 **MS CAREY:** It is.
24 **LADY HALLETT:** On whatever day of September it is.
25 **MS CAREY:** The 23rd, my Lady.

1 **(4.00 pm)**
2 **(The hearing adjourned until 10.30 am**
3 **on Monday, 23 September 2024)**
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