

Monday, 16 October 2023

1
2 (10.30 am)
3 **LADY HALLETT:** Mr O'Connor.
4 **MR O'CONNOR:** Good morning, my Lady. Our first witness this
5 morning is Professor Mark Woolhouse.
6 **PROFESSOR MARK WOOLHOUSE (affirmed)**
7 **Questions from COUNSEL TO THE INQUIRY**
8 **MR O'CONNOR:** Could you give us your full name, please.
9 **A.** Mark Edward John Woolhouse.
10 **Q.** Professor Woolhouse, you have kindly prepared a witness
11 statement for our module of the Inquiry, that's
12 Module 2.
13 It's up on screen before us. We don't need to look
14 at the last page but I'm sure you're familiar with
15 the contents of this statement.
16 **A.** I am.
17 **Q.** You will recall that at the end of the statement there
18 is a statement of truth indicating that you believe
19 the contents of that statement to be true, and you have
20 signed that with a date of 15 August of this year. Is
21 that right?
22 **A.** I have, yes.
23 **Q.** Thank you.
24 Professor, you have, of course, given evidence to
25 this Inquiry before. You came and gave oral evidence

1

1 **A.** Yes.
2 **Q.** He had been a member of SPI-M before that, before
3 the committee was operationalised, as it were, in
4 January 2020. Were you a long-standing member of that
5 committee or not?
6 **A.** No, I was not, I was co-opted around about January 20th,
7 I think. Mid-January.
8 **Q.** Yes, and do we take it, then, that you ceased to be
9 a member of the committee I think it was in
10 February 2022, when the committee reverted back to its
11 pre-pandemic footing?
12 **A.** That's correct.
13 **Q.** We've also of course heard about SAGE, which is
14 the committee that SPI-M-O fed up to. Did you attend
15 SAGE meetings during the pandemic?
16 **A.** No, I didn't.
17 **Q.** We've heard from some witnesses that they attended maybe
18 just one or two. Did you in fact attend any SAGE
19 meetings?
20 **A.** None at all.
21 **Q.** Thank you.
22 Then finally, you were also a member of the Scottish
23 Covid-19 Advisory Group. We did hear a little from
24 Professor Medley, and also from Professor Keeling, about
25 the modelling groups that were established in Scotland

3

1 here during the Module 1 hearings in July, I think it
2 was, so thank you very much for coming back to give
3 evidence again for Module 2. I know that the details of
4 your career were covered last time, but just briefly,
5 you are a professor of infectious disease epidemiology
6 at the University of Edinburgh, are you not?
7 **A.** I am, yes.
8 **Q.** You're also a member of the Usher Institute, which is
9 the University of Edinburgh's school of public health?
10 **A.** I am, yes.
11 **Q.** Finally, you are the principal investigator of
12 the Epidemiology Research Group at Edinburgh University,
13 which conducts scientific research on infectious
14 diseases including novel emerging pathogens, both in
15 Scotland and globally?
16 **A.** That's correct.
17 **Q.** And as we shall hear, of course, including Covid-19?
18 **A.** It did.
19 **Q.** During the pandemic, Professor, we know from your
20 statement, and of course we'll be talking much about
21 this in the next hour or so, you were a member of
22 the committee SPI-M-O?
23 **A.** That's correct.
24 **Q.** Which of course was chaired or at least co-chaired by
25 Professor Medley, who we heard from last week.

2

1 and Wales. Was this the Scottish modelling group or was
2 it something a bit different?
3 **A.** No, the Scottish Government's Covid-19 Advisory Group,
4 its informal name was SAGE for Scotland, so it was more
5 at that level rather than the detailed model --
6 **Q.** So it had a broader remit than simply modelling?
7 **A.** Yes.
8 **Q.** Thank you.
9 I want to start in detail, Professor, by asking you
10 some questions about the very start of the pandemic, and
11 in particular a series of emails that you sent and
12 received towards the end of January 2020.
13 But just before we go to the emails themselves, can
14 I take you to a passage in your witness statement which
15 describes them. So it's paragraph 273. You will see
16 it's come up on screen. No, that seems to be the wrong
17 reference. Let me just double-check. We can take that
18 down, that's not quite right.
19 **(Pause)**
20 Let's not worry about the statement, let's go
21 straight to the emails, thank you.
22 So can we go, please, first of all, to INQ000103349,
23 page 6.
24 **(Pause)**
25 Could we go on another page? In fact, I think, to

4

1 the last page of the document. I think I've got
2 different page numbers. Is that the last page? Is
3 there another page? That's it. So in fact we might
4 need to go back to the page before, just to catch
5 the start of that. That's it, thank you.

6 So this is an email, Professor, that you sent to
7 Jeremy Farrar on Tuesday, 21 January; is that right?

8 **A.** Yes.

9 **Q.** Just tell us, Sir Jeremy Farrar at the time was, worked
10 for the Wellcome institute, I think that's right?

11 **A.** He was director of the Wellcome Trust, yes.

12 **Q.** And someone who you knew or knew well?

13 **A.** I knew well, yes.

14 **Q.** He is now the chief scientist of the World Health
15 Organisation?

16 **A.** He is.

17 **Q.** So that's the context. We'll look at the email in
18 a little detail in a moment, but can you just introduce
19 it, why did you contact him then and what was your
20 concern?

21 **A.** So I had become very concerned over events in Wuhan,
22 going back to roughly January 8th, when I'd received
23 a copy of a report, actually from the Wuhan municipal
24 health authority, which alarmed me greatly. It seemed
25 to me to be containing evidence that a pandemic was

5

1 governmental role at the time?

2 **A.** I believe not.

3 **Q.** The Wellcome institute was not a part of government. So
4 was it more just a question of using him as a sounding
5 board to check whether he agreed with you, with your
6 concerns?

7 **A.** Yes, I very much value Jeremy's opinion.

8 **Q.** I want to move forward now to his response, and I'm not
9 sure I've got the correct page numbers, I think it might
10 be page 3, but perhaps we can go -- it's a response
11 from ... it's an email from ...

12 Sorry, I think we can actually go to a different
13 document. Can we go to, please, INQ000103227.

14 It's an email that you sent to Neil Ferguson, and
15 page -- which I think might well -- I hope is on page 3
16 of that document. Yes, could we go to the next page,
17 please.

18 So here we see an email that you sent a few days
19 later. On this occasion you sent it to both
20 Jeremy Farrar but also to Neil Ferguson.

21 **A.** That's right, yes.

22 **Q.** He is someone who, of course, is giving evidence to
23 the Inquiry tomorrow, an epidemiologist at
24 Imperial College London, a professional friend or
25 colleague?

7

1 under way --

2 **Q.** Yes.

3 **A.** -- and possibly was already irreversible. So -- sorry.

4 **Q.** So, we see, after you've asked him or hoped that
5 everything is well with him, you question are you "right
6 to be increasingly concerned about the slow drip feed of
7 ... information on the Wuhan coronavirus".

8 There is then a paragraph where you go into a little
9 more detail as to what you've seen and what your
10 concerns are.

11 Then if we can go forward to the next page, please,
12 I just want to pick it up with the last paragraph, last
13 substantive paragraph, you say:

14 "My own position is that there is a very significant
15 likelihood of this going global (I've thought that for
16 a while, but the likelihood is increasing daily at
17 the moment). In which case, it would be prudent to
18 start planning for that eventuality ..."

19 Does that capture your thoughts at the time?

20 **A.** It does. And you asked me why I contacted
21 Jeremy Farrar --

22 **Q.** Yes.

23 **A.** -- and the reason is that I valued his opinion on this.
24 He's very expert in this area.

25 **Q.** He of course wasn't working in any form of sort of

6

1 **A.** Yes, I've known Neil for many, many years, and again
2 somebody whose views on this matter I would greatly
3 value.

4 **Q.** If we look at this email together, Professor, again,
5 it's on very much the same theme, is it not?

6 **A.** It is.

7 **Q.** In terms of expressing your concern --

8 **A.** Yes, it's the same thing but with more numbers, more
9 data.

10 **Q.** In particular, if we see in the second paragraph, you
11 are focusing on the R number being 2 and the case
12 fatality rate of 4%?

13 **A.** That's correct.

14 **Q.** Just in a few sentences tell us why those numbers are
15 significant, or at least the significance they had for
16 you then.

17 **A.** The R0 number, as that is, that's directly connected
18 with what's known technically as the attack rate, that
19 is that if there's a wave of infection that goes through
20 the population how many people will be infected during
21 that wave. It's directly connected to that.

22 And the case fatality rate, as it says, is a measure
23 of how many of those people, what proportion of those
24 people infected will die.

25 **Q.** Thank you.

8

1 Then looking at the next paragraph, you say:
 2 "If we take those numbers at face value we quickly
 3 get a ballpark estimate of almost half the people in
 4 the UK (and many other countries) getting this infection
 5 over a year or so, at least a doubling of the gross
 6 mortality rate much more during epidemic peak), and
 7 a completely overwhelmed health system."

8 **A.** Correct.

9 **Q.** Just focusing on that for a moment, Professor, you've
 10 used the term "ballpark estimate", we've heard about
 11 modelling and about the different types of models,
 12 whether they produced predictions or scenarios, this
 13 appears to be, if you like, a back-of-a-scrap-of-paper
 14 exercise in statistical prediction. I mean, perhaps you
 15 won't agree with that description, but there doesn't
 16 seem to be anything, put it this way, complicated about
 17 the analysis that you're undertaking there?

18 **A.** No, this is a very standard -- it's a very crude
 19 analysis, but I wouldn't call it back-of-the-envelope --

20 **Q.** All right, we'll go with crude.

21 **A.** -- it's a very, very crude analysis, and I think I say
 22 elsewhere in the email this is the sort of calculation
 23 that I would expect my undergrad class to be able to
 24 master.

25 **Q.** Yes. Are you trying to make the point that it's

9

1 Mr O'Connor is going to discuss with me later, I was
 2 already at that stage discussing this with the Chief
 3 Medical Officer of Scotland. Basically what I --
 4 I think I'm jumping in Mr O'Connor's evidence here.

5 **LADY HALLETT:** I apologise to Mr O'Connor if I've jumped in.

6 **MR O'CONNOR:** It's your evidence, Professor, not mine.

7 **A.** Shall I go on then?

8 **MR O'CONNOR:** Do answer --

9 **LADY HALLETT:** Carry on, he'll forgive me.

10 **A.** So I think it was around about that time that I was
 11 alerting the Chief Medical Officer of Scotland to this.
 12 I did not want to do this without essentially getting my
 13 view peer reviewed. I didn't want to do that without
 14 confirmation from people I knew knew this subject that
 15 I wasn't making a huge mistake. And I got that
 16 reassurance through this correspondence.

17 **LADY HALLETT:** Thank.

18 Sorry, Mr O'Connor.

19 **MR O'CONNOR:** Not at all, not at all.

20 I am going indeed to take you shortly to those
 21 emails that you exchanged with the Chief Medical Officer
 22 for Scotland, but before we do, let's just look at one
 23 or two more references in this document.

24 If we can look at the paragraph starting "What's the
 25 right response?", please, again just to understand

11

1 something really quite clear and obvious to you at
 2 the time?

3 **A.** Yes. And in the context of these emails, it's something
 4 that I fully expected would be obvious and clear to
 5 Jeremy Farrar and Neil Ferguson, which of course they
 6 confirmed.

7 **Q.** Yes.

8 **A.** They agreed.

9 **Q.** Then if we can just look at the next paragraph, it's
 10 there that you refer to why you are this being something
 11 that you would expect your undergraduates to do with
 12 a pocket calculator in a few minutes. But you also --
 13 sorry, if we go down to the paragraph underneath
 14 that ...

(Pause)

16 **LADY HALLETT:** Professor Woolhouse, why did you start
 17 the chain? Did you feel like you were a voice in
 18 the wilderness and therefore were seeking views from
 19 colleagues whom you respected, or did you feel that
 20 other experts in your field were thinking the same
 21 thing? Did you feel alone or ...?

22 **A.** No. It's a very good question.

23 So I fully expected my two correspondents on this to
 24 have the same interpretation of the data and
 25 the information that was emerging. As I suspect

10

1 the nature of your concern, you say:

2 "That's [and I take that that that is referring to
 3 your calculation based on the R0 number and the case
 4 fatality rate] not a worst case; that's based on the
 5 central estimates published by WHO."

6 Now, we've heard about worst-case scenarios being
 7 part of a system where one models a number of different
 8 possible outcomes and the reasonable worst-case scenario
 9 being the most pessimistic in a way, but you're saying
 10 that this is not a worst-case scenario; does that mean
 11 that it's something more confident than that or more
 12 precise than that?

13 **A.** No, it doesn't mean that. If you wanted a worst-case
 14 scenario you would have to do a lot more work. It's
 15 based on those numbers published by the World Health
 16 Organisation.

17 And again, to come back to my Lady's question, if
 18 I'm talking to the Chief Medical Officer of Scotland
 19 with this, I want to do so with some authority, and
 20 rather than -- you know, the data I would use is
 21 the data that was coming out of the World Health
 22 Organisation.

23 Now, I didn't necessarily agree with that data, but
 24 I used it anyway, and the reason is the critical number
 25 there is the case fatality rate, because the R0 number,

12

1 as it is there, is large enough that that tells you
2 you're going to have a very big wave. If nothing else
3 happens to mitigate it. But you're going to have a big
4 wave. So then it does become very, very important what
5 the case fatality rate is. And case fatality rate for
6 seasonal influenza, for example, seasonal influenza not
7 pandemic influenza, would be something like 0.1%. So 4%
8 is very, very high.

9 **Q.** Yes.

10 **A.** But it's not as high as it could be and, as elsewhere in
11 this trail, actually an even higher number comes out.
12 So I have to say at this point I was very, very
13 concerned.

14 **Q.** In a nutshell, your feeling was that if these
15 calculations, if this analysis was sound, and that's why
16 you're checking with others, this is something that
17 people need to start preparing for?

18 **A.** Absolutely.

19 **Q.** Let's, if we may, look at Neil Ferguson's response, he
20 responded within an hour or so.

21 We'll need to go to the page before to pick up the
22 beginning of his response, but it's at the very bottom
23 of the page.

24 He says this:

25 "Fully agree. Jeremy [that's Jeremy Farrar] and
13

1 the email that you then sent to Catherine Calderwood.
2 Before I do, can we just briefly go back to that initial
3 email exchange that you had, the earlier email exchange
4 with Jeremy Farrar, because there was one particular
5 email from him that I omitted to take you to and it's
6 quite important.

7 So can we go back to the first page, please, of
8 INQ000103349. Now, you'll recall a few minutes ago
9 there was that initial email that you sent to him
10 saying: I'm worried about this, am I right to be
11 worried? My guess is there's a significant likelihood
12 of it going global.

13 He responded, amongst other things, by sending you
14 some internal emails that he had sent around
15 the Wellcome Trust.

16 You weren't quite sure what he was in fact saying,
17 whether he was actually agreeing with you about your
18 prediction or not, so we see that the second email down:

19 "Thanks. Just to be clear. You DON'T think it will
20 go global? Or that it will?"

21 So you're just wanting him to be clear?

22 **A.** Crystal clear, yes.

23 **Q.** And his response to that then is at the top:

24 "It will.

25 "It probably already has.
15

1 I were saying the same to Patrick Vallance and
2 Chris Whitty last night. I hope (and think likely) that
3 COBRA will meet early next week."

4 **A.** Yes.

5 **Q.** Now, he also says that, I don't think we need to go back
6 to the previous page to see this, but he sent you
7 a report at that point, did he not? He said, "I'm
8 sending you an attached report"?

9 Shall we have a look --

10 **A.** Yes.

11 **Q.** Perhaps we do -- let's just look to be clear. He says:
12 "We will be releasing the attached in the next hour
13 or [so]. It is a longer version of a report
14 circulated", and so on.

15 I don't know if you recall, but the subsequent
16 emails then do go on to be a discussion between you and
17 Neil Ferguson about that case fatality rate and
18 the possibility that it's actually higher?

19 **A.** Yes, so we're both recognising that that is
20 an absolutely crucial number to have, that it's very
21 difficult to estimate it accurately in the early stages
22 of a pandemic, this is a long-standing problem, so we
23 have doubts and concern about it, and Neil shared those.
24 And it was a crucial question, how high that is.

25 **Q.** Yes. I'm going to go on in a moment to look at
14

1 "So many asymptomatic, very mild infectious
2 individuals who can transmit -- sort of worst hybrid of
3 flu+SARS!"

4 Just help us, if you will, what's the significance
5 in this context of "asymptomatic ... mild infectious"
6 cases?

7 **A.** That's absolutely crucial. So you'll recall the
8 SARS outbreak of 2003 which was brought under control by
9 a very impressive global effort led by the World Health
10 Organisation, but the central feature of SARS that
11 allowed that effort to be successful, was there was very
12 little transmission in the absence of symptoms.

13 So if you could detect people with symptoms quickly
14 enough, and isolate them, quarantine them, you could
15 bring outbreaks under control.

16 We knew from much earlier in January, as soon as
17 the genome sequence of SARS-CoV-2 had been published,
18 that this was very closely related to SARS. Very, very
19 closely. The International Committee on Taxonomy of
20 Viruses called it actually the same species; it was that
21 close. So there was obviously a question of whether or
22 not it would behave as SARS. But if it didn't, if there
23 was asymptomatic transmission, then it couldn't be
24 contained in the same way that SARS was contained. And
25 that is why Jeremy raised the flu scenario, because
16

1 a lot of flu transmission is asymptomatic, and that
2 makes it very hard to control the same way that SARS was
3 controlled.

4 So it's a technical point but it is a crucial one
5 for the type of response that would be appropriate.

6 **Q.** Now, you've already told us in a slightly different
7 context that you were not getting a complete picture
8 from the data from China at the time, and you refer, in
9 your emails, to needing more data. But what we do see
10 here, at the very least, is that there is a discussion
11 about asymptomatic cases as early as the end of
12 January 2020?

13 **A.** Yes. And for the reason I gave, that it's crucial.

14 There's another reason it's crucial, actually; may
15 I raise that?

16 **Q.** Yes.

17 **A.** We talked about the importance of the case fatality rate
18 being 4%, but that's a ratio. So it's the number of
19 deaths -- which was being recorded in China, we didn't
20 know at the time how accurately, but it was a number --
21 divided by the number of infections. Well, that is
22 a much more difficult number to estimate, and if there
23 was significant asymptomatic transmission then that
24 number could actually be quite large. The consequence
25 is that 4% figure would come down quite considerably,

17

1 the third page. It's the email that starts at the
2 bottom of this page.

3 You had been in touch with her before, had you not?

4 **A.** I first got in touch with her I believe on 21 January --

5 **Q.** Yes.

6 **A.** -- very shortly after speaking to Jeremy.

7 **Q.** But this one is on Saturday, the 25th, so it's -- and
8 it's shortly after those emails you exchanged with
9 Jeremy Farrar and Neil Ferguson?

10 **A.** Yes, but, as I say, it's the second.

11 **Q.** But that's why there is a sort of existing email chain?

12 **A.** Yes.

13 **Q.** And you're referring back to an email at the very
14 beginning, but you say there:

15 "Forgive me bothering you on a weekend ..."

16 Is that a significant comment? You could have
17 waited until the Monday, but the suggestion is you
18 thought it was too important to wait.

19 **A.** Correct.

20 **Q.** Can we move on to the next page, please. What we see
21 here, Professor, I'm not going to take you through it
22 line by line, but it's a very similar message to
23 the message you had been, as it were, testing out on
24 Neil Ferguson and Jeremy Farrar.

25 **A.** It is.

19

1 and in the end, as I think you probably know, it came
2 down to about 1%.

3 **Q.** Yes.

4 **A.** But at this stage, because we didn't know whether there
5 were these asymptomatic cases, we couldn't make that
6 judgement with --

7 **Q.** That's what I wanted to press you on a little.

8 So you've explained why, in a situation like this,
9 the possibility of asymptomatic cases is so important,
10 but what Jeremy Farrar seems to be saying is that there
11 are asymptomatic cases. Was that something that you
12 were confident about at the time or suspected or simply
13 didn't know?

14 **A.** I was not confident about it at the time. I simply
15 didn't know.

16 **Q.** All right. Thank you. As I say, I just wanted to go
17 back to that email.

18 You'll recall we were looking at emails between you
19 and Neil Ferguson and Jeremy Farrar a few days later,
20 and you then went on, as we will see, to send an email
21 to Catherine Calderwood on the same day, and I'd like to
22 look at that now, please.

23 That is INQ000103352. Thank you.

24 I think it may be the third page that we need. Yes,
25 in fact it's the very bottom -- sorry, could we go to

18

1 **Q.** One small difference, if we can see, about ten lines
2 down, after you've referred to the R0 rate of 2 and the
3 case fatality rate of 4, again you talk about putting
4 those numbers into a model, but here you talk about the
5 effect of that being that "the gross mortality rate
6 [would] triple", whereas when you had been speaking to
7 Neil Ferguson and Jeremy Farrar earlier you were talking
8 about it more than doubling, I think were the words you
9 used there. Is that because of the subsequent
10 discussion you'd had about the case fatality rate or can
11 you not help us with that now?

12 **A.** Yeah, it's ... there's an element of judgement going on
13 here. The -- you call them "back-of-the-envelope
14 calculations", they are quite sophisticated, but they
15 don't incorporate all the detail that you would need to
16 actually make those estimates rigorous. So there's some
17 element of judgement. I used my judgement in trying to
18 come to something sensible to communicate to a Chief
19 Medical Officer who is not --

20 **Q.** Yes.

21 **A.** -- expert in this area. Judgement, but consistent with
22 the data that I had.

23 **Q.** And you are sending her an important message?

24 **A.** Yes.

25 **Q.** What were you hoping or expecting that she would do in

20

1 response?

2 **A.** I wasn't actually certain, not knowing the Chief Medical
3 Officer of Scotland that well at the time. I'd only met
4 her very, very briefly. What I hoped to do was that
5 Scotland would start to think about pandemic
6 preparedness immediately, and I had not, from my own
7 contacts within Scotland, at the time got any impression
8 that they were. So I was very anxious to hurry
9 the process along.

10 **Q.** Let's just look, go back, please, so we can see her
11 response. We see it's just a one line response. She
12 thanks you. This is on the same day. She says she has
13 shared it with her CMO/DCMO colleagues.

14 Now, we can see it's copied to Gregor Smith, who
15 I think was the Deputy Chief Medical Officer?

16 **A.** He was at the time, yes.

17 **Q.** Can you help us whether Catherine Calderwood might be
18 talking about sharing it with other CMOs throughout
19 the UK, for example Chris Whitty, or are you unable to
20 tell us what that email means?

21 **A.** I didn't take it that way, but of course I was aware
22 from the correspondence we were discussing earlier that
23 Patrick Vallance and Chris Whitty had been alerted to
24 this, if they weren't alerted to it already, by
25 Jeremy Farrar and Neil Ferguson.

21

1 is closely aligned to the advice that Chris Whitty and
2 Patrick Vallance have received from Jeremy Farrar and
3 Neil Ferguson. Presumably you said that on the strength
4 of what they had told you in those emails?

5 **A.** Correct.

6 **Q.** You talk about there being "three scenarios in play".
7 I just want to ask you briefly about them, each of them.

8 "First, there is containment of any
9 introductions/outbreaks within Scotland/UK."

10 But you go on to say that that is a strategy that
11 depends on all countries, as it were, containing
12 the virus within their borders.

13 **A.** Yes. So this is essentially the -- would be a replay of
14 the SARS epidemic in 2003, where it is possible to
15 contain the virus, wherever it gets around the world,
16 but without it getting into the community and causing
17 a pandemic.

18 **Q.** Yes, and then the second possibility or the second
19 scenario is what you describe as the
20 "not-much-worse-than-a-bad-flu-season scenario", and
21 I think, drawing on what you've already told us this
22 morning, Professor, that possibility revolves around
23 the chance that the severity of the infection is
24 actually much, much less than was being understood at
25 the time, and because the -- if there had been more mild

23

1 **Q.** All right.

2 But in any event, she says she is going to discuss
3 it at a meeting on Monday. Is that a meeting that you
4 were supposed to be going to --

5 **A.** No.

6 **Q.** -- or not?

7 **A.** No.

8 **Q.** So how did that strike you as a response?

9 **A.** Well, that's just a holding response. I think I sent
10 her another briefing very shortly afterwards, as more
11 information became available. I wasn't waiting for
12 a detailed response to provide updates. This -- I was
13 cold calling the CMO Scotland on this one and
14 I continued to do so.

15 **Q.** Yes. Well, as you say, you did send another, in fact on
16 the next day, so the Sunday.

17 **A.** Yep.

18 **Q.** We'll need to go to the next page forward of the
19 document. No, it's page 2 -- sorry, I meant it's
20 page 2, because it's an email chain so we're working
21 backwards. Thank you. In fact, that may have been the
22 one you went to before, I'm sorry.

23 So we see here the email you sent back on
24 the Sunday. You say that you're extending your
25 briefing, and you say that the advice you're giving her

22

1 and asymptomatic cases, then it would have been a less
2 serious event when it reached the UK.

3 Is that what you're trying to describe here?

4 **A.** Yes, partly that. That's important, what you just said,
5 but the other one is that if there was a lot of
6 asymptomatic transmission, as I said earlier, it was
7 unlikely you would be able to contain this in the way
8 that the SARS epidemic was contained, so you would have
9 to have a more flu-like response.

10 **Q.** Then the third scenario, which you describe as
11 the scenario that was "outlined ... yesterday", so the
12 emails we've seen, that's the SARS scenario?

13 **A.** Yes.

14 **Q.** Thank you.

15 So we see here, do we, it would be wrong to read
16 your earlier emails as suggesting that there is only one
17 course that this developing situation can take, you're
18 here outlining three different possibilities?

19 **A.** Yes, in the earlier emails I was acting, as I said
20 before, directly on the data coming out of the World
21 Health Organisation, which seems to me to be a good
22 starting point for a discussion of this kind.

23 **Q.** Thank you.

24 Can we now, just to finish this off, go back to
25 the first page of the email chain, which is obviously

24

1 the last email, which is sent a bit less than a week
2 later, so on Friday, 31 January, at the very end of
3 the month. You're updating Catherine Calderwood with
4 some further data, some further information, and you
5 describe it as "not much good news". You refer to
6 the two parameters being the basic reproduction number
7 and the generation time.

8 "Estimates of the former [that's the reproduction
9 number] are higher than before and estimates of the
10 latter are slightly lower than had been assumed."

11 And as you say:

12 "This means that any epidemic will be bigger and
13 faster than we were anticipating a week [before]."

14 You also, and this is the second point you make,
15 say:

16 "... there is now some evidence of transmission from
17 cases before symptoms are apparent."

18 So this is the asymptomatic transmission that
19 Jeremy Farrar had mentioned in that email a couple
20 of weeks beforehand?

21 **A.** Yes.

22 **Q.** But now you're saying that there is some evidence of it.
23 Can you help us with what evidence was available of
24 asymptomatic transmission at the time or how confident
25 you were in that evidence? In fact, you do go on to

25

1 of the burden on health care systems, but the consensus
2 seems to be that we could be completely overwhelmed
3 (including any surge capacity) within 2-3 months of the
4 epidemic taking off."

5 Then you say this:

6 "As always, I must stress that this is NOT
7 a prediction. But it is a possibility that cannot be
8 excluded ..."

9 I just want to ask you, in that earlier email about
10 a week beforehand you had said it's not a scenario but
11 it is what the data were telling you. Here you use
12 slightly different language, you say it's not
13 a prediction but it's a possibility that cannot be
14 excluded.

15 **A.** So I believe in the first email you referred to I was
16 saying this is not a worst-case scenario.

17 **Q.** Yes.

18 **A.** Which was correct, because the data were still
19 consistent with a higher R0, a higher attack rate and
20 a higher case fatality rate, so I wasn't giving them
21 a reasonable -- I wasn't giving the CMO Scotland
22 a reasonable worst-case scenario. But I never at any
23 point, and I was very careful to do this, in my
24 communications with her or any other officials, said
25 I was predicting anything. My line on this is I can't

27

1 talk about it.

2 **A.** Yes, it's low quality, I think I'm referring to
3 the report you said earlier from Neil Ferguson, so he
4 will be able to give you chapter and verse when you
5 speak to it, but it is, as I said earlier, very
6 difficult to get reliable estimates of extent of
7 asymptomatic transmission this early on, but I believe
8 Neil thought there was some evidence that this was
9 occurring.

10 **Q.** Certainly, I mean, is this fair, there was enough
11 evidence of asymptomatic transmission at that time for
12 it to be a factor that was important to bear in mind?

13 **A.** To bear in mind, yes, as I quite clearly say. The
14 evidence I thought was low quality, but a factor to bear
15 in mind, as you say.

16 **Q.** Then if we can go down a little bit below what's --
17 thank you. Just to summarise, you reached the point of
18 saying:

19 "As we stand, however, the epidemiological
20 indicators make the potential epidemic in Scotland of
21 the same order as the Reasonable Worst Case for pandemic
22 influenza used for planning purposes, and perhaps even
23 more severe than that scenario. In which case our
24 preparedness will be tested to the very limit. There
25 has not yet been, to my knowledge, any formal modelling

26

1 be 100% confident, or even anywhere near it, of what
2 will happen, but I can be 100% confident that government
3 should be paying attention to this.

4 **Q.** Right. Of course, the amount of attention that's paid
5 to a problem like this does depend, we may hear, to some
6 extent, on how likely people think it is that it's going
7 to happen. Is that something that you could engage with
8 at all, or could you simply say, "Look, it's
9 a possibility, you need to look at it"?

10 **A.** That's what I said. I said, "This is a real possibility
11 and you need to look to it."

12 **Q.** Well, you've used a qualifying word immediately there by
13 saying it's a "real possibility"?

14 **A.** I was trying to emphasise it, not knock it down.

15 **Q.** Yes.

16 **A.** Yes, this is definitely a real possibility. This is
17 something we should be preparing for.

18 **Q.** And we've looked at these emails in a little detail now
19 and one can be left in really no doubt that you were
20 expressing your concern about the developing picture?

21 **A.** Yes. I was very, very concerned at that point.

22 The worst-case scenarios were really frightening.

23 **Q.** I want to move to another document, with that discussion
24 in mind. It's minutes of a COBR meeting.

25 If we can move to INQ000056226, please. Of course

28

1 this was a meeting that took place in London. You
2 weren't there. The date, we see from the top, is
3 29 January, so it's very much around the same time as
4 these emails we have been looking at. In fact it's
5 between that weekend where you contacted
6 Catherine Calderwood and the Friday, the 31st, when you
7 sent the email we've just been looking at.

8 We can see from the front page it was chaired by
9 Matt Hancock, and if we can go on to page 5, please,
10 which I think is where the substantive minutes ... yes.

11 I want to ask you about two different passages.

12 Paragraph 2 records the contribution made to
13 the meeting by Patrick Vallance, the Government Chief
14 Scientific Adviser, and he, amongst other things, says
15 that there was "limited evidence of asymptomatic
16 transmission".

17 Perhaps that's really just encapsulating the same
18 point that you were making around the same time: some
19 evidence but not necessarily very good evidence of that.

20 **A.** That's how I would read it, yes.

21 **Q.** Thank you.

22 Then if we may we'll look at paragraphs 3 and 4.

23 Here we move to Chris Whitty, the CMO. First of all, he
24 says that:

25 "... the UK planning assumptions were based on
29

1 "That there was a 10 per cent likelihood of [that]
2 happening but that this figure had not been agreed by
3 SAGE."

4 How are we to understand, what's your reaction to
5 what Chris Whitty is recorded as having said there in
6 paragraph 4?

7 **A.** I don't know where the 10% figure comes from, and
8 I don't actually know where he gets the data precisely
9 for the reasonable worst-case scenario. I, in my
10 communications that we've already gone over, I was
11 concerned this would be worse than pandemic influenza,
12 and I remember continuing to express those concerns over
13 many weeks subsequently -- many weeks, in SPI-M-O
14 meetings and others -- that the reasonable worst-case
15 scenario for pandemic influenza was not adequate for
16 the actual crisis that we were about to face.

17 So I never agreed with using pandemic influenza as
18 a reasonable worst-case scenario. Now, I said it could
19 be influenza-like, but that was not the worst case.

20 **Q.** Yes. As far as the 10%, you've already told us that you
21 would not be inclined to give that sort of risk or you
22 would not be inclined to put a number on it. So,
23 I mean, is your position just that, that you wouldn't
24 engage with giving a likelihood of that nature, or can
25 you say whether you think that that 10% estimation is
31

1 the reasonable worst case scenario. There were two
2 scenarios to be considered. The first was that
3 the spread was confined within China ..."

4 So just pausing there, that's similar to, is it not,
5 the first of those three scenarios that you defined?
6 It's not quite the same, because your first scenario
7 anticipated the virus escaping China, but then being
8 contained within the countries that it reached. But
9 it's a limited scenario where the virus is contained; is
10 that fair?

11 **A.** Well, obviously I don't know what was intended by this.
12 Just because this virus, this new disease would turn out
13 to be like SARS would be absolutely no reason for
14 complacency. So I'm not sure -- if that's -- the spread
15 was confined within China, I thought that was
16 unlikely -- I think that's unlikely, at the time.

17 **Q.** Let's go on to the second of the two scenarios. He says
18 that the second is that the spread is not limited to
19 China and there would be a pandemic-like scenario, with
20 the UK impacted. The second scenario was plausible but
21 it may take weeks to months. Then this:

22 "The CMO said that the Reasonable Worst Case
23 Scenario ... was similar to the [Reasonable Worst Case
24 Scenario] for pandemic influenza."

25 And he said:

30

1 too high or too low?

2 **A.** I wouldn't want to comment on the 10% figure, I don't
3 know where it comes from, but I actually repeat what
4 I said to you earlier, which is that I may or may not
5 be 10% confident about the reasonable worst case
6 happening, but I'm 100% confident the government should
7 be paying attention.

8 **Q.** Just to a lay reader, Professor, and it may be that we
9 can't take this any further, but to a lay reader of your
10 emails, it does -- even if it's just the fact that
11 you're bothering the Scottish CMO on a Saturday and
12 the persistence and so on, the impression that comes
13 across is that this was rather more than a 10% risk that
14 you were concerned about. But they're your emails.

15 **A.** Well, he's asking about the 10% risk of the reasonable
16 worst case happening. So, for the reasons we've
17 discussed, the uncertainty in some of the key numbers,
18 it is difficult to put a range of possibilities on it.
19 But if you thought I thought a pandemic, not
20 a reasonable worst case but a pandemic, was 10% likely,
21 I would say it was far more likely than that.

22 **Q.** All right.

23 **A.** But I did not put numbers at the time, so forgive me if
24 I don't put numbers on it now.

25 **Q.** That's understood. You, looking further ahead, then,
32

1 Professor -- thank you, we can take that down -- as you
2 said, you continued to engage with Ms Calderwood and her
3 deputy, we're not going to go to all of the emails, but
4 you carried on engaging with them, and as we will see
5 you attended SPI-M-O meetings going through February and
6 into March.

7 In summary, using these early concerns as a sort of
8 starting point, what's your reflection on the response
9 that then followed to the fear of a pandemic?

10 **A.** Well, I think the first thing to say is that
11 the pandemic that unfolded, terrible that it was, was
12 not as bad as my own personal reasonable worst case that
13 I was worried about in the darkest days of early --
14 rather, late January. And, as I say, I was very, very
15 concerned. So it didn't turn out to be that -- it
16 certainly turned out to be bad enough, but it didn't
17 turn out to be as bad as the worst case that
18 I personally was fearing.

19 Are you asking about the whole -- the weeks after
20 that? Because I can summarise that --

21 **Q.** Do summarise. I am going to take you in a little detail
22 to some of the meetings, but I think it would be helpful
23 if you were just to summarise in general terms.

24 **A.** So I am in complete agreement, not only for the UK but
25 for the world, with the report of the Independent Panel

33

1 that they were as concerned as I was about what was
2 unfolding, but having seen the minutes of SAGE I didn't
3 feel that that was reflected. So I knew some SAGE
4 members were very concerned, but the minutes didn't seem
5 to me to capture that concern.

6 **Q.** I don't know whether you were following the Inquiry,
7 Professor, but we looked with Professor Medley at some
8 of the SAGE minutes during February in the context of
9 the possibility of the NHS being overwhelmed. He said
10 in his statement that he and others on SAGE had formed
11 the view during February, I'm paraphrasing, that it was
12 likely that the NHS would be overwhelmed. But that
13 didn't seem to be reflected in the minutes.

14 Is that the sort of practical example that you would
15 give of the minutes not conveying the seriousness of
16 the situation?

17 **A.** Well, I think I'd point you to my earlier evidence in
18 the sequence of emails you discussed with me, with
19 Catherine Calderwood, where I pointed to that
20 possibility in January 20-something, in mid to late
21 January I was pointing at the possibility of the health
22 system being overwhelmed.

23 **Q.** From your evidence that you can give us, of course you
24 weren't on SAGE, but you were present at the SPI-M-O
25 meetings.

35

1 for Pandemic Preparedness and Response, which reviewed
2 the World Health Organisation's pandemic response, and
3 it used the phrase in its report "lost February", which
4 is referring to February 2020, and they are concerned
5 that simply -- not just in the UK, but globally -- not
6 enough was done in terms of pandemic response. And
7 I think that is as true of the UK as it was so many
8 other countries in the world.

9 **Q.** Yes.

10 You, in your statement, use a term "lack of urgency"
11 during that period, which is obviously expressing a very
12 similar sentiment, and you suggest a number of possible
13 causes for that, which I want to ask you about briefly.

14 First of all, can we look, please, at your
15 statement, page 19, paragraph 105. You say this, you
16 share the concern expressed in a Reuters article. I'm
17 not going to ask you to look at the article, but
18 the concern is that:

19 "... the minutes of meetings of SAGE and its
20 subcommittees did not communicate the seriousness and
21 urgency of the situation as it developed in January and
22 February ..."

23 Can you expand on that point a little for us?

24 **A.** Yes. So I knew, of course, that both Jeremy Farrar and
25 Neil Ferguson were on SAGE, we've already established

34

1 **A.** Yes.

2 **Q.** Was this possibility of overwhelm of the NHS something
3 that was discussed during those SPI-M-O meetings?

4 **A.** So I did watch your session with Graham Medley, and as
5 I -- what I understood him saying for that was
6 the evidence hardened up over the month of February.
7 And I completely agree with that.

8 As you quite rightly said, you know, one -- or
9 implied, one email from someone like myself using what
10 you called a back-of-the-envelope calculation is not
11 enough evidence to say the NHS is going to be
12 overwhelmed. I'm warning of the possibility but I'm not
13 saying it's going to happen. A lot of -- I beg your
14 pardon. A lot of the -- a lot of the things I was
15 discussing in January, all the ones we've discussed
16 today, the evidence firmed up over the period of
17 February.

18 **Q.** Yes.

19 Then if we can look over the page, please, we could
20 go to paragraph 107, you say you also believed:

21 "... there was some complacency regarding the UK's
22 pandemic response planning. The problem was that this
23 planning was undertaken with an influenza pandemic in
24 mind. Covid-19 wasn't flu and required an even more
25 vigorous response."

36

1 And so on.

2 Help us with that. Why was that a possible cause of
3 that lost month, as you describe it, in February?

4 **A.** Well, I don't know if it was a cause of it, but I do
5 recall very clearly there was a lot of discussion about
6 the reasonable worst-case scenario in the SPI-M-O
7 meetings of February 2020, and I'm quite clear that
8 I repeatedly said that I didn't think it was bad enough,
9 that reasonable worst-case scenario. And certainly that
10 it was different.

11 And I gave this evidence to Module 1, that the way
12 you respond to a pandemic, an influenza pandemic, and
13 the way you would respond to a SARS-like pandemic are
14 different. I gave a lot of evidence on that to
15 Module 1. And I was worried that this wasn't fully
16 being captured in keeping hold of the reasonable
17 worst-case scenario for pandemic influenza for so long.

18 **Q.** Just one more of these points, if we can go to the next
19 paragraph, please, and you refer at the top of the page
20 to "optimism bias", and it may be that this is linked
21 with this point, which is to do with the influence of
22 the swine flu pandemic in 2009. Is that a fair way of
23 putting it?

24 **A.** Well, that's one possible cause of it, but yes, it is.

25 **Q.** You make the point here that, as it were, the swine flu

37

1 we have heard and we will continue to hear is the idea
2 of going early, going hard. That's something that
3 Patrick Vallance talks about in his witness statement.
4 We heard it from Professor Hale, I think it was.

5 You, in your statement, suggest a rather different
6 approach. I'm not going to go to it, but you say
7 a better maxim is that earlier action can be less
8 drastic action.

9 Can you tell us what you mean by that, and perhaps
10 with particular reference to that month of
11 February 2020?

12 **A.** I think the significance of that goes well beyond
13 February 2020, it goes throughout the pandemic. And
14 I think it's a really important distinction. I think
15 it's one that sets the tone for the whole approach to
16 the pandemic response in the UK.

17 So this idea, and as I remember Patrick and others
18 repeated it several times, go hard, go early, and go
19 wider than you would -- in fact, I think that was the
20 phrase: go harder than you want to, earlier than you
21 want to, wider than you want to.

22 Now, that, for me, is a good maxim in a particular
23 situation where your strategic objective is to eradicate
24 the virus. You're going to try and clear it out
25 completely. That's what was done with SARS in 2003, and

39

1 pandemic in 2009 had not been as bad as at one point it
2 was feared it would be. Is what you're saying here that
3 that experience impacted on the way people thought about
4 this pandemic in February 2020?

5 **A.** Well, that's my fear. As I said, I'm concerned about
6 it. It impacted on me too, because the root cause of
7 the -- or one of the main causes of the overestimation
8 of the threat of swine flu was that the early estimates
9 of the case fatality rate, that we were discussing
10 earlier, were way too high. Way too high. And I knew
11 that, from back in 2009, so I was naturally concerned
12 that the same thing was happening again, that we would
13 be exaggerating the scale of the threat, which is why
14 I kept going on -- this emphasis on we need to know what
15 this case fatality rate is, to know if we're really
16 facing a threat.

17 But I do think that what happened in 2009 was likely
18 to make people suspect the scientists were just crying
19 wolf again, you know, as they did ten years earlier.

20 **Q.** I want to move on, Professor, and, as it were, move
21 the story forward. You've referred to February as being
22 the "lost month", which implies that things that should
23 have happened during that month didn't happen, and
24 I want to ask you about what it is you think should have
25 been done during that month, and one of the phrases that

38

1 there I would hold on to that as a good maxim.

2 My -- mine was different. I did not think, from
3 very early on, that eradicating the virus was even
4 the remotest possibility. I'm not going to say 100%,
5 I will never say that, but I was pretty convinced that
6 was not going to be the case. In which case, this
7 go hard, go early, go wide is going to mean severe
8 restrictions of some kind, it's going to -- your
9 intervention is going to be very disruptive. So I was
10 always interested, from early on, in trying to find
11 a sustainable intervention. And so my maxim is: if you
12 go early, you don't have to go so hard. And I think
13 there's a very big difference between those approaches.
14 And the UK went down the first approach, in the end, it
15 went down the go hard. I wanted to go early. And
16 there's a difference.

17 **Q.** There are perhaps at least two reasons why going early
18 and not going so hard might be a better route to adopt,
19 and I want to just explore with you whether you have in
20 mind both of these reasons or only one of them.

21 One is that it's a more effective way of controlling
22 the virus. The other -- and appreciating what you say
23 about the aim being controlling rather than
24 eliminating -- is that it is a course which minimises
25 the other impacts that are felt by society from NPIs,

40

1 the most obvious one being lockdown. I know that
2 certainly the second argument is one that you've made.

3 Do you think that it's actually also a better --
4 simply a better way of keeping the numbers down, or are
5 you really only relying on the fact that it has
6 a reduced collateral impact on the population?

7 **A.** A better way of keeping the numbers down. I think we'll
8 probably come on to that. So if your response is to
9 keep the numbers down as low as you possibly can, then
10 yes, you go hard, you go early, you go wide, and what
11 that essentially means, in almost caricature, but we
12 will come on to it perhaps, is you lock down, you do
13 something as drastic as that very, very early on and you
14 stay there, and that's the way to minimise the actual
15 numbers of cases.

16 Now, that was not something that was being talked
17 about, an indefinite lockdown, at any stage. And since
18 we're on this subject, for the record, no country in the
19 world went for an indefinite lockdown. Everyone
20 realised that, you know, lockdown wasn't going to be
21 a sustainable measure. And given that, my emphasis was
22 on sustainability. And I said a little while ago to you
23 that I was convinced that it wasn't going to be
24 a transient phenomenon, that this virus was going to be
25 with us for a long time, and there was work done in

41

1 I don't want to get into the detail of that paper, but
2 I think it's right that that paper provides the context
3 for this exchange between you and Professor Edmunds?

4 **A.** Yes, and the paper was an important element of
5 a discussion that was going on in SPI-M-O anyway at that
6 time, but the paper was important, yes.

7 **Q.** So with that in mind, could we -- I think we'll need to
8 go to the next page, please. Yes.

9 So the email I want to start with is the one at
10 the very bottom of this page, and we'll have to go on to
11 the next page. So you are emailing John Edmunds quite
12 late at night on Wednesday, 11 March. First of all you
13 say this:

14 "We were given the policy objective of flattening
15 the peak."

16 We've heard of course about that, with
17 Professor Medley and others. You say that you have
18 modelled it, and then you also say that you've
19 "described [the policy] to the policy makers here" --
20 "here", does that mean in Scotland?

21 **A.** Yes.

22 **Q.** "... as possible, but it would be good fortune as much
23 as anything."

24 I'll ask you about that in a minute. Let's read on
25 to see what you say in the next line. You say:

43

1 America actually on modelling the long-term dynamics of
2 this pandemic as early as, I think, February, but
3 certainly March 2020, published papers showing that it
4 would go into an endemic virus, that it would actually
5 eventually become a seasonal infection.

6 So scientists were thinking about this long term,
7 that we were in this for years, as early as that, and
8 therefore my thinking, starting then, was that whatever
9 we did it had to be sustainable. And we come back to
10 this, going harder than you want, earlier than you want,
11 wider than you want is not sustainable. So that's my --
12 I had a different view of how we should be handling
13 this.

14 **Q.** Thank you.

15 Many of those themes, or some of them anyway, emerge
16 in an email exchange I want to ask you about. This is
17 an exchange between you and Professor Edmunds, in the
18 days before the decision was taken to impose the first
19 lockdown.

20 So if we can go, please, to INQ000103343. Now, to
21 set the context, Professor, there was a paper, was there
22 not, by Professor Steven Riley in, I think it was
23 10 March, which went to SPI-M-O and which initiated
24 a discussion about moving to a complete lockdown?
25 Professor Riley is coming to give evidence tomorrow so

42

1 "[You] also told them that the most likely outcomes
2 are either that we'll see a peak that the NHS couldn't
3 cope with, or we'll end up in the grip of severe BSIs
4 with no way out."

5 BSIs, does that stand for behavioural social
6 intervention?

7 **A.** Yes. I mean, that's gone out of fashion --

8 **Q.** We see different --

9 **A.** -- that particular acronym, so non-pharmaceutical
10 interventions, but particularly social distancing.

11 **Q.** Yes. So starting from the fact -- you see, you're
12 describing the policy as being trying to "flatten the
13 peak", and it appears you're saying that your view
14 during February and running up to early March was that
15 that might work but that you thought it was more likely
16 that it wouldn't, because you would either end up with
17 a pandemic that overwhelmed the NHS or you would be
18 forced, presumably for that reason, into having very
19 severe lockdown?

20 **A.** So that's right. In other communications I think I put
21 that much more strongly, that trying to walk this
22 delicate balancing act of keeping the epidemic roughly
23 the same size without either falling into severe
24 restrictions or, worse, having a big epidemic was ...
25 well, it would be luck more than anything. I didn't

44

1 think we could manage the pandemic well enough. And
 2 I was actually quite concerned about this. There seemed
 3 to be an idea that somehow we could manage the epidemic
 4 curve, and another analogy I used -- I fear it might not
 5 be in my evidence, so I apologise -- was directing a jet
 6 of water from a hosepipe but holding the thing 2 feet
 7 from the end. I mean, you can't manage the course of
 8 a pandemic with any kind of -- that kind of precision.
 9 So I was very concerned about any policy that said it
 10 had to follow a very narrow path to be successful, I did
 11 not think that was viable, and I expressed it much more
 12 forcefully in other communications than I did in this
 13 one.

14 **Q.** That's actually why I wanted to pick you up on that
 15 word, your use of the word "possible", because, as you
 16 say, other people have expressed the view that it was
 17 never going to work, at least in this email you seem to
 18 be giving the view that it might have worked but that
 19 you didn't think it was likely. But perhaps what you're
 20 telling us is this email doesn't fully represent your
 21 views at the time?

22 **A.** Well, again, you've got the whole body of my emails at
 23 that time, so you can suggest that. But yes, I mean,
 24 we're holding the hosepipe 2 feet from the end, we might
 25 hit the target but it's not something to guarantee.

45

1 Is that because Neil Ferguson at the time was
 2 arguing or was continuing to argue for, as it were,
 3 a flattening the peak type approach?

4 **A.** So I'm going to have to apologise to you here, because,
 5 having seen that you wanted to talk about this, I went
 6 back to try to work out for myself what I was referring
 7 to, and I can't categorically identify it, I'm afraid,
 8 as to what I was referring to there. So --

9 **Q.** If you can't --

10 **A.** I'm sorry about that.

11 **Q.** No, that's fine.

12 That, in any event, was a discussion that you had
 13 with Professor Edmunds during that week, and as we will
 14 see there were important meetings that took place
 15 towards the end of that -- that week and then over
 16 the weekend, which set the course towards the lockdown.

17 If we can look at, please, going back to your
 18 statement, page 29, paragraph 160, it's right, isn't it,
 19 Professor, that you did support the idea of that
 20 lockdown at the time when, in the end, the decision had
 21 to be made whether it should be imposed or not?

22 **A.** That was at March 23rd, and I did, yes.

23 **Q.** Yes. So paragraph 160 you say:

24 "For [you], the key driver of that recommendation
 25 was not model outputs, it was data on the rapid doubling

47

1 **Q.** Let's look, if we may, at Professor Edmunds's response.

2 He says:

3 "You can't have a lockdown for months, let alone
 4 the years that Steve ..."

5 That's Steven Riley, isn't it?

6 "... is suggesting? However, I agree there may
 7 actually be pressure for a lockdown. And they will
 8 work, temporarily."

9 So that's the view he was taking.

10 Can I then ask you about the email that you then
 11 sent in response to him. You say:

12 "What I was trying to say is that I think we are
 13 likely to end up with your scenario by default."

14 So that was Professor Edmunds's scenario. What was
 15 he campaigning or arguing for at the time?

16 **A.** So he was arguing for a response that involved on/off
 17 lockdowns. And actually, of course, that's, as I --

18 **Q.** Yes.

19 **A.** -- said here -- what I'm trying to say is "I think we'll
 20 end up in your scenario by default", and that is what we
 21 ended up with: we ended up with on/off lockdowns. So
 22 that's what I was communicating there.

23 **Q.** Then the next line:

24 "Neil's [Neil Ferguson] won't be allowed once they
 25 realise the toll on the NHS."

46

1 times of hospitalisations and deaths ..."

2 Is it a fair summary that, given the position
 3 the country was in at that time, you took the view that
 4 that was really either the only course or the best
 5 course to take?

6 **A.** Yes, I didn't -- didn't think there was any other option
 7 on the table on that date.

8 **Q.** You go on, in your statement, though, Professor, to
 9 express the view that although this wasn't known at
 10 the time, with hindsight and in particular with access
 11 to mobility data that has become available since, you
 12 wonder whether in fact that lockdown was necessary.
 13 Could you expand a little on that point for us?

14 **A.** Yes. Do you want me to explain what the mobility
 15 data --

16 **Q.** Yes, please.

17 **A.** -- are?

18 So Google, which is the one that was using --
 19 anonymously can track movements, not of individuals, but
 20 of its whole population of phones, and it was making
 21 those data -- it made those data available later on in
 22 the pandemic.

23 **Q.** Professor, sorry, can I just ask you to try to keep your
 24 voice -- or keep reasonably slow, please.

25 **A.** Sorry, I beg your pardon.

48

1 They made those data available, and they give
2 information on where people are by quite broad
3 categories. So are they in residential areas, are they
4 in city centres, are they in transit, so -- and those
5 data were used quite widely, when they became available,
6 by ourselves for some of our research on the topic and
7 many other groups. And what the data from Google
8 clearly show in the week leading up to the lockdown on
9 March 23rd was that the amount of time people in the UK
10 were spending outside residential areas, so presumably
11 where they lived, had fallen off a cliff, in the week
12 before lockdown. And when lockdown was introduced, it
13 didn't actually fall any further.

14 Now, that's not to say there weren't lots of other
15 things going on that might have influenced the spread of
16 the virus, but based on that particular data stream the
17 job was already done.

18 **Q.** The inference you draw in your statement is that what
19 had caused or probably caused that reduction in
20 population movement was the, as it were, milder NPIs
21 that had been introduced in the week or two before
22 the lockdown?

23 **A.** Two things. So one of them is that. So the whole raft
24 of measures, quite severe restrictions, had been
25 introduced up to that time, but we didn't have sight of

49

1 **LADY HALLETT:** Are we talking about 2020 with the Google
2 data?

3 **A.** Yes. Oh, yes, it was made available in 2020, but
4 I can't right now recall when.

5 **MR O'CONNOR:** My Lady, I'm about to move to another topic.
6 Is that a convenient moment?

7 **LADY HALLETT:** Yes, of course. We will break now and
8 I shall return at 11.55.

9 (11.40 am)

(A short break)

11 (11.55 am)

12 **LADY HALLETT:** Mr O'Connor.

13 **MR O'CONNOR:** Professor, before we had our break, we were
14 debating the issue of the decline in population
15 movement, which you had said was apparent in
16 the mobility data which became available after, some
17 time after, the first lockdown, and what may have caused
18 that decline in movement.

19 We, I think, covered the topic of the earlier NPIs,
20 the less extreme NPIs, which might have contributed.
21 I think there was another half to your answer which you
22 were going to come to. Perhaps you could come to that
23 now.

24 **A.** Yes, the other very real possibility during that period,
25 the days or the week up to lockdown, was that people

51

1 how effective they'd been. We couldn't even see how
2 they'd changed people's behaviour, which is the earliest
3 indicator of those being effective. So we'd introduced
4 them, but we hadn't given ourselves time to see if they
5 worked, which is one of the reasons why I keep saying
6 earlier action can be less drastic action. If we'd done
7 them earlier we could have waited to see if they'd
8 worked. But we didn't, so we couldn't wait for that.

9 So that's the --

10 **Q.** Yes.

11 **LADY HALLETT:** When did you get access to the Google data?

12 **A.** My Lady, I'm not sure.

13 **LADY HALLETT:** Roughly.

14 **A.** It was some time after. It wasn't even -- I don't think
15 it was very quickly after.

16 Later on in the pandemic there was an even better,
17 more purpose-built data source, which was called CoMix,
18 a survey of people's actual behaviours, which was
19 incredibly valuable information. But CoMix, like so
20 many of our key data gathering structures that were set
21 up during the pandemic, wasn't available in those
22 crucial months up to the time of lockdown, so we
23 couldn't see how people were behaving because we weren't
24 surveying it. So the best we can do is look at
25 the Google mobility data.

50

1 were changing their behaviour anyway; they weren't
2 waiting for the government to announce a lockdown but
3 they were taking precautions and changing their
4 behaviour, changing their habits accordingly. And
5 I think there is very likely to be some truth in that
6 view, all the way through the pandemic, once we did have
7 the better data that I was describing to my Lady
8 earlier, it was clear that quite often the public was
9 anticipating what the government would do and they were
10 responding perhaps not purely to government directives
11 or government regulations and rules about what we could
12 and couldn't do, but they were making decisions for
13 themselves.

14 **Q.** Yes.

15 **A.** And I came to the view, over the course of 2020, that
16 this actually was a very important driver of what we
17 were seeing. And we might come to this point, but if
18 you tried to understand that simply on the basis that it
19 was government rules and regulations that were changing
20 people's behaviour, you were probably getting it wrong,
21 that the public was making their own decisions.

22 **Q.** No doubt, Professor, one can take from what you've just
23 been telling us that if one looks ahead to the next
24 pandemic, the absolute need for as much of this mobility
25 type data in as real time as possible is something that

52

1 must be aspired to?

2 **A.** Absolutely. And for a very particular reason. So the
3 influenza models were actually quite well informed by
4 real data on people's movements, but obviously before
5 a pandemic. And what we're now asking ourselves to do
6 is make a -- how are people going to behave in the face
7 of what was actually a once-in-a-lifetime -- we hope --
8 crisis? And there is no sound basis for predicting
9 that. Behavioural science, I learnt over the course of
10 that year, is not a predictive science. And predicting
11 how people are going to respond was very difficult. And
12 that made all predictions, by whatever means, very, very
13 difficult, because you have to work out how -- not just
14 people, how are people going to behave, businesses,
15 institutions, every element of society, what's it going
16 to do in response to this crisis?

17 **Q.** Yes. Lastly on this, Professor, I think what you've
18 said is that this data, which you found out about later,
19 has caused you to reflect on whether in fact that
20 lockdown really needed to be imposed when it was,
21 because of the change in movement that was seen. Are
22 you able to go further and offer any view as to whether,
23 in fact, had that lockdown not been imposed then, it
24 might never have been needed or it might have been
25 needed to have been imposed later, or is that simply too

53

1 avoided if possible; and the other, which is related, is
2 the whole idea of segmentation, which is a policy you
3 proposed sort of during 2020.

4 As far as lockdown is concerned, you've just
5 referred to it as being, as it were, at the outer edge
6 of NPIs. If we could look in your statement, please, at
7 page 31, paragraph 169, you put it a little more
8 strongly. You say:

9 "... I think it is fair to describe lockdown not as
10 a public health policy but as a failure of public health
11 policy; lockdown is what you do when you have failed to
12 control the epidemic in other, more sustainable ways."

13 Is it with a sense of, as it were,
14 a disproportionality of lockdown; is that what you're
15 trying to get at there?

16 **A.** No. I want to be very, very clear at this -- about
17 this. So there is a view that if we were more -- if we
18 weren't so keen to go into lockdown, that it would
19 increase the death toll. And that is a genuine concern
20 and it's the last thing anyone would want to see,
21 including me. So that's not the question. And the
22 debate often got phrased in that: you either want
23 a lockdown or you don't, and if you don't you're
24 prepared for more people to die. And I can't tell you
25 how distressing it is to hear that argument, and I was

55

1 complicated, too counterfactual a matter for you to
2 express a view on?

3 **A.** Well, as I said, I didn't think it was avoidable at
4 the time. There have been a number of retrospective
5 studies on the impact of lockdown. Some of them -- we
6 may come to this -- are -- the conclusions are very
7 clear, they thought lockdown was critical and essential,
8 but there are others in the scientific literature that
9 said that it wasn't, that what we would call
10 the marginal effect of the very severe end of lockdown,
11 particularly the instruction to stay at home, all around
12 the world, not just in the UK, was actually quite small.

13 But that doesn't mean you don't have to do all
14 the other things. So it's not as if there aren't
15 restrictions in place, whether they're imposed or
16 self-imposed on us, but the very -- the legal
17 requirement to stay at home, I haven't seen any good
18 analysis that said that actually was the killer punch,
19 the thing that was really needed.

20 **Q.** I want to move on, Professor, and, as it were, survey
21 the remaining period of the pandemic, which of course is
22 most of it, and there are perhaps two themes in your
23 statement about that period.

24 One, which you've just referred to I think, is the
25 idea that lockdown is a harmful measure which should be

54

1 presented with it many times.

2 May I give a bit more context?

3 **Q.** Yes.

4 **A.** So actually Tom Whipple, The Times science editor, wrote
5 a review of a book I wrote about the pandemic, and he
6 was discussing this very point, and he put it
7 beautifully, he said: at that phase of the pandemic,
8 supporting lockdown became a test of virtue. And
9 I completely agree that. It was very, very difficult to
10 say that you didn't support lockdown.

11 So every time, without exception, I am recommending
12 less lockdown, I am balancing that with saying what we
13 could have done instead. The options are not lockdown
14 or no lockdown. The options are lockdown or a whole
15 raft of other public health interventions that would
16 achieve the same effect as lockdown. And if they
17 didn't, I would never support or recommend them.

18 So that's why I think lock -- I just call lockdown
19 not as a public health policy but a failure of public
20 health policy. It's what you do when all those other
21 things you know you can do haven't worked. It's a last
22 resort. And it should always be that, in my view.

23 **Q.** Thank you, Professor, that's very clear.

24 One of or perhaps a group of those lesser measures
25 that you describe, which you proposed during

56

1 the pandemic, we can classify as a segmentation policy.
2 It seems to have been described by various different
3 tags along the way, segmentation and protecting, or
4 people talk about cocooning, let's not get hung up on
5 the names.

6 Are you able, Professor, to summarise for us what
7 that policy that you proposed was and what you were
8 hoping that it would achieve?

9 **A.** I can, but I need to give you a context again.

10 **Q.** Yes.

11 **A.** So what I just said relates partly to segmentation and
12 shielding, but again I want to be very, very clear on
13 this, that I was always of the view that it was
14 necessary to reduce the transmission rate of this virus
15 as part of the control measures. What I'm disagreeing
16 with is the mechanism by which we did that. So there's
17 a lot of interventions, to do with Covid safety
18 measures, to do with testing, to do with quarantine --
19 to quarantine you have to do the case finding -- sorry,
20 there's a whole raft of measures that would reduce
21 the transmission rate. And these were looked into, and
22 they might not be enough.

23 The segmentation and shielding is another layer. So
24 hopefully we've suppressed the number of cases. But
25 it's a tremendously important other layer that, in my

57

1 proposed --

2 **A.** Sorry.

3 **Q.** -- what were the measures that you proposed should be
4 adopted?

5 **A.** I'm going ... but the point I want to make is that it
6 was always, in my view, tremendously important that
7 whatever else we did we protect those vulnerable people.
8 This is a virus that's really targeting a subset, so we
9 need ...

10 So the measures we proposed went well beyond
11 shielding. So this was recognised. It wasn't that this
12 was unknown, but the measures that the governmental in
13 the UK put in were shielding. And that became to be
14 seen as enforced self-isolation by the elderly. It was
15 very unpopular and very, very difficult to manage, for
16 people to manage it, so that turned out not to be a very
17 successful policy.

18 So we decided that we needed to go further and we
19 identified that many of these people cannot actually
20 reduce their contacts to zero, because they need care,
21 they need healthcare, they need social care, they need
22 informal care. So how do we protect them best? By
23 protecting their carers. The people they need to --
24 must come in contact with must also be virus-free. So
25 that -- and that's called cocooning, where you protect

59

1 view, I think we lost sight of during the pandemic, and
2 I think it's very -- it's a tragedy that we did, and
3 it's this: that we knew from very early on in
4 the pandemic that there was a relatively small subset of
5 the population that were at tremendously enhanced risk,
6 tremendously enhanced, and these, put it in lay terms,
7 were the elderly, the infirm and the frail. They were
8 at far more risk from this virus. And a statistic that
9 sums it up is that someone over 75 was at 10,000 times
10 more likely to die of a Covid-19 infection than
11 a 15-year old. 10,000 times. This is a massive
12 difference.

13 I could go further in characterising this, and
14 I think you heard evidence on this point, the average
15 age of a Covid death is older than -- was older than --
16 than the average age of death.

17 Now, that to me is a definition of mainly,
18 definitely not exclusively, but mainly a disease of old
19 age. There's a couple of other conditions that have
20 that characteristic, dementia is one, that's really
21 concentrated in the elderly, but Covid is like that.
22 And that's very unusual for infectious disease. And
23 actually I can only think of one other example that
24 behaved that way and that was SARS, the close relative.

25 **Q.** So what was it, in summary, Professor, that you

58

1 the people around the people you're trying to protect.
2 And that policy was something that we developed over
3 the coming --

4 **Q.** Yes, please, and I'd like to ask you some questions. As
5 you say, you drafted with others a series of papers over
6 the sort of spring and summer of 2020?

7 **A.** Yes.

8 **Q.** I want though to take us, as it were, to the end of
9 the story, where these matters discussed at a SAGE
10 meeting.

11 So for these purposes can we have, please,
12 INQ000061570.

13 Perhaps if we can go to page 3, we will see the
14 section headed "Segmentation" starting -- yes.

15 Perhaps I should have asked you, Professor, I'm sure
16 you're aware of this meeting, but were you at it?
17 Because of course you weren't a regular member of SAGE,
18 and in fact I think you've told us you didn't go to any
19 SAGE meetings, so presumably you weren't there at this
20 one?

21 **A.** I was not there at this one, no.

22 **Q.** We see that SAGE endorsed the paper on age and
23 risk-structured segmentation. Looking down at
24 paragraph 19, there is a reference to:

25 "SAGE [having] previously advised that segmentation

60

1 by age is not without considerable risk, is
2 operationally difficult, and is unlikely to be
3 successful in reducing mortality and morbidity.
4 However, taking additional precautions in those at
5 increased risk is important."

6 If we can go over the page, please, these I think
7 then -- the minutes really come to the core reasons why
8 this segmentation policy was not taken forward.

9 First of all, it says it:

10 "... would be unlikely to prevent potential
11 spillover from younger to older populations. Even if
12 segmentation were initially achieved and high levels of
13 immunity could be reached in younger age groups (the
14 duration of which would be unknown), its almost certain
15 that a further wave of the epidemic in older people
16 would occur once segmentation ended."

17 Secondly:

18 "An unconstrained epidemic in younger age groups
19 would also have the potential to overwhelm the NHS", and
20 so on.

21 Can I just take those in reverse order. One of
22 the concerns, then, is that that part of the population
23 that weren't segmented would still suffer from Covid
24 with the risk to the NHS, and there's an additional
25 problem here, is there not, with Long Covid being

61

1 Q. I see.

2 A. -- I'm afraid, and something that I believe would have
3 worked, as far as I can tell, was never, never
4 considered by them.

5 Q. All right. Well, thank you, Professor. That's
6 something we may then take up with others in due course.

7 I want to ask you just about two final broad areas.
8 One is the question of transmission in children. Can we
9 go, first of all, please, to your statement at page 34,
10 paragraph 187. Thank you.

11 Now, at this part of your statement, you refer quite
12 expressly to the period in sort of early-ish or
13 mid-2020. First of all you refer to March 2020 and then
14 later in the paragraph you refer to June 2020, and what
15 you say by reference to those dates is that there was no
16 evidence that school-aged children were at significant
17 risk from Covid-19, as you say, for the good reason that
18 they were not. And then you talk about teachers being
19 exposed.

20 Do you agree that whatever the position in
21 early 2020, later on in 2020 there did become
22 evidence -- there was evidence available that children
23 were in fact at risk and were catching Covid-19?

24 A. So there was definitely a clinical risk to some
25 children, particularly those with a variety of

63

1 a long-term sequelae which, as we know, were being
2 experienced by people of all ages, certainly not just
3 the old, and that sort of group of problems were
4 certainly one of the things that were considered by
5 SAGE. Did you consider those to be sound objections to
6 your policy or not?

7 A. I'm not even sure that they were speaking about our
8 policy in these minutes, though we'll come to that.
9 I think they were talking about the Great Barrington
10 Declaration at the time. And I think that our
11 segmentation and shielding policy, which is different,
12 got caught up in their eagerness to disapprove, not
13 accept the proposal in the Great Barrington population.

14 I have to say this is one of the occasions where
15 I became very, very frustrated with SAGE. I don't think
16 they looked at the cocooning proposal. We had looked at
17 it, we had published it, the evidence was there, that
18 cocooning worked. When, to my best recollection,
19 according to the minutes, SPI-M-O was also asked to look
20 at it, they didn't do it properly. They didn't look at
21 the proposal we'd made, they looked at their caricature
22 version of it, which I already knew wouldn't work, and
23 they confirmed it wouldn't work, and that is what SAGE
24 is saying here, it wouldn't work, but our baby got
25 thrown out with that bathwater --

62

1 comorbidities, but healthy children, the risk remained
2 extremely low throughout the pandemic, and if it hadn't,
3 of course, we wouldn't have re-opened schools when we
4 did, as almost every other country in the world did. So
5 that was generally agreed. So the clinical risk to
6 children was not that great.

7 So what I think you're talking about is the risk of
8 infection in children, which, you're quite right,
9 evidence did accumulate that children, particularly
10 older teenaged children --

11 Q. Yes.

12 A. -- in the later years were getting infected, yes.

13 Q. Pausing there, you're quite right, that is what I was
14 talking about. It's just the fact as to whether
15 children were infected.

16 A. Yes.

17 Q. Briefly, because I think you accept this, but let's just
18 look, if we may, at INQ000207121, this is a report from
19 Professor Edmunds and Angela McLean, which I know you're
20 familiar with. It's dated 17 October, so later in the
21 year. It's based on or it reports or records two
22 strands of evidence: one, serological data from Public
23 Health England, and the other sort of ONS swab testing.

24 As we can see, we may not need to go beyond
25 the first paragraph, but what this report tells us, or

64

1 reports, is that both of those strands of data recently
2 suggest that older children -- sorry, that children,
3 particularly older children, may play a more significant
4 role in transmission than was previously thought.

5 You, I know, became aware of that report no doubt
6 around the time it came out. Did that lead you to
7 adjust your views from those that you refer to in that
8 paragraph of your statement that we looked at?

9 **A.** Yes, I'm not sure I saw the report in this form but
10 the data were discussed and available outright(?), and
11 it did cause me to wonder about my views, and
12 particularly my views about school, because this was
13 important new evidence.

14 **Q.** Yes. So you've got no reason to doubt the evidence that
15 was there at the time that children were being infected
16 with Covid, perhaps much more than had previously been
17 understood. And I know that there is a separate matter
18 which you remained concerned about, which is
19 the question of whether allowing for the new data which
20 suggested that children were being more widely infected
21 than had previously been understood, it followed from
22 that that children should be seen as driving
23 transmission of the disease in the community, and what
24 were your views on that?

25 **A.** So even more specific than that is whether transmission
65

1 the question of whether schools should be closed or not,
2 and I think what you're saying is that, notwithstanding
3 this evidence that children themselves, particularly
4 older children, were being infected more than had been
5 understood, you remained of the view that schools
6 themselves and being open wasn't a driver of
7 the pandemic?

8 **A.** Yes. But we don't have to argue on the basis of my
9 opinion versus John and Angela's opinion, we can look at
10 the data. So it was quite clear from conversations in
11 SPI-M that in the November lockdown in England that
12 there was a view that if we didn't close schools
13 the lockdown wouldn't work. And that's consistent with
14 the idea that schools are driving it.

15 **Q.** Yes.

16 **A.** So, if I can -- sounds a bit grim, but if I can call it
17 the "experiment" was done, because the government didn't
18 take that view, and they imposed the lockdown but kept
19 the schools open, and cases fell. And what's
20 particularly striking is that about two weeks, I think
21 it was, into the lockdown, with the schools open, cases
22 fell in the schoolchildren too. That, for me, is the
23 end of the argument. Schools were not driving this.

24 **Q.** All right, thank you.

25 Professor, just finally I'm going to try to ask you
67

1 going on in schools was driving the pandemic,
2 and this -- that view, which was held, definitely, by
3 some people in SPI-M, I'm sure they'll tell you
4 themselves, but I think John and Angela both held it,
5 was, of course, a powerful argument for closing schools
6 and keeping them closed. If they were driving the
7 pandemic.

8 Despite this evidence, which as you say I do accept,
9 it doesn't say directly: are schools driving
10 the pandemic? And it also, when it was published, flew
11 in the face of studies from around the world that said:
12 no, schools are not driving the pandemic, they're
13 playing -- they're making a contribution to
14 transmission, and there was a lot of argument about how
15 big that contribution was, but they're not driving it.
16 So it's that aspect that I continue to challenge.

17 But I have to say, this caused me a lot of concern,
18 could it be true, but I came to the view that it
19 actually wasn't true, that schools were not driving
20 the pandemic.

21 **Q.** Sorry, let's try and unpick that double negative at the
22 end there.

23 **A.** Sorry, I beg your pardon.

24 **Q.** As you say, at least one of, perhaps the most important
25 practical issue, to which this data referred, was
66

1 some fairly brief questions about these, what I've
2 described as SAGE ways of working. And there are, in
3 your statement, various reflections and criticisms of
4 the way the SAGE structure, in other words SPI-M-O, with
5 SAGE sitting above it, worked.

6 I want to ask you about just two of those. The
7 first is the question of the composition of SPI-M-O, and
8 if I can summarise it in this way: you say in your
9 statement that SPI-M-O was eminently well suited by its
10 composition to perform all the sort of public health
11 modelling tasks that it was set, but it was limited to
12 that, and you were concerned that there was no expertise
13 either on SPI-M-O or anywhere else that was modelling
14 all of the other impacts on society of the lockdowns and
15 the other NPIs that were being discussed.

16 Perhaps you can expand on that point and tell us how
17 you think the system should be changed to accommodate
18 those concerns.

19 **A.** The harms of the social distancing measures,
20 particularly lockdown, the economic harms, the
21 educational harms, the harms to access to healthcare,
22 the harms to societal wellbeing, just the way we all
23 function, mental health, were not included in any of
24 the work that SPI-M-O did. And as you say, as far as
25 I could tell, no one else was doing it either.
68

1 So my concern is not so much I think that SPI-M-O
2 wasn't doing it, it would be a much bigger committee,
3 and I think it did a valuable role in doing what it does
4 best, which is looking at the public health component,
5 but somebody somewhere had to be looking at everything
6 else, or I don't see how we could possibly make balanced
7 judgements about what to do.

8 And may I?

9 **Q.** Yes, do, please.

10 **A.** It comes back to this, that lockdown is a failure of
11 public health policy. And I take the view that it would
12 have been very helpful, in making its strategic
13 objectives clear, if the government said explicitly: we
14 don't want to go into lockdown, what's your advice, how
15 can we both minimise the health burden and stay out of
16 lockdown? And we could have given a lot of advice on
17 all the other things you could do other than lockdown.

18 I think they're more likely to do that if we all in
19 front of us had evidence of the harms that lockdown
20 would do, all those harms, and I couldn't find anyone
21 doing it.

22 But the question how to avoid lockdown was never
23 asked of us, and I find that extraordinary, and I think
24 that's one of the causes, is we didn't have in front of
25 us the figures that would show how harmful this would

69

1 true, yes.

2 **Q.** The argument in favour of consensus, really just
3 redrafts that paragraph we're looking at. The argument
4 is that policymakers will find it easier if they are
5 given one view which a group of experts have, as it
6 were, coalesced around. What do you say to that?

7 **A.** I say that it does exactly what I said, that will
8 channel policy decisions along a particular route that
9 is actually set by the advisers. We're, for example,
10 not offering them alternatives to lockdown,
11 so -- may I? -- in the build-up to that November
12 lockdown in England that we discussed, as far as I could
13 see, SAGE was simply telling the government it should
14 lock down. I was saying what I've said to you before:
15 earlier action can be less drastic action, we don't have
16 to lock down. And in fact there's good evidence now
17 that that lockdown was not strictly necessary. But we
18 could have done much more to avoid it if we had taken
19 early action. And I don't think that view was ever
20 communicated to SAGE, because, as you said to me at the
21 beginning, they were at this harder than you want,
22 earlier than you want, wider than you want point of
23 view. And that clearly was something government was
24 resisting.

25 So I think government was not given, in the build-up

71

1 be.

2 **Q.** Thank you, Professor.

3 Then the other aspect of the way in which SAGE
4 worked that I wanted to ask you about was the consensus
5 procedure. You refer at an earlier part of your
6 statement to the effect of adopting this consensus
7 procedure being that minority views weren't heard or
8 weren't heard by SAGE and those to whom SAGE
9 communicated.

10 Then if we can go to a passage towards the end of
11 your statement, please, you return to this theme on
12 page 50, paragraph 281.

13 If we can look at, as I say, paragraph 281, you say
14 that:

15 "... SAGE and its subgroups put too much emphasis on
16 consensus and too little on minority views. The most
17 likely outcome -- intended or otherwise -- of only
18 expressing a single view is that it presents
19 policy makers with an overly limited set of options and
20 so will channel policy decisions along a particular
21 route."

22 May we take it, Professor, that you felt that it was
23 often your minority view that wasn't being heard by
24 policymakers?

25 **A.** That's where I'm most sensitive to this issue, that's

70

1 to that lockdown, the full range of policy options it
2 should have been given.

3 **MR O'CONNOR:** Yes.

4 Professor, thank you very much. Those were all the
5 matters I wanted to raise with you.

6 My Lady, there will be one or two questions, I think
7 two at least, from Ms Morris, who is here.

8 **LADY HALLETT:** Thank you. Ms Morris.

9 Questions from MS MORRIS KC

10 **MS MORRIS:** Thank you, my Lady.

11 Good afternoon, Professor Woolhouse. I ask
12 questions on behalf of the Covid Bereaved Families for
13 Justice UK. Just two short topics, please.

14 Firstly, in relation to the evidence of Professor
15 Thomas Hale, have you had the opportunity to read his
16 report or did you hear his evidence to the Inquiry?

17 **A.** I wasn't given his report and I didn't see it, I am
18 afraid.

19 **Q.** Not to worry, we can have that called up for you. Just
20 two short points I'd like to address with you, please.

21 It's INQ000257925, page 36, please.

22 Professor Hale, as you may know, was tasked with
23 the ominous task of looking at NPI effectiveness both in
24 the UK and abroad, and he gave his evidence to
25 her Ladyship last week.

72

1 I'm hoping that can be called up. It's page 37 of
2 his report, at paragraph 66. It's focused on the issue
3 of testing, Professor, just so you know where I'm going
4 with my question.

5 Thank you, it's page 37, paragraph 66, please.

6 (Pause)

7 I'll give you a moment to read that. It's talking
8 about the success of the UK in terms of setting up
9 effective testing, contact tracing, isolation and
10 support measures to prevent small-scale spread of
11 the virus from growing in significant waves.

12 And Professor Hale made the point that at no
13 point -- I think it's a typographical error, it says
14 "now point", but says he confirms in evidence that:
15 "... at [no] point was the UK able to achieve
16 a level of testing, contact tracing, and isolation and
17 support at which it could be confident that these light
18 intervention measures would have a chance of preventing
19 new waves from arising."

20 I wanted to give you the opportunity to comment on
21 that, whether you agreed or disagreed with his --

22 A. I very, very strongly agree with that.

23 There was -- as I'm sure everyone in the room
24 recalls, there was a target set sometime, I think, in
25 the summer or maybe the first half of 2020 of

73

1 tests, the self-tests wasn't fully available until maybe
2 November. It was trialled in Liverpool in 2020. That's
3 when we knew we could make the test and do it. So we
4 were relying on a much more cumbersome test, which, to
5 be fair to the 100,000 target, was actually the test
6 they were talking about -- well, one of the tests they
7 were talking about in that target. But, you know, it
8 comes back to, even if we were restricted to the PCR
9 tests, the more cumbersome ones, we needed to be
10 thinking on a much, much bigger scale than 100,000.

11 Q. Understood, thank you.

12 One more section of Professor Hale's report, please,
13 this is on page 36, and it's paragraph 64. If that
14 could be enhanced, thank you.

15 I'll give you a moment just to review it.

16 Professor Hale is talking here about the trifecta that
17 the UK experienced: of (1) high numbers of excess deaths
18 and other health impacts; (2) long periods of closure
19 and containment policies; and (3) a significant economic
20 toll. And in his words:

21 "In 2020 and 2021, especially, the country [that is
22 the UK] followed a 'rollercoaster' pattern. As a new
23 wave arose, restrictive measures were often introduced
24 only when it became apparent that the health system as
25 a whole would be at risk, not earlier, when there might

75

1 100,000 tests per day. I'd already expressed my view as
2 to the what I call informally SAGE for Scotland,
3 the C-19 advisory group there, that absolutely testing
4 would prove to be vital in controlling the spread of
5 this infection; going back to what I was saying to
6 Mr O'Connor, always been keen on reducing the rate of
7 spread of this infection. It would be vital. But
8 100,000 wasn't even close. I mean, it was so
9 inadequate. I had no interest in it, 100,000.

10 What I wanted to see was mass testing on a scale of
11 literally millions a day, and I was told when I first
12 proposed it that my advice was not serious, that this
13 was not a realistic option.

14 By December 2021 we were doing self-testing on
15 a scale of ten millions of people a day. It was
16 happening. But there was absolutely no realisation of
17 what needed to be done in that first year. And even
18 then we were so slow to roll out the self-testing. That
19 was a tremendously effective intervention but we didn't
20 get it until the Omicron wave.

21 Q. Are these some of the early and less restrictive options
22 that you have been expanding upon this morning, that are
23 necessary for suppression?

24 A. No, because I believe Mr O'Connor was asking me about
25 the early months, so the technology for the lateral flow

74

1 still have been potential to prevent a wave from rising
2 in the first place."

3 Would you agree with that statement,
4 Professor Woolhouse?

5 A. I would. Earlier interventions can be less drastic
6 interventions for precisely that reason. The NPIs we
7 implemented became very much associated with the
8 R number, keeping the R number well below 1, and the
9 reason for that is because we'd allowed the level of
10 infection to rise up in the first place, so you have to
11 drive it down. If you don't let it rise up you don't
12 have to drive it down, so the interventions you need are
13 less severe.

14 Q. Understood, thank you.

15 My second topic, please, is on care homes and
16 hospitals. Given what you've said this morning in
17 particular about the vulnerability of certain sections
18 of the population, you've noted in your report and your
19 statement that none of the core SPI-M-O models used in
20 the early stages of the pandemic -- they didn't
21 explicitly represent care homes and hospital settings;
22 is that correct?

23 A. That's correct.

24 Q. These were areas which were known areas of risk for
25 transmission; is that fair to say?

76

- 1 **A.** Absolutely, yes.
 2 **Q.** Is there a reason why they weren't expressly represented
 3 in modelling?
 4 **A.** My impression of that, I'm sure other views will be
 5 shared with you, is because at heart they were influenza
 6 models, and they had to be adapted. So influenza models
 7 focus on things like schools, because influenza, unlike
 8 Covid-19, is driven by infection in schools. Certainly
 9 it was in swine flu. So that's what the flu models had
 10 in them. They didn't have these other settings because
 11 they weren't thinking of them.

12 And it actually refers back to a question
 13 Mr O'Connor asked me, which was about did the lockdown
 14 work in the sense of was it essential. One of the
 15 things lockdown was not effective at doing, and this is
 16 tremendously important, actually was rapidly driving
 17 down cases, and their sequelae, in care homes and
 18 hospitals. Because those are major institutions and
 19 they have their own dynamics. What lockdown did was
 20 drive down transmission rates in the wider community.
 21 All of us who had to stay at home, we weren't
 22 transmitting the virus. But within a hospital, with
 23 lots of precautions, but they do have to carry on, and
 24 the same with care homes, so the dynamics of the virus
 25 in those settings were different, and lockdown did not

77

- 1 Professor.
 2 Thank you, my Lady, those are my questions.
 3 **LADY HALLETT:** Thank you very much indeed, Ms Morris.
 4 Thank you very much indeed, Professor. I'm not sure
 5 that I can make you a promise that we won't call upon
 6 your services again, if we may, but you have been
 7 extremely helpful, both in the last module and this one,
 8 and a lot of very interesting points that you make.
 9 Thank you very much for your help.

10 **THE WITNESS:** Thank you, my Lady.
 11 **LADY HALLETT:** And for also trying to alert people to
 12 the problem at such an early stage.

13 **THE WITNESS:** Thank you.

14 **LADY HALLETT:** Thank you.

15 **(The witness withdrew)**

16 **MR O'CONNOR:** My Lady, I think we're going to go straight on
 17 to our next witness, who is Professor Costello.

18 **PROFESSOR ANTHONY COSTELLO (affirmed)**

19 **Questions from LEAD COUNSEL TO THE INQUIRY**

20 **MR KEITH:** Good morning, Professor. I'm sorry you've been
 21 kept waiting. Could you commence, please, your evidence
 22 by giving your full name.

23 **A.** Anthony Costello.

24 **Q.** Professor, thank you for the provision of a witness
 25 statement. You have provided a statement INQ000281260,

79

- 1 have such a strong effect in those settings that it did
 2 in the community.
 3 **Q.** Just returning back to the modelling, if we may, is it
 4 possible to model for those settings?
 5 **A.** Yes.
 6 **Q.** Are there any barriers on the data that was available at
 7 the time to have modelled in the settings if they'd been
 8 asked to be created?
 9 **A.** I think it would have been challenging, because it's all
 10 very well for me to be saying they should be put in
 11 the models, but that part of the model, you have to have
 12 the input data, the: okay, I'm saying the transmission
 13 rates are different in care homes, but what are they?
 14 Well, that wasn't immediately easy to measure. So it
 15 would have been difficult. But I don't -- my
 16 understanding is the structures weren't even there to
 17 attempt it.
 18 **Q.** Right, and you certainly weren't asked?
 19 **A.** I wasn't asked?
 20 **Q.** To model the care homes and hospitals.
 21 **A.** I cannot remember when either was first raised in
 22 SPI-M-O. They became a very regular topic of discussion
 23 at SPI-M-O, but I'm afraid I can't remember exactly when
 24 they first were introduced into that discussion.

25 **MS MORRIS:** Thank you, that's helpful. Thank you,

78

1 dated 25 September 2023. You've signed it at the
 2 conclusion and you've provided the usual declaration to
 3 the effect that the contents are true.

4 May I start, please, with your professional
 5 qualifications. You are professor of global health and
 6 sustainable development at the UCL Institute for Global
 7 Health; is that correct?

8 **A.** That's correct.

9 **Q.** The institute implements and evaluates solutions to
 10 global health problems through research and teaching; is
 11 that true?

12 **A.** That's correct.

13 **Q.** You were, until 2018, director of maternal, child and
 14 adolescent health at the World Health Organisation,
 15 which is of course in Geneva, and I think during that
 16 time you spent 18 months or so as part of the core
 17 emergency team dealing with the global Zika epidemic
 18 outbreak; is that correct?

19 **A.** That is correct, yeah.

20 **Q.** You are currently chair of the Lancet Countdown for
 21 climate and health action, again based at UCL, but
 22 you're also, for our purposes, most significantly
 23 a founder member of Independent SAGE?

24 **A.** Correct.

25 **Q.** What was or is Independent SAGE?

80

1 **A.** Independent SAGE was set up specifically to educate and
 2 answer questions from the public to engage especially
 3 about the public health details of the whole pandemic.
 4 It really got going in April 2020. I had been
 5 somewhat shocked by the 12 March press conference.
 6 I had been following things closely up to then, but
 7 of course we didn't know anything about the membership
 8 of SAGE or any of the decisions at that point. And
 9 after the 12 March press conference I wrote my concerns
 10 down about almost everything that had been said there,
 11 because I disagreed with many of the points, I put it
 12 into a tweet, which went viral. I was then asked to
 13 write articles, which I did, in various national
 14 newspapers, laying out my concerns about the lack of
 15 a public health approach, and the idea of letting a very
 16 serious new virus spread across a population struck me
 17 as being the wrong approach.

18 **Q.** Why was your undoubtedly extremely worthy and impressive
 19 group, Independent SAGE, calling itself
 20 Independent SAGE? It wasn't, was it, the government's
 21 Scientific Advisory Group for Emergencies, that was
 22 SAGE. You weren't SAGE. To what extent did you believe
 23 that the government's advisory group, SAGE, wasn't
 24 sufficiently independent?

25 **A.** Well, the use of the phrase "SAGE" is not -- is very
 81

1 discover their membership, we felt -- and we may come on
 2 to this later -- that the composition was failing in
 3 some ways because it didn't represent -- there was no
 4 independent public health person, there was no
 5 black/minority ethnic group member, the distribution of
 6 gender and expertise we felt was wrong. There were very
 7 good people on that SAGE, but it was lopsided. And
 8 that's why we chose a group of people who did cover
 9 a lot of those bases, and some very eminent people from
 10 public health and covering a range of disciplines,
 11 including two members who were actually on the SAGE
 12 SPI-B, the behaviour group.

13 **Q.** We'll come back to the composition --

14 **A.** Yeah, sure.

15 **Q.** -- of the government SAGE in a moment.

16 Do you accept, because you acknowledge that
 17 the calling of your group Independent SAGE may have
 18 caused some degree of concern or confusion perhaps, that
 19 there is no question over the independence of those many
 20 scientists who gave their time freely and with great
 21 devotion to SAGE and the subcommittees? They were
 22 independent scientists?

23 **A.** Oh, absolutely -- well, no, that's not quite true
 24 actually.

25 **Q.** Well, the CMO isn't, obviously, nor is the Government
 83

1 commonplace. At WHO I was involved in both the --
 2 a little bit with the SAGE for -- scientific advisory
 3 group of experts for immunisation, and I helped set up
 4 a SAGE for maternal, newborn and child health, so the
 5 use of the word "SAGE" -- to distinguish ourselves from
 6 official SAGE there were two phrases used initially,
 7 "alternative" or "independent", and it was decided to
 8 choose the word "independent". I didn't think that was
 9 particularly controversial or confusing, but I think
 10 some people did.

11 **Q.** So are you saying there were other bodies in the WHO,
 12 for example, which were specifically called SAGE, so
 13 SAGE is an acronym which is in common use?

14 **A.** Very common use, yeah. Not just in WHO.

15 **Q.** Because this SAGE was the government Scientific Advisory
 16 Group for Emergencies?

17 **A.** Yeah.

18 **Q.** All right. To what extent were the scientists on SAGE,
 19 in your view, or the group SAGE not sufficiently
 20 independent such that you were required to call yourself
 21 the Independent SAGE?

22 **A.** "Independent SAGE", not "the", but --

23 **Q.** Why did you call yourselves Independent SAGE?

24 **A.** Well, just to show that we were separate from
 25 the government set of advisers. Because when we did
 82

1 Chief Scientific Adviser.

2 **A.** Actually nearly two-thirds of the members of SAGE were
 3 not classified as independent scientists.

4 So let me give you an example. The first day I went
 5 to WHO, I was told I was no longer an independent
 6 scientist, because I --

7 **Q.** Professor, I'm sorry to interrupt.

8 **A.** Sure.

9 **Q.** We must keep this within some bounds.

10 **A.** Okay.

11 **Q.** Are you suggesting that the majority of the scientists
 12 who attended SAGE were not functionally independent? So
 13 obviously we have -- there were government scientists
 14 like the CMO and the Chief Scientific Adviser and
 15 representatives of the NHS, PHE, BIT --

16 **A.** That was the majority, yeah.

17 **Q.** All right. The other scientists, the scientists from
 18 places like Imperial and the London School --

19 **A.** Yeah, they were independent.

20 **Q.** They were all independent?

21 **A.** Yeah.

22 **Q.** And insofar as any scientist came from a non-government
 23 entity, they were also independent --

24 **A.** Correct.

25 **Q.** All right.

 84

1 Do you accept that with the publication of some
2 materials by Independent SAGE, however valuable and
3 however worthy, that some degree of confusion was caused
4 in the outside world as to whether or not you were
5 speaking on behalf of the government and SAGE or
6 a different body?

7 **A.** I don't really accept that. I don't think -- we aimed
8 to communicate with the public and we spoke to media,
9 and it was fairly clear from our emphasis on a number of
10 things that SAGE were not emphasising, particularly,
11 the desire to set up a proper system to isolate people
12 and to suppress the virus, that we were putting forward
13 a very different view.

14 **Q.** Could we have INQ000230014, please. This is a document
15 produced by Sir Patrick Vallance. It's an "Independent
16 SAGE Report". It happens to be report 29. It's dated
17 8 January 2021. It's called "A 'Safe Schools' policy
18 for re-opening education as soon as possible and
19 mitigating the harms of closure", and it says at the
20 bottom:

21 "Submitted to the UK Government and the People of
22 Great Britain & Northern Ireland by Sir David King
23 former Chief Scientific Adviser, UK Government, Chair of
24 Independent SAGE."

25 For those not intimately familiar with the workings
85

1 that in preceding articles and -- et cetera, and so
2 that's when they finally released it, the first day of
3 our public meeting.

4 **Q.** Was that 4 May, in fact?

5 **A.** I think so, yeah.

6 **Q.** So that we are absolutely clear, there was plainly
7 a lacuna of information because nobody knew who was on
8 SAGE and its minutes weren't being published, and so
9 Independent SAGE's first meeting took place at a time
10 when no one knew that information?

11 **A.** Correct.

12 **Q.** I think Independent SAGE then ran weekly online public
13 meetings. Online, as I say. It produced short reports,
14 developed by a very wide range of experts from
15 epidemiology, primary care, virology, immunology, public
16 health and so on; is that right?

17 **A.** Yeah.

18 **Q.** As you have said, you provided all your reports and
19 recommendations to the government, but in particular
20 the CMO and the --

21 **A.** Correct.

22 **Q.** -- GCSA.

23 The first report that you published was titled
24 "Covid-19: what are the options for the UK?" and I think
25 that was published on 12 May 2020.
87

1 of SAGE and Independent SAGE, a report appearing like
2 that may well impress itself as emanating from
3 government, wouldn't you agree?

4 **A.** Well, Sir David King made it very clear from
5 the beginning that he would submit all of our reports to
6 Sir Patrick Vallance and to SAGE, so that there was
7 communication going on. I don't think many people would
8 have read these footnotes to gain the impression you
9 obtained, but we were sending an Independent SAGE report
10 to the government.

11 **Q.** One of the main drivers for SAGE, according to your
12 witness statement, was the perceived lack of
13 transparency over the SAGE process. It's right, isn't
14 it, that before Friday, 29 May, SAGE had not published
15 the minutes of the many -- the 34 meetings, in fact,
16 that it had held hitherto?

17 **A.** That's correct.

18 **Q.** Had SAGE or the government published the list of members
19 of SAGE before the time at which it started publishing
20 the minutes? So was there a rolling out, if you like,
21 of information? When did SAGE explain the membership?

22 **A.** As I recall, it was leaked by The Guardian at the end of
23 April, but officially they only released it on the very
24 first day or our very first meeting, when they released
25 the names, and also -- because we had been calling for
86

1 Perhaps we could have that up, if it's in
2 the system. INQ000249693. Thank you very much. If you
3 could go, please, to page 5.

4 Recommendation 1:

5 "The government should take all necessary measures
6 to control the virus through suppression and not simply
7 managing its spread. ... We detect ambivalence in the
8 government's strategic response, with some advisers
9 promoting the idea of simply 'flattening the curve' or
10 ensuring the NHS is not overwhelmed."

11 Now, the date of this report, 12 May, was plainly
12 after the lockdown had commenced. But I want to ask you
13 to what extent did Independent SAGE nevertheless believe
14 that the government was still applying a particular type
15 of strategic response?

16 So even though the lockdown had started, did
17 Independent SAGE believe that there was a driver or
18 a particular approach driving the government's strategic
19 overall response?

20 **A.** Yes, because the minutes of their very first effective
21 meeting, it was actually their second meeting, on
22 January 28th, came up with the idea that they were going
23 to follow a pandemic influenza strategy, and that they
24 were going to simply model all of the interventions that
25 the modellers subsequently did, except for suppression
88

1 of the virus. And this went against WHO advice at
2 the time and it went against all the practices of
3 the East Asian states that managed to reduce their death
4 rates to five times lower than our death rates.

5 So we felt that this was the wrong approach,
6 particularly as two elements of pandemic science show us
7 what was considered to be the right approach to
8 a coronavirus outbreak back -- after SARS-1, papers
9 published in 2004 and 2006, including actually three
10 members of SAGE, showing that for a coronavirus outbreak
11 you need to pursue a very different strategy from
12 pandemic influenza.

13 **Q.** Now, there's a number of points in there. Could we
14 perhaps just delineate them.

15 Firstly, East Asian states had, you've explained,
16 undergone the experience of SARS-1, and some other
17 states, of course, had gone through MERS as well,
18 the Middle East Respiratory Syndrome?

19 **A.** Correct.

20 **Q.** In general terms, did they therefore have the knowledge,
21 the system to be able to respond efficiently and quickly
22 to the outbreak of a viral pandemic?

23 **A.** In SARS-1?

24 **Q.** No, we're now coming forward to coronaviruses.

25 **A.** Yeah, absolutely. I mean, there is this confusion

89

1 is not so high or its incubation period is not so short.

2 Now, for influenza, we know that exactly that's
3 the problem, and therefore the strategy to just simply
4 reduce the spread and mitigate is the only real option.

5 But for coronavirus, it's quite different. That's what
6 those two papers, after SARS-1, written by British
7 scientists, showed very clearly.

8 **Q.** Are there, therefore, two vital aspects of a scaled-up,
9 efficient testing system: firstly, it enables the
10 country to know what the spread of the virus is, because
11 if you test and the tests are accurate, you know what
12 you're dealing with; and secondly, if it is combined
13 with an absolutely reliable contact tracing and
14 isolation system, then it will break the chain of
15 transmission of the virus?

16 **A.** That's exactly what happened in the East Asian states:
17 they suppressed the virus within about six weeks and
18 they did not have national lockdowns, with the exception
19 of Taiwan, and they did not suffer any of the enormous
20 economic damage that we suffered, because they
21 suppressed their epidemics very quickly.

22 And it's also not true that you would then have to
23 maintain horrible lockdowns for a long time, as they
24 were implying. In fact all they had then was
25 an effective surveillance system that enabled them to

91

1 between the words eradication, elimination and
2 suppression.

3 **Q.** Can we come back to that --

4 **A.** Okay.

5 **Q.** -- conceptual debate a little later.

6 **A.** Yeah.

7 **Q.** I'm just asking you about the East Asian states.

8 Was it fundamentally on account of their earlier
9 experiences that they were in a better position to be
10 able to respond to the viral epidemic that was
11 coronavirus?

12 **A.** Well, I, you know, Patrick Vallance and others have put
13 forward the view that they had a much better
14 infrastructure. I think the infrastructure was more in
15 the mind than in reality. They knew that they had to
16 act very fast, and that's exactly what the World Health
17 Organisation was saying at the time, and therefore they
18 put in place a rapid organisation to get a test, a rapid
19 organisation to mobilise community healthcare workers,
20 so that you could do contact tracing at scale, but most
21 important, and I think this is really important to
22 emphasise, the really key thing to getting a pandemic
23 under control is isolation. If you can isolate a case
24 and its contacts, the household contacts, then you can
25 suppress that pandemic, as long as its transmission rate

90

1 spot new outbreaks and suppress them locally very
2 quickly. So they hit their hotspots very quickly. In
3 Korea, two hotspots, around the same time when we could
4 have started, we had two hotspots in England, in
5 the West Midlands and North London -- and also in
6 Glasgow for Scotland, but if we had hit those with
7 limited numbers of tests -- and we've heard millions of
8 tests being requested. If you look at Korea, at the end
9 of February, when they started to get their epidemic
10 falling, they only got up to 18,000 tests per day. Why?
11 Because they were targeting that all at hotspot areas.

12 I don't see any reason why we couldn't have done the
13 same. I don't see any reason why we couldn't have
14 mobilised people to have a national contact tracing
15 system -- way different from the later one that we set
16 up that was never going to work.

17 **Q.** Before we look, and it will be after lunch now, at the
18 detail of what actually happened, and whether or not it
19 was possible and whether or not a test -- a full,
20 scaled-up testing, contact, isolation system was called
21 for and whether it was put into place, just on this
22 question of the flu, the genesis of the thinking as to
23 the relevancy of past flu pandemics, the UK Government
24 strategy, you are aware, had been based to a large
25 extent upon a 2011 document called the pandemic flu

92

1 strategy?

2 **A.** Yeah.

3 **Q.** Could you just explain why testing is available and so

4 important if you're dealing with a virus that has

5 a long -- longer latent period, that is to say the gap

6 between when you become infected and when you might

7 begin to infect other people, and a flu which may have

8 a much shorter latent period and in relation to which

9 testing, according to the strategy, is of much less

10 assistance? Why is that? What is that point?

11 **A.** Well, if you've got a flu virus that's -- let's say it's

12 transmitting with an R value of 10, which a lot --

13 **Q.** Just pause there, meaning that one person infects --

14 **A.** Could infect --

15 **Q.** -- ten other people in an unimmunised population.

16 **A.** Exactly. And that that has an incubation period of one

17 to two days.

18 **Q.** Pause there. What is an incubation period?

19 **A.** It's the time between being infected and developing

20 the disease.

21 **Q.** Symptoms?

22 **A.** Yeah. And so therefore you've got almost no time to do

23 it, you've got no time to get your test in, and it's

24 already spread. So there are certain diseases and

25 that's what the paper written by Roy Anderson,

93

1 interval -- that's the interval between one person

2 having symptoms and passing it to the next person and

3 them having symptoms -- was somewhere between eight to

4 ten days.

5 **Q.** So just pausing you there, there was a window in

6 which --

7 **A.** A much wider window --

8 **Q.** -- testing could take place --

9 **A.** Yeah.

10 **Q.** -- which would enable the government to know the extent

11 of the virus and, if combined with a proper isolation

12 and tracing contact, quarantining system, could have

13 enabled --

14 **A.** You could go further and say you don't actually, in

15 the early stages, even need a test. If somebody is

16 symptomatic, you have to close it down. So you need to

17 have boots on the ground. Shoe leather epidemiology, we

18 talk about in public health.

19 **MR KEITH:** Well, that's a very good place to pause,

20 thank you, Professor, for lunch.

21 **LADY HALLETT:** It's not an expression I have come across

22 before, I have to say.

23 2 o'clock, please.

24 I'm sorry we have to break but --

25 **MR KEITH:** My Lady, may I just mention that there is legal

95

1 Neil Ferguson and others that I quote, with that nice

2 diagram, shows, that for influenza you really cannot do

3 it, as you cannot for HIV, because the other factor is

4 how many infections are asymptomatic. So with HIV, 95%

5 plus of infections are asymptomatic, so you don't know

6 that you've got the virus until it happens.

7 But with SARS, the reproduction rate was about --

8 was under 3, it was thought, in January 2020. So one

9 person would infect about three people, let's say.

10 **Q.** Just to pause you. When you say SARS, you --

11 **A.** Well, SARS-1 --

12 **Q.** Do you mean SARS-2 --

13 **A.** I beg your pardon, SARS-2.

14 **Q.** -- coronavirus?

15 **A.** SARS-1 was somewhere between 3 and 6. It -- you know,

16 it changed over time, I think. SARS-2 was at that

17 stage -- the data coming out of China and also in the

18 papers published in *The Lancet* on January 24th --

19 I think the figure was 2.8. But of course it was,

20 you know, still rudimentary, so there was quite some

21 confidence intervals there that you would need to take

22 account of.

23 But let's assume it's 3, you've got 1 to 3, you've

24 got an incubation period that we then knew to be

25 probably around the five-day mark, and a serial

94

1 argument scheduled before you for 2 o'clock, so could we

2 impress upon the Professor to be ready again at 2.30.

3 **THE WITNESS:** Oh.

4 **LADY HALLETT:** Sorry, I had forgotten.

5 (1.02 pm)

6 (The short adjournment)

7 (2.00 pm)

8 **LADY HALLETT:** Mr Keith.

9 **MR KEITH:** If it pleases you, my Lady, oral submissions will

10 be made first by Mr Hill on behalf of

11 Sir Patrick Vallance.

12 **APPLICATION**

13 **Submissions on behalf of Sir Patrick Vallance by MR HILL**

14 **MR HILL:** My Lady, we're grateful for this opportunity to

15 address you, and I won't keep you long.

16 The background is that this is a procedural matter.

17 It is about how Sir Patrick's evening notes should be

18 displayed on the screen and on the website during

19 evidence. It does not in any way affect how your

20 counsel and core participants may use those notes when

21 asking questions of witnesses, or when making opening or

22 closing statements.

23 Contrary to the submissions of the media

24 organisations, it is not an application for a section 19

25 restriction order.

96

1 The context is set out briefly in the written
2 submissions that we have provided to you, and also from
3 paragraphs 471 onwards in Sir Patrick's statement,
4 second statement. In short, the notes were, in his
5 words, a brain dump. They were written at the end of
6 immensely stressful days to protect his mental health.
7 They represent a snapshot of how he felt in the moment
8 of writing them. He did not amend them if he changed
9 his mind later, he made no attempts to correct them as
10 and when he learnt new information. He describes them
11 as, and I quote:

12 "... a form of release that helped me to focus on
13 the challenges of the next day, rather than dwelling on
14 the events of the last. It was my way of creating some
15 space for myself in what could have been an overwhelming
16 situation."

17 As Sir Patrick makes clear, the notes were never
18 intended for publication. He had not shared them with
19 anyone else, and they would have remained unseen had it
20 not been for a request by this Inquiry. In response to
21 that request, Sir Patrick voluntarily provided the notes
22 to the Inquiry in full, in unredacted form, and within
23 the timescales agreed with your team. Since then, he
24 and his legal team have worked with the Inquiry to allow
25 for the notes to be disclosed to core participants to

97

1 according to the strict terms of the Inquiry's
2 confidentiality undertaking, and those terms require
3 that those notes are only seen and handled by those that
4 have signed that undertaking, they are only to be used
5 for purposes of furthering the work of this Inquiry, and
6 they are not to be published unless and until they are
7 shown in the hearings or by an order that your Ladyship
8 makes.

9 We understand that those terms are taken extremely
10 seriously by your Ladyship, and by your Ladyship's team.

11 There is an obvious distinction between disclosure
12 to core participants under the terms of that strict
13 undertaking and publishing the material to the world
14 forever.

15 We note that in the Prince of Wales case, disclosure
16 to a group of associates of the Prince of Wales did not
17 exhaust his reasonable expectation of privacy and his
18 Article 8 rights in diaries that he had written and
19 circulated to that group. Mr Bunting, gloss in his
20 submissions for media organisations, ignores that
21 distinction, he ignores that authority.

22 So returning to the law and on the basis that we are
23 right that Sir Patrick retains Article 8 rights in the
24 notes, the measures taken in respect of those notes must
25 be proportionate, and the well established test for

99

1 inform their work in this module. Both sides, we hope
2 you will feel, have taken a constructive approach to
3 this and, despite the sensitivity of the material,
4 the redactions have been agreed in all cases.

5 The legal position is set out in our written
6 submissions, and I won't repeat it in full. We say that
7 the Inquiry's use of the notes amount to an interference
8 in Sir Patrick's right to private and family life under
9 Article 8 of the European Convention of Human Rights and
10 the common law. Authority for that proposition, should
11 we need it, comes from the Prince of Wales case, which
12 is at paragraph 7 of our submissions. That is the Court
13 of Appeal case. It also applies to the High Court case
14 as well.

15 We say that that means that each and every action
16 taken by the Inquiry in respect of those notes must be
17 proportionate in order to be lawful, and it's here we
18 say that the media organisations get the law wrong.
19 It's not enough to say, as they do, that once the notes
20 have been redacted and disclosed to core participants,
21 then Sir Patrick has no reasonable expectation of
22 privacy left, and he has no Article 8 rights left. We
23 say that's just wrong.

24 Sir Patrick retains that reasonable expectation of
25 privacy, not least because the notes were disclosed

98

1 proportionality is that at paragraph 7 of our written
2 submissions, taken from the case of Bank Mellat. In
3 particular, a tribunal must consider what the purpose of
4 an interference is, whether it can be achieved by a less
5 intrusive means, and ultimately whether a fair balance
6 is struck between the interests of the individual and
7 the interests of the community.

8 The interests of the community include the
9 Article 10 rights of the media, and important
10 considerations of open justice. They also include
11 the public interest in witnesses to public inquiries
12 having confidence that sensitive material that they
13 provide will be handled lawfully and fairly.

14 Applying those principles in this case, the purpose
15 of showing the notes on the screen and the website is to
16 facilitate the understanding of the evidence that is
17 heard in this room and to facilitate for reporting of
18 that evidence, including by those who are not here but
19 are following remotely, and we agree that is
20 a legitimate purpose. Nothing we propose will inhibit
21 reporting of what is said and what is referred to in
22 this hearing room. The submissions that we make are
23 aimed at what Mr Smith, at paragraph 10 of his helpful
24 note, describes as material that is "not directly
25 relevant to the witness's questioning", the extraneous

100

1 material that the witness is not being taken to.
 2 Having agreed that that is a legitimate purpose,
 3 the next step must be to assess what is the least
 4 intrusive means of achieving that purpose, and we say
 5 that it is clear from Mr Smith's note that there is
 6 a less intrusive means and the usual approach of showing
 7 the whole page. Mr Smith acknowledges frankly at
 8 paragraph 11 that various options are, in his words,
 9 possible but undesirable.

10 We would say that the proposed approach at
 11 paragraph 15 is the best one, which involves the
 12 creation of a new document containing the relevant
 13 extracts, and that is something that we had suggested at
 14 paragraph 16 of our written submissions.

15 We say that is eminently achievable and we say that
 16 it strikes the correct balance. It allows the media to
 17 report accurately the oral evidence, including in
 18 respect of material to which reference was made.

19 We accept that this means that there will be
 20 an additional burden on the Inquiry legal team. We do
 21 not ask for it lightly, not least because we are
 22 conscious of how exceptionally hard your team is
 23 working, and we, core participants, only get to see
 24 a fraction of that. However, we say that is what
 25 the law requires.

101

1 will be some reference to them, but a manageable amount
 2 for these purposes, and that's seen in the evidence
 3 proposals for the coming week: two extracts for
 4 Professor Ferguson, nine for Professor Edmunds and
 5 the/same eight for Professor Yardley and
 6 Professor Rubin. It would be highly surprising if the
 7 witnesses were in fact taken to all of those extracts.

8 Second, the Inquiry does require, where possible,
 9 passages of evidence to be put to witnesses in advance,
 10 and that is for the purposes of getting their best
 11 evidence about those passages. We say the system can be
 12 adapted for these purposes, and we understand that
 13 Mr Smith considers that it can be as well, albeit with
 14 some extra work.

15 Third, as Mr Smith acknowledges there is a failsafe,
 16 in that the extract, if needed, can simply be read to
 17 the witness if the necessary preparation work hasn't
 18 been done. That's been done to date and it's been done
 19 with no detriment to the witness evidence. No sensible
 20 argument could be made that that has impinged in any way
 21 on the press's Article 10 rights.

22 We would also say that if it proved necessary
 23 a document could be produced retrospectively, we would
 24 have no difficulty with that.

25 Fourth, adopting this approach will not in any way

103

1 It's not unusual for some documents held by a public
 2 inquiry to require additional care in the way that
 3 they're handled and the way that they're disclosed and
 4 the way that they are shown. The most obvious example
 5 is documents relating to national security, but it also
 6 applies to more personal documents, such as medical
 7 notes or graphic video footage. It's an added
 8 difficulty, it's an added burden, but it goes with
 9 the nature of the work.

10 We say that Sir Patrick's evening notes are in that
 11 category. We also say that they have been treated with
 12 appropriate care by the Inquiry to date. For example,
 13 assurances were given on how the unredacted notes would
 14 be handled, how the transcripts would be produced. We
 15 are grateful for that approach and we ask only that it
 16 is continued.

17 The approach at paragraph 15 of Mr Smith's note is
 18 a practical and proportionate way of doing that.
 19 Your Ladyship is well served by an extremely experienced
 20 and able team of solicitors, and we have no doubt at all
 21 that another spinning plate could be added to the pile
 22 that they have without the whole thing crashing down.

23 I make four additional points.

24 First, Sir Patrick's evening notes are one of many
 25 thousands of sources for the Inquiry to consider. There

102

1 inhibit your counsel or core participants from putting
 2 materials from the evening notes. At most, it requires
 3 them to be a little bit more organised in how they do it
 4 if, and only if, they wish that passage to be shown on
 5 the screen.

6 In conclusion, we say that the legal position is
 7 clear, and as is described above. The paragraph 15
 8 approach is for least intrusive means available. The
 9 law requires that it should be adopted.

10 It's also, however, a question of fairness and of
 11 mutual respect. Sir Patrick has done all that could
 12 reasonably be asked of him to assist this Inquiry. He
 13 has provided witness statements in Module 1, Module 2
 14 and he will provide one in Module 4. His Module 2
 15 statement is some 100,000 words long and is, on any
 16 objective reading, a thoughtful, analytical and full
 17 response to the many questions posed of him by
 18 the Inquiry. It was the product of an immense amount of
 19 hard work.

20 He has provided his most intensely personal and
 21 private notes to the Inquiry in full, without
 22 redactions, and in line with the Inquiry's deadlines.
 23 He produced them voluntarily without recourse to
 24 the courts. He accepts that relevant sections should be
 25 disclosed to the core participants. He accepts that

104

1 some part of the notes have and will be used in
 2 the hearings. I do not pretend that that is easy for
 3 Sir Patrick. It is no doubt obvious to all how
 4 uncomfortable it would be for anyone to have their
 5 hastily written, private and personal reflections
 6 published to the world. Sir Patrick has nonetheless
 7 co-operated entirely with the Inquiry, because he
 8 respects the importance of its work and he shares in
 9 the common goal of learning lessons to improve our
 10 resilience in the next pandemic. All he asks in this
 11 application is that the Inquiry continues with
 12 the approach it has taken to date of handling his notes
 13 with the appropriate care and sensitivity.

14 Unless I can assist further, those are my
 15 submissions.

16 **LADY HALLETT:** No, you have been very helpful, Mr Hill,
 17 thank you very much indeed.

18 Who else wishes to make submissions? I have
 19 Mr Bunting KC's submissions on behalf of the media
 20 organisations.

21 Does anybody else present wish to make ...
 22 Ms Mitchell.

23 **Submissions on behalf of Scottish Covid Bereaved by**
 24 **MS MITCHELL KC**

25 **MS MITCHELL:** My Lady, I'm obliged.
 105

1 could be done.

2 I would respectfully submit in the circumstances
 3 that it is unnecessary so to do, and also that it may,
 4 if granted on this occasion, encourage others to take
 5 the same approach, and that may mean a considerable
 6 degree of extra difficulty.

7 Further, I suppose the question as to whether or not
 8 it's relevant can be seen when examining whether or not
 9 any of those pieces of evidence that we might cover up
 10 when looking at a particular statement can thereafter,
 11 in any event, be used in any of the core participants'
 12 closing statements, and of course if they're relevant
 13 they may do so, and that was evidenced by Mr Keith in
 14 his opening statements. So it seems rather an oddity to
 15 say we must cover up these things just now so we can
 16 just deal with this particular question, but still allow
 17 for the fact that core participants could refer to any
 18 part of the disclosed document in their closing
 19 statements.

20 So, in conclusion, my Lady, I would respectfully
 21 submit that the Inquiry should just proceed as it has
 22 done in other cases, satisfied that the Article 8 test
 23 has been met and satisfied.

24 I'm obliged.

25 **LADY HALLETT:** Thank you very much indeed, Ms Mitchell.
 107

1 Those representing Sir Patrick Vallance, both in
 2 written and oral submissions, gave the acceptance that
 3 Article 8 is engaged and, and I quote from paragraph 10:

4 "In essence the public interest in this degree of
 5 disclosure justified the interference in Sir Patrick's
 6 Article 8 rights. Sir Patrick accepts the assessment
 7 and approach. He asks only that it continues to be
 8 applied."

9 My Lady, the Inquiry in this case has taken
 10 the documents, they have applied the derogation of
 11 Article 8, namely 8.2, test, and have supplied only to
 12 core participants those documents which are relevant to
 13 the purpose at hand. As a result, the Article 8 test
 14 has been carried out and is satisfied. It's
 15 respectfully submitted that what need not happen in
 16 those circumstances is that the Article 8 test continues
 17 to be applied like a matryoshka doll-type exercise,
 18 where we get smaller and smaller pieces of evidence.

19 It's respectfully submitted in the circumstances
 20 that once that test is carried out, we need not go
 21 further on to that. So that is the matter of law. In
 22 relation to the practical matter, it's obviously
 23 a matter for this Inquiry as to how they wish to carry
 24 out the procedure, and Mr Smith's note is very detailed
 25 in that regard, identifying the various ways that it
 106

1 Ms Morris.

2 **Submissions on behalf of Covid Bereaved Families for Justice**
 3 **and Covid Bereaved Families for Justice Northern Ireland by**
 4 **MS MORRIS KC**

5 **MS MORRIS:** Thank you, my Lady. On behalf of Covid Bereaved
 6 Families for Justice and Covid Bereaved Families for
 7 Justice Northern Ireland -- I'm sure Ms Campbell will
 8 prod me if I make any submissions that she's not content
 9 with me to make -- we indicated on Friday that we wanted
 10 to make some oral submissions to you on this topic, but
 11 that was before we received the submissions provided by
 12 Mr Bunting King's Counsel made on behalf of eight media
 13 organisations, with which we entirely agree and endorse.

14 All that I will add is that the bereaved families
 15 have the utmost interest in open justice and
 16 transparency at this Inquiry, and therefore even if
 17 Article 8 is engaged, which we don't entirely accept,
 18 the significance of this Inquiry and the significance of
 19 the evidence that Mr Vallance has to give to it weigh in
 20 favour of the fullest evidence in its proper context
 21 being published.

22 So, my Lady, those are my short submissions.

23 **LADY HALLETT:** Just before you sit down, I'm afraid I'm
 24 going to use you, Ms Morris, because Mr Bunting is not
 25 here.
 108

1 **MS MORRIS:** I'm a poor substitute but I'll do my best,
 2 my Lady.
 3 **LADY HALLETT:** The submissions from the media organisations
 4 don't seem to address the Prince of Wales case, which
 5 I was reading just before I came in to hear the
 6 submissions. Do you have any comments about the
 7 judgment of the Lord Chief Justice and
 8 Master of the Rolls in --
 9 **MS MORRIS:** I would have to defer to Mr Bunting on that one,
 10 I'm afraid.
 11 **LADY HALLETT:** I'm sorry if I asked you a -- threw a fast
 12 ball.
 13 **MS MORRIS:** No, my Lady, I'm entirely content to try to
 14 assist you if I can, but it won't be in this moment,
 15 I'm afraid.
 16 **LADY HALLETT:** Don't worry, I'll read the judgment myself.
 17 Thank you very much.
 18 Anybody -- oh, yes, we have.
 19 **Submissions of the UK Health Security Agency by MS DOLAN KC**
 20 **MS DOLAN:** My Lady, I intend to only address you very
 21 briefly to express the views of the UK Health Security
 22 Agency. I hope to be of assistance to you in
 23 delineating the issues that we say you need to decide
 24 here.
 25 We do say, my Lady, that first you will need to

109

1 these notes, then of course you will have to go on to
 2 consider the real issue that is being challenged here,
 3 which is whether the display and publication of the
 4 disputed information will be a further interference with
 5 the Article 8 rights.
 6 Now, what is currently being proposed by your
 7 inquest legal team is that material that is irrelevant
 8 to the particular question or issue that the witness is
 9 being asked about, or is being probed by your counsel or
 10 probed by any core participant, because we are all at
 11 liberty to ask questions about these notes -- that
 12 material that is irrelevant to the probing issue will be
 13 displayed on the screen simply because it happens to
 14 appear on the same page as the relevant material which
 15 is being asked about.
 16 That is the issue, whether that should happen. And
 17 of course, my Lady, also remembering these are
 18 transcribed notes. They were written in Sir Patrick's
 19 handwriting. Your team have put in a lot of work to
 20 cope with the handwriting by transcribing them into
 21 a Word document. Matters may appear on a particular
 22 page just because of the way they've been transcribed.
 23 **LADY HALLETT:** I did check on that. I think I was assured
 24 that in fact they appear on the same page as the
 25 original. I think. I was interested in that point as

111

1 determine whether Article 8 rights are engaged. It
 2 appears to UKHSA that the information within
 3 the personal reflective evening notes of Sir Patrick
 4 must engage the protections of Article 8 of
 5 the Convention, given the nature of those notes and how
 6 and why these notes were created.
 7 My Lady, we say the Court of Appeal decision in
 8 the Prince of Wales case against the Associated news
 9 press makes that abundantly clear. They are, we might
 10 even say, more protected, if that is possible, than
 11 the manner in which the Prince of Wales had created his
 12 diary notes, in the way these personal reflective notes
 13 came to be created and their purpose.
 14 My learned friend Ms Mitchell seems to suggest to
 15 you that the Article 8 issue has already been dealt with
 16 because you've balanced that when you came to the view
 17 that the notes with the small redactions should be
 18 provided to all core participants.
 19 My Lady, we'd say that approach is misconceived.
 20 These personal notes do not lose the protection of
 21 Article 8 for all purposes just because you have decided
 22 that they can be disclosed under the strict undertakings
 23 that you've required of all of us to
 24 the core participants.
 25 My Lady, if you agree that Article 8 is attracted by

110

1 well.
 2 **MS DOLAN:** Be that as it may, my Lady, we understand
 3 Sir Patrick's objection is only to displaying, and then
 4 obviously publishing the next day, this extraneous
 5 information. That is not considered by yourself, the
 6 Inquest legal team or any core participant who is asking
 7 a question to be material to the question or the issue
 8 that is being asked.
 9 In our view, to reveal private and irrelevant
 10 information, I mean irrelevant to the topics anybody
 11 wants to enquire into, must be an interference with
 12 Article 8 rights.
 13 So then the question you must ask, my Lady, is: is
 14 there lawful justification for that interference?
 15 Because it will only become an infringement of
 16 an Article 8 right if the interference is not justified.
 17 Any interference must have a lawful justification
 18 under Article 8.2 and, put broadly in this case, the
 19 matter for your consideration will be: is it necessary
 20 to display this extraneous material when you are
 21 balancing the rights of others?
 22 Your public inquiry team seem to readily accept
 23 the material wouldn't otherwise be displayed on
 24 the screen or even released to the public if it didn't
 25 happen to be incidentally located on that particular

112

1 page, and the only reason put forward by your team for
2 it being necessary to reveal this extraneous material is
3 their own administrative convenience.

4 Now, my Lady, we don't make light of the burden that
5 is on your team. Our team are receiving the documents
6 that are being disclosed by your team and it runs to
7 tens of thousands of pages for this entire
8 Covid Inquiry, but of course what your team is saying is
9 it would create an additional work for teams who are
10 already working extremely hard if they had to prepare
11 these documents in a way that only revealed the material
12 people want to ask about. It's simply too much work for
13 them, they say, to cut and paste from the Word document
14 and then only display the relevant material the screen.

15 What we say is it's just not necessary to display
16 this material, and administrative convenience is not
17 a sufficient reason for you to justify the interference
18 with any individual's Article 8 rights, and
19 administrative convenience is the only matter being put
20 forward by your team for why it's not being done.

21 You must, of course, consider the position of the
22 press and their Article 10 rights, the press and the
23 public, and what Mr Bunting KC says is that Article 10
24 is engaged and that, in the spirit of openness and
25 transparency, the press and the public should have full

113

1 the Inquiry which have been shared with all of
2 the core participants. You required us all to sign
3 strict undertakings that we wouldn't do so, save
4 of course when those documents are put into public
5 during the evidence and properly probed.

6 As you have already recognised, in your own control
7 and your own oversight of that disclosure process,
8 the press and the public are simply not entitled to see
9 a copy of every document that everybody has handed to
10 you. It's the ones that are relevant to the Inquiry in
11 public that of course should be made public.

12 So, my Lady, we say the real point you must consider
13 in determining this application is whether material
14 irrelevant to any question asked by anyone should be
15 presented -- sorry, extraneous to any question asked by
16 anybody should be presented in public in these hearings
17 at all. Sir Patrick only seeks a ruling that when his
18 personal reflective evening notes are displayed in
19 public, the only parts put on screen and later published
20 on the Inquiry website are the parts that him or another
21 witness is asked about or a core participant wishes to
22 refer to.

23 The UKHSA do support that request. We say
24 extraneous material and personal notes should not be
25 shown simply because it appears on the same page as

115

1 access to the evidence presented in these public inquiry
2 hearings.

3 My Lady, of course that must be right. The
4 principle of open justice doesn't need repeating by me.
5 They are very good ones that you should follow and that
6 UKHSA support. But the question you must ask is:
7 openness and transparency about what? Sir Patrick is
8 not objecting to anyone seeing any information that is
9 relevant to any question anybody wants to ask of him or
10 of another witness, and that includes your team and
11 core participants.

12 There is no issue being taken by Sir Patrick about
13 anybody using this material to probe it and to probe it
14 with any witness. No suggestion for curtailing
15 Article 10 rights in that respect. The press can freely
16 report anything said in this room, and will be able to
17 freely report the content of anything that is put to
18 a witness by anybody. It's for that reason it doesn't
19 appear to us this is a request for a section 19
20 restriction order either, as the press have construed it
21 in their written submissions.

22 If section 19 does bite here, surely the necessary
23 restriction has already been directed by you when, for
24 very good reason at the outset of this Inquiry, you
25 ordered that no person may publish documents received by

114

1 the relevant matters that are properly being probed in
2 the Inquiry, and that inconvenience to the Inquiry legal
3 team to abridge pages -- and we say that's the correct
4 word, this is not about redaction, it's about abridging
5 to the relevant matters -- and that abridgment may be
6 administratively inconvenient but that it should still
7 be done.

8 My Lady.

9 **LADY HALLETT:** Thank you very much indeed.

10 Anybody else? Mr Keith.

11 **Submissions by LEAD COUNSEL TO THE INQUIRY**

12 **MR KEITH:** My Lady, the issue at the heart of this
13 particular argument is whether the principle of openness
14 demands that where CTI or a core participant has
15 referred to a particular passage from a page of
16 Sir Patrick's evening notes in the examination of any
17 witness, and has had that passage put up on the screen,
18 the rest of the page, perhaps even the rest of
19 the diary, part of which would have been displayed
20 alongside the particular excerpt, must then be published
21 and made available to the press.

22 My Lady, in fact just to make absolutely plain
23 the factual premise of this argument and, I apologise to
24 the core participants, to move a little way the target
25 at which they have been aiming, Mrs Laura Taylor, who is

116

1 the Module 2 lead solicitor, assures the Inquiry legal
2 team that it is quite straightforward in practice to
3 type up each excerpt to which any witness may be -- may
4 have that passage referred to, individually on
5 a separate page, on the screen, and therefore, in the
6 course of time, to have that particular page with only
7 that particular excerpt published.

8 But the point of principle is still required to be
9 resolved by you, my Lady, because, firstly, that doesn't
10 dispose of the issue as to whether or not in any event
11 there is an obligation for the rest of that page and
12 the original diary to be published or the rest of
13 the diary itself. And also the ruling may have
14 relevance to other dairies which are in the possession
15 of the Inquiry, parts of which may also be put up in due
16 course by way of individual excerpts.

17 The ruling may also have relevance to WhatsApps and
18 texts, because the WhatsApps form part of groups and
19 the texts form part of screenshots, although of course
20 very different weighing up considerations will apply to
21 such material because they are all, by definition,
22 material sent by one person to another, and therefore
23 the engagement of privacy rights is attenuated.

24 Turning to the substance of the legal argument,
25 the first issue for you is whether there is a reasonable

117

1 So Sir Patrick's reasonable expectation of
2 confidentiality and privacy still endures.

3 My Lady, the heart of this part of the legal
4 argument may be thought to be this: such part of the
5 notes as has been disclosed to the core participants was
6 disclosed because it was relevant to that particular
7 part of the Inquiry process, that is to say the
8 provision of material to the core participants to
9 meaningfully engage in this process. They weren't
10 disclosed to the core participants to enable
11 the core participants to publish them or with
12 an expectation that they would automatically be
13 published. So you may readily conclude Sir Patrick
14 still has a reasonable expectation of privacy.

15 The second argument concerns the well known weighing
16 up exercise between Article 10 and Article 8.
17 Article 10, the freedom of expression, is of vital
18 importance in the freedom of the press, it is
19 statutorily reinforced by section 12.4 of the Human
20 Rights Act, and it is an important Convention right.
21 But on the facts of this case, it is limited in this
22 particular way: we are not here dealing with a case in
23 which a document has been given to a judge by way of
24 a skeleton argument in the course of an open extradition
25 hearing, the Guardian News and Media case, where plainly

119

1 expectation of privacy on Sir Patrick's part. In
2 essence, is there an interference with his Article 8
3 rights?

4 My Lady, the excerpts all come from a diary which
5 was compiled and held privately, and Sir Patrick has
6 explained it was not meant to be published or, indeed,
7 known to anyone. And of course he has given it to
8 the Inquiry only because the Inquiry sought its
9 provision under Rule 9. The diary is confidential and
10 of a private nature, even though, of course,
11 the contents traverse matters that were very much in
12 the public domain, and of course are relevant to
13 the Inquiry's work.

14 It may be thought that a diary is a paradigm example
15 of material protected by confidentiality. You may
16 conclude his views were private and protected by
17 privacy, even if what he talked about was not.

18 His notes were given to the Inquiry quite properly
19 and to the core participants, but the notes which have
20 been provided to the core participants are still
21 protected by confidentiality obligations. They're held
22 subject to an undertaking. Although many members of
23 the groups will have seen the material under the terms
24 of those undertakings, many others have not, and
25 the confidentiality obligations still endure.

118

1 openness and the principle of transparency demands that
2 material be published and made available.

3 Nor is it a case in which material has gone to
4 a decision-maker in the course of a criminal trial,
5 where plainly the principles of open justice demand that
6 such evidence or material be publicly disclosed. This
7 is material which has so far only been given to
8 core participants under confidentiality undertakings in
9 the course of a public inquiry.

10 My Lady, you will recall well, of course, the
11 general advice in the Prince of Wales case, which you
12 are familiar with. Neither article has precedence over
13 the other automatically. There must be an intense focus
14 on the comparative importance of the right being claimed
15 on the facts of the case. The justifications for
16 interference with each right must be taken into account.
17 And the proportionality approach in Bank Mellat in the
18 Supreme Court must be applied.

19 Article 8 undoubtedly applies because, for the same
20 reasons which deal with the reasonable expectation of
21 privacy, the material, by virtue of being given to the
22 core participants, has not been made publicly available.

23 In that weighing up exercise, you may conclude that
24 the following particular aspects are of great
25 importance:

120

1 1. The confidentiality of dairies reflect
 2 an important public interest.
 3 2. Private dairies engage the highest level of
 4 confidentiality, Sir Patrick Vallance has the right to
 5 a private space, the right to be able to commit his
 6 private thoughts to writing and to keep them private,
 7 the more so as he is a public figure.
 8 3. The press will be able to publish, of course,
 9 those parts of the dairies which are put to witnesses
 10 and are put on the screen by way of the individual
 11 excerpts appearing on a single identifiable page, they
 12 don't need the rest of the diary to be published in
 13 order to be able to publish that material.
 14 4. Matters which are not drawn to the particular
 15 attention of a witness by CTI or the core participants,
 16 and are not put up on the screen, are by definition of
 17 lesser public interest.
 18 5. Sir Patrick Vallance would not have expected and
 19 could not reasonably have been expected, when he
 20 provided the dairies to the Inquiry, that the whole of
 21 the diary would be published, not just the parts that
 22 were put to witnesses. He would only have expected that
 23 the core participants themselves would be able to see
 24 all the material, bar sensitive and irrelevant parts.
 25 6. You have the useful analogy with the
 121

1 referred to in their witness statements again, and
 2 I will give my decision as soon as I am ready to do so.
 3 In the meantime, we will continue with the same system
 4 we have been utilising to date, which is that if we
 5 don't have the system in place whereby just the passage
 6 can be put up online, then counsel will read out the
 7 relevant passage until I have reached my decision.
 8 **MR KEITH:** Thank you very much, my Lady, that's extremely
 9 helpful.
 10 **LADY HALLETT:** Thank you.
 11 **PROFESSOR ANTHONY COSTELLO (continued)**
 12 **Questions from LEAD COUNSEL TO THE INQUIRY (continued)**
 13 **MR KEITH:** Professor Costello, you remain under oath.
 14 We were talking before lunch about basic infection
 15 control measures, and your evidence was to this effect,
 16 if I may summarise it without injustice: that a core
 17 infection control measure is testing alongside trace,
 18 contact, isolation, for the purposes of, firstly,
 19 understanding the spread of the virus, secondly,
 20 breaking chains of transmission.
 21 At what point can a government be expected to
 22 conclude that such basic infection control measures are
 23 required? Is it when an epidemic spreads from another
 24 country, becoming therefore a pandemic once it
 25 approaches a number of other countries? Is it when
 123

1 Associated Newspapers case in which Prince Charles
 2 successfully persuaded the Court of Appeal to grant
 3 relief restraining publication of eight handwritten
 4 journals which, although copied to the Mail on Sunday by
 5 a disgruntled member of staff, had been seen by and
 6 disclosed to between 50 and 75 advisers or officials.
 7 His claim to breach of confidence and interference with
 8 Article 8 rights was upheld.
 9 So, my Lady, those are the core features in the
 10 weighing up exercise which must be weighed, of course,
 11 in that balance between the extremely important right of
 12 freedom of expression, attenuated though it is in the
 13 particular circumstances of this case, and the Article 8
 14 rights of Sir Patrick Vallance.
 15 **LADY HALLETT:** Thank you very much, Mr Keith. I think you
 16 may need to express your appreciation to
 17 the stenographer. You were going quite speedily.
 18 **MR KEITH:** Luckily my diction is now extremely familiar to
 19 our hard-working, beloved stenographer, but I apologise
 20 if it was faster than usual.
 21 **LADY HALLETT:** I couldn't even get in to interrupt.
 22 Right. Now we're returning to Professor Costello.
 23 I should just like to say that having heard those
 24 submissions I shall reflect upon them very carefully,
 25 I'd also like to go over the judgments that people have
 122

1 infection breaches our own borders and is traced by way
 2 of such limited testing as there was of travellers as
 3 they enter the United Kingdom? Or is it when
 4 the science makes it clear, both from an understanding
 5 of the infection fatality rate -- which enables you to
 6 know what you're dealing with, how many cases there are,
 7 by comparison to how many will die -- and the degree of
 8 asymptomatic transmission? When -- or perhaps
 9 a mixture. When should a government, should this
 10 government have said, "We must now take infection
 11 control measures"?"
 12 **A.** Well, you need to prepare for it from the very
 13 beginning, when there is the first indication that
 14 things are serious. And I would argue from the evidence
 15 of others that by the third week of January, when people
 16 were dying in the streets in China, when three papers
 17 were published in *The Lancet* detailing human-to-human
 18 transmission, and Jeremy Farrar was saying that by
 19 24 January it was clear this was very serious, that
 20 John Edmunds and Graham Medley both gave an interview to
 21 Reuters in which they said they knew this was very
 22 serious by that time, so the preparation would therefore
 23 need to be made for any virus for which test, trace,
 24 isolate and support could reasonably be expected to
 25 control the virus.
 124

1 Q. Just pause there. Thank you.
 2 We have a chronology, Professor, and --
 3 A. Yeah.
 4 Q. -- I would just like to take you through some of
 5 the more significant dates in January and February.
 6 INQ000303290. On the chronology, we can see on
 7 9 January the World Health Organisation issued
 8 a statement regarding the cluster of pneumonia cases in
 9 Wuhan in China.
 10 On 13 January, over the page, please, the Ministry
 11 of Public Health in Thailand reported the first case
 12 outside of China.
 13 On 20 January, the World Health Organisation
 14 reported 282 infections, four of which were outside
 15 China, and six deaths.
 16 The following day, on 21 January, the World Health
 17 Organisation published its first Novel Coronavirus
 18 (2019-nCoV) report.
 19 What was the significance of that 21 January World
 20 Health Organisation report? Did it say anything about
 21 the extent of human-to-human transmission, therefore the
 22 likelihood of humans infecting other humans?
 23 A. Well, WHO had been handicapped because the director of
 24 WHO in China, Dr Gauden Galea had not been allowed
 25 access to Wuhan, despite repeated requests, so this was
 125

1 A. Yeah.
 2 Q. -- of the nature of the virus was apparent?
 3 A. Well, it was changing very fast at that time. And
 4 you're quoting the 22nd, which was the day after China
 5 had, for the first time, admitted the scale of deaths in
 6 Wuhan. For the previous five days they'd been saying
 7 there were none. And so it was a fast-moving situation,
 8 but certainly by the 24th, if you go on, it was becoming
 9 clear that there was human-to-human transmission. And
 10 there were three reports in *The Lancet* which referred to
 11 this which were published based on data that had been
 12 collected in the first three weeks of January.
 13 Q. That data published, as you rightly say -- I think there
 14 was an article in *The Lancet*. There was also another
 15 article in the Journal, the New Journal of Medicine,
 16 showed that in relation to particular clusters of
 17 infections in China, there was sustained human-to-human
 18 transmission between close family members.
 19 A. Yeah.
 20 Q. So should one have taken from that that transmission
 21 between humans generally was now established? If it was
 22 happening between close family members, it was likely to
 23 happen between members of the public?
 24 A. I think so, but it would also indicate that you have
 25 an even better chance of closing it down if your
 127

1 a report which just said that the evidence now emerging
 2 was that human-to-human transmission was happening, in
 3 which case the threat of a substantial pandemic would be
 4 likely.
 5 Q. On 22 January, in the United Kingdom, the Public Health
 6 England UK risk level was raised from very low to low.
 7 I'm not going to ask you about the meaning of that --
 8 A. Yeah.
 9 Q. -- it's a term of art on which we will hear evidence
 10 from others.
 11 That 22 January was, in fact, the first time that
 12 SAGE sat, it sat on a precautionary basis, that is to
 13 say it had not been formally convened --
 14 A. Yeah.
 15 Q. -- but it came together on a precautionary basis without
 16 formal activation by COBR. The minutes record, if you
 17 take it from me, please, Professor, at point 7:
 18 "There is evidence of person-to-person transmission.
 19 It is unknown whether transmission is sustainable.
 20 There is no evidence yet on whether individuals are
 21 infectious prior to showing symptoms."
 22 So by this week in January, do you believe that it
 23 was clear that the virus in China would spread outside
 24 China, would eventually reach all countries? In which
 25 case, what degree of understanding --
 126

1 supposition was not correct, that, you know, the most
 2 important thing is to close down an infection from close
 3 family members, and therefore that makes it easier if
 4 you can close down households. And that's the first
 5 principle.
 6 Remember that in the early days you don't have
 7 tests, so what you go on are symptoms and close
 8 contacts, and if you can close that down then you hope
 9 that you can bring about containment.
 10 Q. Of course --
 11 A. And suppression actually.
 12 Q. -- at this point, on 22/23 January, there had yet been
 13 no cases in the United Kingdom at all?
 14 A. No, correct.
 15 Q. All right.
 16 Around that same time, Imperial College issued what
 17 was then known as its third report, which estimated that
 18 the basic reproduction number, R, was above 1, meaning
 19 every single person would be likely to infect more than
 20 one other person in an unimmunised population, which
 21 indicated self-sustaining human-to-human transmission,
 22 and they stated that that implied that control measures
 23 were needed to block well over 60% of transmission to
 24 be effective in controlling the outbreak, because
 25 the likelihood was that one person would infect between
 128

1 two to three people, in fact, and therefore, with that
 2 level of increase, a corresponding amount of pressure
 3 would have to be applied to keep the outbreak under
 4 control.

5 By that week, so the week of 24/25 January, do you
 6 believe that the United Kingdom Government should have
 7 been taking active steps to prepare for the inevitable
 8 arrival of the virus here?

9 **A.** Well, I certainly think all the alarm bells were
 10 running -- were flashing, and therefore having
 11 a meeting, which they then went on to have on the 28th,
 12 would have said: look, we know this is a coronavirus,
 13 what are WHO saying? What's happening in the East Asian
 14 states? And should we be setting up advisory groups to
 15 deal with how we get a national test, how we can set up
 16 community mobilisation for contact tracing? And what
 17 should be our quarantine and isolation policies?

18 Those are the kinds of things. And obviously if
 19 this is growing -- you know, between the 24th and
 20 the 28th things started to happen, and in fact that was
 21 the time, on the 27th, when I sent a message to
 22 Dr Peter Singer at WHO, who was one of Dr Tedros's
 23 advisers.

24 As you know, on 23 January, the PHEIC committee, the
 25 public health emergency of international concern

129

1 how big the outbreak is, how widely the virus spreads,
 2 and how great the transmission is?

3 **A.** Except by the 27th we knew that it had spread to
 4 17 countries.

5 **Q.** Right.

6 **A.** We knew that it was, therefore, spreading quite quickly.
 7 We also knew from the studies in *The Lancet* and from
 8 anecdotal reports that the case fatality rate of people
 9 in hospital was worryingly high --

10 **Q.** Just pause there.

11 **A.** -- 5%, yeah.

12 **Q.** Just pause there, because you've raised something that
 13 we need to explore. The case fatality rate, as it
 14 suggests, is the number of people who die amongst
 15 the number of confirmed cases --

16 **A.** Correct.

17 **Q.** -- hence case fatality rate?

18 **A.** Yeah.

19 **Q.** That's not the same, is it, as the number of people who
 20 die amongst everybody who has been infected?

21 **A.** Correct.

22 **Q.** That is the infection fatality rate?

23 **A.** Correct.

24 **Q.** But at this stage, no one knew what the infection
 25 fatality rate was, did they?

131

1 committee, at WHO met. That's not an internal
 2 committee, it's an external -- you're going to come on
 3 to that.

4 **Q.** Just pause there, just to make plain, when you say
 5 "PHEIC", you mean P-H-E-I-C, the acronym, not "fake",
 6 F-A-K-E.

7 **A.** No, that's right, I beg your pardon.

8 **Q.** Professor Woolhouse was telling the Inquiry earlier that
 9 one of the major problems when facing an emerging
 10 outbreak, an emerging epidemic, is knowing whether or
 11 not the number of cases in which people are seriously
 12 ill or will die is reflective of the whole scale of
 13 the outbreak?

14 **A.** Correct.

15 **Q.** So they may be a very small proportion of people who are
 16 infected, or they could be a very large proportion of
 17 people who are infected?

18 **A.** Yeah.

19 **Q.** At this stage, the UK Government couldn't and didn't
 20 know whether or not people who were dying in China were
 21 a large proportion of the people who were infected or
 22 a small proportion?

23 **A.** Correct.

24 **Q.** That was a vital issue, was it not, because without
 25 knowing the answer to that question they wouldn't know

130

1 **A.** No, they didn't, but one knew that, being a coronavirus
 2 that the SARS had had an infection fatality rate of 15%,
 3 SARS-1. MERS was 30%. So the likelihood was that this
 4 was going to be significantly more serious than seasonal
 5 flu.

6 **Q.** Right.

7 **A.** So, on the precautionary principle, you would have to
 8 say: yes, we think the infection fatality rate is going
 9 to be lower than the case fatality rate -- and I thought
 10 Chris Whitty got this about right, he thought he would
 11 bring it down to 1%. And that was something that --
 12 I shared the same view. But even at 1%, if you've got
 13 a respiratory virus that spreads around a country and
 14 infects 60% of the population, 1% is a lot of deaths.

15 **Q.** Just pause there.

16 You've introduced the notion, the subject of the
 17 precautionary principle. Is that a term of art or
 18 a shorthand for saying you may not know what the precise
 19 nature of this outbreak is, you may not know its latent
 20 period for sure, how long it takes for someone to be
 21 able to infect somebody else, how often it doubles, what
 22 its infection fatality rate is, but if you believe that
 23 that virus is coming your way, you must act early in
 24 a precautionary way to cover the eventuality that it
 25 breaks through. Is that the nub of it?

132

1 **A.** Yeah. And I think that, on the 28th, when they met for
2 the second meeting, that's the kind of thing they should
3 have been talking about: who are the coronavirus
4 experts? What are the plans we should be making?
5 And -- rather than taking a very final decision about
6 this is pandemic flu.

7 **Q.** Just pause there. So could we have INQ000057492,
8 please, which are the minutes from this -- it was the
9 second stage, wasn't it, Professor --

10 **A.** Yeah.

11 **Q.** -- on 28 January.

12 Just to get out bearings, we can see this is the --
13 well, it's called the "Addendum to the second SAGE
14 meeting":

15 "This addendum clarifies the roles of the SAGE
16 attendees ..."

17 There are then the attendees listed.

18 My Lady, the names of the junior officials and the
19 secretariat are redacted under the ordinary principles.

20 If you could go, then, please, over the page.

21 Paragraph 1:

22 "[Department of Health and Social Care] to send PHE
23 isolation plan to behavioural scientists (see further
24 action below)."

25 If you could scroll back out, please, 8:

133

1 want a screening or a test that will pick up all
2 potential cases or as many as possible.

3 **Q.** Just pause there.

4 The capacity to run 400 to 500 tests per day, at
5 this stage in the process, Public Health England, the
6 government, was testing some people who were arriving,
7 because there were tests done on travellers, as well as
8 testing of index cases. That is to say, persons who
9 have got the infection and they're being tested, as are
10 their contacts, to try to identify the first few hundred
11 cases; is that correct?

12 **A.** Correct.

13 **Q.** Would a capacity of 400 to 500 tests per day suffice in
14 the event that the virus spreads, known or unknown, and
15 reaches thousands or more?

16 **A.** No. But can I just point out that this refers to
17 the capacity of PHE. Public Health England is
18 a misnomer. Public Health England does not cover most
19 of the public health services of England. The --
20 in 2013, when the Lansley reforms came in, all
21 the districts, 309 districts in England, their public
22 health was moved from NHS control to local authority
23 control. So all of the district public health teams
24 were under local authority control. Public Health
25 England was a little bit like a sort of government

135

1 "Diagnostics: Specific test should be ready by the
2 end of week, with capacity to run 400 to 500 tests per
3 day. Guidance being rolled out to laboratories in the
4 UK. Sensitivity of test unclear, particularly in early
5 phases of illness or when symptoms are mild. Currently
6 it would not be useful to test asymptomatic individuals,
7 as a negative test result could not be interpreted with
8 certainty."

9 So was the position on the 28th, then, Professor,
10 that the participants in this meeting understood that
11 testing was absolutely required but there were two
12 limitations: one, what in practice was available, not
13 much by way of capacity; and two, whatever testing there
14 was would throw up false negative and positive results?

15 Dealing with those two points in reverse order, do
16 you have to wait until you've got a test that works
17 really well before you start deploying it?

18 **A.** No, not -- no test is perfect, and most tests will
19 either be, either -- you know, create false positives or
20 they may create false negatives.

21 **Q.** That is to say, a false positive telling you that you've
22 got the virus when you haven't --

23 **A.** Yeah.

24 **Q.** -- or falsely telling you're clear when you've got it?

25 **A.** Which is worse, of course, the false negative. So you

134

1 thinktank of experts with a limited number of
2 laboratories, I think they had eight laboratories. But
3 around the country we had 44 molecular biological
4 laboratories for virology testing, which was completely
5 outside of the Public Health England control.

6 So when we're talking about the 400 or 500, that's
7 what they would have managed. And later it was argued
8 if they could only manage that there was no point in us
9 developing it.

10 And I should point out that South Korea --

11 **Q.** I'm sorry, Professor, there is a method to my madness.
12 We will be coming on to these issues. But the way in
13 which you answer makes it difficult for us to follow and
14 for the stenographer to record, so please try to
15 restrain your answer.

16 So this is a reference, then, to PHE testing?

17 **A.** Yeah.

18 **Q.** We'll come back to the question of whether there were
19 other testing facilities available of which PHE failed
20 to avail itself. That's a separate issue.

21 Could we look, please, at paragraph 19:

22 "Control measures: ideally infection control in
23 healthcare settings and rapid detection of cases."

24 20:

25 "It was agreed that Pandemic Influenza infection

136

1 control guidance should be used as a base case and
 2 adapted."
 3 What do you understand that agreement to have
 4 amounted to?
 5 **A.** Well, I --
 6 **Q.** And shortly, please, Professor.
 7 **A.** Yeah. I've linked that to their decision to allow
 8 the virus to spread, and to come up with their strategy
 9 of contain, delay, research and mitigate rather than
 10 suppress. If you're following a pandemic influenza
 11 strategy, then you cannot control the virus.
 12 **Q.** Just pause there. There is a reference, a plain
 13 reference to "Pandemic Influenza infection control". Is
 14 that a throwback to the strategy that you referred to
 15 earlier, the 2011 pandemic flu strategy?
 16 **A.** Yes.
 17 **Q.** There was a strategy for dealing with flu pandemics?
 18 **A.** Yeah.
 19 **Q.** Under that control guidance, as you described earlier,
 20 there's little point having a test because people become
 21 infected and then show symptoms and infect others so
 22 quickly --
 23 **A.** Yeah.
 24 **Q.** -- there isn't a window in which to test?
 25 **A.** Correct.

137

1 **Q.** Where does it say in paragraph 20 "we cannot suppress
 2 this new virus"?
 3 **A.** It's an implication from saying "Pandemic Influenza
 4 infection control".
 5 **Q.** Is it?
 6 **A.** Yeah.
 7 **LADY HALLETT:** Doesn't the "Action" suggest it as well?
 8 "... SPI-M to advise on actions the UK could take to
 9 slow down the spread ..."
 10 Not suppress it.
 11 **MR KEITH:** Is slowing down the spread part of either
 12 mitigation or suppression or neither?
 13 **A.** Suppression is where you control so that you get the
 14 R value below 1 and the number of cases will peter out,
 15 and then you put in place a system whereby if there are
 16 any outbreaks you can jump on them quickly.
 17 But --
 18 **Q.** By way of test, trace, contact, isolate?
 19 **A.** Yeah.
 20 **Q.** In paragraph 21, SAGE makes the point that there is:
 21 "Currently no evidence of control measures having
 22 an impact on transmission rate, but [that that] is to be
 23 expected ..."
 24 **A.** Yeah.
 25 **Q.** Do you understand that is because no one, let alone in

139

1 **Q.** And the best control is to identify whether you have
 2 a symptom, and if you do, isolate.
 3 Does it appear to you that there was any debate
 4 about the sort of control guidance that might be needed
 5 for a coronavirus as opposed to a pandemic influenza?
 6 That is to say, testing, whole-society isolation, stay
 7 at home orders, lockdowns.
 8 **A.** No, not necessarily lockdowns. I mean --
 9 **Q.** Well, that's for a later day, Professor.
 10 **A.** Yeah.
 11 **Q.** Just please focus on the question. Does this paragraph
 12 indicate to you that there was any debate on any of
 13 those other measures?
 14 **A.** No, I can't say one way or another, because there's no
 15 mention of coronavirus control in the notes.
 16 **Q.** No. But you describe the decision to draw upon pandemic
 17 influenza control guidance and vary it as being a fatal
 18 error. Why is it a fatal error, in your opinion?
 19 **A.** Because if that's what they're assuming, that you cannot
 20 suppress this virus, then it completely releases
 21 the pressure on them to set up a group to look at
 22 scaling up a national testing system, a national contact
 23 tracing system and, very importantly, policies that
 24 would enable people to be quarantined and isolated and
 25 financially supported.

138

1 China, had produced the data which showed what
 2 the impact would have been or was of applying measures?
 3 **A.** Correct.
 4 **Q.** All right.
 5 At the bottom of the page, as my Lady has noted,
 6 there is an action. You describe this action as being
 7 a second fatal error, and the Inquiry understands that
 8 you do so because the action was directed at SPI-M.
 9 **A.** Yeah.
 10 **Q.** The modellers. What, in your opinion, was wrong about
 11 asking SPI-M, modelling scientists, to advise on, by
 12 implication, practical actions that the United Kingdom
 13 could take to slow down the spread of the outbreak?
 14 **A.** Well, first they called it scientific pandemic influenza
 15 modelling.
 16 **Q.** Would --
 17 **A.** Well, no --
 18 **Q.** Professor --
 19 **A.** -- this is important, because actually it should be
 20 SPC-M, it should be about coronavirus. So the wrong
 21 virus and the wrong strategy.
 22 **Q.** Let us not get into a debate about the correctness of
 23 the terminology under which the group operates. What,
 24 in your view, was the fallacy or the error in having --
 25 **A.** Right.

140

1 Q. -- SPI-M as a group of expert, well intentioned
 2 scientists, albeit modellers, advising on actions that
 3 the United Kingdom could take?
 4 A. Because they were asked to model slowing down
 5 the spread, but they were not asked to model the impact
 6 of test, trace and isolate, and they did not do that.
 7 They basically looked at a whole number of other
 8 measures like school closures, like large events, like
 9 face masks, you know, whatever, all the various
 10 so-called NPIs, but they didn't model what all
 11 the East Asian states were doing and what WHO was
 12 recommending.
 13 Q. Because those measures were measures more usually
 14 associated with flu pandemics and they were the measures
 15 which in fact were reflected in the 2011 strategy?
 16 A. Yeah.
 17 Q. Right.
 18 To what extent do you understand that SAGE was
 19 calling here for practical steps to be taken to put
 20 boots on the ground, as you describe it, as opposed to
 21 modelling what might happen?
 22 A. Yeah, they seemed to be focusing mainly on modelling,
 23 and the absence of an independent UK public health
 24 expert on the committee meant that there was no one
 25 challenging this idea. To me, and particularly in light
 141

1 The director general, Tedros Ghebreyesus, said:
 2 "The continued increase in cases and the evidence of
 3 human-to-human transmission outside China are of course
 4 both deeply [disturbing]."
 5 Had you contacted the WHO yourself in order to
 6 persuade them to declare a PHEIC sooner than it did on
 7 30 January?
 8 A. Well, after the decision on the 23rd, I was fairly
 9 certain that many of the internal people at WHO were
 10 keen to have declared a PHEIC straightaway.
 11 Remember, WHO had been very severely criticised
 12 about the slowness of its response to Ebola in 2014/15,
 13 and I therefore sent a message to Tedros's -- he calls
 14 himself Dr Tedros, so it's -- to say: listen, it's
 15 spreading, 250,000 cases are predicted by the end of
 16 the week, it's in 17 countries, we therefore --
 17 I strongly urge you to try and persuade the independent
 18 committee to get a PHEIC.
 19 In fact Tedros was already on the plane to China to
 20 get a commitment from Xi Jinping to let them in, and in
 21 fact a PHEIC was declared on the 30th.
 22 Q. All right. From the viewpoint of the United Kingdom,
 23 what difference would it have made, if any, if a public
 24 health emergency of international concern had been
 25 declared on 23 January, as might have been possible,
 143

1 of what WHO were saying at the time, and later from the
 2 evidence in February from all the East Asian states, we
 3 needed to move fast to get a national test system, to
 4 mobilise contact tracing and to set up isolation
 5 procedures, and we weren't doing that, and we were
 6 therefore effectively allowing things to spread or to
 7 accept that we couldn't suppress it.
 8 Q. In your statement, you say that:
 9 "From January 28 the UK advisory die was cast. The
 10 UK medical and scientific group of experts saw it as
 11 a flu epidemic. In their view there was nothing the UK
 12 could do to stop it, only to manage its progress, [and
 13 ultimately, of course] to protect the NHS."
 14 Is that the genesis, in your view, of the contain,
 15 delay strategy and also the strategy, as it became
 16 apparent in March, of mitigating, levelling the curve --
 17 A. Yeah.
 18 Q. -- suppressing the sombrero as opposed to trying to stop
 19 the virus in its tracks?
 20 A. Yes, I think so. And I think it's backed up by what
 21 Patrick Vallance and Chris Whitty have said.
 22 Q. All right. That's a matter for my Lady, not, I think,
 23 for a witness.
 24 The World Health Organisation then reported on
 25 29 January, INQ000268222, at page 4.
 142

1 rather than on the 30th?
 2 A. Difficult to say, but a declaration of a PHEIC does have
 3 certain implications from the International Health
 4 Regulations, and I think it would have probably brought
 5 forward some of the discussions going on with the SAGE.
 6 But it's difficult to speculate beyond that.
 7 Q. All right.
 8 At the beginning of February, on 3 February,
 9 SPI-M-O, the operational modelling subcommittee of SAGE,
 10 issued a consensus statement, and I'm just going to read
 11 out two of the conclusions, Professor. You won't find
 12 it on the page in front of you.
 13 "The number of confirmed cases of 2019 novel
 14 coronavirus in China is estimated to be at least ten
 15 times higher than the number currently confirmed."
 16 Number 7 of the consensus minutes:
 17 "It is unclear whether outbreaks can be contained by
 18 isolation and contact tracing."
 19 If you had read on 3 February that consensus
 20 statement from SPI-M-O, what view, if any, would you
 21 have reached on the likelihood that the virus would
 22 inevitably reach the United Kingdom?
 23 A. Well, I -- by that time I was pretty certain it would,
 24 because it was going -- it was already spreading at
 25 speed. Whether I would have agreed with their unanimous
 144

1 conclusion about it not -- that measures would not
2 control it, is another issue. And I would not make that
3 decision without consulting with East Asian groups and
4 with WHO, who were making it very clear that at all
5 costs you have to act fast to suppress the virus.

6 **Q.** I think to be fair to SPI-M-O, Professor, I read out
7 the words that made it absolutely clear that they're
8 talking about the cases in China, so all they were
9 saying is, at number 7, it is unclear whether outbreaks,
10 in parenthesis in China, can be contained by isolation
11 and contact tracing. They weren't saying to the
12 East Asian countries, other countries, "Don't put
13 measures into place".

14 **A.** Well, by 18 February, a report in early March showed,
15 they had already in China nationally got their R0
16 below 1.

17 **Q.** We will come to that.

18 On 4 February, SAGE minutes record that the figures
19 showed that potentially only one in 15 cases in China
20 was being ascertained and that asymptomatic transmission
21 cannot be ruled out and transmission from mildly
22 symptomatic individuals is likely.

23 At what stage does a Government need to know
24 the degree of likelihood of asymptomatic transmission
25 before deciding whether to take proactive steps to put

145

1 **A.** Yeah, I would have expected that the week before, yeah.

2 **Q.** -- put a new test and trace and isolate system into
3 place, to start seriously considering steps for social
4 restriction, for breaking the physical gaps between
5 members of the public to stop transmission. All this,
6 Professor, before there are any more than a handful of
7 cases in the United Kingdom?

8 **A.** Yeah, I mean, we -- at that stage we had to assume that
9 a pandemic was going to happen, it was spreading fast,
10 and therefore we needed to know that we would have
11 the basic tools for control rather than having to go
12 into a kind of national lockdown with 400,000 people
13 dying as a result of a 1% mortality rate.

14 So, you know, you have to weigh up options, but you
15 want to make sure that the country has the option to
16 control it, as indeed the East Asian states showed they
17 could control it and suppress it, in the ensuing few
18 weeks. So that's what I would have advised, yeah.

19 **Q.** Two questions, please.

20 **LADY HALLETT:** I'm just wondering if that is a convenient
21 moment.

22 **MR KEITH:** My Lady, yes, it is.

23 **LADY HALLETT:** Do you want to ask those two questions?

24 **MR KEITH:** No, they will no doubt open another
25 Pandora's box, so perhaps that is a convenient moment.

147

1 measures into place?

2 **A.** Well, obviously if you don't have an antibody test you
3 can't measure it, so you have to make some good guesses
4 on the basis of pandemic science, and if you were at
5 some stage to show me the diagram that was published by
6 Anderson, Ferguson and others after SARS-1, which shows
7 the relationship between R0 and asymptomatic spread,
8 then it would very clearly show to my Lady the limits
9 and desirability of different strategies.

10 **Q.** That is in fact the 2004 report --

11 **A.** Correct.

12 **Q.** -- to which you refer in your statement.

13 But I'm going to decline your invitation, Professor,
14 and not put it to my Lady, because I'm driving at
15 a different point, which is not whether the science
16 shows that there are measures open to you to take,
17 depending on the degree of asymptomatic transmission,
18 but whether, given that it was understood by 4 February
19 that asymptomatic transmission cannot be ruled out --

20 **A.** Yeah.

21 **Q.** -- you would have expected measures to be taken by that
22 stage by the United Kingdom Government?

23 **A.** To do?

24 **Q.** To take -- set up working groups, as you suggest in your
25 statement, to --

146

1 **LADY HALLETT:** All right, 3.30, please.

2 (3.15 pm)

3 (A short break)

4 (3.30 pm)

5 **LADY HALLETT:** Sorry for all the breaks in your evidence,
6 Professor.

7 **MR KEITH:** Professor, on 22 February, United Kingdom
8 passengers from the Diamond Princess cruise ship came
9 back to the United Kingdom. The Inquiry has heard
10 evidence that that was a cruise ship which was
11 quarantined by the Japanese Government after there was
12 an outbreak on board. I think a passenger tested
13 positive for Covid having left the ship, and he had
14 earlier been taken on board in Hong Kong, so the virus
15 had spread on board.

16 The crucial feature, though, of that cruise ship and
17 the infection was, wasn't it, that because they were all
18 tested, the authorities in Japan and then the rest of
19 the world were able to work out how many -- what
20 the percentage was of those persons had showed no
21 symptoms, and were there asymptomatic?

22 Around the same time there was a field report from
23 the World Health Organisation, 24 February, which showed
24 their up-to-date thinking in relation to the extent to
25 which the virus was asymptomatic.

148

1 What was the impact, in your view, or what should
2 have been the impact in your view, on the United Kingdom
3 Government of those two separate pieces of knowledge?

4 **A.** Well, on the WHO report, they had gained access
5 to China, a big independent 25-person team to go and
6 look at the situation, and they measured the case
7 numbers at the beginning and the end of their stay,
8 which was nine days, and then they held -- they
9 published a report straightaway and held a press
10 conference. So it was very widely covered. And they
11 basically laid out all the details of a proper
12 mobilisation of a country. Remember, they didn't have
13 a national lockdown, they had a local lockdown in Wuhan,
14 and then in the rest of the country they put in place
15 all that was needed to mobilise people, to get tests out
16 there and, most importantly, to isolate and to support
17 people to isolate. Their bills were paid, their food
18 was paid. You know, they made sure that people weren't
19 worried about isolating. Which was a huge problem in
20 this country, as you know, later.

21 So there was the guidance that should have really
22 been absolutely critical to guiding the UK response, but
23 I didn't see any discussion of it in any of the minutes
24 that I looked at, in SAGE.

25 **Q.** In essence, is your evidence that certainly by that
149

1 were they referring to the current end of winter, being
2 the end of February? I'm not quite sure what that
3 means.

4 **Q.** By 18 February, Professor, SAGE 8, Public Health England
5 informed SAGE that they could cope with five coronavirus
6 cases per week, generating 800 contacts that would need
7 contact tracing. So each person who's infected goes
8 into the system of contact tracing and isolation, each
9 person generates a large number of contacts, five people
10 would generate around 800 contacts, for argument's sake,
11 that was the limit that PHE were saying they could deal
12 with.

13 By this stage, 18 February, from the same standing
14 start, how many people were South Korea testing?

15 **A.** By -- I think it was by about 22 February, they were
16 getting up to beyond 15,000 tests per day.

17 **Q.** 15,000 per day?

18 **A.** Yes. And with regards to contact tracing, be aware,
19 coverage is everything here. You know, people on the
20 ground. Wuhan brought in 9,000 people for 11 million
21 population. In Korea they mobilised a thousand junior
22 doctors and many other volunteers to go to the hotspot
23 areas of Daegu and another one.

24 So they were mobilising people very quickly. What
25 I think they're referring to there at PHE was they had
151

1 stage, at the very latest, there should have been
2 the pulling of a major alarm cord and a call for and
3 the putting into place of a proper process of test,
4 trace and isolate?

5 **A.** Yeah, and support.

6 **Q.** The reality, Professor, can be seen from some of
7 the SAGE minutes as to the extent of the testing system
8 which was then in place. Could we have, please,
9 INQ000057492, page 2.

10 This is the minutes again of 28 January which
11 referred to the 400 to 500 tests per day. At
12 paragraph 8, there we have it again:

13 "Specific test should be ready by the end of week,
14 with capacity to run 400 to 500 tests per day."

15 Could we have INQ000051925, please, the third page.

16 This is dated 4 February, paragraph 26:

17 "Although the UK is building regional diagnostic
18 capability within weeks ..."

19 Is "diagnostic" a word for scientific testing?

20 "... overall capacity is limited. Capacity cannot
21 be substantially increased during this winter influenza
22 season."

23 What does that mean?

24 **A.** I'm not sure. Do they refer to the following winter,
25 which would mean in another nine or ten months' time, or
152

1 just 270, approximately, contact tracers.

2 **Q.** Just pause there. So PHE had employed expert contact
3 tracers, the people who phone round and contact and make
4 sure that they can identify each contact of an infected
5 person?

6 **A.** Yeah.

7 **Q.** But they had a number of -- a limited number of people
8 available to do that job?

9 **A.** Within the narrowness of PHE. But across the country,
10 we had a district public health protection team in every
11 district. And my argument is that if we had wanted to
12 mobilise, I worked out on coverage that to get
13 the coverage of Wuhan you would need about 150 contact
14 tracers per district on average, obviously proportional
15 to the size of the population. So it would be possible,
16 and indeed when they put out a call on March 24th for
17 volunteers to help with the whole crisis, instead of
18 getting 250,000 people that they wanted, they got
19 750,000. And they weren't subsequently used, they only
20 used about 20,000 of them to do tasks. So my argument
21 is a lot of those people would have been health workers,
22 retired GPs, I know some that volunteered, and they
23 could have been employed to help manage on the ground
24 contact tracing and, most important, ensuring that
25 people isolated and stayed isolated for 14 days.
152

1 Q. Just pause there.
 2 You've told us already that there was a limit on
 3 the number of existing Public Health England regional
 4 laboratories --
 5 A. Yeah. Yeah.
 6 Q. -- who were in a position to do the testing, but that
 7 there were other specialist molecular virology
 8 laboratories capable of processing tests?
 9 A. Yeah.
 10 Q. In a number of statements from the Chief Medical
 11 Officer, the Government Chief Scientific Adviser, and
 12 other members of SAGE, there are references to the fact
 13 that those other specialist molecular virology
 14 laboratories didn't have the physical capacity to be
 15 able to scale up the testing to the sorts of levels that
 16 you have in mind. What do you say to that?
 17 A. Well, I've heard this, and I would want to query if this
 18 is correct. If we had set up at the end of January
 19 a group, for example, with Sir Paul Nurse, Nobel prize
 20 winner Professor Venki Ramakrishnan --
 21 Q. Well, don't worry, Professor, about the individuals.
 22 A. Okay.
 23 Q. I'm asking you questions about --
 24 A. All the experts --
 25 Q. Excuse me.

153

1 Q. All right. So is this the position -- and it's very
 2 important that the Inquiry understands whether you have
 3 evidence that shows that a vital step ought to have been
 4 taken but was not, and that it was available to
 5 the authorities to take that step -- you don't know
 6 whether or not those molecular virology laboratories
 7 could have been scaled up in time, and obviously
 8 the virus was spreading, but your understanding is there
 9 were alternative measures or alternative supplies,
 10 facilities, that should have been used but were not?
 11 A. Correct. And on contact tracing the same. We have
 12 5,000 environmental contact tracers, and I believe
 13 the sexual health contact tracers amounted to several
 14 hundred, and they were offered to the team in
 15 the Department of Health, and it was not accepted.
 16 Q. Do you know when that was, Professor?
 17 A. This was -- it was ... I'd need to check. I can go
 18 through later, I don't want to hold you up.
 19 Q. I don't believe that those offers were being made in
 20 February, which is when you --
 21 A. No, not in February. No, you're right.
 22 Q. -- say the precautionary principle --
 23 A. Correct.
 24 Q. -- it's necessary to take these early steps to get on
 25 top of the virus.

155

1 A. Sorry, I beg your pardon.
 2 Q. I'm asking you about the system --
 3 A. Yeah.
 4 Q. -- and whether the system could be scaled up to carry
 5 out the valuable work which you have said in your
 6 evidence was required to be done.
 7 A. Yeah.
 8 Q. Could those molecular virology laboratories have been
 9 scaled up, do you think, to meet the sorts of numbers
 10 that you have in mind?
 11 A. Well, Allan Wilson, the director of the Institute of
 12 Biomedical Science, I referred to in my witness
 13 statement, has said why did they go to a Wild West
 14 scenario, he called it, of lighthouse labs when they
 15 could have used their own backyard people, who were
 16 linked in with all of the NHS facilities, so that
 17 the reporting of case -- of tests could have been
 18 quickly used to control the virus.
 19 So my view is that an independent group should need
 20 to look and see whether we could have done this. But we
 21 are a big biomedical country, we have a lot of expertise
 22 across universities, across many different research
 23 facilities, and I would be surprised if these people,
 24 when consulted, could not have made a material
 25 contribution, but they weren't invited to do so.

154

1 A. Exactly.
 2 Q. All right. So that may not take us much further at this
 3 point.
 4 A. Correct.
 5 Q. All right.
 6 The government stopped all community testing on
 7 12 March, and to recall the position, Professor, there
 8 were around about, at that time, some -- well, fewer
 9 than a 500 cases --
 10 A. 500, yeah, and about 10 deaths I think.
 11 Q. What was the significance of the government stopping
 12 testing in the community?
 13 A. I think their explanation was that they had limited
 14 number of tests and so they wanted to focus on
 15 hospitals, to make sure they could test there and
 16 presumably, later, other care facilities. But it was
 17 interesting that the very next day Dr Tedros put out
 18 a statement, I think aimed at the UK Government, saying
 19 it is -- in switching from containment to mitigation is
 20 both wrong and dangerous just because we've declared
 21 a pandemic. Because it was on the 12th the government
 22 were saying because WHO had declared a pandemic, which
 23 kind of everyone knew was taking place, that that was
 24 why they stopped testing. And I think that was a bit of
 25 a non sequitur.

156

1 Q. Your evidence is that the government's explanation was
2 that they had stopped community testing because they had
3 limited number of tests --

4 A. Correct.

5 Q. -- and they wanted to focus on hospitals?

6 A. Yeah.

7 Q. So if the reality, Professor, was they had to stop
8 community testing because they had no tests and what
9 tests they did have had to be focused on hospitals and
10 the sick and the dying, why do you say in your statement
11 that the United Kingdom should not -- you say it:

12 "... stopped all community testing ... This should
13 not have happened."

14 Isn't the reality that they had to stop community
15 testing because they ran out of tests?

16 A. Yeah, but we'd had six weeks where we could have
17 prepared for this I believe in a way that Korea did,
18 that China, that all the others did. I need to be
19 convinced that in that six weeks of inaction, because of
20 their strategy saying this was pandemic flu, that they
21 could not have generated sufficient tests to cover
22 the hotspot areas that we had at that time. That's the
23 key to suppression.

24 Q. So the position is, then, Professor, isn't it, that it
25 wasn't that decision to stop community testing on

157

1 test, trace, contact, isolate, support structure in
2 place; correct?

3 A. In the early stages, remember in China and in
4 South Korea they didn't have a test necessarily at
5 the scaled --

6 Q. I'm sorry to talk over you. I'm asking you specifically
7 about early March.

8 A. Yeah.

9 Q. You've established very effectively that South Korea,
10 which developed a diagnostic test on the same day as the
11 United Kingdom --

12 A. Yeah.

13 Q. -- scaled up its processes whereas we did not.

14 A. Yeah.

15 Q. But by early March, which is what I'm asking you about,
16 given that there was no test, trace, contact, isolate
17 support system, we had dropped the ball --

18 A. Yeah.

19 Q. -- given that there was no other non-pharmaceutical
20 intervention measure short of a lockdown that would have
21 the same benefits as a proper test, trace, isolate
22 system, why does it matter if strategically
23 the British Government did tell everyone it was
24 continuing to pursue a mitigation rather than
25 a suppression strategy?

159

1 12 March --

2 A. Yeah.

3 Q. -- that was so wrong, it is that the reality of having
4 to stop community testing was reflective of the terrible
5 position in which the country had got itself, which is
6 that there had been, by that stage, no attempt to scale
7 up --

8 A. Correct.

9 Q. -- the testing process?

10 A. Correct.

11 Q. Right.

12 In your statement, you then proceed to another
13 error, or "fatal error" you describe it as, on the part
14 of the government, which was to remove the possibility
15 of epidemic suppression. So this issue of
16 the government pursuing mitigation of a virus, of the
17 virus, by way of reducing the levels of incidence, the
18 spread, the overall numbers, as opposed to suppressing
19 it and stopping it in its tracks.

20 From what you've said, there was by early March no
21 effective scaled up test, trace, contact, isolate,
22 support system in place; correct?

23 A. Correct.

24 Q. There were no real measures short of a lockdown that
25 would stop the virus in its track, because there was no

158

1 A. Well, the first reason is that we ended up with serial
2 lockdowns. We ended up with the biggest economic damage
3 to our country in 300 years. We ended up with
4 £407 billion spent on furlough schemes, because it
5 spread across the population. We ended up with
6 £450 billion of QE by the Bank of England. So massive
7 economic damage.

8 Q. Professor, I'm very sorry to interrupt you again. That
9 wasn't an invitation for an impressively fluent --

10 A. No --

11 Q. Please forgive me -- retrospective view of the entirety
12 of the Covid pandemic.

13 A. No, 2020.

14 Q. I asked you: why does it matter in March 2020 that
15 the government, and you showed us the SAGE minutes where
16 they still pursued the mitigation strategy, why does it
17 matter then that they go for mitigation rather than
18 suppression if they had no practical means by which to
19 mitigate properly?

20 A. Because you were going to need a find, test, trace,
21 isolate and support system.

22 Q. All right.

23 A. Because what happened was, without an effective one,
24 the first lockdown ended, we got it right down to nearly
25 500 cases per day, and then it just came back up again,

160

1 because we never had an effective find, test, trace and
2 isolate.

3 So even if we were late, it was better to develop
4 one and save subsequent infection, transmission and
5 deaths than to not do anything at all.

6 **Q.** So the answer, then, Professor --

7 **A.** Yeah.

8 **Q.** -- is this, isn't it: that for those people in
9 the government who in March were saying, "We must
10 suppress the sombrero, we must reduce the level of
11 the outbreak, to avoid suppressing one wave --
12 mitigating one wave and then being hit by a second
13 wave", in order to be able to deal with that second wave
14 when it surely re-emerged --

15 **A.** Yeah.

16 **Q.** -- they would have had to have, they needed to have
17 a proper test, trace, isolate, support system in
18 place --

19 **A.** Correct.

20 **Q.** -- by the time of the second wave --

21 **A.** Yeah.

22 **Q.** -- which of course struck in the late autumn?

23 **A.** Yeah.

24 **Q.** That's what you're saying?

25 **A.** Yeah.

161

1 **A.** Effectively, because they -- I think Chris Whitty, in
2 the -- 5 March, when he was giving evidence to
3 the Health Select Committee, indicated that they were on
4 the cusp of moving to a delay phase.

5 Can I just add one small point?

6 **Q.** Please.

7 **A.** This plan, contain, delay, research, mitigate, what
8 confuses me is that both Sir Jeremy Farrar and
9 John Edmunds have both said that this was never
10 discussed at SAGE.

11 **Q.** Yes. My Lady's received evidence, and will receive
12 further evidence, on that, Professor, thank you.

13 **A.** Thank you.

14 **Q.** Herd immunity --

15 **A.** Yeah.

16 **Q.** -- is a related issue, again of which you are -- you
17 have much to say in your statement.

18 If you have a system, Professor, as the government,
19 on your evidence, appeared to have, that the only thing
20 that could be done with the virus was chop off the top
21 level, mitigate it, suppress it, but allow a significant
22 body of it to pass through the population, is herd
23 immunity simply a recognition that that is a byproduct
24 of such a strategy? If you don't suppress a virus
25 completely, it will pass through the population and

163

1 **Q.** So the absence of a test and trace system resulted in
2 a lockdown because there was no alternative, it resulted
3 in the virus getting away from the United Kingdom,
4 spreading uncontrollably in March, and it also ensured
5 that we were hit by a second wave?

6 **A.** Correct.

7 **Q.** All right.

8 You are critical of the government's strategy
9 document that was published on 3 March, which is
10 the contain, delay document.

11 We'll just have that on the screen, INQ000237322.

12 You'll recall, Professor, this is the document in
13 which the government sets out its strategy, if we go
14 forward to the first page, of containing, delaying,
15 mitigating, researching -- perhaps one more page --
16 I'm afraid I can't remember, I think it may be page 4.
17 Let's try page 10, at 3.9. Ah, yes. The overall phases
18 are: contain, delay, research, mitigate.

19 So as at 3 March, step 1 of the government's
20 strategy was detect early cases, follow up close
21 contacts and prevent the disease taking hold in this
22 country for as long as is reasonably possible.

23 By 3 March, in the absence of a scaled-up test
24 system, had containment of the disease already been
25 lost?

162

1 eventually that part of the population through which it
2 passes will gain immunity, hence herd immunity. Is that
3 what this argument is? Is that what this issue is
4 about?

5 **A.** Well, that only depends upon whether the virus induces
6 persisting immunity. So if you, for example, with
7 rubella, German measles as it's sometimes called, before
8 vaccination many children would get this, and it would
9 give them pretty much lifelong immunity, but this --
10 coronaviruses are well known for not inducing such
11 effective immunity, rather like flu, so the ideal is to
12 get to a point where herd immunity is brought about by
13 vaccination, given however frequently you need to boost
14 the level of immunity. But herd immunity does mean
15 that the virus has got nowhere else to go.

16 **Q.** So are you saying that an additional concern at this
17 time was not just the wisdom of the strategy, but you
18 were unclear as to whether or not -- or what the degree
19 of immunity that allowing the virus to pass through the
20 population --

21 **A.** Yeah.

22 **Q.** -- would engender?

23 **A.** Exactly. And there was the work of, you know,
24 Sunetra Gupta and others who put forward this view that
25 in fact most people had been infected and that actually

164

1 everything was going to die out very quickly, and the
 2 problem was that when the testing for antibodies came
 3 in, they did not find that.
 4 **Q.** It became apparent that, relatively speaking --
 5 **A.** Yeah.
 6 **Q.** -- a very small part of the population --
 7 **A.** Exactly.
 8 **Q.** -- by the summer --
 9 **A.** 5%, 6% or something. Yeah.
 10 **Q.** All right.
 11 Now, two documents which you produced at the time,
 12 around this time, which is now mid-March, please,
 13 Professor, you wrote to Chris Whitty, Professor Sir
 14 Chris Whitty, on 15 March, INQ000282428, and you copied
 15 it to Richard Horton, the editor of *The Lancet*?
 16 **A.** Yeah.
 17 **Q.** And to a couple of other --
 18 **A.** I think to David Nabarro, to Devi Sridhar and
 19 Jason Hickel.
 20 **Q.** Who are all scientists?
 21 **A.** Of varying descriptions.
 22 **Q.** "Dear Chris,
 23 "I know you must be incredibly busy and under great
 24 pressure. I quite understand the need to stagger some
 25 measures around social distancing ..."

165

1 **A.** Correct.
 2 **Q.** -- isolation, support? All right.
 3 Another document I want to ask your view on so that
 4 we can be clear about your position is the tweet that
 5 you sent on 13 March, two days before, INQ000268213:
 6 "Doesn't this herd immunity strategy conflict with
 7 WHO Policy?"
 8 Then you refer to Dr Tedros' remarks?
 9 **A.** Yeah, yeah.
 10 **Q.** Is that a reference to what you've just told us, which
 11 is that you were challenging the wisdom of this
 12 byproduct of herd immunity because it conflicted
 13 directly with what Dr Tedros had himself recommended,
 14 which is --
 15 **A.** Yeah.
 16 **Q.** -- don't mitigate, don't chop the top level off --
 17 **A.** Yeah.
 18 **Q.** -- don't allow herd immunity as a byproduct, but
 19 suppress, suppress, suppress?
 20 **A.** Correct.
 21 **Q.** All right.
 22 In your statement, another area of concern is that
 23 of -- expressed by you -- behavioural fatigue?
 24 **A.** Yeah.
 25 **Q.** The Inquiry has heard evidence, Professor, that at

167

1 Pausing there, by this time, Professor,
 2 the UK Government had announced the imposition of
 3 certain relatively limited social distancing measures --
 4 **A.** Yeah.
 5 **Q.** -- correct?
 6 "... but many of us are at a loss to understand why
 7 the government has abandoned intensive population
 8 surveillance, contact tracing and quarantine nationwide,
 9 which is the bedrock of WHO advice on epidemic control."
 10 Then you refer to South Korea, by implication,
 11 Japan, Taiwan, Hong Kong and China. And then you say
 12 this, in the last sentence of the second paragraph:
 13 "... without it [that is to say population
 14 surveillance], I fail to see how you can really delay
 15 a huge epidemic in the next month which could totally
 16 overload the health system."
 17 And of course, in the absence of a lockdown,
 18 the overloading of the health system is exactly what
 19 would have happened.
 20 By that reference to population surveillance,
 21 although you don't use the word, did you mean testing as
 22 part of a surveillance contact, trace, isolation system?
 23 **A.** Ideally, yes.
 24 **Q.** Right. Because without testing there can be no proper
 25 surveillance, contact tracing --

166

1 a press conference in early March and in COBR, the Chief
 2 Medical Officer said something along the lines of,
 3 "If we go too early with stringent measures, people will
 4 understandably get fatigued", and you have been very
 5 critical of the notion that people would, over time,
 6 decline to comply, to conform to non-pharmaceutical
 7 interventions, saying that there is no forensic or
 8 epidemiological basis for that idea; is that the nub of
 9 it?
 10 **A.** Yes, I mean, I was drawing upon the psychologists who
 11 were on Independent SAGE and helping to advise us, and
 12 who actually -- one of whom was on SPI-B, Dr --
 13 Professor Stephen Reicher, and he made it clear that,
 14 you know, some of the statements coming out, "There is
 15 a risk if we go too early people will understandably get
 16 fatigued" and "The British would not accept Wuhan-style
 17 measures", that actually this was not correct and in
 18 fact the evidence showed that we did abide by lockdown
 19 measures to a great extent. And also that if you get
 20 the support right, as later happened in New York, where
 21 they were given generous support for self-isolation, you
 22 got 94% compliance, whereas in this country many poor
 23 people did not comply with self-isolation simply because
 24 they couldn't afford to do so, and our -- the -- we were
 25 not generous with sick pay, we spent £54 million in 2020

168

1 on sick pay, and we ended up, as I said earlier,
2 spending vast billions on a furlough scheme.
3 So if we had got that right, there is no reason why
4 there would have been behavioural fatigue, especially as
5 isolation was the nub of the control policy.

6 **Q.** You are critical in your statement of a particular body
7 in the Cabinet Office called the Behavioural Insights
8 Team, BIT, or at least you suggest that its director was
9 the genesis, the origin of behavioural fatigue as
10 a notion.

11 Could I just ask you, please, to look at some
12 minutes from SAGE on 13 March.

13 That's INQ000109142, page 4 of 5.

14 Paragraph 30 says this, under the heading,
15 Professor, of "Behavioural science considerations", so
16 this is 13 March, social restrictions have been in place
17 but we're short of the lockdown so far:

18 "Difficulty maintaining behaviours should not be
19 treated as a reason for not communicating with the
20 public about the efficacy of the behaviours [and this]
21 and should not be taken as a reason to delay
22 implementation where that is indicated
23 epidemiologically."

24 So my question for you is this, and it's the last
25 question: do you accept that, regardless of the public
169

1 Covid Bereaved Families for Justice. Just on one topic,
2 please, and that is a press conference, 26 March 2020,
3 hosted by the then Chancellor, Rishi Sunak, and
4 Professor Dame Jenny Harries. I think you might have
5 seen some YouTube footage of that press conference in
6 preparation for your evidence today; is that right?

7 **A.** Mm.

8 **Q.** And you remember it?

9 **A.** I have seen it, but I haven't seen it recently, but
10 I think I know what you're going to say.

11 **Q.** Thank you.

12 My Lady, a copy of it is going to be disclosed on
13 Relativity. I'm afraid, for technical reasons, I can't
14 take the Professor to a video now, so I'm going to have
15 to summarise it for him.

16 It's a press conference that causes the families
17 that I represent some significant concern, and it was
18 26 March, as I say, it's after you'd written an article
19 yourself, 20th March, called "The United Kingdom is
20 flying blind on Covid-19", and Professor Dame
21 Jenny Harries responded to a question about the WHO
22 guidance called "Test, test, test". Is that
23 the guidance you mentioned in your evidence a moment
24 ago, 24 February, or did it come a little later?

25 **A.** Her "Test, test" -- the guidance from --
171

1 debate about behavioural fatigue and its validity, SAGE
2 recognised that difficulty maintaining behaviour should
3 not be taken as a reason to delay the implementation,
4 the imposition of non-pharmaceutical interventions?

5 **A.** Yes, and I would also actually withdraw that statement
6 about David Halpern, given that I read his own witness
7 statement and presence here last week in which he said
8 he clearly did not support that view. So since he's
9 said that, I would take that back. I heard that from
10 other people.

11 So, yes, I would agree with that.

12 Can I just say one thing or have you got to finish
13 now?

14 **MR KEITH:** It's a matter for my Lady. There are some
15 further Rule 10 questions, I believe.

16 **LADY HALLETT:** There are some questions to come. Let's see
17 what happens when --

18 **A.** Okay.

19 **LADY HALLETT:** -- Ms Morris has asked the questions,
20 Professor, and we'll, if necessary, come back to
21 the point you wish to make.

22 Ms Morris.

23 **Questions from MS MORRIS KC**

24 **MS MORRIS:** Thank you, my Lady.

25 Professor Costello, I ask questions on behalf of the
170

1 **Q.** The WHO guidance.

2 **A.** Well, they -- I was going to say in response to that,
3 because she said the WHO didn't apply to --

4 **Q.** I'm going to come to that, but just to get some dates
5 clear, if I can. Was that guidance at the end of
6 February?

7 **A.** Yes.

8 **Q.** Thank you. Okay, so just to give you some context
9 Professor Dame Jenny Harries says this:

10 "The clue for WHO was in its title, it's the World
11 Health Organisation, and it's addressing all countries
12 across the world, with entirely different health
13 infrastructures and particularly public health
14 infrastructures. We have an extremely well developed
15 public health system in this country", and then she
16 talks about training other countries and offering
17 expertise and experience. So the point there is that
18 they're all addressing every country, including lower
19 middle-income countries, so encouraging all countries to
20 test of some type.

21 "When you come to the UK we've made it very, very
22 clear there has been a plan right the way through this,
23 which is entirely consistent with the science and
24 epidemiology. We started with a containment phase and
25 every early case of this disease was followed through,
172

1 every contact was traced exactly as we would do for
 2 other diseases but particularly noticing this one, and
 3 of course the viewers will be very familiar with the
 4 fact that we had some very strict and very successful
 5 containment facilities. But there comes a point in the
 6 pandemic where that's not an appropriate intervention
 7 and that is the point really where we moved, we moved
 8 into delay, and although we still do do some contact
 9 tracing and testing, for example in high-risk areas like
 10 prisons or care homes, that is not an appropriate
 11 mechanism as we go forward. At that point what we need
 12 to do is focus on the clinical management of
 13 the patients first and foremost and then additionally,
 14 as I have said earlier, on our health and care staff and
 15 first responders staff. So obviously if there was
 16 an infinite testing facility, and we are growing them at
 17 pace and we will have them, then it moves to the public,
 18 but we need to be very careful about focusing where it
 19 is clinically most valuable."

20 I've just read that out so you have the context and
 21 my Lady has the direct quotation from the relevant part
 22 of the video.

23 So, having regard to what you've said this afternoon
 24 about what should have happened, in your view, by
 25 26 March, my first question is: is this press conference

173

1 nursing homes, preventative measures in workplaces and
 2 schools, importation risks are managed and communities
 3 educated, engaged and empowered. They put that out to
 4 every country in the world.

5 I would argue that we didn't do much of that.

6 **Q.** Understood, thank you.

7 My second question relating to the reference in the
 8 press conference to the plan of containment and delay
 9 being entirely consistent with the science and
 10 epidemiology, do you agree with that statement?

11 **A.** No, I don't.

12 **Q.** And, thirdly, was there any evidence that contact
 13 tracing in vulnerable locations, for example care homes,
 14 was happening in a meaningful way in March 2020?

15 **A.** I don't think so.

16 **MS MORRIS:** Thank you very much, Professor, those are my
 17 questions.

18 Thank you, my Lady.

19 **LADY HALLETT:** Thank you very much indeed, Ms Morris.

20 Is that it?

21 **MR KEITH:** My Lady, thank you.

22 **LADY HALLETT:** Thank you very much indeed,

23 Professor Costello.

24 **THE WITNESS:** Thank you.

25 **LADY HALLETT:** I'm very grateful for your help.

175

1 an example of the United Kingdom promoting itself as
 2 world class or exceptional to other countries?

3 **A.** Well, yes. I disagree with almost everything that was
 4 stated there. As you know, there was an assessment of
 5 pandemic preparedness where USA was 1 and we were
 6 number 2 -- this was by Johns Hopkins in 2019 -- and we
 7 ended up with five times the death rates of
 8 the East Asian states. So we've had 228,000 people die
 9 with Covid-19 on death certificates, 208,000 excess
 10 deaths, and that is a huge public health disaster. And
 11 if we'd had the South Korean, for example -- and
 12 remember South Korea, Japan are not poor countries, they
 13 have the same life expectancy if not better, same age,
 14 same GDP, and similar health systems to us, they took
 15 a different policy, and if we had followed their policy
 16 I would argue we could have stopped upwards towards
 17 150,000 deaths.

18 So I disagree with her on that point.

19 I think she also made a comment about WHO only being
 20 appropriate for poor countries, or something similar to
 21 that. Can I just say one thing about that? The WHO put
 22 out, on February 3, a strategic preparedness and
 23 response plan and they said there are six priority
 24 actions: control transmission, do find, test, trace,
 25 isolate, outbreaks minimised in health facilities and

174

1 **(The witness withdrew)**

2 **MR KEITH:** The next witness will be examined by Mr Keating.

3 **LADY HALLETT:** Thank you.

4 Mr Keating.

5 **MR KEATING:** Thank you, my Lady, may I call
 6 Professor Andrew Hayward, please.

7 **(Pause)**

8 **LADY HALLETT:** I'm sorry you have been kept waiting for so
 9 long, Professor.

10 **THE WITNESS:** No problem.

11 **PROFESSOR ANDREW HAYWARD (affirmed)**

12 **Questions from COUNSEL TO THE INQUIRY**

13 **MR KEATING:** Thank you. Could you give us your full name,
 14 please.

15 **A.** Sorry, could you repeat that?

16 **Q.** Yes. Could you provide us with your full name, please.

17 **A.** Professor Andrew Hayward.

18 **Q.** Thank you, Professor, probably a good illustration that
 19 we should both keep our voices up. I will do that.
 20 Equally, if we can avoid speaking over each other and
 21 speaking at pace, to aid the stenographer who sits to my
 22 left.

23 Thank you very much for attending today. Can I echo
 24 the apologies as well for keeping you waiting, but we've
 25 sufficient time to cover the key parts of your evidence

176

1 today.
2 Firstly, if we could just deal with the formalities
3 and look at your statement, please, which is dated
4 4 September of this year. It's in front of us, and if
5 we could go to page 43, please, we see that is dated
6 4 September, and you can confirm that you've signed the
7 statement of truth?

8 **A.** I have.

9 **MR KEATING:** Thank you.

10 My Lady, if we could have permission for that to be
11 formally published, please.

12 **LADY HALLETT:** Certainly.

13 **MR KEATING:** In terms of professional background, it's
14 correct you're here in a personal capacity, but you are
15 a professor in epidemiology and public health at the
16 University College London, UCL; is that correct?

17 **A.** That's correct.

18 **Q.** And that's where you were working full-time during the
19 pandemic?

20 **A.** Yes.

21 **Q.** Your employment has changed to an extent since then; you
22 now are primarily employed by the UK Health Security
23 Agency, and you spend 80% of your time there now?

24 **A.** Correct.

25 **Q.** In terms of epidemiology, just to assist the layperson,

177

1 make on the impact of transmission; and, lastly, lessons
2 learned.

3 So dealing with that first topic, and perhaps we
4 could turn to paragraph 5.1 of your statement and your
5 membership of NERVTAG.

6 We've heard already what NERVTAG is but briefly, as
7 set out there, it was originally an expert committee of
8 DHSC, but in due course it was designated as a subgroup
9 for SAGE; is that correct?

10 **A.** That's correct.

11 **Q.** And your role on the group was a scientist with
12 expertise in epidemiology of acute respiratory
13 infections; is that correct?

14 **A.** That's right.

15 **Q.** You've set out in your statement a number of examples of
16 the type of work NERVTAG was involved in, and that
17 included advice on border control measures,
18 hand washing, PPE guidance, face masks, transmission of
19 new variants; a number of different areas which I'm not
20 going to touch upon. I'm grateful for that information.

21 But in relation to that, there was one area which
22 you do touch upon at paragraph 5.6, which is social
23 distancing. Do you think this is an area where NERVTAG
24 should have been utilised more upon?

25 **A.** I thought it was an area of extreme importance, and was

179

1 in a sentence or two, what does that mean?

2 **A.** Well, epidemiology was originally devised, if you like,
3 as the study of epidemics, of which a pandemic is
4 a major example. It concerns really understanding how
5 diseases spread through populations, what causes people
6 to get diseases, really by looking at patterns of
7 diseases in populations compared to different exposures,
8 lifestyle exposures or exposures to infections. And I'd
9 say there is really sort of two broad branches of it,
10 one of which is what I would call sort of more empirical
11 epidemiology where we're trying to measure these things
12 and draw inferences, and then there's also another side
13 of it which is the mathematical modelling, where we're
14 perhaps more concerned with making predictions about the
15 future.

16 **Q.** We'll probably touch upon the first part of that in
17 a moment. But in terms of the areas we want to deal
18 with today, you've provided a comprehensive statement,
19 and I'm not going to deal with every single part, but
20 I'd like to deal with an overview and timeline of your
21 roles.

22 You were on NERVTAG and SAGE EMG, which we'll turn
23 to in a moment; secondly, you were involved in a number
24 of significant scientific studies, which we will turn
25 to, again briefly; and, thirdly, some observations you

178

1 very concerned that it should be being looked at,
2 particularly during the run-up to the lockdown, as it
3 became increasingly apparent that other measures were
4 not going to control the epidemic. So at that time
5 I raised whether this should be an issue that NERVTAG
6 could look at, and I think at the time I was informed
7 that this was an area that was largely being considered
8 by another group called SPI-M, the modelling group.

9 **Q.** Yes. We've heard about SPI-M. Why was SPI-M sufficient
10 for dealing with this --

11 **A.** Well, I'd hope --

12 **Q.** -- rather than using NERVTAG? Forgive me.

13 **A.** -- that it could be considered from other perspectives
14 than purely modelling perspectives. So, really trying
15 to think through some of the epidemiological evidence
16 for why social distancing might be needed above and
17 beyond the measures that were happening, and thinking
18 about the science of why that might be, in relationship
19 to our understanding of how Covid transmits and the
20 clinical picture of Covid being one that ranges from
21 asymptomatic to mildly symptomatic disease made me think
22 that the current control measures would not be
23 sufficient, and that there was value in NERVTAG or other
24 groups considering this, and I certainly had thoughts
25 about how I would like to approach looking at that.

180

1 Q. And what do you think the consequence of NERVTAG not
2 being utilised was?
3 A. I think it's -- I think we could have added to the
4 pressure to introduce social distancing measures earlier
5 than in fact was done. I think we could have rapidly
6 pulled together some of the rationale for why this was
7 needed now, that would have complemented the rationale
8 of the modelling work.
9 Q. My Lady has already heard about one of the subgroups of
10 SAGE, which was the EMG, Environmental Modelling Group.
11 That was set up, the original subgroup was set up in
12 approximately April/May 2020. You weren't involved in
13 the original subgroup, but then there was another group
14 which flowed from that, which was the EMG group; is that
15 correct?
16 A. That's correct, the EMG transmission subgroup.
17 Q. Correct, so you were on a subgroup to the original SAGE
18 subgroup. When were you involved in the transmission
19 subgroup?
20 A. Well, initially that started as what was called the
21 Public Health England transmission group which was
22 convened, I think, if I remember rightly, in October,
23 and then it was transposed into a subgroup of a subgroup
24 of SAGE, and its remit was really -- rather than the
25 main EMG group, which was looking at sort of theoretical

181

1 more reactive rather than being proactive?
2 A. Yes, I would say that's true. And I think related to
3 that there was also an issue that it was difficult
4 within a subgroup to see what was going on in the wide
5 range of other groups that were convened, and it was
6 difficult to see what the discussions were, for example,
7 in main SAGE. Even as a member of a subgroup, one
8 didn't have access to the minutes of those meetings.
9 Q. And what would the consequence of that be, that you
10 weren't aware of what other colleagues in parallel
11 fields were doing?
12 A. I think it was that you could -- it was difficult to be
13 certain that things were being picked up that should be
14 being picked up. I mean, often one would assume that
15 they were, because of the wide range of committees and
16 the wide range of expertise on SAGE and its subgroups,
17 but you never quite knew that.
18 Q. I want to turn, please, to paragraph 4.9, which deals
19 with one of the issues regarding the composition of the
20 subgroups you were involved in and the expertise.
21 So paragraph 4.9, please. That's on page 9 of your
22 statement. You refer to good clinical advice being
23 provided to NERVTAG, but you also make some observations
24 regarding the advice from public health experts, which
25 is touched upon in that paragraph.

183

1 considerations as to how Covid would spread in different
2 environments, understanding things like viral excretion,
3 how it ends up on surfaces, et cetera -- this group was
4 really convened to look at the epidemiological evidence,
5 ie more studies of -- that had measured how Covid was
6 being transmitted in different populations in different
7 settings, et cetera, and to advise on that.
8 Q. I think we may come back to the work of the transmission
9 group in due course, which is probably related to some
10 of your studies. But in relation to your involvement,
11 that transmission subgroup and NERVTAG, you weren't on
12 the full SAGE group; is that correct?
13 A. That's correct.
14 Q. And from your perspective as somebody who was on
15 a subgroup to SAGE, did you have any observations or
16 learnings from your perspective?
17 A. I think one of my observations was that, as a member of
18 a subgroup, the agendas of those subgroups were very
19 much set for you in terms of: we were asked to consider
20 specific areas of science related to different areas of
21 policy, but there were limited opportunities to sort of
22 set our own agenda or to, if you like, step back and
23 provide advice on what you think an overall response
24 might look like.
25 Q. So your view was that NERVTAG and your involvement was

182

1 Perhaps I'm just going to ask you the question: did
2 you think that there was sufficient representation from
3 public health experts in the committees that you were
4 involved in?
5 A. Well, I think there was -- there was input from
6 academics with public health training and expertise,
7 such as myself, but the way that -- if you like, the
8 ethos of the committees was to provide scientific
9 advice, and so it was very much focused on academics
10 providing this advice rather than on being able to, if
11 you like, stimulate discussions between academics and
12 people who would be responsible for enacting control
13 measures, so local public health people who've spent
14 their lives working closely with communities of varying
15 backgrounds to try to improve their public health. And
16 I think that was, in a sense, a deliberate separation,
17 to have the science then informing the policy, but in
18 general I felt that we didn't have those opportunities
19 for discussions across those divides.
20 Q. Well, let's develop that a little bit more, because you
21 touch upon this in your statement at paragraph 4.12, and
22 we can look at the last three lines in relation to that.
23 You say this:
24 " ... greater involvement of service public health
25 colleagues in discussions might have added value in

184

1 terms of thinking about feasibility of interventions,
2 maximising effectiveness and addressing health
3 inequalities."

4 How do you say it would have assisted in addressing
5 health inequalities by having those public health
6 colleagues with frontline experience?

7 **A.** Well, because I think a major part of the day-to-day
8 role of public health colleagues across the country is
9 working very closely with their local communities,
10 trying to understand the different cultures and groups,
11 trying to form connections with those groups in order to
12 help to improve public health, and so they have a very
13 real lived experience of how inequalities play out, and
14 that would be a useful additional perspective within
15 these groups, and would make you, I think, start to
16 think more concretely about specific issues like if
17 you're doing testing, tracing, isolation, how that's
18 going to play out in different groups of the community.

19 **Q.** In your experience and your view, is it that that was
20 something which was absent or lacking in the subgroups
21 that you worked upon, that insight?

22 **A.** I felt that there wasn't really a strong focus on
23 thinking about how different interventions would work
24 differentially in different sectors of the population,
25 and also perhaps how it would have differential harms in

185

1 I think we've been told that SAGE didn't have the
2 directors of public health, people with the practical
3 experience, haven't we, I think?

4 **MR KEATING:** That was an issue which was raised, my Lady,
5 yes.

6 **LADY HALLETT:** Yes.

7 Thank you. Sorry, I just wanted to check I had it
8 correctly.

9 **A.** Yes.

10 **MR KEATING:** I'm going to move on to our second topic, which
11 is scientific studies, and there's four we're going to
12 touch upon: the SAFER programme, which is one of the
13 studies you undertook; secondly, the Vivaldi care home
14 study briefly; thirdly, Virus Watch, and its sister
15 study, Covid health equity study.

16 So let's deal with the SAFER study, and that was to
17 measure infection in frontline healthcare workers.

18 I'm doing it in this order because I think you've
19 indicated this is the sort of chronological order, back
20 in 2020, these were undertaken.

21 So in relation to SAFER study, if we could turn to
22 paragraph 3.11 of your statement, that's at page 7. And
23 in relation to this, this was a study focusing on the
24 infection in frontline healthcare workers, and you
25 produce an exhibit which we're not going to turn to but

187

1 different groups of the population; how it might be
2 difficult, for example, for people in very precarious
3 positions, people who have jobs that can't be done from
4 home, people in overcrowded households, et cetera, how
5 they were going to -- you know, how the interventions
6 would play out, and then what more we could do to
7 support people in those positions.

8 **Q.** Thank you.

9 **LADY HALLETT:** I'm detecting two sources of criticism, and
10 just correct me if I've got it right or wrong.

11 So, one, you don't have on this group, subgroups,
12 subgroups of subgroups, you don't have people with
13 the practical experience?

14 **A.** Mm-hm.

15 **LADY HALLETT:** And, second, that with all the highly
16 specific subgroups of subgroups and separating operation
17 and strategy, you're not confident that things might not
18 have slipped through the cracks?

19 **A.** From the position in the committee structure where
20 I was, it felt a bit like that. I'd not -- I think the
21 main committee in terms of SAGE would have had a much
22 better overview of what all of the subcommittees were
23 doing, but as a member of a subgroup it was difficult to
24 see that.

25 **LADY HALLETT:** Then, depending upon the membership of SAGE,
186

1 I can summarise it, and indeed you summarise it
2 yourself. This was focused on measuring rates of
3 infection in frontline healthcare workers in a major
4 London secondary care setting, UCL hospital.

5 Is this a fair summary, that this included regular
6 testing for Covid-19 as well as antibody testing, and
7 findings were that healthcare workers were at a high
8 risk of developing Covid and may themselves have been
9 contributing to its spread?

10 **A.** I think the main finding of that was that healthcare
11 workers were at very high risk. For example, this study
12 started pretty much about the same time as lockdown and
13 already by that time, within Central London, frontline
14 healthcare workers, I think about 20% of them had
15 evidence of infection.

16 **Q.** Well, can I help you in relation to that? Because your
17 article, which I checked, which deals with the study,
18 says this:

19 "Between 26 March and 8 April 2020 ..."

20 So very early in the pandemic.

21 **A.** Yeah.

22 **Q.** "... 44% of healthcare workers had Covid at any one
23 time."

24 **A.** That's correct.

25 **Q.** So a particularly high rate?

188

1 A. Well, over that period, by the end of that study, 44% --

2 Q. Yes.

3 A. -- had been infected, which was higher than we had
4 probably anticipated, and was probably the first study
5 to show such intense transmission within healthcare
6 settings to healthcare workers.

7 Q. Am I right in understanding that was published, as you
8 say, in *The Lancet* and it sort of ensured wide
9 readership and was raised at NERVTAG?

10 A. Yes.

11 Q. What impact do you consider that study had?

12 A. I think it had an impact on a number of things,
13 for example, the use of -- widening the use of personal
14 protective equipment to all encounters across healthcare
15 settings. I think it also was critical in leading to
16 the regular testing of healthcare workers, which was
17 an important aspect of control in healthcare workers.

18 Q. Our second study in time order deals with the Vivaldi
19 care home study report, and I have been invited to
20 summarise that briefly with you.

21 It's an important topic, care homes, my Lady, and
22 one which of course the Inquiry is going to deal with
23 later by way of a further module.

24 So I'm going to touch upon it briefly, but at
25 paragraph 3.9 you set out that you were

189

1 infection, from which we inferred that it was harder for
2 people to not attend work if they were sick, if they
3 were not being paid for that, and that that would
4 contribute to infection.

5 Q. How significant were the findings of that study in
6 relation to the understanding of transmission in the
7 home care sector?

8 A. I think they were important directly in releasing
9 central government funds to ensure that sick pay was
10 provided to those working in nursing homes and to
11 drastically reduce the use of agency staff. We also
12 found very high levels of Covid within nursing home
13 staff and nursing home residents which also influenced
14 the regular testing regimes there. So I think, yes, it
15 did have an impact.

16 Q. So significant in terms of knowledge, insight, but also
17 funding towards agency staff?

18 A. Yes.

19 Q. And regular testing, or increased testing?

20 A. Yep.

21 Q. Moving on to the third and fourth studies, which are set
22 out at paragraph 3.4, Virus Watch, and that's one which
23 you've mentioned in your statement at considerable
24 length and that you were significantly involved in --
25 and that's at paragraph 3.4, thank you -- you were the

191

1 a co-investigator into the Vivaldi nursing home core
2 study, and this was where testing took place between
3 11 May and 7 June. Do those time periods sound correct?

4 A. For the initial parts of the study, yes.

5 Q. Yes, and the outcome of that study -- did you want to
6 previously summarise what the outcome, the headlines of
7 that study was?

8 A. Yeah, I mean, this was an attempt to do a survey, in the
9 initial parts, of as many care homes as we could across
10 the country to try and identify what the risk factors
11 for outbreaks in those care homes had been. What we
12 identified, I'd say the main headlines was really the
13 importance of staff in the transmission of Covid in
14 those homes --

15 Q. I think we see those at paragraph 3.10, if we move on
16 one paragraph, just to complement what you were saying,
17 Professor. So you mentioned that one of the issues was
18 staff; do continue.

19 A. Yeah, so in particular, for example, we found that homes
20 that had greater use of agency staff -- so these would
21 be staff who might be working between nursing homes --
22 had higher risk of outbreaks, from which we inferred
23 that they would have been carrying infection from one
24 nursing home to another. Also that homes that were
25 unable to pay sick pay to staff had higher rates of

190

1 chief investigator in relation to this.

2 Am I right in understanding this was aimed to
3 provide information on Covid-19 occurrence and risk
4 factors in a large cohort of members of the public?

5 A. That's right, eventually in about 50,000 members. So
6 large, but not nearly as large as some of the other
7 community studies that were subsequently funded.

8 Q. You mentioned that that was related to an analysis of
9 occupational health risks, at paragraph 3.3. Is that
10 right, that it considered occupational health risks?

11 A. Occupation was one of the key things that we focused on
12 because of the importance of that as a risk factor for
13 Covid.

14 Q. In terms of the time period when the Virus Watch study
15 was carried out, am I right in understanding this was
16 between June 2020 up until August 2021?

17 A. Yes, in fact there's elements of the Virus Watch cohort
18 that are still being followed up as well.

19 Q. In relation to the sister study, as you describe it, the
20 "Covid Health Equity" study, can you briefly explain
21 what that was?

22 A. The health equity study was really a recognition that
23 most studies tend to have an under-representation of
24 people from ethnic minority groups, and so we aimed to
25 deliberately go as hard as we could to recruit many

192

1 people from ethnic minority groups so that we could
 2 start to draw some inferences from there.

3 **Q.** And roughly at what stage did the Covid Health Equity
 4 study commence?

5 **A.** It was a little bit later, but certainly it meant by --
 6 we were actively over-recruiting people from ethnic
 7 minority groups probably from about October.

8 **Q.** So the position was the first study which we mentioned,
 9 the Virus Watch, commenced around June 2020 and that
 10 additional work to have a wider perspective and
 11 knowledge in relation to those from certain ethnic
 12 groups was October 2020.

13 You mention in your statement the background, by
 14 May 2020, that there was reports and information to
 15 suggest that there was a greater risk of mortality in
 16 certain ethnic groups; isn't that correct?

17 **A.** That's correct. We had seen within the NERVTAG
 18 committee there had been -- we'd been examining some of
 19 the reports of hospitalisation from Covid from the
 20 national studies of hospitalisation, and it appeared
 21 from those reports that there was an over-representation
 22 of people from black and Asian ethnic minority groups
 23 amongst those hospitalised, that they tended to be being
 24 hospitalised at a much younger age, and were more likely
 25 to end up in intensive care.

193

1 requires linkage of different datasets. For example,
 2 most surveillance datasets don't come with ethnicity
 3 information within them, so you have to link them to
 4 another dataset like the national census or to hospital
 5 data to do that, and these take time.

6 **Q.** Just pause there for a moment. That was the fourth
 7 topic I was going to deal with, but whilst that's fresh
 8 in our memory let's deal with that now in terms of your
 9 lessons learned; and one of the matters you've discussed
 10 really is work in that area to improve surveillance
 11 data. Is that right?

12 **A.** Yes.

13 **Q.** It's touched in your statement just towards the end, if
 14 we turn to paragraph 9.20, please, and it's linked to
 15 your current employment. Of course you're here speaking
 16 in a personal capacity, but one of the areas you're
 17 working in, your key learning point is to develop health
 18 and surveillance data systems to routinely capture and
 19 report on the multiple dimensions of inequalities, and
 20 you set out those various inequalities.

21 If we could draw that out just for a moment, please.
 22 If you could just come out into a wider view of the
 23 statement, thank you very much, and turn overleaf,
 24 thank you.

25 You mention at the top of the page that UKHSA is

195

1 Following that, we -- my research group looked at
 2 some of the data from that in more detail to try and
 3 calculate the -- or to estimate the death rates in
 4 people from different ethnic minority groups, and we
 5 could see from that a very early signal that indeed the
 6 rate of people dying in black and particularly Pakistani
 7 and Bangladeshi ethnic groups was considerably higher
 8 than in the white population.

9 **Q.** In relation to data at that stage, in that period from
 10 May, June, July onwards in 2020, were you content
 11 regarding the sufficiency of data which was available to
 12 you at that stage?

13 **A.** Well, at the same time as we were undertaking that and
 14 we were raising some of the results early in NERVTAG, we
 15 were also aware that Public Health England were working
 16 very hard to get similar and more comprehensive
 17 information on this issue, and indeed that report was
 18 published relatively soon after that, early in June.

19 But I think my reflections are that surveillance
 20 data really should measure the rates of disease and of
 21 hospitalisations and deaths in different subgroups of
 22 the population as a matter of routine, so that we're not
 23 having to set up the systems to do that in an emergency
 24 situation, because it does take -- getting this
 25 information is far from straightforward. It often

194

1 developing a health equity and inclusion health
 2 surveillance strategy to address these gaps for
 3 communicable diseases.

4 Just dealing with that briefly, first of all, was
 5 there a gap in identifying the issues you've discussed
 6 in terms of impact on certain health inequality areas
 7 and ethnicity groups?

8 **A.** There -- initially I would say yes, there was a gap,
 9 there was work to try and fill that gap fairly quickly,
 10 I mean, so by the end of the first wave of the pandemic
 11 we had fairly robust data on this. I think if one had
 12 been measuring that from the onset, we may have got
 13 an earlier signal of that by a few weeks, or possibly
 14 more, and that may have drawn attention to those issues
 15 and the need to address them earlier.

16 **Q.** So pausing there, the fact that you've joined UKHSA in
 17 February 2023, and this is your area that you're
 18 developing this strategy, does that suggest that there's
 19 a need for such a strategy?

20 **A.** I think there is. The pandemic has brought into sharp
 21 relief the importance of thinking about inequalities
 22 among multiple dimensions and the need for us to develop
 23 our systems to be robust in that respect, and, yeah, I'm
 24 pleased to be working on that now.

25 **Q.** And the last point in relation to this is: am I right in

196

1 understanding that the first part of your work is to
 2 review all the different -- your phrase, I think, is --
 3 surveillance outputs and to identify where there is gaps
 4 with a view to trying to fill those gaps at this second
 5 stage of your work?
 6 **A.** That's correct, and not just for respiratory infections
 7 but across all the infections that we conduct
 8 surveillance on.
 9 **Q.** I'm just going to return back to the two studies we were
 10 discussing, which was the Virus Watch and the Covid
 11 Health Equity study, and the final question in relation
 12 to this is how that work impacted any decision-making or
 13 improved matters. Can you assist in relation to that?
 14 **A.** Sorry, could you repeat?
 15 **Q.** Of course I can. So in relation to your work for those
 16 two studies, jumping back in the narrative in relation
 17 to the Covid health equity study, and this is the one
 18 where you had --
 19 **A.** Yeah.
 20 **Q.** -- the 50,000 volunteers, what benefit did that work
 21 bring?
 22 **A.** So I think there were perhaps three main areas of
 23 benefit.
 24 One was undertaking studies that looked at the role
 25 of occupation, that could show the real importance of

197

1 important, as there was so many restrictions on
 2 different sectors of society, for trying to understand
 3 which sectors were important.
 4 And so unfortunately these data take a long time to
 5 accrue, so I think perhaps it was more important in
 6 informing the -- what was it called -- the roadmap out
 7 of the second wave of the pandemic. But I think this
 8 early information on, really, the critical importance of
 9 the difference between those who could work from home
 10 and those who couldn't was important in being able to
 11 advocate for stay at home advice.
 12 **Q.** Thank you.
 13 The final area -- and I'm very grateful for your
 14 patience -- is really to draw upon your perspective and
 15 expertise as an epidemiologist. And you mention -- you
 16 make a number of comments regarding transmission of the
 17 virus and the effect on social distancing, and perhaps
 18 we could turn to paragraph 7.9, please, of your
 19 statement in relation to this. You make a few comments
 20 regarding the likelihood of a sizeable winter wave.
 21 Where we are in the time period is mid-2020, coming out
 22 of lockdown 1, and can you help us in relation to the
 23 work you did in preparing for, preparing awareness for
 24 the winter of 2020?
 25 **A.** Well, I think one of the important parts of that was

199

1 people being involved in frontline workforces,
 2 healthcare and other service industries or ones where we
 3 had public contact in driving the risk of infection, and
 4 the big differential infection rates between those who
 5 could work from home and those who couldn't work from
 6 home, and we were able to raise those which I think
 7 stressed the importance of the value of work from home
 8 interventions, but also the value of protecting people
 9 who couldn't work from home through other
 10 non-pharmaceutical interventions in the workplace.
 11 The other area that we really looked at was
 12 different settings, and so trying to understand where
 13 people were catching Covid, and so, for example, we
 14 looked at, during the second lockdown, we could see
 15 clearly the importance of leaving home for work, using
 16 public transport to go for work, and at that stage also
 17 just going to the shops were important risk factors for
 18 Covid.
 19 As soon as we saw the opening up of society, we
 20 started to see that things like going to pubs, going to
 21 restaurants, going to other public spaces was also
 22 becoming increasingly important in transmission of
 23 Covid, and so we were able to feed that into the picture
 24 about trying to understand which settings were
 25 important. And I think that became particularly

198

1 there was a report commissioned from the Academy of
 2 Medical Sciences that was entitled "*Preparing for
 3 a challenging winter*", that was really aimed to raise
 4 awareness of the fact that it was extremely likely that
 5 we would have another large wave of infection over the
 6 winter period that could potentially be even larger than
 7 the wave that we'd already seen, and the need for
 8 intense preparation for that, including --
 9 **Q.** So -- forgive me.
 10 **A.** Yeah.
 11 **Q.** You continue, I spoke over you.
 12 **A.** -- including both how the health service should prepare
 13 itself for it, but also there was a particular emphasis
 14 on the need to work closely with communities to develop
 15 the interventions for non-pharmaceutical interventions,
 16 for example, and how we can gain insights from that to
 17 help to reduce inequalities.
 18 **Q.** So we've touched upon this report already briefly, the
 19 Academy of Medical Sciences report, "*Preparing for
 20 a challenging winter 2020/21*", and that was dated
 21 14 July 2020. How high profile was that report during
 22 the summer of 2020?
 23 **A.** Well, I think it was, would have been widely known about
 24 amongst the advisory groups and the government, as well
 25 as it was reported in the media fairly considerably as

200

1 well.

2 **Q.** And you were involved, of course, in that report; isn't
3 that correct?

4 **A.** Yes.

5 **Q.** We've got paragraph 7.9 in front of us, and it says
6 this, your view:

7 "I thought that after the first wave of the pandemic
8 it was virtually inevitable that, without widespread
9 social distancing measures, there would be a very
10 sizable winter wave."

11 And you express the reasons why you formed that
12 view. Is that correct?

13 **A.** That's correct.

14 **Q.** What was your view regarding the implementation of
15 restrictions in autumn 2020? Were you someone in favour
16 of further restrictions?

17 **A.** What we could see in autumn 2020, as expected, was that
18 the case numbers were starting to increase. We had
19 extraordinarily good surveillance data by that time from
20 the Covid infection study that allowed us to measure
21 exactly how they were increasing over time, and we could
22 see these early signals.

23 What we'd learnt from the first wave was that it was
24 really important not to wait until those infections had
25 reached such high levels that you started to see big
201

1 **A.** That's the point. So it means that they'll not only
2 have a bigger impact on preventing hospitalisations and
3 deaths, but they potentially also have a less severe
4 impact on the economy; and so we really felt that
5 earlier intervention was much preferable to later
6 intervention.

7 **Q.** You've spoken publicly about this, and I've been invited
8 just to raise this, that you've spoken publicly on
9 2 November in relation to the impact that delay had in
10 relation to not introducing any circuit breaker as
11 recommended by SAGE in September 2020; and why did you
12 speak publicly in relation to this?

13 **A.** I felt it was important for the public to understand the
14 value of early intervention, to try and explain the
15 scientific rationale for that early intervention.
16 I also thought it was important for politicians to
17 understand that. I felt that that was also a direct way
18 of communicating with both the public and politicians.

19 **Q.** And what was the message that you spoke publicly about
20 in November 2020?

21 **A.** The message was really about the importance of
22 intervening early and harder to suppress transmission at
23 a stage when it was at low levels. I may have also at
24 that -- certainly in other interviews I would have
25 discussed the tier system, which were basically the --
203

1 increases in hospitalisations and deaths, but to act
2 before that in order to reduce transmission; and my view
3 was that by acting earlier you could suppress it to the
4 extent that you would not need to then be as severe or
5 as long in lockdown, and so I felt that it was really
6 important.

7 There was advice at the time from SAGE along those
8 lines, for example, the recommendations for
9 a circuit break was going to be planned as a limited
10 period of lockdown to coincide with the school holidays,
11 so taking advantage of the fact that already schools
12 would be closed at that time, and it was felt that that
13 could help to suppress the virus. That was not taken
14 up.

15 We moved, I think, instead into what was called the
16 tier system --

17 **Q.** Just pausing there in relation to that.

18 So at paragraph 7.13 -- the penultimate points,
19 my Lady, in relation to this -- so if we could turn
20 overleaf, please. Thank you. You really make the point
21 that when intense restrictions are introduced at high
22 levels of infection, they are likely to need to be more
23 intense and of a longer duration than if they were
24 introduced at a lower level of infection. That's the
25 point you've just been making; isn't that correct?
202

1 even though rates would have been going up across the
2 country, what we were doing was we were waiting for
3 rates to reach quite high levels in certain areas before
4 intervening, and that meant that we were missing
5 opportunities to prevent those hospitalisations and
6 deaths.

7 **Q.** And I think the headline was, you were quoted as saying,
8 "Number 10 could have saved thousands of lives if it
9 followed SAGE advice and issued a circuit-breaker
10 lockdown on September 21st".

11 **A.** That was my feeling, that was a conservative estimate,
12 and I think that the thing that, even despite the first
13 wave, that people had failed to appreciate is, because
14 of the mathematics of exponential growth, that once you
15 wait for a later stage then you will have -- even short
16 delays can make very major differences to the eventual
17 number of hospitalisations and deaths.

18 **MR KEATING:** Professor Hayward, I'm very grateful for your
19 attendance today.

20 I've got no further questions, my Lady.

21 **LADY HALLETT:** I have no further questions.

22 Thank you very much for your help, Professor.

23 **THE WITNESS:** Thank you.

24 **LADY HALLETT:** Very grateful.
25 (The witness withdrew)
204

1 **LADY HALLETT:** Right, I think that completes the evidence
 2 for today.
 3 I'm sorry to everyone that it was a long day with
 4 obviously some quite intense evidence, but obviously
 5 also extremely interesting.
 6 10 o'clock tomorrow, I think.

7 **MR KEATING:** Yes, my Lady. Thank you.

8 **LADY HALLETT:** Thank you.

9 **(4.55 pm)**

(The hearing adjourned until 10 am
 on Tuesday, 17 October 2023)

205

1 Submissions of the UK Health Security 109
 2 Agency by MS DOLAN KC
 3
 4 Submissions by LEAD COUNSEL TO THE INQUIRY 116
 5
 6 PROFESSOR ANTHONY COSTELLO (continued) 123
 7
 8 Questions from LEAD COUNSEL TO THE INQUIRY 123
 9 (continued)
 10
 11 Questions from MS MORRIS KC 171
 12
 13 PROFESSOR ANDREW HAYWARD (affirmed) 176
 14
 15 Questions from COUNSEL TO THE INQUIRY 176
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25

207

INDEX	PAGE
1	
2	
3 PROFESSOR MARK WOOLHOUSE (affirmed)	1
4	
5 Questions from COUNSEL TO THE INQUIRY	1
6	
7 Questions from MS MORRIS KC	72
8	
9 PROFESSOR ANTHONY COSTELLO (affirmed)	79
10	
11 Questions from LEAD COUNSEL TO THE INQUIRY ..	79
12	
13 APPLICATION	96
14	
15 Submissions on behalf of	96
16 Sir Patrick Vallance by MR HILL	
17	
18 Submissions on behalf of Scottish Covid	105
19 Bereaved by MS MITCHELL KC	
20	
21 Submissions on behalf of Covid Bereaved	108
22 Families for Justice and Covid Bereaved	
23 Families for Justice Northern Ireland by	
24 MS MORRIS KC	
25	

206

	170/15 204/8	18 February [3] 145/14 151/4 151/13	196/17 205/11	3.30 [1] 148/1
LADY HALLETT:	10 am [1] 205/10	18 months [1] 80/16	208,000 [1] 174/9	3.30 pm [1] 148/4
[49] 1/3 10/16 11/5	10 March [1] 42/23	18,000 tests [1]	20th [2] 3/6 171/19	3.4 [2] 191/22 191/25
11/9 11/17 50/11	10 o'clock [1] 205/6	92/10	21 [2] 139/20 200/20	3.9 [2] 162/17 189/25
50/13 51/1 51/7 51/12	10,000 [1] 58/9	187 [1] 63/10	21 January [4] 5/7	30 [2] 132/3 169/14
72/8 79/3 79/11 79/14	10,000 times [1]	19 [20] 2/17 3/23 4/3	19/4 125/16 125/19	30 January [1] 143/7
95/21 96/4 96/8	58/11	34/15 36/24 58/10	21st [1] 204/10	300 years [1] 160/3
105/16 107/25 108/23	10.30 am [1] 1/2	60/24 63/17 63/23	22 February [2]	309 [1] 135/21
109/3 109/11 109/16	100 [4] 28/1 28/2	74/3 77/8 87/24 96/24	148/7 151/15	30th [2] 143/21 144/1
111/23 116/9 122/15	32/6 40/4	114/19 114/22 136/21	22 January [2] 126/5	31 [1] 55/7
122/21 123/10 139/7	100,000 [3] 74/8 74/9	171/20 174/9 188/6	126/11	31 January [1] 25/2
147/20 147/23 148/1	75/10	192/3	22/23 January [1]	31st [1] 29/6
148/5 170/16 170/19	100,000 target [1]		128/12	34 [2] 63/9 86/15
175/19 175/22 175/25	75/5	2	228,000 people [1]	36 [2] 72/21 75/13
176/3 176/8 177/12	100,000 tests [1]	2 feet [2] 45/6 45/24	174/8	37 [2] 73/1 73/5
186/9 186/15 186/25	74/1	2 November [1]	22nd [1] 127/4	
187/6 204/21 204/24	100,000 words [1]	203/9	23 January [2]	4
205/1 205/8	104/15	2 o'clock [2] 95/23	129/24 143/25	4 February [3]
MR HILL: [1] 96/14	105 [1] 34/15	96/1	23rd [3] 47/22 49/9	145/18 146/18 150/16
MR KEATING: [8]	107 [1] 36/20	2-3 months [1] 27/3	143/8	4 May [1] 87/4
176/5 176/13 177/9	11 [1] 101/8	2.00 pm [1] 96/7	24 February [2]	4 September [2]
177/13 187/4 187/10	11 March [1] 43/12	2.30 [1] 96/2	148/23 171/24	177/4 177/6
204/18 205/7	11 May [1] 190/3	2.8 [1] 94/19	24 January [1]	4.12 [1] 184/21
MR KEITH: [15]	11 million [1] 151/20	20 [3] 136/24 139/1	124/19	4.55 pm [1] 205/9
79/20 95/19 95/25	11.40 am [1] 51/9	188/14	24/25 January [1]	4.9 [2] 183/18 183/21
96/9 116/12 122/18	11.55 [1] 51/8	20 January [1]	129/5	400 [6] 134/2 135/4
123/8 123/13 139/11	11.55 am [1] 51/11	125/13	24th [4] 94/18 127/8	135/13 136/6 150/11
147/22 147/24 148/7	12 [1] 81/5	20,000 [1] 152/20	129/19 152/16	150/14
170/14 175/21 176/2	12 March [3] 81/9	2003 [3] 16/8 23/14	25 September 2023	400,000 people [1]
MR O'CONNOR: [9]	156/7 158/1	39/25	[1] 80/1	147/12
1/4 1/8 11/6 11/8	12 May [1] 88/11	2004 [2] 89/9 146/10	25-person [1] 149/5	407 billion [1] 160/4
11/19 51/5 51/13 72/3	12 May 2020 [1]	2006 [1] 89/9	250,000 [1] 152/18	43 [1] 177/5
79/16	87/25	2009 [4] 37/22 38/1	250,000 cases [1]	44 [2] 188/22 189/1
MS DOLAN: [2]	12.4 [1] 119/19	38/11 38/17	143/15	44 molecular [1]
109/20 112/2	12th [1] 156/21	2011 [3] 92/25	25th [1] 19/7	136/3
MS MITCHELL: [1]	13 January [1]	137/15 141/15	26 [1] 150/16	450 billion [1] 160/6
105/25	125/10	2013 [1] 135/20	26 March [3] 171/18	471 [1] 97/3
MS MORRIS: [8]	13 March [3] 167/5	2014/15 [1] 143/12	173/25 188/19	
72/10 78/25 108/5	169/12 169/16	2018 [1] 80/13	26 March 2020 [1]	5
109/1 109/9 109/13	14 days [1] 152/25	2019 [2] 144/13	171/2	5 March [1] 163/2
170/24 175/16	14 July 2020 [1]	174/6	270 [1] 152/1	5,000 environmental
THE WITNESS: [6]	200/21	2019-nCoV [1]	273 [1] 4/15	[1] 155/12
79/10 79/13 96/3	15 [5] 101/11 102/17	125/18	27th [2] 129/21 131/3	5.1 [1] 179/4
175/24 176/10 204/23	104/7 132/2 143/12	2020 [46] 3/4 4/12	28 [2] 133/11 142/9	5.6 [1] 179/22
'	15 August [1] 1/20	17/12 34/4 37/7 38/4	28 January [1]	50 [2] 70/12 122/6
'flattening [1] 88/9	15 cases [1] 145/19	39/11 39/13 42/3 51/1	150/10	50,000 [2] 192/5
'rollercoaster' [1]	15 March [1] 165/14	51/3 52/15 55/3 60/6	281 [2] 70/12 70/13	197/20
75/22	15,000 [1] 151/17	63/13 63/13 63/14	282 [1] 125/14	500 [9] 134/2 135/4
'Safe [1] 85/17	15,000 tests [1]	63/21 63/21 73/25	129/20 133/1 134/9	135/13 136/6 150/11
0	151/16	75/2 75/21 81/4 87/25	29 [2] 47/18 85/16	150/14 156/9 156/10
0.1 [1] 13/7	150 [1] 152/13	94/8 160/13 160/14	29 January [2] 29/3	160/25
1	150,000 deaths [1]	168/25 171/2 175/14	142/25	54 million [1] 168/25
1.02 pm [1] 96/5	174/17	181/12 187/20 188/19	29 May [1] 86/14	
10 [23] 31/1 31/7	16 [1] 101/14	192/16 193/9 193/12	3	6
31/20 31/25 32/2 32/5	16 October 2023 [1]	193/14 194/10 199/21	3 February [2] 144/8	60 [2] 128/23 132/14
32/13 32/15 32/20	1/1	199/24 200/21 200/22	144/19	64 [1] 75/13
93/12 100/9 100/23	160 [2] 47/18 47/23	201/15 201/17 203/11	3 March [3] 162/9	66 [2] 73/2 73/5
103/21 106/3 113/22	169 [1] 55/7	203/20	162/19 162/23	7
113/23 114/15 119/16	17 [1] 143/16	2020/21 [1] 200/20	3.10 [1] 190/15	7 June [1] 190/3
119/17 156/10 162/17	17 countries [1]	2021 [4] 74/14 75/21	3.11 [1] 187/22	7.13 [1] 202/18
	131/4	85/17 192/16	3.15 pm [1] 148/2	7.9 [2] 199/18 201/5
	17 October [1] 64/20	2022 [1] 3/10	3.3 [1] 192/9	75 [2] 58/9 122/6
	17 October 2023 [1]	2023 [4] 1/1 80/1		750,000 [1] 152/19
	205/11			

8	128/9 132/10 133/3 133/5 136/6 138/4 140/10 140/20 140/22 143/12 145/1 145/8 149/19 151/15 152/13 152/20 153/21 153/23 154/2 156/8 156/10 159/7 159/15 164/4 164/12 167/4 169/20 170/1 170/6 171/21 172/16 173/18 173/24 174/19 174/21 178/14 180/9 180/18 180/25 181/9 185/1 185/16 185/23 188/12 188/14 192/5 193/7 196/21 198/24 200/23 203/7 203/19 203/21	achievable [1] 101/15 achieve [3] 56/16 57/8 73/15 achieved [2] 61/12 100/4 achieving [1] 101/4 acknowledge [1] 83/16 acknowledges [2] 101/7 103/15 acronym [3] 44/9 82/13 130/5 across [14] 32/13 81/16 95/21 152/9 154/22 154/22 160/5 172/12 184/19 185/8 189/14 190/9 197/7 204/1 act [6] 44/22 90/16 119/20 132/23 145/5 202/1 acting [2] 24/19 202/3 action [14] 39/7 39/8 50/6 50/6 71/15 71/15 71/19 80/21 98/15 133/24 139/7 140/6 140/6 140/8 actions [4] 139/8 140/12 141/2 174/24 activation [1] 126/16 active [1] 129/7 actively [1] 193/6 actual [3] 31/16 41/14 50/18 actually [47] 5/23 7/12 13/11 14/18 15/17 16/20 17/14 17/24 20/16 21/2 23/24 31/8 32/3 41/3 42/1 42/4 45/2 45/14 46/7 46/17 49/13 52/16 53/3 53/7 54/12 54/18 56/4 58/23 59/19 66/19 71/9 75/5 77/12 77/16 83/11 83/24 84/2 88/21 89/9 92/18 95/14 128/11 140/19 164/25 168/12 168/17 170/5 acute [1] 179/12 adapted [3] 77/6 103/12 137/2 add [2] 108/14 163/5 added [5] 102/7 102/8 102/21 181/3 184/25 addendum [2] 133/13 133/15 additional [9] 61/4 61/24 101/20 102/2 102/23 113/9 164/16 185/14 193/10	additionally [1] 173/13 address [6] 72/20 96/15 109/4 109/20 196/2 196/15 addressing [4] 172/11 172/18 185/2 185/4 adequate [1] 31/15 adjourned [1] 205/10 adjournment [1] 96/6 adjust [1] 65/7 administrative [3] 113/3 113/16 113/19 administratively [1] 116/6 admitted [1] 127/5 adolescent [1] 80/14 adopt [1] 40/18 adopted [2] 59/4 104/9 adopting [2] 70/6 103/25 advance [1] 103/9 advantage [1] 202/11 advice [17] 22/25 23/1 69/14 69/16 74/12 89/1 120/11 166/9 179/17 182/23 183/22 183/24 184/9 184/10 199/11 202/7 204/9 advise [4] 139/8 140/11 168/11 182/7 advised [2] 60/25 147/18 Adviser [5] 29/14 84/1 84/14 85/23 153/11 advisers [5] 71/9 82/25 88/8 122/6 129/23 advising [1] 141/2 advisory [10] 3/23 4/3 74/3 81/21 81/23 82/2 82/15 129/14 142/9 200/24 advocate [1] 199/11 affect [1] 96/19 affirmed [6] 1/6 79/18 176/11 206/3 206/9 207/13 afford [1] 168/24 afraid [9] 47/7 63/2 72/18 78/23 108/23 109/10 109/15 162/16 171/13 after [21] 6/4 19/6 19/8 20/2 33/19 50/14 50/15 51/16 51/17 81/9 88/12 89/8 91/6 92/17 127/4 143/8 146/6 148/11 171/18 194/18 201/7	afternoon [2] 72/11 173/23 afterwards [1] 22/10 again [21] 2/3 8/1 8/4 11/25 12/17 20/3 38/12 38/19 45/22 57/9 57/12 79/6 80/21 96/2 123/1 150/10 150/12 160/8 160/25 163/16 178/25 against [3] 89/1 89/2 110/8 age [9] 58/15 58/16 58/19 60/22 61/1 61/13 61/18 174/13 193/24 aged [1] 63/16 agency [7] 109/19 109/22 177/23 190/20 191/11 191/17 207/2 agenda [1] 182/22 agendas [1] 182/18 ages [1] 62/2 ago [3] 15/8 41/22 171/24 agree [15] 9/15 12/23 13/25 36/7 46/6 56/9 63/20 73/22 76/3 86/3 100/19 108/13 110/25 170/11 175/10 agreed [11] 7/5 10/8 31/2 31/17 64/5 73/21 97/23 98/4 101/2 136/25 144/25 agreeing [1] 15/17 agreement [2] 33/24 137/3 Ah [1] 162/17 ahead [2] 32/25 52/23 aid [1] 176/21 aim [1] 40/23 aimed [6] 85/7 100/23 156/18 192/2 192/24 200/3 aiming [1] 116/25 alarm [2] 129/9 150/2 alarmed [1] 5/24 albeit [2] 103/13 141/2 alert [1] 79/11 alerted [2] 21/23 21/24 alerting [1] 11/11 aligned [1] 23/1 all [110] 3/20 4/22 9/20 11/19 11/19 18/16 20/15 22/1 23/11 28/8 29/23 32/22 33/3 34/14 36/15 43/12 52/6 53/12 54/11 54/13 56/20 61/9 62/2 63/5 63/9 63/13 67/24
9	9 January [1] 125/7 9,000 people [1] 151/20 9.20 [1] 195/14 94 [1] 168/22 95 [1] 94/4			
A	abandoned [1] 166/7 abide [1] 168/18 able [22] 9/23 24/7 26/4 53/22 57/6 73/15 89/21 90/10 102/20 114/16 121/5 121/8 121/13 121/23 132/21 148/19 153/15 161/13 184/10 198/6 198/23 199/10 about [167] 2/20 3/6 3/13 3/24 4/10 4/20 6/6 9/10 9/11 9/16 11/10 12/6 14/17 14/23 15/10 15/17 17/11 17/17 18/2 18/12 18/14 20/1 20/3 20/4 20/8 20/10 21/5 21/18 23/6 23/7 26/1 27/9 28/20 29/11 31/16 32/5 32/14 32/15 33/13 33/19 34/13 35/1 37/5 38/3 38/5 38/24 39/3 40/23 41/17 42/6 42/16 42/24 43/16 43/24 45/2 45/9 46/10 47/5 47/10 51/1 51/5 52/11 53/18 54/23 55/16 56/5 57/4 62/7 62/9 63/7 63/18 64/7 64/14 65/11 65/12 65/18 66/14 67/20 68/1 68/6 69/7 70/4 73/8 74/24 75/6 75/7 75/16 76/17 77/13 81/3 81/7 81/10 81/14 90/7 91/17 94/7 94/9 95/18 96/17 103/11 109/6 111/9 111/11 111/15 113/12 114/7 114/12 115/21 116/4 116/4 118/17 123/14 125/20 126/7	abridge [1] 116/3 abridging [1] 116/4 abridgment [1] 116/5 abroad [1] 72/24 absence [5] 16/12 141/23 162/1 162/23 166/17 absent [1] 185/20 absolute [1] 52/24 absolutely [16] 13/18 14/20 16/7 30/13 53/2 74/3 74/16 77/1 83/23 87/6 89/25 91/13 116/22 134/11 145/7 149/22 abundantly [1] 110/9 academics [3] 184/6 184/9 184/11 Academy [2] 200/1 200/19 accept [12] 62/13 64/17 66/8 83/16 85/1 85/7 101/19 108/17 112/22 142/7 168/16 169/25 acceptance [1] 106/2 accepted [1] 155/15 accepts [3] 104/24 104/25 106/6 access [7] 48/10 50/11 68/21 114/1 125/25 149/4 183/8 accommodate [1] 68/17 according [4] 62/19 86/11 93/9 99/1 accordingly [1] 52/4 account [3] 90/8 94/22 120/16 accrue [1] 199/5 accumulate [1] 64/9 accurate [1] 91/11 accurately [3] 14/21 17/20 101/17	act [6] 44/22 90/16 119/20 132/23 145/5 202/1 acting [2] 24/19 202/3 action [14] 39/7 39/8 50/6 50/6 71/15 71/15 71/19 80/21 98/15 133/24 139/7 140/6 140/6 140/8 actions [4] 139/8 140/12 141/2 174/24 activation [1] 126/16 active [1] 129/7 actively [1] 193/6 actual [3] 31/16 41/14 50/18 actually [47] 5/23 7/12 13/11 14/18 15/17 16/20 17/14 17/24 20/16 21/2 23/24 31/8 32/3 41/3 42/1 42/4 45/2 45/14 46/7 46/17 49/13 52/16 53/3 53/7 54/12 54/18 56/4 58/23 59/19 66/19 71/9 75/5 77/12 77/16 83/11 83/24 84/2 88/21 89/9 92/18 95/14 128/11 140/19 164/25 168/12 168/17 170/5 acute [1] 179/12 adapted [3] 77/6 103/12 137/2 add [2] 108/14 163/5 added [5] 102/7 102/8 102/21 181/3 184/25 addendum [2] 133/13 133/15 additional [9] 61/4 61/24 101/20 102/2 102/23 113/9 164/16 185/14 193/10	achieve [3] 56/16 57/8 73/15 achieved [2] 61/12 100/4 achieving [1] 101/4 acknowledge [1] 83/16 acknowledges [2] 101/7 103/15 acronym [3] 44/9 82/13 130/5 across [14] 32/13 81/16 95/21 152/9 154/22 154/22 160/5 172/12 184/19 185/8 189/14 190/9 197/7 204/1 act [6] 44/22 90/16 119/20 132/23 145/5 202/1 acting [2] 24/19 202/3 action [14] 39/7 39/8 50/6 50/6 71/15 71/15 71/19 80/21 98/15 133/24 139/7 140/6 140/6 140/8 actions [4] 139/8 140/12 141/2 174/24 activation [1] 126/16 active [1] 129/7 actively [1] 193/6 actual [3] 31/16 41/14 50/18 actually [47] 5/23 7/12 13/11 14/18 15/17 16/20 17/14 17/24 20/16 21/2 23/24 31/8 32/3 41/3 42/1 42/4 45/2 45/14 46/7 46/17 49/13 52/16 53/3 53/7 54/12 54/18 56/4 58/23 59/19 66/19 71/9 75/5 77/12 77/16 83/11 83/24 84/2 88/21 89/9 92/18 95/14 128/11 140/19 164/25 168/12 168/17 170/5 acute [1] 179/12 adapted [3] 77/6 103/12 137/2 add [2] 108/14 163/5 added [5] 102/7 102/8 102/21 181/3 184/25 addendum [2] 133/13 133/15 additional [9] 61/4 61/24 101/20 102/2 102/23 113/9 164/16 185/14 193/10

A	113/10 114/23 115/6 143/19 144/24 145/15 153/2 162/24 179/6 181/9 188/13 200/7 200/18 202/11 also [63] 2/8 3/13 3/22 3/24 7/20 10/12 14/5 25/14 36/20 41/3 43/18 44/1 59/24 61/19 62/19 66/10 79/11 80/22 84/23 86/25 91/22 92/5 94/17 97/2 98/13 100/10 102/5 102/11 103/22 104/10 107/3 111/17 117/13 117/15 117/17 122/25 127/14 127/24 131/7 142/15 162/4 168/19 170/5 174/19 178/12 183/3 183/23 185/25 189/15 190/24 191/11 191/13 191/16 194/15 198/8 198/16 198/21 200/13 203/3 203/16 203/17 203/23 205/5 also independent [1] 84/23 alternative [4] 82/7 155/9 155/9 162/2 alternatives [1] 71/10 although [7] 48/9 117/19 118/22 122/4 150/17 166/21 173/8 always [6] 27/6 40/10 56/22 57/13 59/6 74/6 am [19] 1/2 1/16 2/7 2/10 11/20 15/10 33/21 33/24 51/9 51/11 56/11 56/12 72/17 123/2 189/7 192/2 192/15 196/25 205/10 ambivalence [1] 88/7 amend [1] 97/8 America [1] 42/1 among [1] 196/22 amongst [6] 15/13 29/14 131/14 131/20 193/23 200/24 amount [6] 28/4 49/9 98/7 103/1 104/18 129/2 amounted [2] 137/4 155/13 analogy [2] 45/4 121/25 analysis [6] 9/17 9/19 9/21 13/15 54/18 192/8 analytical [1] 104/16 Anderson [2] 93/25 146/6	Andrew [4] 176/6 176/11 176/17 207/13 anecdotal [1] 131/8 Angela [2] 64/19 66/4 Angela McLean [1] 64/19 Angela's [1] 67/9 announce [1] 52/2 announced [1] 166/2 48/19 another [30] 4/25 5/3 17/14 22/10 22/15 28/23 45/4 51/5 51/21 57/23 102/21 114/10 115/20 117/22 123/23 127/14 138/14 145/2 147/24 150/25 151/23 158/12 167/3 167/22 178/12 180/8 181/13 190/24 195/4 200/5 answer [7] 11/8 51/21 81/2 130/25 136/13 136/15 161/6 ANTHONY [5] 79/18 79/23 123/11 206/9 207/6 Anthony Costello [1] 79/23 antibodies [1] 165/2 antibody [2] 146/2 188/6 anticipated [2] 30/7 189/4 anticipating [2] 25/13 52/9 anxious [1] 21/8 any [64] 3/18 6/25 21/7 22/2 23/8 25/12 26/25 27/3 27/22 27/24 32/9 41/17 45/8 45/9 47/12 48/6 49/13 53/22 54/17 60/18 68/23 78/6 81/8 84/22 91/19 92/12 92/13 96/19 103/20 103/25 104/15 107/9 107/11 107/11 107/17 108/8 109/6 111/10 112/6 112/17 113/18 114/8 114/9 114/14 115/14 115/15 116/16 117/3 117/10 124/23 138/3 138/12 138/12 139/16 143/23 144/20 147/6 149/23 149/23 175/12 182/15 188/22 197/12 203/10 anybody [8] 105/21 109/18 112/10 114/9 114/13 114/18 115/16 116/10 anyone [7] 55/20 69/20 97/19 105/4	114/8 115/14 118/7 anything [9] 9/16 27/25 43/23 44/25 81/7 114/16 114/17 125/20 161/5 anyway [4] 12/24 42/15 43/5 52/1 anywhere [2] 28/1 68/13 apologies [1] 176/24 apologise [5] 11/5 45/5 47/4 116/23 122/19 apparent [7] 25/17 51/15 75/24 127/2 142/16 165/4 180/3 Appeal [3] 98/13 110/7 122/2 appear [5] 111/14 111/21 111/24 114/19 138/3 appeared [2] 163/19 193/20 appearing [2] 86/1 121/11 appears [4] 9/13 44/13 110/2 115/25 application [5] 96/12 96/24 105/11 115/13 206/13 applied [5] 106/8 106/10 106/17 120/18 129/3 applies [3] 98/13 102/6 120/19 apply [2] 117/20 172/3 applying [3] 88/14 100/14 140/2 appreciate [1] 204/13 appreciating [1] 40/22 appreciation [1] 122/16 approach [22] 39/6 39/15 40/14 47/3 81/15 81/17 88/18 89/5 89/7 98/2 101/6 101/10 102/15 102/17 103/25 104/8 105/12 106/7 107/5 110/19 120/17 180/25 approaches [2] 40/13 123/25 appropriate [6] 17/5 102/12 105/13 173/6 173/10 174/20 approximately [2] 152/1 181/12 April [4] 81/4 86/23 181/12 188/19 April 2020 [1] 81/4 April/May 2020 [1]	181/12 are [161] 2/5 2/6 2/11 6/5 6/10 8/11 8/14 9/25 10/10 18/11 20/14 20/23 21/19 25/9 25/10 25/17 31/4 33/19 34/4 37/13 40/17 40/25 41/4 43/11 44/2 46/12 48/17 49/2 49/3 49/3 49/4 51/1 53/6 53/11 53/14 53/21 54/6 54/6 54/8 54/22 56/13 56/14 57/6 66/9 66/12 67/14 68/2 71/4 74/21 74/22 76/12 77/18 78/6 78/13 78/13 79/2 80/3 80/5 80/20 82/11 84/11 87/6 87/24 91/8 91/11 92/24 93/24 94/4 94/5 99/3 99/4 99/6 99/6 99/9 99/22 100/18 100/19 100/22 101/8 101/21 102/4 102/10 102/15 102/24 105/14 106/12 108/22 110/1 110/9 111/10 111/17 112/20 113/5 113/6 113/9 114/5 115/4 115/8 115/10 115/18 115/20 116/1 117/14 117/21 118/12 118/20 119/22 120/12 120/24 121/9 121/10 121/14 121/16 121/16 122/9 123/22 124/6 124/14 126/20 128/7 129/13 129/18 130/11 130/15 130/17 133/3 133/4 133/8 133/17 133/19 134/5 135/9 139/15 143/3 143/15 146/16 147/6 153/12 154/21 162/8 163/16 164/10 164/16 165/20 166/6 169/6 170/14 170/16 173/16 174/12 174/23 175/2 175/16 177/14 177/22 191/21 192/18 194/19 199/21 202/21 202/22 are: [1] 162/18 are: contain [1] 162/18 area [11] 6/24 20/21 167/22 179/21 179/23 179/25 180/7 195/10 196/17 198/11 199/13 areas [17] 49/3 49/10 63/7 76/24 76/24 92/11 151/23 157/22 173/9 178/17 179/19 182/20 182/20 195/16 196/6 197/22 204/3
----------	--	---	---	--

A
aren't [1] 54/14
argue [5] 47/2 67/8
 124/14 174/16 175/5
argued [1] 136/7
arguing [3] 46/15
 46/16 47/2
argument [18] 41/2
 55/25 66/5 66/14
 67/23 71/2 71/3 96/1
 103/20 116/13 116/23
 117/24 119/4 119/15
 119/24 152/11 152/20
 164/3
argument's [1]
 151/10
arising [1] 73/19
arose [1] 75/23
around [23] 3/6
 11/10 15/14 23/15
 23/22 29/3 29/18
 54/11 60/1 65/6 66/11
 71/6 92/3 94/25
 128/16 132/13 136/3
 148/22 151/10 156/8
 165/12 165/25 193/9
arrival [1] 129/8
arriving [1] 135/6
art [2] 126/9 132/17
article [40] 34/16
 34/17 98/9 98/22
 99/18 99/23 100/9
 103/21 106/3 106/6
 106/11 106/13 106/16
 107/22 108/17 110/1
 110/4 110/15 110/21
 110/25 111/5 112/12
 112/16 112/18 113/18
 113/22 113/23 114/15
 118/2 119/16 119/16
 119/17 120/12 120/19
 122/8 122/13 127/14
 127/15 171/18 188/17
Article 10 [7] 100/9
 103/21 113/22 113/23
 114/15 119/16 119/17
Article 8 [24] 98/9
 98/22 99/18 99/23
 106/3 106/6 106/11
 106/13 106/16 107/22
 108/17 110/1 110/4
 110/15 110/21 110/25
 111/5 112/12 113/18
 118/2 119/16 120/19
 122/8 122/13
Article 8.2 [1] 112/18
articles [2] 81/13
 87/1
as [273]
As I say [1] 18/16
ascertained [1]
 145/20
Asian [12] 89/3 89/15

90/7 91/16 129/13
 141/11 142/2 145/3
 145/12 147/16 174/8
 193/22
ask [30] 23/7 27/9
 29/11 34/13 34/17
 38/24 42/16 43/24
 46/10 48/23 60/4 63/7
 67/25 68/6 70/4 72/11
 88/12 101/21 102/15
 111/11 112/13 113/12
 114/6 114/9 126/7
 147/23 167/3 169/11
 170/25 184/1
asked [23] 6/4 6/20
 60/15 62/19 69/23
 77/13 78/8 78/18
 78/19 81/12 104/12
 109/11 111/9 111/15
 112/8 115/14 115/15
 115/21 141/4 141/5
 160/14 170/19 182/19
asking [13] 4/9 32/15
 33/19 53/5 74/24 90/7
 96/21 112/6 140/11
 153/23 154/2 159/6
 159/15
asks [2] 105/10
 106/7
aspect [3] 66/16 70/3
 189/17
aspects [2] 91/8
 120/24
aspired [1] 53/1
assess [1] 101/3
assessment [2]
 106/6 174/4
assist [5] 104/12
 105/14 109/14 177/25
 197/13
assistance [2] 93/10
 109/22
assisted [1] 185/4
associated [4] 76/7
 110/8 122/1 141/14
**Associated
 Newspapers [1]**
 122/1
associates [1] 99/16
assume [3] 94/23
 147/8 183/14
assumed [1] 25/10
assuming [1] 138/19
assumptions [1]
 29/25
assurances [1]
 102/13
assured [1] 111/23
assures [1] 117/1
asymptomatic [28]
 16/1 16/5 16/23 17/1
 17/11 17/23 18/5 18/9
 18/11 24/1 24/6 25/18
 25/24 26/7 26/11

29/15 94/4 94/5 124/8
 134/6 145/20 145/24
 146/7 146/17 146/19
 148/21 148/25 180/21
at [275]
at emails [1] 18/18
attached [2] 14/8
 14/12
attack [2] 8/18 27/19
attempt [3] 78/17
 158/6 190/8
attempts [1] 97/9
attend [3] 3/14 3/18
 191/2
attendance [1]
 204/19
attended [3] 3/17
 33/5 84/12
attendees [2] 133/16
 133/17
attending [1] 176/23
attention [5] 28/3
 28/4 32/7 121/15
 196/14
attenuated [2]
 117/23 122/12
attracted [1] 110/25
August [2] 1/20
 192/16
August 2021 [1]
 192/16
authorities [2]
 148/18 155/5
authority [6] 5/24
 12/19 98/10 99/21
 135/22 135/24
automatically [2]
 119/12 120/13
autumn [3] 161/22
 201/15 201/17
autumn 2020 [2]
 201/15 201/17
avail [1] 136/20
available [23] 22/11
 25/23 48/11 48/21
 49/1 49/5 50/21 51/3
 51/16 63/22 65/10
 75/1 78/6 93/3 104/8
 116/21 120/2 120/22
 134/12 136/19 152/8
 155/4 194/11
average [3] 58/14
 58/16 152/14
avoid [4] 69/22 71/18
 161/11 176/20
avoidable [1] 54/3
avoided [1] 55/1
aware [7] 21/21
 60/16 65/5 92/24
 151/18 183/10 194/15
awareness [2]
 199/23 200/4
away [1] 162/3

B
baby [1] 62/24
back [40] 2/2 3/10
 5/4 5/22 9/13 9/19
 12/17 14/5 15/2 15/7
 18/17 19/13 20/13
 21/10 22/23 24/24
 36/10 38/11 42/9 47/6
 47/17 69/10 74/5 75/8
 77/12 78/3 83/13 89/8
 90/3 133/25 136/18
 148/9 160/25 170/9
 170/20 182/8 182/22
 187/19 197/9 197/16
backed [1] 142/20
background [3]
 96/16 177/13 193/13
backgrounds [1]
 184/15
backwards [1] 22/21
backyard [1] 154/15
bad [6] 23/20 33/12
 33/16 33/17 37/8 38/1
balance [3] 100/5
 101/16 122/11
balanced [2] 69/6
 110/16
balancing [3] 44/22
 56/12 112/21
ball [2] 109/12
 159/17
ballpark [2] 9/3 9/10
Bangladeshi [1]
 194/7
Bank [3] 100/2
 120/17 160/6
Bank Mellat [2]
 100/2 120/17
bar [1] 121/24
barriers [1] 78/6
Barrington [2] 62/9
 62/13
base [1] 137/1
based [9] 12/3 12/4
 12/15 29/25 49/16
 64/21 80/21 92/24
 127/11
bases [1] 83/9
basic [5] 25/6 123/14
 123/22 128/18 147/11
basically [4] 11/3
 141/7 149/11 203/25
basis [8] 52/18 53/8
 67/8 99/22 126/12
 126/15 146/4 168/8
bathwater [1] 62/25
be [299]
be 10 [1] 32/5
be effective [1]
 128/24
bear [3] 26/12 26/13
 26/14
bearings [1] 133/12

beautifully [1] 56/7
became [14] 22/11
 49/5 51/16 56/8 59/13
 62/15 65/5 75/24 76/7
 78/22 142/15 165/4
 180/3 198/25
because [104] 12/25
 15/4 16/25 18/4 20/9
 22/20 23/25 27/18
 30/6 30/12 33/20 38/6
 44/16 45/15 47/1 47/4
 50/23 53/13 53/21
 59/20 60/17 64/17
 65/12 67/17 71/20
 74/24 76/9 77/5 77/7
 77/10 77/18 78/9
 81/11 82/15 82/25
 83/3 83/16 84/6 86/25
 87/7 88/20 91/10
 91/20 92/11 94/3
 98/25 101/21 105/7
 108/24 110/16 110/21
 111/10 111/13 111/22
 112/15 115/25 117/9
 117/18 117/21 118/8
 119/6 120/19 125/23
 128/24 130/24 131/12
 135/7 137/20 138/14
 138/19 139/25 140/8
 140/19 141/4 141/13
 144/24 146/14 148/17
 156/20 156/21 156/22
 157/2 157/8 157/15
 157/19 158/25 160/4
 160/20 160/23 161/1
 162/2 163/1 166/24
 167/12 168/23 172/3
 183/15 184/20 185/7
 187/18 188/16 192/12
 194/24 204/13
become [8] 5/21 13/4
 42/5 48/11 63/21 93/6
 112/15 137/20
becoming [3] 123/24
 127/8 198/22
bedrock [1] 166/9
been [115] 3/2 16/17
 19/3 19/23 20/6 21/23
 22/21 23/25 24/1
 25/10 26/25 29/4 29/7
 31/2 38/1 38/25 49/21
 49/24 50/1 52/23
 53/23 53/24 53/24
 53/25 54/4 57/2 65/16
 65/21 67/4 69/12 72/2
 74/6 74/22 76/1 78/7
 78/9 78/15 79/6 79/20
 81/4 81/6 81/10 86/25
 92/24 97/15 97/20
 98/4 98/20 102/11
 103/18 103/18 103/18
 105/16 106/14 107/23
 110/15 111/22 114/23
 115/1 116/19 116/25

B	38/21 40/23 41/1 41/16 44/12 50/3 55/5 61/25 62/1 63/18 65/15 65/20 67/4 67/6 68/15 70/7 70/23 81/17 87/8 92/8 93/19 101/1 108/21 111/2 111/6 111/9 111/9 111/15 112/8 113/2 113/6 113/19 113/20 114/12 116/1 120/14 120/21 132/1 134/3 135/9 138/17 140/6 145/20 151/1 155/19 161/12 174/19 175/9 180/1 180/7 180/20 181/2 182/6 183/1 183/13 183/14 183/22 184/10 191/3 192/18 193/23 198/1 199/10 believe [17] 1/18 7/2 19/4 26/7 27/15 63/2 74/24 81/22 88/13 88/17 126/22 129/6 132/22 155/12 155/19 157/17 170/15 believed [1] 36/20 bells [1] 129/9 beloved [1] 122/19 below [5] 26/16 76/8 133/24 139/14 145/16 below 1 [1] 145/16 benefit [2] 197/20 197/23 benefits [1] 159/21 bereaved [11] 72/12 105/23 108/2 108/3 108/5 108/6 108/14 171/1 206/19 206/21 206/22 best [9] 48/4 50/24 59/22 62/18 69/4 101/11 103/10 109/1 138/1 better [13] 39/7 40/18 41/3 41/4 41/7 50/16 52/7 90/9 90/13 127/25 161/3 174/13 186/22 between [32] 14/16 18/18 29/5 40/13 42/17 43/3 90/1 93/6 93/19 94/15 95/1 95/3 99/11 100/6 119/16 122/6 122/11 127/18 127/21 127/22 127/23 128/25 129/19 146/7 147/4 184/11 188/19 190/2 190/21 192/16 198/4 199/9 between 3 [1] 94/15 beyond [6] 39/12 59/10 64/24 144/6 151/16 180/17	bias [1] 37/20 big [10] 13/2 13/3 40/13 44/24 66/15 131/1 149/5 154/21 198/4 201/25 bigger [4] 25/12 69/2 75/10 203/2 biggest [1] 160/2 billion [2] 160/4 160/6 billions [1] 169/2 bills [1] 149/17 biological [1] 136/3 biomedical [2] 154/12 154/21 bit [14] 4/2 25/1 26/16 56/2 67/16 82/2 84/15 104/3 135/25 156/24 169/8 184/20 186/20 193/5 bite [1] 114/22 black [3] 83/5 193/22 194/6 black/minority [1] 83/5 blind [1] 171/20 block [1] 128/23 board [4] 7/5 148/12 148/14 148/15 bodies [1] 82/11 body [4] 45/22 85/6 163/22 169/6 book [1] 56/5 boost [1] 164/13 boots [2] 95/17 141/20 border [1] 179/17 borders [2] 23/12 124/1 both [22] 2/14 7/19 14/19 34/24 40/20 65/1 66/4 69/15 72/23 79/7 82/1 98/1 106/1 124/4 124/20 143/4 156/20 163/8 163/9 176/19 200/12 203/18 bothering [2] 19/15 32/11 bottom [6] 13/22 18/25 19/2 43/10 85/20 140/5 bounds [1] 84/9 box [1] 147/25 brain [1] 97/5 branches [1] 178/9 breach [1] 122/7 breaches [1] 124/1 break [7] 51/7 51/10 51/13 91/14 95/24 148/3 202/9 breaker [2] 203/10 204/9 breaking [2] 123/20 147/4	breaks [2] 132/25 148/5 brief [1] 68/1 briefing [2] 22/10 22/25 briefly [16] 2/4 15/2 21/4 23/7 34/13 64/17 97/1 109/21 178/25 179/6 187/14 189/20 189/24 192/20 196/4 200/18 bring [4] 16/15 128/9 132/11 197/21 Britain [1] 85/22 British [3] 91/6 159/23 168/16 broad [3] 49/2 63/7 178/9 broader [1] 4/6 broadly [1] 112/18 brought [5] 16/8 144/4 151/20 164/12 196/20 BSIs [2] 44/3 44/5 build [2] 71/11 71/25 build-up [2] 71/11 71/25 building [1] 150/17 built [1] 50/17 Bunting [6] 99/19 105/19 108/12 108/24 109/9 113/23 burden [5] 27/1 69/15 101/20 102/8 113/4 businesses [1] 53/14 busy [1] 165/23 but [253] byproduct [3] 163/23 167/12 167/18	154/14 164/7 169/7 171/19 171/22 180/8 181/20 199/6 202/15 calling [5] 22/13 81/19 83/17 86/25 141/19 calls [1] 143/13 came [15] 1/25 18/1 52/15 65/6 66/18 84/22 88/22 109/5 110/13 110/16 126/15 135/20 148/8 160/25 165/2 campaigning [1] 46/15 Campbell [1] 108/7 can [120] 4/13 4/17 4/22 5/18 6/11 7/10 7/12 7/13 10/9 11/24 15/2 15/7 16/2 19/20 20/1 20/10 21/10 21/14 21/17 24/17 24/24 25/23 26/16 28/2 28/19 28/25 29/8 29/9 31/24 33/1 33/20 34/14 34/23 35/23 36/19 37/18 39/7 39/9 41/9 42/20 45/23 46/10 47/17 48/19 48/23 50/6 50/24 52/22 56/21 57/1 57/9 58/23 60/11 60/13 61/6 61/21 63/3 63/8 64/24 67/9 67/16 67/16 68/8 68/16 69/15 70/10 70/13 71/15 72/19 73/1 76/5 79/5 90/3 90/23 90/24 100/4 103/11 103/13 103/16 105/14 107/8 107/10 107/15 109/14 110/22 114/15 123/6 123/21 125/6 128/4 128/8 128/9 129/15 133/12 135/16 139/16 144/17 145/10 150/6 152/4 155/17 163/5 166/14 166/24 167/4 170/12 172/5 174/21 176/20 176/23 177/6 184/22 188/1 188/16 192/20 197/13 197/15 199/22 200/16 204/16 can't [14] 27/25 32/9 45/7 46/3 47/7 47/9 51/4 55/24 78/23 138/14 146/3 162/16 171/13 186/3 cannot [12] 27/7 27/13 59/19 78/21 94/2 94/3 137/11 138/19 139/1 145/21 146/19 150/20 capability [1] 150/18
		C		
		Cabinet [1] 169/7 Cabinet Office [1] 169/7 calculate [1] 194/3 calculation [3] 9/22 12/3 36/10 calculations [2] 13/15 20/14 calculator [1] 10/12 Calderwood [7] 15/1 18/21 21/17 25/3 29/6 33/2 35/19 call [13] 9/19 20/13 54/9 56/18 67/16 74/2 79/5 82/20 82/23 150/2 152/16 176/5 178/10 called [22] 16/20 36/10 50/17 59/25 72/19 73/1 82/12 85/17 92/20 92/25 133/13 140/14 141/10		

C	cases [34] 16/6 17/11 18/5 18/9 18/11 24/1 25/17 41/15 57/24 67/19 67/21 77/17 98/4 107/22 124/6 125/8 128/13 130/11 131/15 135/2 135/8 135/11 136/23 139/14 143/2 143/15 144/13 145/8 145/19 147/7 151/6 156/9 160/25 162/20	challenged [1] 111/2 challenges [1] 97/13 challenging [5] 78/9 141/25 167/11 200/3 200/20 chance [3] 23/23 73/18 127/25 Chancellor [1] 171/3 change [1] 53/21 changed [5] 50/2 68/17 94/16 97/8 177/21 changing [5] 52/1 52/3 52/4 52/19 127/3 channel [2] 70/20 71/8 chapter [1] 26/4 characterising [1] 58/13 characteristic [1] 58/20 Charles [1] 122/1 check [5] 4/17 7/5 111/23 155/17 187/7 checked [1] 188/17 checking [1] 13/16 chief [17] 5/14 11/2 11/11 11/21 12/18 20/18 21/2 21/15 29/13 84/1 84/14 85/23 109/7 153/10 153/11 168/1 192/1 child [2] 80/13 82/4 children [19] 63/8 63/16 63/22 63/25 64/1 64/6 64/8 64/9 64/10 64/15 65/2 65/2 65/3 65/15 65/20 65/22 67/3 67/4 164/8 China [29] 17/8 17/19 30/3 30/7 30/15 30/19 94/17 124/16 125/9 125/12 125/15 125/24 126/23 126/24 127/4 127/17 130/20 140/1 143/3 143/19 144/14 145/8 145/10 145/15 145/19 149/5 157/18 159/3 166/11 choose [1] 82/8 chop [2] 163/20 167/16 chose [1] 83/8 Chris [12] 14/2 21/19 21/23 23/1 29/23 31/5 132/10 142/21 163/1 165/13 165/14 165/22 Chris Whitty [11] 14/2 21/19 21/23 23/1 29/23 31/5 132/10 142/21 163/1 165/13 165/14 chronological [1] 187/19	chronology [2] 125/2 21/13 125/6 circuit [3] 202/9 203/10 204/9 circuit breaker [1] 203/10 circulated [2] 14/14 99/19 circumstances [4] 106/16 106/19 107/2 122/13 city [1] 49/4 claim [1] 122/7 claimed [1] 120/14 clarifies [1] 133/15 class [2] 9/23 174/2 classified [1] 84/3 classify [1] 57/1 clear [33] 10/1 10/4 14/11 15/19 15/21 15/22 37/7 39/24 52/8 54/7 55/16 56/23 57/12 67/10 69/13 85/9 86/4 87/6 97/17 101/5 104/7 110/9 124/4 124/19 126/23 127/9 134/24 145/4 145/7 167/4 168/13 172/5 172/22 clearly [8] 26/13 37/5 49/8 71/23 91/7 146/8 170/8 198/15 cliff [1] 49/11 climate [1] 80/21 clinical [5] 63/24 64/5 173/12 180/20 183/22 clinically [1] 173/19 close [13] 16/21 58/24 67/12 74/8 95/16 127/18 127/22 128/2 128/2 128/4 128/7 128/8 162/20 closed [3] 66/6 67/1 202/12 closely [7] 16/18 16/19 23/1 81/6 184/14 185/9 200/14 closing [5] 66/5 96/22 107/12 107/18 127/25 closure [2] 75/18 85/19 closures [1] 141/8 clue [1] 172/10 cluster [1] 125/8 clusters [1] 127/16 CMO [9] 21/13 22/13 27/21 29/23 30/22 32/11 83/25 84/14 87/20 CMO Scotland [1] 22/13 CMO/DCMO [1]	21/18 CMOs [1] 21/18 co [4] 2/24 3/6 105/7 190/1 co-chaired [1] 2/24 co-operated [1] 105/7 co-opted [1] 3/6 coalesced [1] 71/6 COBR [3] 28/24 126/16 168/1 COBRA [1] 14/3 cocooning [4] 57/4 59/25 62/16 62/18 cohort [2] 192/4 192/17 coincide [1] 202/10 cold [1] 22/13 collateral [1] 41/6 colleague [1] 7/25 colleagues [6] 10/19 21/13 183/10 184/25 185/6 185/8 collected [1] 127/12 College [3] 7/24 128/16 177/16 combined [2] 91/12 95/11 come [31] 4/16 12/17 17/25 20/18 41/8 41/12 42/9 51/22 51/22 52/17 54/6 59/24 61/7 62/8 83/1 83/13 90/3 95/21 118/4 130/2 136/18 137/8 145/17 170/16 170/20 171/24 172/4 172/21 182/8 195/2 195/22 comes [8] 13/11 31/7 32/3 32/12 69/10 75/8 98/11 173/5 coming [12] 2/2 12/21 24/20 42/25 60/3 89/24 94/17 103/3 132/23 136/12 168/14 199/21 CoMix [2] 50/17 50/19 commence [2] 79/21 193/4 commenced [2] 88/12 193/9 comment [4] 19/16 32/2 73/20 174/19 comments [3] 109/6 199/16 199/19 commissioned [1] 200/1 commit [1] 121/5 commitment [1] 143/20 committee [18] 2/22 3/3 3/5 3/9 3/10 3/14
----------	---	--	--	--

<p>C</p> <p>committee... [12] 16/19 69/2 129/24 130/1 130/2 141/24 143/18 163/3 179/7 186/19 186/21 193/18</p> <p>committees [3] 183/15 184/3 184/8</p> <p>common [4] 82/13 82/14 98/10 105/9</p> <p>commonplace [1] 82/1</p> <p>communicable [1] 196/3</p> <p>communicate [3] 20/18 34/20 85/8</p> <p>communicated [2] 70/9 71/20</p> <p>communicating [3] 46/22 169/19 203/18</p> <p>communication [1] 86/7</p> <p>communications [4] 27/24 31/10 44/20 45/12</p> <p>communities [4] 175/2 184/14 185/9 200/14</p> <p>community [18] 23/16 65/23 77/20 78/2 90/19 100/7 100/8 129/16 156/6 156/12 157/2 157/8 157/12 157/14 157/25 158/4 185/18 192/7</p> <p>comorbidities [1] 64/1</p> <p>comparative [1] 120/14</p> <p>compared [1] 178/7</p> <p>comparison [1] 124/7</p> <p>compiled [1] 118/5</p> <p>complacency [2] 30/14 36/21</p> <p>complement [1] 190/16</p> <p>complemented [1] 181/7</p> <p>complete [3] 17/7 33/24 42/24</p> <p>completely [8] 9/7 27/2 36/7 39/25 56/9 136/4 138/20 163/25</p> <p>completes [1] 205/1</p> <p>compliance [1] 168/22</p> <p>complicated [2] 9/16 54/1</p> <p>comply [2] 168/6 168/23</p> <p>component [1] 69/4</p> <p>composition [5] 68/7</p>	<p>68/10 83/2 83/13 183/19</p> <p>comprehensive [2] 178/18 194/16</p> <p>concentrated [1] 58/21</p> <p>conceptual [1] 90/5</p> <p>concern [17] 5/20 8/7 12/1 14/23 28/20 34/16 34/18 35/5 55/19 66/17 69/1 83/18 129/25 143/24 164/16 167/22 171/17</p> <p>concerned [19] 5/21 6/6 13/13 28/21 31/11 32/14 33/15 34/4 35/1 35/4 38/5 38/11 45/2 45/9 55/4 65/18 68/12 178/14 180/1</p> <p>concerns [10] 6/10 7/6 31/12 33/7 61/22 68/18 81/9 81/14 119/15 178/4</p> <p>conclude [4] 118/16 119/13 120/23 123/22</p> <p>conclusion [4] 80/2 104/6 107/20 145/1</p> <p>conclusions [2] 54/6 144/11</p> <p>concretely [1] 185/16</p> <p>conditions [1] 58/19</p> <p>conduct [1] 197/7</p> <p>conducts [1] 2/13</p> <p>conference [9] 81/5 81/9 149/10 168/1 171/2 171/5 171/16 173/25 175/8</p> <p>confidence [3] 94/21 100/12 122/7</p> <p>confident [10] 12/11 18/12 18/14 25/24 28/1 28/2 32/5 32/6 73/17 186/17</p> <p>confidential [1] 118/9</p> <p>confidentiality [8] 99/2 118/15 118/21 118/25 119/2 120/8 121/1 121/4</p> <p>confined [2] 30/3 30/15</p> <p>confirm [1] 177/6</p> <p>confirmation [1] 11/14</p> <p>confirmed [5] 10/6 62/23 131/15 144/13 144/15</p> <p>confirms [1] 73/14</p> <p>conflict [1] 167/6</p> <p>conflicted [1] 167/12</p> <p>conform [1] 168/6</p> <p>confuses [1] 163/8</p> <p>confusing [1] 82/9</p> <p>confusion [3] 83/18</p>	<p>85/3 89/25</p> <p>connected [2] 8/17 8/21</p> <p>connections [1] 185/11</p> <p>conscious [1] 101/22</p> <p>consensus [8] 27/1 70/4 70/6 70/16 71/2 144/10 144/16 144/19</p> <p>consequence [3] 17/24 181/1 183/9</p> <p>conservative [1] 204/11</p> <p>consider [8] 62/5 100/3 102/25 111/2 113/21 115/12 182/19 189/11</p> <p>considerable [3] 61/1 107/5 191/23</p> <p>considerably [3] 17/25 194/7 200/25</p> <p>consideration [1] 112/19</p> <p>considerations [4] 100/10 117/20 169/15 182/1</p> <p>considered [8] 30/2 62/4 63/4 89/7 112/5 180/7 180/13 192/10</p> <p>considering [2] 147/3 180/24</p> <p>considers [1] 103/13</p> <p>consistent [5] 20/21 27/19 67/13 172/23 175/9</p> <p>constructive [1] 98/2</p> <p>construed [1] 114/20</p> <p>consulted [1] 154/24</p> <p>consulting [1] 145/3</p> <p>contact [38] 5/19 59/24 73/9 73/16 90/20 91/13 92/14 92/20 95/12 123/18 129/16 138/22 139/18 142/4 144/18 145/11 151/7 151/8 151/18 152/1 152/2 152/3 152/4 152/13 152/24 155/11 155/12 155/13 158/21 159/1 159/16 166/8 166/22 166/25 173/1 173/8 175/12 198/3</p> <p>contacted [3] 6/20 29/5 143/5</p> <p>contacts [10] 21/7 59/20 90/24 90/24 128/8 135/10 151/6 151/9 151/10 162/21</p> <p>contain [7] 23/15 24/7 137/9 142/14 162/10 162/18 163/7</p> <p>contained [7] 16/24 16/24 24/8 30/8 30/9</p>	<p>144/17 145/10</p> <p>containing [4] 5/25 23/11 101/12 162/14</p> <p>containment [8] 23/8 75/19 128/9 156/19 162/24 172/24 173/5 175/8</p> <p>content [4] 108/8 109/13 114/17 194/10</p> <p>contents [4] 1/15 1/19 80/3 118/11</p> <p>context [13] 5/17 10/3 16/5 17/7 35/8 42/21 43/2 56/2 57/9 97/1 108/20 172/8 173/20</p> <p>continue [5] 39/1 66/16 123/3 190/18 200/11</p> <p>continued [8] 22/14 33/2 102/16 123/11 123/12 143/2 207/6 207/9</p> <p>continues [3] 105/11 106/7 106/16</p> <p>continuing [3] 31/12 47/2 159/24</p> <p>Contrary [1] 96/23</p> <p>contribute [1] 191/4</p> <p>contributed [1] 51/20</p> <p>contributing [1] 188/9</p> <p>contribution [4] 29/12 66/13 66/15 154/25</p> <p>control [45] 16/8 16/15 17/2 55/12 57/15 88/6 90/23 115/6 123/15 123/17 123/22 124/11 124/25 128/22 129/4 135/22 135/23 135/24 136/5 136/22 136/22 137/1 137/11 137/13 137/19 138/1 138/4 138/15 138/17 139/4 139/13 139/21 145/2 147/11 147/16 147/17 154/18 166/9 169/5 174/24 179/17 180/4 180/22 184/12 189/17</p> <p>controlled [1] 17/3</p> <p>controlling [4] 40/21 40/23 74/4 128/24</p> <p>controversial [1] 82/9</p> <p>convened [4] 126/13 181/22 182/4 183/5</p> <p>convenience [3] 113/3 113/16 113/19</p> <p>convenient [3] 51/6 147/20 147/25</p> <p>Convention [3] 98/9 110/5 119/20</p>	<p>conversations [1] 67/10</p> <p>conveying [1] 35/15</p> <p>convinced [3] 40/5 41/23 157/19</p> <p>cope [3] 44/3 111/20 151/5</p> <p>copied [3] 21/14 122/4 165/14</p> <p>copy [3] 5/23 115/9 171/12</p> <p>cord [1] 150/2</p> <p>core [35] 61/7 76/19 80/16 96/20 97/25 98/20 99/12 101/23 104/1 104/25 106/12 107/11 107/17 110/18 110/24 111/10 112/6 114/11 115/2 115/21 116/14 116/24 118/19 118/20 119/5 119/8 119/10 119/11 120/8 120/22 121/15 121/23 122/9 123/16 190/1</p> <p>core participant [2] 111/10 112/6</p> <p>core participants [21] 96/20 97/25 98/20 99/12 101/23 104/1 104/25 106/12 107/17 110/18 114/11 116/24 118/19 118/20 119/5 119/8 119/10 120/8 120/22 121/15 121/23</p> <p>core participants' [1] 107/11</p> <p>coronavirus [15] 6/7 89/8 89/10 90/11 91/5 94/14 125/17 129/12 132/1 133/3 138/5 138/15 140/20 144/14 151/5</p> <p>coronaviruses [2] 89/24 164/10</p> <p>correct [75] 2/16 2/23 3/12 7/9 8/13 9/8 19/19 23/5 27/18 76/22 76/23 80/7 80/8 80/12 80/18 80/19 80/24 84/24 86/17 87/11 87/21 89/19 97/9 101/16 116/3 128/1 128/14 130/14 130/23 131/16 131/21 131/23 135/11 135/12 137/25 140/3 146/11 153/18 155/11 155/23 156/4 157/4 158/8 158/10 158/22 158/23 159/2 161/19 162/6 166/5 167/1 167/20 168/17 177/14 177/16 177/17 177/24 179/9</p>
--	--	--	--	---

C	50/23 52/12 69/20 92/12 92/13 122/21 130/19 142/7 168/24 198/5 198/9 199/10 counsel [15] 1/7 79/19 96/20 104/1 108/12 111/9 116/11 123/6 123/12 176/12 206/5 206/11 207/4 207/8 207/15 Countdown [1] 80/20 counterfactual [1] 54/1 countries [17] 9/4 23/11 30/8 34/8 123/25 126/24 131/4 143/16 145/12 145/12 172/11 172/16 172/19 172/19 174/2 174/12 174/20 country [24] 41/18 48/3 64/4 75/21 91/10 123/24 132/13 136/3 147/15 149/12 149/14 149/20 152/9 154/21 158/5 160/3 162/22 168/22 172/15 172/18 175/4 185/8 190/10 204/2 couple [3] 25/19 58/19 165/17 course [66] 1/24 2/17 2/20 2/24 3/13 6/25 7/22 10/5 21/21 24/17 28/4 28/25 34/24 35/23 40/24 43/16 45/7 46/17 47/16 48/4 48/5 51/7 52/15 53/9 54/21 60/17 63/6 64/3 66/5 80/15 81/7 89/17 94/19 107/12 111/1 111/17 113/8 113/21 114/3 115/4 115/11 117/6 117/16 117/19 118/7 118/10 118/12 119/24 120/4 120/9 120/10 121/8 122/10 128/10 134/25 142/13 143/3 161/22 166/17 173/3 179/8 182/9 189/22 195/15 197/15 201/2 Court [5] 98/12 98/13 110/7 120/18 122/2 courts [1] 104/24 CoV [1] 16/17 cover [7] 83/8 107/9 107/15 132/24 135/18 157/21 176/25 coverage [3] 151/19 152/12 152/13 covered [3] 2/4 51/19 149/10 covering [1] 83/10	Covid [51] 2/17 3/23 4/3 36/24 57/17 58/10 58/15 58/21 61/23 61/25 63/17 63/23 65/16 72/12 77/8 87/24 105/23 108/2 108/3 108/5 108/6 113/8 148/13 160/12 171/1 171/20 174/9 180/19 180/20 182/1 182/5 187/15 188/6 188/8 188/22 190/13 191/12 192/3 192/13 192/20 193/3 193/19 197/10 197/17 198/13 198/18 198/23 201/20 206/18 206/21 206/22 Covid Inquiry [1] 113/8 Covid-19 [12] 2/17 3/23 4/3 36/24 63/17 63/23 77/8 87/24 171/20 174/9 188/6 192/3 cracks [1] 186/18 crashing [1] 102/22 create [3] 113/9 134/19 134/20 created [4] 78/8 110/6 110/11 110/13 creating [1] 97/14 creation [1] 101/12 criminal [1] 120/4 crisis [4] 31/16 53/8 53/16 152/17 critical [8] 12/24 54/7 149/22 162/8 168/5 169/6 189/15 199/8 criticised [1] 143/11 criticism [1] 186/9 criticisms [1] 68/3 crucial [8] 14/20 14/24 16/7 17/4 17/13 17/14 50/22 148/16 crude [3] 9/18 9/20 9/21 cruise [3] 148/8 148/10 148/16 crying [1] 38/18 Crystal [1] 15/22 Crystal clear [1] 15/22 CTI [2] 116/14 121/15 cultures [1] 185/10 cumbersome [2] 75/4 75/9 current [3] 151/1 180/22 195/15 currently [5] 80/20 111/6 134/5 139/21 144/15 curtailing [1] 114/14 curve [2] 45/4 142/16 curve' [1] 88/9	cusps [1] 163/4 cut [1] 113/13 D Daegu [1] 151/23 daily [1] 6/16 dairies [5] 117/14 121/1 121/3 121/9 121/20 damage [3] 91/20 160/2 160/7 Dame [3] 171/4 171/20 172/9 dangerous [1] 156/20 darkest [1] 33/13 data [54] 8/9 10/24 12/20 12/21 12/23 17/8 17/9 20/22 24/20 25/4 27/11 27/18 31/8 47/25 48/11 48/15 48/21 48/21 49/1 49/5 49/7 49/16 50/11 50/17 50/20 50/25 51/2 51/16 52/7 52/25 53/4 53/18 64/22 65/1 65/10 65/19 66/25 67/10 78/6 78/12 94/17 127/11 127/13 140/1 194/2 194/9 194/11 194/20 195/5 195/11 195/18 196/11 199/4 201/19 dataset [1] 195/4 datasets [2] 195/1 195/2 date [9] 1/20 29/2 48/7 88/11 102/12 103/18 105/12 123/4 148/24 dated [7] 64/20 80/1 85/16 150/16 177/3 177/5 200/20 dates [3] 63/15 125/5 172/4 David [4] 85/22 86/4 165/18 170/6 David Halpern [1] 170/6 David Nabarro [1] 165/18 day [29] 18/21 21/12 22/16 74/1 74/11 74/15 84/4 86/24 87/2 92/10 94/25 97/13 112/4 125/16 127/4 134/3 135/4 135/13 138/9 150/11 150/14 151/16 151/17 156/17 159/10 160/25 185/7 185/7 205/3 days [13] 7/18 18/19 33/13 42/18 51/25 93/17 95/4 97/6 127/6	128/6 149/8 152/25 167/5 DCMO [1] 21/13 deadlines [1] 104/22 deal [13] 107/16 120/20 129/15 151/11 161/13 177/2 178/17 178/19 178/20 187/16 189/22 195/7 195/8 dealing [10] 80/17 91/12 93/4 119/22 124/6 134/15 137/17 179/3 180/10 196/4 deals [3] 183/18 188/17 189/18 dealt [1] 110/15 Dear [1] 165/22 death [8] 55/19 58/15 58/16 89/3 89/4 174/7 174/9 194/3 deaths [15] 17/19 48/1 75/17 125/15 127/5 132/14 156/10 161/5 174/10 174/17 194/21 202/1 203/3 204/6 204/17 debate [6] 55/22 90/5 138/3 138/12 140/22 170/1 debating [1] 51/14 December [1] 74/14 December 2021 [1] 74/14 decide [1] 109/23 decided [3] 59/18 82/7 110/21 deciding [1] 145/25 decision [13] 42/18 47/20 110/7 120/4 123/2 123/7 133/5 137/7 138/16 143/8 145/3 157/25 197/12 decision-making [1] 197/12 decisions [5] 52/12 52/21 70/20 71/8 81/8 declaration [3] 62/10 80/2 144/2 declare [1] 143/6 declared [5] 143/10 143/21 143/25 156/20 156/22 decline [4] 51/14 51/18 146/13 168/6 deeply [1] 143/4 default [2] 46/13 46/20 defer [1] 109/9 defined [1] 30/5 definitely [4] 28/16 58/18 63/24 66/2 definition [3] 58/17 117/21 121/16 degree [9] 83/18 85/3
----------	--	---	--	--

D	detecting [1] 186/9	didn't [52] 3/16 11/13	24/20 66/9 100/24	68/19 165/25 166/3
degree... [7] 106/4	detection [1] 136/23	12/23 16/22 17/19	167/13 191/8	179/23 180/16 181/4
107/6 124/7 126/25	determine [1] 110/1	18/4 18/13 18/15	director [6] 5/11	199/17 201/9
145/24 146/17 164/18	determining [1]	21/21 33/15 33/16	80/13 125/23 143/1	distinction [3] 39/14
delay [12] 137/9	115/13	35/2 35/4 35/13 37/8	154/11 169/8	99/11 99/21
142/15 162/10 162/18	detriment [1] 103/19	38/23 44/25 45/19	director general [1]	distinguish [1] 82/5
163/4 163/7 166/14	develop [5] 161/3	48/6 48/6 49/13 49/25	143/1	distressing [1] 55/25
169/21 170/3 173/8	184/20 195/17 196/22	50/8 54/3 56/10 56/17	directors [1] 187/2	distribution [1] 83/5
175/8 203/9	200/14	60/18 62/20 62/20	disagree [2] 174/3	district [4] 135/23
delaying [1] 162/14	developed [5] 34/21	67/12 67/17 69/24	174/18	152/10 152/11 152/14
delays [1] 204/16	60/2 87/14 159/10	72/17 74/19 76/20	disagreed [2] 73/21	districts [2] 135/21
deliberate [1] 184/16	172/14	77/10 81/7 82/8 83/3	81/11	135/21
deliberately [1]	developing [7] 24/17	112/24 130/19 132/1	disagreeing [1]	disturbing [1] 143/4
192/25	28/20 93/19 136/9	141/10 149/12 149/23	57/15	divided [1] 17/21
delicate [1] 44/22	188/8 196/1 196/18	153/14 159/4 172/3	disapprove [1] 62/12	divides [1] 184/19
delineate [1] 89/14	development [1]	175/5 183/8 184/18	disaster [1] 174/10	do [112] 3/8 10/11
delineating [1]	80/6	187/1	disciplines [1] 83/10	11/8 11/12 11/13
109/23	Devi [1] 165/18	die [10] 8/24 55/24	disclosed [14] 97/25	11/22 12/14 12/19
demand [1] 120/5	Devi Sridhar [1]	58/10 124/7 130/12	98/20 98/25 102/3	14/11 14/16 15/2 17/9
demands [2] 116/14	165/18	131/14 131/20 142/9	104/25 107/18 110/22	20/25 21/4 22/14
120/1	devised [1] 178/2	165/1 174/8	113/6 119/5 119/6	24/15 25/25 27/23
dementia [1] 58/20	devotion [1] 83/21	difference [6] 20/1	119/10 120/6 122/6	33/21 37/4 37/21
Department [2]	DHSC [1] 179/8	40/13 40/16 58/12	171/12	38/17 41/3 41/12
133/22 155/15	diagnostic [3] 150/17	143/23 199/9	disclosure [4] 99/11	48/14 50/24 52/9
depend [1] 28/5	150/19 159/10	differences [1]	99/15 106/5 115/7	52/12 53/5 53/16
depending [2]	Diagnostics [1]	204/16	discover [1] 83/1	54/13 55/11 56/20
146/17 186/25	134/1	different [47] 4/2 5/2	discuss [2] 11/1 22/2	56/21 57/17 57/18
depends [2] 23/11	diagram [2] 94/2	7/12 9/11 12/7 17/6	discussed [12] 32/17	57/18 57/19 59/22
164/5	146/5	24/18 27/12 29/11	35/18 36/3 36/15 60/9	62/20 63/20 66/8 69/7
deploying [1] 134/17	Diamond [1] 148/8	37/10 37/14 39/5 40/2	65/10 68/15 71/12	69/9 69/17 69/18
deputy [2] 21/15 33/3	Diamond Princess	42/12 44/8 57/2 62/11	163/10 195/9 196/5	69/20 71/6 75/3 77/23
derogation [1]	[1] 148/8	77/25 78/13 85/6	203/25	83/16 85/1 90/20
106/10	diaries [1] 99/18	85/13 89/11 91/5	discussing [6] 11/2	93/22 94/2 94/12
describe [12] 23/19	diary [9] 110/12	92/15 117/20 146/9	21/22 36/15 38/9 56/6	98/19 101/20 104/3
24/3 24/10 25/5 37/3	116/19 117/12 117/13	146/15 154/22 172/12	197/10	105/2 107/3 107/13
55/9 56/25 138/16	118/4 118/9 118/14	174/15 178/7 179/19	discussion [12]	109/1 109/6 109/25
140/6 141/20 158/13	121/12 121/21	182/1 182/6 182/6	14/16 17/10 20/10	110/20 115/3 115/23
192/19	diction [1] 122/18	182/20 185/10 185/18	24/22 28/23 37/5	123/2 126/22 129/5
described [5] 43/19	did [82] 2/18 3/14	185/23 185/24 186/1	42/24 43/5 47/12	134/15 137/3 138/2
57/2 68/2 104/7	3/18 3/23 5/19 10/16	194/4 194/21 195/1	78/22 78/24 149/23	139/25 140/8 141/6
137/19	10/17 10/19 10/21	197/2 198/12 199/2	discussions [5]	141/18 142/12 146/23
describes [3] 4/15	11/12 14/7 22/8 22/15	differential [2]	144/5 183/6 184/11	147/23 150/24 152/8
97/10 100/24	32/23 34/20 36/4	185/25 198/4	184/19 184/25	152/20 153/6 153/16
describing [2] 44/12	38/19 40/2 42/9 45/10	differentially [1]	disease [11] 2/5	154/9 154/25 155/16
52/7	45/12 47/19 47/22	185/24	30/12 58/18 58/22	157/10 161/5 168/24
description [1] 9/15	50/11 52/6 57/16 58/2	difficult [18] 14/21	65/23 93/20 162/21	169/25 173/1 173/8
descriptions [1]	59/7 62/5 63/21 64/4	17/22 26/6 32/18	162/24 172/25 180/21	173/8 173/12 174/24
165/21	64/4 64/9 65/6 65/11	53/11 53/13 56/9	194/20	175/5 175/10 176/19
designated [1] 179/8	68/24 69/3 72/16	59/15 61/2 78/15	diseases [7] 2/14	179/22 179/23 181/1
desirability [1] 146/9	77/13 77/19 77/25	136/13 144/2 144/6	93/24 173/2 178/5	185/4 186/6 189/11
desire [1] 85/11	78/1 81/13 81/22	183/3 183/6 183/12	178/6 178/7 196/3	190/3 190/8 190/18
despite [4] 66/8 98/3	82/10 82/23 82/25	186/2 186/23	disgruntled [1] 122/5	194/23 195/5
125/25 204/12	83/8 86/21 88/13	difficulty [5] 102/8	display [4] 111/3	doctors [1] 151/22
detail [9] 4/9 5/18 6/9	88/16 88/25 89/20	103/24 107/6 169/18	112/20 113/14 113/15	document [19] 5/1
20/15 28/18 33/21	91/18 91/19 97/8	170/2	displayed [5] 96/18	7/13 7/16 11/23 22/19
43/1 92/18 194/2	99/16 111/23 125/20	dimensions [2]	111/13 112/23 115/18	28/23 85/14 92/25
detailed [3] 4/5 22/12	131/25 141/6 143/6	195/19 196/22	116/19	101/12 103/23 107/18
106/24	154/13 157/9 157/17	direct [2] 173/21	displaying [1] 112/3	111/21 113/13 115/9
detailing [1] 124/17	157/18 159/13 159/23	203/17	dispose [1] 117/10	119/23 162/9 162/10
details [3] 2/3 81/3	165/3 166/21 168/18	directed [2] 114/23	disproportionality [1]	162/12 167/3
149/11	168/23 170/8 171/24	140/8	55/14	documents [10]
detect [3] 16/13 88/7	182/15 184/1 190/5	directing [1] 45/5	disputed [1] 111/4	102/1 102/5 102/6
162/20	191/15 193/3 197/20	directives [1] 52/10	disruptive [1] 40/9	106/10 106/12 113/5
	199/23 203/11	directly [7] 8/17 8/21	distancing [9] 44/10	113/11 114/25 115/4

D	down [36] 4/18 10/13 15/18 17/25 18/2 20/2 26/16 28/14 33/1 40/14 40/15 41/4 41/7 41/9 41/12 60/23 71/14 71/16 76/11 76/12 77/17 77/20 81/10 95/16 102/22 108/23 127/25 128/2 128/4 128/8 132/11 139/9 139/11 140/13 141/4 160/24	130/20 147/13 157/10 194/6 dynamics [3] 42/1 77/19 77/24	165/15 Edmunds [8] 42/17 43/3 43/11 47/13 64/19 103/4 124/20 163/9 Edmunds's [2] 46/1 46/14 educate [1] 81/1 educated [1] 175/3 education [1] 85/18 educational [1] 68/21 Edward [1] 1/9 effect [8] 20/5 54/10 56/16 70/6 78/1 80/3 123/15 199/17 effective [13] 40/21 50/1 50/3 73/9 74/19 77/15 88/20 91/25 128/24 158/21 160/23 161/1 164/11 effectively [3] 142/6 159/9 163/1 effectiveness [2] 72/23 185/2 efficacy [1] 169/20 efficient [1] 91/9 efficiently [1] 89/21 effort [2] 16/9 16/11 eight [5] 95/3 103/5 108/12 122/3 136/2 either [12] 44/2 44/16 44/23 48/4 55/22 68/13 68/25 78/21 114/20 134/19 134/19 139/11 elderly [3] 58/7 58/21 59/14 element [4] 20/12 20/17 43/4 53/15 elements [2] 89/6 192/17 eliminating [1] 40/24 elimination [1] 90/1 else [11] 13/2 59/7 68/13 68/25 69/6 97/19 105/18 105/21 116/10 132/21 164/15 elsewhere [2] 9/22 13/10 email [33] 5/6 5/17 7/11 7/14 7/18 8/4 9/22 15/1 15/3 15/3 15/5 15/9 15/18 18/17 18/20 19/1 19/11 19/13 21/20 22/20 22/23 24/25 25/1 25/19 27/9 27/15 29/7 36/9 42/16 43/9 45/17 45/20 46/10 emailing [1] 43/11 emails [21] 4/11 4/13 4/21 10/3 11/21 14/16 15/14 17/9 18/18 19/8 23/4 24/12 24/16	24/19 28/18 29/4 32/10 32/14 33/3 35/18 45/22 emanating [1] 86/2 emerge [1] 42/15 emerged [1] 161/14 Emergencies [2] 81/21 82/16 emergency [4] 80/17 129/25 143/24 194/23 emerging [5] 2/14 10/25 126/1 130/9 130/10 EMG [5] 178/22 181/10 181/14 181/16 181/25 eminent [1] 83/9 eminently [2] 68/9 101/15 emphasis [5] 38/14 41/21 70/15 85/9 200/13 emphasise [2] 28/14 90/22 emphasising [1] 85/10 empirical [1] 178/10 employed [3] 152/2 152/23 177/22 employment [2] 177/21 195/15 empowered [1] 175/3 enable [3] 95/10 119/10 138/24 enabled [2] 91/25 95/13 enables [2] 91/9 124/5 enacting [1] 184/12 encapsulating [1] 29/17 encounters [1] 189/14 encourage [1] 107/4 encouraging [1] 172/19 end [34] 1/17 4/12 17/11 18/1 25/2 40/14 44/3 44/16 45/7 45/24 46/13 46/20 47/15 47/20 54/10 60/8 66/22 67/23 70/10 86/22 92/8 97/5 134/2 143/15 149/7 150/13 151/1 151/2 153/18 172/5 189/1 193/25 195/13 196/10 ended [10] 46/21 46/21 61/16 160/1 160/2 160/3 160/5 160/24 169/1 174/7 endemic [1] 42/4 endorse [1] 108/13
documents... [1] 165/11 does [28] 6/19 6/20 12/10 13/4 28/5 32/10 43/20 44/5 69/3 71/7 96/19 103/8 105/21 114/22 135/18 138/3 138/11 139/1 144/2 145/23 150/23 159/22 160/14 160/16 164/14 178/1 194/24 196/18 doesn't [10] 9/15 12/13 45/20 54/13 66/9 114/4 114/18 117/9 139/7 167/6 doing [14] 68/25 69/2 69/3 69/21 74/14 77/15 102/18 141/11 142/5 183/11 185/17 186/23 187/18 204/2 DOLAN [2] 109/19 207/2 doll [1] 106/17 doll-type [1] 106/17 domain [1] 118/12 don't [57] 1/13 14/5 14/15 15/19 20/15 30/11 31/7 31/8 32/2 32/24 35/6 37/4 40/12 43/1 50/14 54/13 55/23 55/23 62/15 67/8 69/6 69/14 71/15 71/19 76/11 76/11 78/15 85/7 85/7 86/7 92/12 92/13 94/5 95/14 108/17 109/4 109/16 113/4 121/12 123/5 128/6 145/12 146/2 153/21 155/5 155/18 155/19 163/24 166/21 167/16 167/16 167/18 175/11 175/15 186/11 186/12 195/2 done [25] 34/6 38/25 39/25 41/25 49/17 50/6 56/13 67/17 71/18 74/17 92/12 103/18 103/18 103/18 104/11 107/1 107/22 113/20 116/7 135/7 154/6 154/20 163/20 181/5 186/3 double [2] 4/17 66/21 double-check [1] 4/17 doubles [1] 132/21 doubling [3] 9/5 20/8 47/25 doubt [7] 28/19 52/22 65/5 65/14 102/20 105/3 147/24 doubts [1] 14/23	Dr [8] 125/24 129/22 129/22 143/14 156/17 167/8 167/13 168/12 Dr Gauden Galea [1] 125/24 Dr Peter Singer [1] 129/22 Dr Tedros [3] 143/14 156/17 167/13 Dr Tedros' [1] 167/8 Dr Tedros's [1] 129/22 drafted [1] 60/5 drastic [5] 39/8 41/13 50/6 71/15 76/5 drastically [1] 191/11 draw [6] 49/18 138/16 178/12 193/2 195/21 199/14 drawing [2] 23/21 168/10 drawn [2] 121/14 196/14 drip [1] 6/6 drive [3] 76/11 76/12 77/20 driven [1] 77/8 driver [4] 47/24 52/16 67/6 88/17 drivers [1] 86/11 driving [13] 65/22 66/1 66/6 66/9 66/12 66/15 66/19 67/14 67/23 77/16 88/18 146/14 198/3 dropped [1] 159/17 due [4] 63/6 117/15 179/8 182/9 dump [1] 97/5 duration [2] 61/14 202/23 during [26] 2/1 2/19 3/15 8/20 9/6 34/11 35/8 35/11 36/3 38/23 38/25 44/14 47/13 50/21 51/24 55/3 56/25 58/1 80/15 96/18 115/5 150/21 177/18 180/2 198/14 200/21 dwelling [1] 97/13 dying [5] 124/16	E each [8] 23/7 98/15 117/3 120/16 151/7 151/8 152/4 176/20 eagerness [1] 62/12 earlier [38] 15/3 16/16 20/7 21/22 24/6 24/16 24/19 26/3 26/5 27/9 32/4 35/17 38/10 38/19 39/7 39/20 42/10 50/6 50/7 51/19 52/8 70/5 71/15 71/22 75/25 76/5 90/8 130/8 137/15 137/19 148/14 169/1 173/14 181/4 196/13 196/15 202/3 203/5 earliest [1] 50/2 early [52] 14/3 14/21 17/11 26/7 33/7 33/13 38/8 39/2 39/18 40/3 40/7 40/10 40/12 40/15 40/17 41/10 41/13 42/2 42/7 44/14 58/3 63/12 63/21 71/19 74/21 74/25 76/20 79/12 95/15 128/6 132/23 134/4 145/14 155/24 158/20 159/3 159/7 159/15 162/20 168/1 168/3 168/15 172/25 188/20 194/5 194/14 194/18 199/8 201/22 203/14 203/15 203/22 early 2020 [1] 63/21 early-ish [1] 63/12 easier [2] 71/4 128/3 East [12] 89/3 89/15 89/18 90/7 91/16 129/13 141/11 142/2 145/3 145/12 147/16 174/8 East Asian [8] 89/15 90/7 91/16 129/13 142/2 145/3 145/12 147/16 easy [2] 78/14 105/2 Ebola [1] 143/12 echo [1] 176/23 economic [5] 68/20 75/19 91/20 160/2 160/7 economy [1] 203/4 edge [1] 55/5 Edinburgh [2] 2/6 2/12 Edinburgh's [1] 2/9 editor [2] 56/4		

E	26/19 168/8 180/15 182/4	116/18 118/10 118/17 122/21 127/25 132/12 161/3 183/7 200/6 204/1 204/12 204/15	91/16 93/16 156/1 164/23 165/7 166/18 173/1 201/21	expecting [1] 20/25 experience [8] 38/3 89/16 172/17 185/6 185/13 185/19 186/13 187/3
endorsed [1] 60/22 ends [1] 182/3 endure [1] 118/25 endures [1] 119/2 enforced [1] 59/14 engage [7] 28/7 31/24 33/2 81/2 110/4 119/9 121/3 engaged [5] 106/3 108/17 110/1 113/24 175/3 engagement [1] 117/23 engaging [1] 33/4 engender [1] 164/22 England [17] 64/23 67/11 71/12 92/4 126/6 135/5 135/17 135/18 135/19 135/21 135/25 136/5 151/4 153/3 160/6 181/21 194/15 enhanced [3] 58/5 58/6 75/14 enormous [1] 91/19 enough [10] 13/1 16/14 26/10 33/16 34/6 36/11 37/8 45/1 57/22 98/19 enquire [1] 112/11 ensuing [1] 147/17 ensure [1] 191/9 ensured [2] 162/4 189/8 ensuring [2] 88/10 152/24 enter [1] 124/3 entire [1] 113/7 entirely [7] 105/7 108/13 108/17 109/13 172/12 172/23 175/9 entirety [1] 160/11 entitled [2] 115/8 200/2 entity [1] 84/23 envelope [3] 9/19 20/13 36/10 environmental [2] 155/12 181/10 environments [1] 182/2 epidemic [22] 9/6 23/14 24/8 25/12 26/20 27/4 44/22 44/24 45/3 55/12 61/15 61/18 80/17 90/10 92/9 123/23 130/10 142/11 158/15 166/9 166/15 180/4 epidemics [2] 91/21 178/3 epidemiological [4]	epidemiologically [1] 169/23 epidemiologist [2] 7/23 199/15 epidemiology [11] 2/5 2/12 87/15 95/17 172/24 175/10 177/15 177/25 178/2 178/11 179/12 Equally [1] 176/20 equipment [1] 189/14 equity [7] 187/15 192/20 192/22 193/3 196/1 197/11 197/17 eradicate [1] 39/23 eradicating [1] 40/3 eradication [1] 90/1 error [7] 73/13 138/18 138/18 140/7 140/24 158/13 158/13 escaping [1] 30/7 especially [3] 75/21 81/2 169/4 essence [3] 106/4 118/2 149/25 essential [2] 54/7 77/14 essentially [3] 11/12 23/13 41/11 established [5] 3/25 34/25 99/25 127/21 159/9 estimate [6] 9/3 9/10 14/21 17/22 194/3 204/11 estimated [2] 128/17 144/14 estimates [6] 12/5 20/16 25/8 25/9 26/6 38/8 estimation [1] 31/25 et [4] 87/1 182/3 182/7 186/4 et cetera [4] 87/1 182/3 182/7 186/4 ethnic [9] 83/5 192/24 193/1 193/6 193/11 193/16 193/22 194/4 194/7 ethnicity [2] 195/2 196/7 ethos [1] 184/8 European [1] 98/9 evaluates [1] 80/9 even [33] 13/11 26/22 28/1 32/10 36/24 40/3 50/1 50/14 50/16 61/11 62/7 65/25 74/8 74/17 75/8 78/16 88/16 95/15 108/16 110/10 112/24	evening [7] 96/17 102/10 102/24 104/2 110/3 115/18 116/16 event [6] 22/2 24/2 47/12 107/11 117/10 135/14 events [3] 5/21 97/14 141/8 eventual [1] 204/16 eventuality [2] 6/18 132/24 eventually [4] 42/5 126/24 164/1 192/5 ever [1] 71/19 every [12] 53/15 56/11 64/4 98/15 115/9 128/19 152/10 172/18 172/25 173/1 175/4 178/19 everybody [2] 115/9 131/20 everyone [5] 41/19 73/23 156/23 159/23 205/3 everything [6] 6/5 69/5 81/10 151/19 165/1 174/3 evidence [89] 1/24 1/25 2/3 5/25 7/22 11/4 11/6 25/16 25/22 25/23 25/25 26/8 26/11 26/14 29/15 29/19 29/19 35/17 35/23 36/6 36/11 36/16 37/11 37/14 42/25 45/5 58/14 62/17 63/16 63/22 63/22 64/9 64/22 65/13 65/14 66/8 67/3 69/19 71/16 72/14 72/16 72/24 73/14 79/21 96/19 100/16 100/18 101/17 103/2 103/9 103/11 103/19 106/18 107/9 108/19 108/20 114/1 115/5 120/6 123/15 124/14 126/1 126/9 126/18 126/20 139/21 142/2 143/2 148/5 148/10 149/25 154/6 155/3 157/1 163/2 163/11 163/12 163/19 167/25 168/18 171/6 171/23 175/12 176/25 180/15 182/4 188/15 205/1 205/4 evidenced [1] 107/13 exactly [12] 71/7 78/23 90/16 91/2	exaggerating [1] 38/13 examination [1] 116/16 examined [1] 176/2 examining [2] 107/8 193/18 example [26] 13/6 21/19 35/14 58/23 71/9 82/12 84/4 102/4 102/12 118/14 153/19 164/6 173/9 174/1 174/11 175/13 178/4 183/6 186/2 188/11 189/13 190/19 195/1 198/13 200/16 202/8 examples [1] 179/15 except [2] 88/25 131/3 exception [2] 56/11 91/18 exceptional [1] 174/2 exceptionally [1] 101/22 excerpt [3] 116/20 117/3 117/7 excerpts [3] 117/16 118/4 121/11 excess [2] 75/17 174/9 exchange [5] 15/3 15/3 42/16 42/17 43/3 exchanged [2] 11/21 19/8 excluded [2] 27/8 27/14 exclusively [1] 58/18 excretion [1] 182/2 Excuse [1] 153/25 exercise [5] 9/14 106/17 119/16 120/23 122/10 exhaust [1] 99/17 exhibit [1] 187/25 existing [2] 19/11 153/3 expand [3] 34/23 48/13 68/16 expanding [1] 74/22 expect [2] 9/23 10/11 expectancy [1] 174/13 expectation [8] 98/21 98/24 99/17 118/1 119/1 119/12 119/14 120/20 expected [11] 10/4 10/23 121/18 121/19 121/22 123/21 124/24 139/23 146/21 147/1 201/17	experienced [3] 62/2 75/17 102/19 experiences [1] 90/9 experiment [1] 67/17 expert [6] 6/24 20/21 141/1 141/24 152/2 179/7 expertise [9] 68/12 83/6 154/21 172/17 179/12 183/16 183/20 184/6 199/15 experts [10] 10/20 71/5 82/3 87/14 133/4 136/1 142/10 153/24 183/24 184/3 explain [5] 48/14 86/21 93/3 192/20 203/14 explained [3] 18/8 89/15 118/6 explanation [2] 156/13 157/1 explicitly [1] 76/21 explicitly: [1] 69/13 explicitly: we [1] 69/13 explore [2] 40/19 131/13 exponential [1] 204/14 exposed [1] 63/19 exposures [3] 178/7 178/8 178/8 express [6] 31/12 48/9 54/2 109/21 122/16 201/11 expressed [5] 34/16 45/11 45/16 74/1 167/23 expressing [4] 8/7 28/20 34/11 70/18 expression [3] 95/21 119/17 122/12 expressly [2] 63/12 77/2 extending [1] 22/24 extent [14] 26/6 28/6 81/22 82/18 88/13 92/25 95/10 125/21 141/18 148/24 150/7 168/19 177/21 202/4 external [1] 130/2 extra [2] 103/14 107/6 extract [1] 103/16 extracts [3] 101/13 103/3 103/7 extradition [1] 119/24

E	100/13 143/8 196/9 196/11 200/25	35/8 35/11 36/6 36/17 37/3 37/7 38/4 38/21 39/11 39/13 42/2 44/14 92/9 125/5 142/2 144/8 144/8 144/19 145/14 145/18 146/18 148/7 148/23 150/16 151/2 151/4 151/13 151/15 155/20 155/21 171/24 172/6 174/22 196/17	fine [1] 47/11 finish [2] 24/24 170/12 firmed [1] 36/16 first [65] 1/4 4/22 15/7 19/4 23/8 24/25 27/15 29/23 30/2 30/5 30/6 33/10 34/14 40/14 42/18 43/12 51/17 61/9 63/9 63/13 64/25 68/7 73/25 74/11 74/17 76/2 76/10 78/21 78/24 84/4 86/24 86/24 87/2 87/9 87/23 88/20 96/10 102/24 109/25 117/25 124/13 125/11 125/17 126/11 127/5 127/12 128/4 135/10 140/14 160/1 160/24 162/14 173/13 173/15 173/25 178/16 179/3 189/4 193/8 196/4 196/10 197/1 201/7 201/23 204/12 first few hundred [1] 135/10 firstly [6] 72/14 89/15 91/9 117/9 123/18 177/2 five [6] 89/4 94/25 127/6 151/5 151/9 174/7 five days [1] 127/6 five-day [1] 94/25 flashing [1] 129/10 flatten [1] 44/12 flattening [2] 43/14 47/3 flew [1] 66/10 flow [1] 74/25 flowed [1] 181/14 flu [24] 16/3 16/25 17/1 23/20 24/9 36/24 37/22 37/25 38/8 77/9 77/9 92/22 92/23 92/25 93/7 93/11 132/5 133/6 137/15 137/17 141/14 142/11 157/20 164/11 flu-like [1] 24/9 fluent [1] 160/9 flying [1] 171/20 focus [8] 77/7 97/12 120/13 138/11 156/14 157/5 173/12 185/22 focused [5] 73/2 157/9 184/9 188/2 192/11 focusing [5] 8/11 9/9 141/22 173/18 187/23 follow [5] 45/10 88/23 114/5 136/13 162/20	extraneous [6] 100/25 112/4 112/20 113/2 115/15 115/24 extraordinarily [1] 201/19 extraordinary [1] 69/23 extreme [2] 51/20 179/25 extremely [12] 64/2 79/7 81/18 99/9 102/19 113/10 122/11 122/18 123/8 172/14 200/4 205/5	fairness [1] 104/10 fake [1] 130/5 fall [1] 49/13 fallacy [1] 140/24 fallen [1] 49/11 falling [2] 44/23 92/10 false [5] 134/14 134/19 134/20 134/21 134/25 falsely [1] 134/24 familiar [6] 1/14 64/20 85/25 120/12 122/18 173/3 families [10] 72/12 108/2 108/3 108/6 108/6 108/14 171/1 171/16 206/22 206/23 family [4] 98/8 127/18 127/22 128/3 far [10] 31/20 32/21 55/4 58/8 63/3 68/24 71/12 120/7 169/17 194/25 Farrar [18] 5/7 5/9 6/21 7/20 10/5 13/25 15/4 18/10 18/19 19/9 19/24 20/7 21/25 23/2 25/19 34/24 124/18 163/8 fashion [1] 44/7 fast [7] 90/16 109/11 127/3 127/7 142/3 145/5 147/9 faster [2] 25/13 122/20 fatal [4] 138/17 138/18 140/7 158/13 fatality [23] 8/12 8/22 12/4 12/25 13/5 13/5 14/17 17/17 20/3 20/10 27/20 38/9 38/15 124/5 131/8 131/13 131/17 131/22 131/25 132/2 132/8 132/9 132/22 fatigue [4] 167/23 169/4 169/9 170/1 fatigued [2] 168/4 168/16 favour [3] 71/2 108/20 201/15 fear [3] 33/9 38/5 45/4 feared [1] 38/2 fearing [1] 33/18 feasibility [1] 185/1 feature [2] 16/10 148/16 features [1] 122/9 February [39] 3/10 33/5 34/3 34/4 34/22	February 2020 [5] 34/4 37/7 38/4 39/11 39/13 February 2022 [1] 3/10 February 2023 [1] 196/17 February 3 [1] 174/22 fed [1] 3/14 feed [2] 6/6 198/23 feel [5] 10/17 10/19 10/21 35/3 98/2 feeling [2] 13/14 204/11 feet [2] 45/6 45/24 fell [2] 67/19 67/22 felt [14] 40/25 70/22 83/1 83/6 89/5 97/7 184/18 185/22 186/20 202/5 202/12 203/4 203/13 203/17 Ferguson [17] 7/14 7/20 10/5 14/17 18/19 19/9 19/24 20/7 21/25 23/3 26/3 34/25 46/24 47/1 94/1 103/4 146/6 Ferguson's [1] 13/19 few [9] 7/18 8/14 10/12 15/8 18/19 135/10 147/17 196/13 199/19 fewer [1] 156/8 field [2] 10/20 148/22 fields [1] 183/11 figure [6] 17/25 31/2 31/7 32/2 94/19 121/7 figures [2] 69/25 145/18 fill [2] 196/9 197/4 final [4] 63/7 133/5 197/11 199/13 finally [4] 2/11 3/22 67/25 87/2 financially [1] 138/25 find [9] 40/10 69/20 69/23 71/4 144/11 160/20 161/1 165/3 174/24 finding [2] 57/19 188/10 findings [2] 188/7 191/5	followed [7] 33/9 65/21 75/22 172/25 174/15 192/18 204/9 following [8] 35/6 81/6 100/19 120/24 125/16 137/10 150/24 194/1 food [1] 149/17 footage [2] 102/7 171/5 footing [1] 3/11 footnotes [1] 86/8 forced [1] 44/18 forcefully [1] 45/12 foremost [1] 173/13 forensic [1] 168/7 forever [1] 99/14 forgive [6] 11/9 19/15 32/23 160/11 180/12 200/9 forgotten [1] 96/4 form [7] 6/25 65/9 97/12 97/22 117/18 117/19 185/11 formal [2] 26/25 126/16 formalities [1] 177/2 formally [2] 126/13 177/11 formed [2] 35/10 201/11 former [2] 25/8 85/23 fortune [1] 43/22 forward [14] 6/11 7/8 22/18 38/21 61/8 85/12 89/24 90/13 113/1 113/20 144/5 162/14 164/24 173/11 found [3] 53/18 190/19 191/12 founder [1] 80/23 four [3] 102/23 125/14 187/11 fourth [3] 103/25 191/21 195/6 fraction [1] 101/24 frail [1] 58/7 frankly [1] 101/7 free [1] 59/24 freedom [3] 119/17 119/18 122/12 freely [3] 83/20 114/15 114/17 frequently [1] 164/13 fresh [1] 195/7 Friday [4] 25/2 29/6 86/14 108/9 friend [2] 7/24 110/14 frightening [1] 28/22 front [6] 29/8 69/19 69/24 144/12 177/4 201/5 frontline [6] 185/6
----------	-------------------------------------	---	--	---	---	--	--

F	generous [2] 168/21 168/25	41/10 42/4 42/20 43/8 43/10 48/8 53/22	132/12 134/16 134/22 134/24 135/9 145/15	71/5 74/3 81/19 81/21 81/23 82/3 82/16
frontline... [5] 187/17 187/24 188/3 188/13 198/1	genesis [3] 92/22 142/14 169/9	55/18 58/13 59/18 60/13 60/18 61/6 63/9	152/18 158/5 160/24 164/15 168/22 169/3	82/19 83/5 83/8 83/12 83/17 99/16 99/19
frustrated [1] 62/15	Geneva [1] 80/15	64/24 69/14 70/10 79/16 88/3 95/14	170/12 186/10 196/12 201/5 204/20	138/21 140/23 141/1 142/10 153/19 154/19
full [13] 1/8 72/1 79/22 92/19 97/22 98/6 104/16 104/21 113/25 176/13 176/16 177/18 182/12	genome [1] 16/17	106/20 111/1 122/25 127/8 128/7 133/20	government [58] 7/3 28/2 29/13 32/6 52/2	179/11 180/8 180/8 181/10 181/13 181/14
full-time [1] 177/18	genuine [1] 55/19	147/11 149/5 151/22 154/13 155/17 160/17	52/9 52/10 52/11 52/19 67/17 69/13	182/9 182/12 186/11 194/1
fullest [1] 108/20	German [1] 164/7	162/13 164/15 168/3 168/15 173/11 177/5	71/13 71/23 71/25 82/15 82/25 83/15	groups [26] 3/25 49/7 61/13 61/18
fully [6] 10/4 10/23 13/25 37/15 45/20 75/1	get [32] 9/3 26/6 43/1 50/11 55/15 57/4	192/25 198/16	83/25 84/13 84/22 85/5 85/21 85/23 86/3	117/18 118/23 129/14 145/3 146/24 180/24
function [1] 68/23	74/20 90/18 92/9 93/23 98/18 101/23	go hard [1] 40/7	86/10 86/18 87/19 88/5 88/14 92/23	183/5 185/10 185/11 185/15 185/18 186/1
functionally [1] 84/12	106/18 122/21 129/15 133/12 139/13 140/22	goal [1] 105/9	95/10 123/21 124/9 124/10 129/6 130/19	192/24 193/1 193/7 193/12 193/16 193/22
fundamentally [1] 90/8	142/3 143/18 143/20 149/15 152/12 155/24	goes [5] 8/19 39/12 39/13 102/8 151/7	135/6 135/25 145/23 146/22 148/11 149/3	194/4 194/7 196/7 200/24
funded [1] 192/7	164/8 164/12 168/4 168/15 168/19 172/4	going [94] 5/22 6/15 11/1 11/20 13/2 13/3	153/11 156/6 156/11 156/18 156/21 158/14	growing [3] 73/11 129/19 173/16
funding [1] 191/17	178/6 194/16	14/25 15/12 19/21 20/12 22/2 22/4 28/6	158/16 159/23 160/15 161/9 162/13 163/18	growth [1] 204/14
funds [1] 191/9	gets [2] 23/15 31/8	36/11 36/13 38/14 39/2 39/2 39/6 39/24	166/2 166/7 191/9 200/24	guarantee [1] 45/25
furlough [2] 160/4 169/2	getting [12] 9/4 11/12 17/7 23/16 52/20	40/4 40/6 40/7 40/8 40/9 40/17 40/18	government's [8] 4/3 81/20 81/23 88/8	Guardian [2] 86/22 119/25
further [22] 25/4 25/4 32/9 32/25 49/13	261/1 261/12 261/13 261/14 261/15 261/16	41/20 41/23 41/24 42/10 43/5 45/17 47/4	88/18 157/1 162/8 162/19	guess [1] 15/11
53/22 58/13 59/18 61/15 95/14 105/14 106/21 107/7 111/4 133/23 156/2 163/12 170/15 189/23 201/16 204/20 204/21	Ghebreyesus [1] 143/1	47/17 49/15 51/22 53/6 53/11 53/14	governmental [2] 7/1 59/12	guesses [1] 146/3
furthering [1] 99/5	give [19] 1/8 2/2 26/4 31/21 35/15 35/23	53/15 59/5 66/1 67/25 73/3 74/5 79/16 81/4	GPs [1] 152/22	guidance [12] 134/3 137/1 137/19 138/4
future [1] 178/15	42/25 49/1 56/2 57/9 73/7 73/20 75/15 84/4	86/7 88/22 88/24 92/16 108/24 122/17	Graham [2] 36/4 124/20	138/17 149/21 171/22 171/23 171/25 172/1 172/5 179/18
G	108/19 123/2 164/9 172/8 176/13	126/7 130/2 132/4 132/8 144/5 144/10	Graham Medley [2] 36/4 124/20	guiding [1] 149/22
gain [3] 86/8 164/2 200/16	given [24] 1/24 41/21 43/14 48/2 50/4 69/16	144/24 146/13 147/9 160/20 165/1 171/10	grant [1] 122/2	Gupta [1] 164/24
gained [1] 149/4	71/5 71/25 72/2 72/17 76/16 102/13 110/5	171/12 171/14 172/2 172/4 178/19 179/20	granted [1] 107/4	H
Galea [1] 125/24	118/7 118/18 119/23 120/7 120/21 146/18	180/4 183/4 184/1 185/18 186/5 187/10	graphic [1] 102/7	habits [1] 52/4
gap [4] 93/5 196/5 196/8 196/9	159/16 159/19 164/13 168/21 170/6	187/11 187/25 189/22 189/24 195/7 197/9	grateful [7] 96/14 102/15 175/25 179/20	had [152] 3/2 4/6 5/21 8/15 15/3 15/14
gaps [4] 147/4 196/2 197/3 197/4	giving [8] 7/22 22/25 27/20 27/21 31/24	198/17 198/20 198/20 198/21 202/9 204/1	199/13 204/18 204/24	16/17 19/3 19/3 19/23 20/6 20/10 20/22 21/6 21/23 23/4 23/25
gathering [1] 50/20	45/18 79/22 163/2	198/21 202/9 204/1 gone [4] 31/10 44/7	great [9] 62/9 62/13 64/6 83/20 85/22	25/10 25/19 27/10 31/2 35/10 38/1 42/9 42/12 45/10 47/12
Gauden [1] 125/24	Glasgow [1] 92/6	89/17 120/3 good [21] 1/4 10/22	120/24 131/2 165/23 168/19	47/20 49/11 49/19 49/21 49/24 51/13 51/15 53/23 62/16
gave [8] 1/25 17/13 37/11 37/14 72/24 83/20 106/2 124/20	global [8] 6/15 15/12 15/20 16/9 80/5 80/6	39/22 40/1 43/22 54/17 63/17 71/16	Great Barrington [1] 62/13	62/17 65/16 65/21 67/4 69/5 69/19 71/18 72/15 74/9 77/6 77/9
GCSA [1] 87/22	80/10 80/17	72/11 79/20 83/7 95/19 114/5 114/24	Great Britain [1] 85/22	77/21 81/4 81/6 81/10 86/14 86/16 86/18 86/25 88/12 88/16
GDP [1] 174/14	globally [2] 2/15 34/5	146/3 176/18 183/22 201/19	greater [3] 184/24 190/20 193/15	89/15 89/17 90/13 90/15 91/24 92/4 92/6 92/24 96/4 97/18 97/19 99/18 101/13
gender [1] 83/6	gloss [1] 99/19	Google [5] 48/18 49/7 50/11 50/25 51/1	greatly [2] 5/24 8/2	110/11 113/10 116/17 122/5 125/23 125/24 126/13 127/5 127/11 128/12 131/3 132/2
general [5] 33/23 89/20 120/11 143/1 184/18	go [88] 4/13 4/20 4/22 4/25 5/4 6/8 6/11	62/12 62/24 65/14 81/4 92/10 93/11	Gregor [1] 21/14	
generally [2] 64/5 127/21	7/10 7/12 7/13 7/16 9/20 10/13 11/7 13/21	93/22 93/23 94/6 94/23 94/24 132/10	Gregor Smith [1] 21/14	
generate [1] 151/10	14/5 14/16 14/25 15/2 15/7 15/20 18/16		grim [1] 67/16	
generated [1] 157/21	18/25 21/10 22/18 23/10 24/24 25/25		grip [1] 44/3	
generates [1] 151/9	26/16 29/9 30/17 33/3 36/20 37/18 39/6		gross [2] 9/5 20/5	
generating [1] 151/6	39/18 39/18 39/18 39/20 40/7 40/7 40/7		ground [4] 95/17 141/20 151/20 152/23	
generation [1] 25/7	40/12 40/12 40/15 40/15 41/10 41/10		group [39] 2/12 3/23 4/1 4/3 56/24 62/3	

H	85/16 94/6 111/13 170/17	56/6 56/7 72/24 73/14 86/5 97/7 97/8 97/8 97/9 97/10 97/10 97/18 97/23 98/22 99/18 99/21 104/12 104/14 104/20 104/23 104/24 104/25 105/7 105/8 105/10 106/7 118/7 118/17 121/7 121/19 121/22 132/10 132/10 143/13 148/13 154/14 163/2 168/13 170/7 170/8	healthy [1] 64/1 hear [8] 2/17 3/23 28/5 39/1 55/25 72/16 109/5 126/9 heard [22] 2/25 3/13 3/17 9/10 12/6 39/1 39/4 43/16 58/14 70/7 70/8 70/23 92/7 100/17 122/23 148/9 153/17 167/25 170/9 179/6 180/9 181/9 hearing [3] 100/22 119/25 205/10 hearings [5] 2/1 99/7 105/2 114/2 115/16 heart [3] 77/5 116/12 119/3 held [8] 66/2 66/4 86/16 102/1 118/5 118/21 149/8 149/9 help [15] 16/4 20/11 21/17 25/23 37/2 79/9 152/17 152/23 175/25 185/12 188/16 199/22 200/17 202/13 204/22 helped [2] 82/3 97/12 helpful [7] 33/22 69/12 78/25 79/7 100/23 105/16 123/9 helping [1] 168/11 hence [2] 131/17 164/2 her [13] 19/3 19/4 20/23 21/4 21/10 21/13 22/10 22/25 27/24 33/2 72/25 171/25 174/18 her Ladyship [1] 72/25 herd [8] 163/14 163/22 164/2 164/12 164/14 167/6 167/12 167/18 here [36] 2/1 7/18 11/4 17/10 19/21 20/4 20/13 22/23 24/3 24/15 24/18 27/11 29/23 37/25 38/2 43/19 43/20 46/19 47/4 61/25 62/24 72/7 75/16 98/17 100/18 108/25 109/24 111/2 114/22 119/22 129/8 141/19 151/19 170/7 177/14 195/15 Hickel [1] 165/19 high [20] 13/8 13/10 14/24 32/1 38/10 38/10 61/12 75/17 91/1 98/13 131/9 173/9 188/7 188/11 188/25 191/12 200/21 201/25 202/21 204/3 High Court [1] 98/13	high-risk [1] 173/9 higher [11] 13/11 14/18 25/9 27/19 27/19 27/20 144/15 189/3 190/22 190/25 194/7 highest [1] 121/3 highly [2] 103/6 186/15 Hill [4] 96/10 96/13 105/16 206/16 him [14] 5/19 6/4 6/5 7/4 15/5 15/9 15/21 36/5 46/11 104/12 104/17 114/9 115/20 171/15 himself [2] 143/14 167/13 hindsight [1] 48/10 his [34] 6/23 7/8 13/22 15/23 35/10 39/3 72/15 72/16 72/17 72/24 73/2 73/21 75/20 97/4 97/6 97/9 97/24 99/17 99/17 99/19 100/23 101/8 104/14 104/20 105/12 107/14 110/11 115/17 118/2 118/16 118/18 121/5 122/7 170/6 hit [5] 45/25 92/2 92/6 161/12 162/5 hitherto [1] 86/16 HIV [2] 94/3 94/4 hm [1] 186/14 hold [4] 37/16 40/1 155/18 162/21 holding [3] 22/9 45/6 45/24 holidays [1] 202/10 home [19] 54/11 54/17 77/21 138/7 186/4 187/13 189/19 190/1 190/24 191/7 191/12 191/13 198/5 198/6 198/7 198/9 198/15 199/9 199/11 homes [17] 76/15 76/21 77/17 77/24 78/13 78/20 173/10 175/1 175/13 189/21 190/9 190/11 190/14 190/19 190/21 190/24 191/10 Hong [2] 148/14 166/11 Hong Kong [2] 148/14 166/11 hope [7] 7/15 14/2 53/7 98/1 109/22 128/8 180/11 hoped [2] 6/4 21/4 hopefully [1] 57/24
----------	-----------------------------	--	--	---

H	128/21 143/3 143/3	I don't [24] 14/5	157/18	79/16 80/15 82/9 87/5
hoping [3] 20/25 57/8 73/1	humans [3] 125/22 125/22 127/21	14/15 30/11 31/7 31/8 32/2 32/24 35/6 37/4 43/1 50/14 62/15 69/6 71/19 78/15 85/7 85/7 86/7 92/12 92/13 155/18 155/19 175/11 175/15	I never [2] 27/22 31/17	87/12 87/24 90/14 90/21 94/16 94/19 111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
Hopkins [1] 174/6	hundred [2] 135/10 155/14	I echo [1] 176/23	I personally [1] 33/18	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
horrible [1] 91/23	hung [1] 57/4	I expressed [1] 45/11	I pointed [1] 35/19	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
Horton [1] 165/15	hurry [1] 21/8	I fail [1] 166/14	I put [2] 44/20 81/11	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
hosepipe [2] 45/6 45/24	hybrid [1] 16/2	I fear [1] 45/4	I quite [2] 26/13 165/24	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
hospital [5] 76/21 77/22 131/9 188/4 195/4	I	I felt [5] 184/18 185/22 202/5 203/13 203/17	I quote [3] 94/1 97/11 106/3	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
hospitalisation [2] 193/19 193/20	I actually [1] 32/3	I find [1] 69/23	I raise [1] 17/15	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
hospitalisations [6] 48/1 194/21 202/1 203/2 204/5 204/17	I agree [1] 46/6	I first [2] 19/4 74/11	I raised [1] 180/5	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
hospitalised [2] 193/23 193/24	I already [1] 62/22	I fully [2] 10/4 10/23	I read [2] 145/6 170/6	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
hospitals [6] 76/16 77/18 78/20 156/15 157/5 157/9	I also [1] 203/16	I gave [3] 17/13 37/11 37/14	I recall [1] 86/22	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
hosted [1] 171/3	I am [9] 1/16 2/7 2/10 11/20 33/24 56/11 56/12 72/17 123/2	I have [13] 1/22 13/12 62/14 66/17 95/21 95/22 105/18 123/7 171/9 173/14 177/8 189/19 204/21	I referred [1] 154/12	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
hostspot [3] 92/11 151/22 157/22	I apologise [4] 11/5 45/5 116/23 122/19	I heard [1] 170/9	I remember [3] 31/12 39/17 181/22	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
hotspots [3] 92/2 92/3 92/4	I ask [2] 72/11 170/25	I help [1] 188/16	I repeatedly [1] 37/8	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
hour [3] 2/21 13/20 14/12	I asked [1] 160/14	I helped [1] 82/3	I represent [1] 171/17	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
household [1] 90/24	I became [1] 62/15	I had [9] 5/21 20/22 21/6 42/12 74/9 81/4 81/6 96/4 187/7	I right [5] 15/10 189/7 192/2 192/15 196/25	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
households [2] 128/4 186/4	I beg [5] 36/13 48/25 66/23 130/7 154/1	I have [13] 1/22 13/12 62/14 66/17 95/21 95/22 105/18 123/7 171/9 173/14 177/8 189/19 204/21	I said [12] 24/6 24/19 26/5 28/10 28/10 31/18 32/4 38/5 41/22 54/3 71/7 169/1	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
how [68] 8/20 8/23 14/24 17/20 22/8 25/24 28/6 29/20 31/4 42/12 50/1 50/1 50/23 53/6 53/11 53/13 53/14 55/25 59/22 66/14 68/16 69/6 69/14 69/22 69/25 94/4 96/17 96/19 97/7 101/22 102/13 102/14 104/3 105/3 106/23 110/5 124/6 124/7 129/15 129/15 131/1 131/1 131/2 132/20 132/21 148/19 151/14 166/14 178/4 180/19 180/25 182/1 182/3 182/5 185/4 185/13 185/17 185/23 185/25 186/1 186/4 186/5 191/5 197/12 200/12 200/16 200/21 201/21	I believe [7] 7/2 19/4 27/15 74/24 155/12 157/17 170/15	I heard [1] 170/9	I thought [6] 26/14 30/15 32/19 132/9 179/25 201/7	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
however [8] 26/19 46/6 61/4 85/2 85/3 101/24 104/10 164/13	I call [2] 74/2 176/5	I heard [1] 170/9	I understood [1] 36/5	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
huge [4] 11/15 149/19 166/15 174/10	I came [3] 52/15 66/18 109/5	I heard [1] 170/9	I used [3] 12/24 20/17 45/4	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
human [16] 98/9 119/19 124/17 124/17 125/21 125/21 126/2 126/2 127/9 127/9 127/17 127/17 128/21	I can [12] 28/2 57/9 58/23 67/16 67/16 68/8 105/14 109/14 155/17 172/5 188/1 197/15	I heard [1] 170/9	I valued [1] 6/23	111/23 122/15 127/13 127/24 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 180/6 181/3 181/3 181/5 181/22 182/8 182/17 183/2 183/12 184/5 184/16 185/7 185/15 186/20 187/1 187/18 188/10 188/14 189/12 189/15 190/15 191/8 191/14 194/19 196/11 196/20 197/2 197/22 198/6 198/25 199/5 199/7 199/25 200/23 202/15 204/7 204/12 205/1 205/6
	I cannot [1] 78/21</			

I	88/22 141/25 168/8	176/20 177/2 177/4	15/6 18/9 19/18 20/23	180/3 198/22
I will [4] 40/5 108/14	ideal [1] 164/11	177/10 178/2 181/22	24/4 26/12 39/14 43/4	incredibly [2] 50/19
123/2 176/19	ideally [2] 136/22	182/22 184/7 184/10	43/6 47/14 52/16	165/23
I won't [2] 96/15 98/6	166/23	185/16 186/10 187/21	57/25 59/6 61/5 65/13	incubation [4] 91/1
I worked [1] 152/12	identifiable [1]	190/15 191/2 191/2	66/24 77/16 90/21	93/16 93/18 94/24
I would [28] 8/2 9/23	121/11	195/13 195/21 195/22	90/21 93/4 100/9	indeed [14] 11/20
12/20 29/20 32/21	identified [2] 59/19	196/11 202/19 202/23	119/20 121/2 122/11	79/3 79/4 105/17
40/1 56/17 76/5 107/2	190/12	204/8	128/2 140/19 152/24	107/25 116/9 118/6
107/20 109/9 124/14	identify [6] 47/7	If we [1] 168/3	155/2 189/17 189/21	147/16 152/16 175/19
125/4 144/25 145/2	135/10 138/1 152/4	ignores [2] 99/20	191/8 198/17 198/22	175/22 188/1 194/5
147/18 153/17 154/23	190/10 197/3	99/21	198/25 199/1 199/3	194/17
170/5 170/9 170/11	identifying [2]	ill [1] 130/12	199/5 199/10 199/25	indefinite [2] 41/17
174/16 175/5 178/10	106/25 196/5	illness [1] 134/5	201/24 202/6 203/13	41/19
180/25 183/2 196/8	ie [1] 182/5	illustration [1]	203/16	independence [1]
203/24	if [182] 6/11 8/4 8/10	176/18	importantly [2]	83/19
I wouldn't [2] 9/19	8/19 9/2 9/13 10/9	immediately [3] 21/6	138/23 149/16	independent [36]
32/2	10/13 11/5 11/24	28/12 78/14	importation [1] 175/2	33/25 80/23 80/25
I wrote [2] 56/5 81/9	12/13 12/17 13/2	immense [1] 104/18	impose [1] 42/18	81/1 81/19 81/20
I'd [14] 5/22 18/21	13/14 13/15 13/19	immensely [1] 97/6	imposed [7] 47/21	81/24 82/7 82/8 82/20
21/3 35/17 60/4 72/20	14/15 16/4 16/13	immunisation [1]	53/20 53/23 53/25	82/21 82/22 82/23
74/1 122/25 155/17	16/22 16/22 17/22	82/3	54/15 54/16 67/18	83/4 83/17 83/22 84/3
178/8 178/20 180/11	20/1 21/24 23/25 24/5	immunity [15] 61/13	imposition [2] 166/2	84/5 84/12 84/19
186/20 190/12	26/16 28/25 29/9	163/14 163/23 164/2	170/4	84/20 84/23 85/2
I'll [5] 43/24 73/7	29/22 30/14 32/10	164/2 164/6 164/9	impress [2] 86/2 96/2	85/15 85/24 86/1 86/9
75/15 109/1 109/16	32/19 32/23 33/23	164/11 164/12 164/14	impression [4] 21/7	87/9 87/12 88/13
I'm [89] 1/14 7/8 11/4	36/19 37/4 37/18	164/14 164/19 167/6	32/12 77/4 86/8	88/17 141/23 143/17
12/18 14/7 14/25	38/15 40/11 41/8	167/12 167/18	impressive [2] 16/9	149/5 154/19 168/11
15/10 19/21 22/22	42/20 46/1 47/9 47/17	immunology [1]	81/18	Independent SAGE
26/2 30/14 32/6 34/16	50/4 50/6 50/7 52/17	87/15	impressively [1]	[14] 80/23 80/25
35/11 36/12 36/12	52/23 54/14 55/1 55/6	impact [15] 41/6 54/5	160/9	81/1 81/19 81/20
37/7 38/5 39/6 40/4	55/17 55/17 55/23	139/22 140/2 141/5	improve [4] 105/9	82/22 83/17 85/2
46/19 47/4 47/7 47/10	56/16 60/13 61/6	149/1 149/2 179/1	184/15 185/12 195/10	85/24 86/1 87/12
50/12 51/5 57/15 59/5	61/11 64/2 64/18 66/6	189/11 189/12 191/15	improved [1] 197/13	88/13 88/17 168/11
60/15 62/7 63/2 65/9	67/12 67/16 67/16	196/6 203/2 203/4	inaction [1] 157/19	Independent SAGE's
66/3 67/25 70/25 73/1	68/8 69/13 69/18	203/9	inadequate [1] 74/9	[1] 87/9
73/3 73/23 77/4 78/12	70/10 70/13 71/4	impacted [4] 30/20	incidence [1] 158/17	index [2] 135/8
78/23 79/4 79/20 84/7	71/18 75/8 75/13	38/3 38/6 197/12	incidentally [1]	205/12
90/7 95/24 105/25	76/11 78/3 78/7 79/6	68/14 75/18	112/25	indicate [2] 127/24
107/24 108/7 108/23	86/20 88/1 88/2 90/23	Imperial [3] 7/24	inclined [2] 31/21	138/12
108/23 109/1 109/10	91/11 91/12 92/6 92/8	84/18 128/16	31/22	indicated [5] 108/9
109/11 109/13 109/15	93/4 93/11 95/11	Imperial College [2]	include [2] 100/8	128/21 163/3 169/22
126/7 136/11 144/10	95/15 96/9 97/8 103/6	7/24 128/16	100/10	187/19
146/13 146/14 147/20	103/16 103/17 103/22	impinged [1] 103/20	included [3] 68/23	indicating [1] 1/18
150/24 151/2 153/23	104/4 104/4 107/4	169/22 170/3 201/14	179/17 188/5	indication [1] 124/13
154/2 159/6 159/6	107/12 108/8 108/16	implemented [1]	includes [1] 114/10	indicator [1] 50/3
159/15 160/8 162/16	109/11 109/14 110/10	76/7	including [11] 2/14	indicators [1] 26/20
171/13 171/14 172/4	110/25 112/16 112/24	implements [1] 80/9	2/17 27/3 55/21 83/11	individual [3] 100/6
175/25 176/8 178/19	113/10 114/22 118/17	implication [3] 139/3	89/9 100/18 101/17	117/16 121/10
179/19 179/20 184/1	122/20 123/4 123/16	140/12 166/10	172/18 200/8 200/12	individual's [1]
186/9 187/10 187/18	126/16 127/8 127/21	implications [1]	inclusion [1] 196/1	113/18
189/24 196/23 197/9	127/25 128/3 128/8	144/3	income [1] 172/19	individually [1] 117/4
199/13 204/18 205/3	129/18 132/12 132/22	implied [2] 36/9	inconvenience [1]	individuals [6] 16/2
I'm afraid [6] 47/7	133/20 133/25 136/8	128/22	116/2	48/19 126/20 134/6
63/2 78/23 108/23	137/10 138/2 138/19	implies [1] 38/22	inconvenient [1]	145/22 153/21
109/15 162/16	139/15 143/23 143/23	implying [1] 91/24	116/6	induces [1] 164/5
I'm not [2] 7/8 179/19	144/19 144/20 146/2	importance [14]	incorporate [1] 20/15	inducing [1] 164/10
I've [13] 5/1 6/15 7/9	146/4 147/20 152/11	17/17 105/8 119/18	increase [4] 55/19	industries [1] 198/2
8/1 11/5 68/1 71/14	153/17 153/18 154/23	120/14 120/25 179/25	129/2 143/2 201/18	inequalities [7] 185/3
137/7 153/17 173/20	157/7 159/22 160/18	190/13 192/12 196/21	increased [3] 61/5	185/5 185/13 195/19
186/10 203/7 204/20	161/3 162/13 163/18	197/25 198/7 198/15	150/21 191/19	195/20 196/21 200/17
idea [12] 39/1 39/17	163/24 164/6 168/3	199/8 203/21	increases [1] 202/1	inequality [1] 196/6
45/3 47/19 54/25 55/2	168/15 168/19 169/3	important [44] 13/4	increasing [2] 6/16	inevitable [2] 129/7
67/14 81/15 88/9	170/20 172/5 173/15		201/21	201/8
	174/11 174/13 174/15		increasingly [3] 6/6	inevitably [1] 144/22

I	87/10 97/10 110/2 111/4 112/5 112/10 114/8 179/20 192/3 193/14 194/17 194/25 195/3 199/8	inquiries [1] 100/11 inquiry [58] 1/7 1/11 1/25 7/23 35/6 72/16 79/19 97/20 97/22 97/24 98/16 99/5 101/20 102/2 102/12 102/25 103/8 104/12 104/18 104/21 105/7 105/11 106/9 106/23 107/21 108/16 108/18 112/22 113/8 114/1 114/24 115/1 115/10 115/20 116/2 116/2 116/11 117/1 117/15 118/8 118/8 118/18 119/7 120/9 121/20 123/12 130/8 140/7 148/9 155/2 167/25 176/12 189/22 206/5 206/11 207/4 207/8 207/15	interpretation [1] 10/24 interpreted [1] 134/7 interrupt [3] 84/7 122/21 160/8 interval [2] 95/1 95/1 intervals [1] 94/21 intervening [2] 203/22 204/4 intervention [11] 40/9 40/11 44/6 73/18 74/19 159/20 173/6 203/5 203/6 203/14 203/15 interventions [16] 44/10 56/15 57/17 76/5 76/6 76/12 88/24 168/7 170/4 185/1 185/23 186/5 198/8 198/10 200/15 200/15 interview [1] 124/20 interviews [1] 203/24 intimately [1] 85/25 into [33] 6/8 20/4 23/16 33/6 42/4 43/1 44/18 44/23 55/18 57/21 67/21 69/14 78/24 81/12 92/21 111/20 112/11 115/4 120/16 140/22 145/13 146/1 147/2 147/12 150/3 151/8 173/8 181/23 190/1 195/22 196/20 198/23 202/15 introduce [2] 5/18 181/4 introduced [9] 49/12 49/21 49/25 50/3 75/23 78/24 132/16 202/21 202/24 introducing [1] 203/10 introductions [1] 23/9 introductions/outbre aks [1] 23/9 intrusive [4] 100/5 101/4 101/6 104/8 investigator [3] 2/11 190/1 192/1 invitation [2] 146/13 160/9 invited [3] 154/25 189/19 203/7 involved [11] 46/16 82/1 178/23 179/16 181/12 181/18 183/20 184/4 191/24 198/1 201/2 involvement [3] 182/10 182/25 184/24 involves [1] 101/11 Ireland [4] 85/22 108/3 108/7 206/23	irrelevant [6] 111/7 111/12 112/9 112/10 115/14 121/24 irreversible [1] 6/3 is [545] ish [1] 63/12 isn't [11] 46/5 47/18 83/25 86/13 137/24 157/14 157/24 161/8 193/16 201/2 202/25 isolate [19] 16/14 85/11 90/23 124/24 138/2 139/18 141/6 147/2 149/16 149/17 150/4 158/21 159/1 159/16 159/21 160/21 161/2 161/17 174/25 isolated [3] 138/24 152/25 152/25 isolating [1] 149/19 isolation [21] 59/14 73/9 73/16 90/23 91/14 92/20 95/11 123/18 129/17 133/23 138/6 142/4 144/18 145/10 151/8 166/22 167/2 168/21 168/23 169/5 185/17 issue [24] 51/14 66/25 70/25 73/2 110/15 111/2 111/8 111/12 111/16 112/7 114/12 116/12 117/10 117/25 130/24 136/20 145/2 158/15 163/16 164/3 180/5 183/3 187/4 194/17 issued [4] 125/7 128/16 144/10 204/9 issues [7] 109/23 136/12 183/19 185/16 190/17 196/5 196/14 it [562] it's [134] 1/13 4/15 4/16 7/10 7/11 7/14 8/5 8/8 8/21 9/18 9/21 9/25 10/3 10/9 10/22 11/6 12/11 12/14 13/10 13/22 14/18 14/20 15/5 17/4 17/13 17/14 17/18 18/25 19/1 19/7 19/8 19/10 19/22 20/12 21/11 21/14 22/19 22/19 22/20 26/2 27/10 27/12 27/13 28/6 28/8 28/13 28/24 29/3 29/4 30/6 30/9 32/10 36/13 39/14 39/15 40/8 40/21 41/3 43/2 45/25 47/18 54/14 55/20 56/20 56/21 57/25 58/2 58/2 58/3 64/14 64/20 64/21 66/16
infect [7] 93/7 93/14 94/9 128/19 128/25 132/21 137/21 infected [18] 8/20 8/24 64/12 64/15 65/15 65/20 67/4 93/6 93/19 130/16 130/17 130/21 131/20 137/21 151/7 152/4 164/25 189/3 infecting [1] 125/22 infection [42] 8/19 9/4 23/23 42/5 58/10 64/8 74/5 74/7 76/10 77/8 123/14 123/17 123/22 124/1 124/5 124/10 128/2 131/22 131/24 132/2 132/8 132/22 135/9 136/22 136/25 137/13 139/4 148/17 161/4 187/17 187/24 188/3 188/15 190/23 191/1 191/4 198/3 198/4 200/5 201/20 202/22 202/24 infections [10] 17/21 94/4 94/5 125/14 127/17 178/8 179/13 197/6 197/7 201/24 infectious [6] 2/5 2/13 16/1 16/5 58/22 126/21 infects [2] 93/13 132/14 inference [1] 49/18 inferences [2] 178/12 193/2 inferred [2] 190/22 191/1 infinite [1] 173/16 infirm [1] 58/7 influence [1] 37/21 influenced [2] 49/15 191/13 influenza [28] 13/6 13/6 13/7 26/22 30/24 31/11 31/15 31/17 31/19 36/23 37/12 37/17 53/3 77/5 77/6 77/7 88/23 89/12 91/2 94/2 136/25 137/10 137/13 138/5 138/17 139/3 140/14 150/21 influenza-like [1] 31/19 inform [1] 98/1 informal [2] 4/4 59/22 informally [1] 74/2 information [22] 6/7 10/25 22/11 25/4 49/2 50/19 86/21 87/7	informed [3] 53/3 151/5 180/6 informing [2] 184/17 199/6 infrastructure [2] 90/14 90/14 infrastructures [2] 172/13 172/14 infringement [1] 112/15 inhibit [2] 100/20 104/1 initial [4] 15/2 15/9 190/4 190/9 initially [4] 61/12 82/6 181/20 196/8 initiated [1] 42/23 injustice [1] 123/16 input [2] 78/12 184/5 INQ000051925 [1] 150/15 INQ000056226 [1] 28/25 INQ000057492 [2] 133/7 150/9 INQ000061570 [1] 60/12 INQ000103227 [1] 7/13 INQ000103343 [1] 42/20 INQ000103349 [2] 4/22 15/8 INQ000103352 [1] 18/23 INQ000109142 [1] 169/13 INQ000207121 [1] 64/18 INQ000230014 [1] 85/14 INQ000237322 [1] 162/11 INQ000249693 [1] 88/2 INQ000257925 [1] 72/21 INQ000268213 [1] 167/5 INQ000268222 [1] 142/25 INQ000281260 [1] 79/25 INQ000282428 [1] 165/14 INQ000303290 [1] 125/6 inquest [2] 111/7 112/6	inquiry's [4] 98/7 99/1 104/22 118/13 insight [2] 185/21 191/16 insights [2] 169/7 200/16 insofar [1] 84/22 instead [3] 56/13 152/17 202/15 institute [6] 2/8 5/10 7/3 80/6 80/9 154/11 institutions [2] 53/15 77/18 instruction [1] 54/11 intend [1] 109/20 intended [3] 30/11 70/17 97/18 intense [6] 120/13 189/5 200/8 202/21 202/23 205/4 intensely [1] 104/20 intensive [2] 166/7 193/25 intentioned [1] 141/1 interest [6] 74/9 100/11 106/4 108/15 121/2 121/17 interested [2] 40/10 111/25 interesting [3] 79/8 156/17 205/5 interests [3] 100/6 100/7 100/8 interference [12] 98/7 100/4 106/5 111/4 112/11 112/14 112/16 112/17 113/17 118/2 120/16 122/7 internal [3] 15/14 130/1 143/9 international [4] 16/19 129/25 143/24 144/3		

I
it's... [61] 72/21 73/1
73/2 73/5 73/7 73/13
75/13 78/9 85/15
85/16 85/17 86/13
88/1 91/5 91/22 93/11
93/19 93/23 94/23
95/21 98/17 98/19
102/1 102/7 102/8
103/18 104/10 106/14
106/19 106/22 107/8
113/12 113/15 113/20
114/18 115/10 116/4
126/9 130/2 133/13
139/3 142/20 143/14
143/14 143/16 144/6
155/1 155/24 164/7
169/24 170/14 171/16
171/18 172/10 172/11
177/4 177/13 181/3
189/21 195/13 195/14
its [35] 3/10 4/4 34/3
34/19 48/20 61/14
68/9 69/12 70/15 87/8
88/7 90/24 90/25 91/1
105/8 108/20 118/8
125/17 128/17 132/19
132/22 142/12 142/19
143/12 158/19 158/25
159/13 162/13 169/8
170/1 172/10 181/24
183/16 187/14 188/9
itself [7] 81/19 86/2
117/13 136/20 158/5
174/1 200/13

J
January [42] 3/4 3/6
3/7 4/12 5/7 5/22
16/16 17/12 19/4 25/2
29/3 33/14 34/21
35/20 35/21 36/15
85/17 88/22 94/8
94/18 124/15 124/19
125/5 125/7 125/10
125/13 125/16 125/19
126/5 126/11 126/22
127/12 128/12 129/5
129/24 133/11 142/9
142/25 143/7 143/25
150/10 153/18
January
20-something [1]
35/20
January 2020 [4] 3/4
4/12 17/12 94/8
January 20th [1] 3/6
January 24th [1]
94/18
January 28 [1] 142/9
January 28th [1]
88/22
January 8th [1] 5/22

Japan [3] 148/18
166/11 174/12
Japanese [1] 148/11
Jason [1] 165/19
Jason Hickel [1]
165/19
Jenny [3] 171/4
171/21 172/9
Jenny Harries [3]
171/4 171/21 172/9
Jeremy [21] 5/7 5/9
6/21 7/20 10/5 13/25
13/25 15/4 16/25
18/10 18/19 19/6 19/9
19/24 20/7 21/25 23/2
25/19 34/24 124/18
163/8
Jeremy Farrar [16]
5/7 6/21 7/20 10/5
13/25 15/4 18/10
18/19 19/9 19/24 20/7
21/25 23/2 25/19
34/24 124/18
Jeremy's [1] 7/7
jet [1] 45/5
Jinping [1] 143/20
job [2] 49/17 152/8
jobs [1] 186/3
John [6] 1/9 43/11
66/4 67/9 124/20
163/9
John Edmunds [3]
43/11 124/20 163/9
Johns [1] 174/6
Johns Hopkins [1]
174/6
joined [1] 196/16
Journal [2] 127/15
127/15
journals [1] 122/4
judge [1] 119/23
judgement [5] 18/6
20/12 20/17 20/17
20/21
judgements [1] 69/7
judgment [2] 109/7
109/16
judgments [1]
122/25
July [3] 2/1 194/10
200/21
jump [1] 139/16
jumped [1] 11/5
jumping [2] 11/4
197/16
June [6] 63/14 190/3
192/16 193/9 194/10
194/18
June 2020 [3] 63/14
192/16 193/9
junior [2] 133/18
151/21
just [135] 2/4 3/18
4/13 4/17 5/4 5/9 5/18

6/12 7/4 8/14 9/9 10/9
11/22 11/25 14/11
15/2 15/19 15/21 16/4
18/16 21/10 21/11
22/9 23/7 24/4 24/24
26/17 27/9 29/7 29/17
30/4 30/12 31/23 32/8
32/10 33/23 34/5
37/18 38/18 40/19
48/23 52/22 53/13
54/12 54/24 55/4
56/18 57/11 61/21
62/2 63/7 64/14 64/17
67/25 68/6 68/22 71/2
72/13 72/19 73/3
75/15 78/3 82/14
82/24 89/14 90/7 91/3
92/21 93/3 93/13
94/10 95/5 95/25
98/23 107/15 107/16
107/21 108/23 109/5
110/21 111/22 113/15
116/22 121/21 122/23
123/5 125/1 125/4
126/1 130/4 130/4
131/10 131/12 132/15
133/7 133/12 135/3
135/16 137/12 138/11
144/10 147/20 152/1
152/2 153/1 156/20
160/25 162/11 163/5
164/17 167/10 169/11
170/12 171/1 172/4
172/8 173/20 174/21
177/2 177/25 184/1
186/10 187/7 190/16
195/6 195/13 195/21
195/22 196/4 197/6
197/9 198/17 202/17
202/25 203/8
justice [13] 72/13
100/10 108/2 108/3
108/6 108/7 108/15
109/7 114/4 120/5
171/1 206/22 206/23
Justice and [1] 109/7
Justice Northern
Ireland [1] 108/7
Justice UK [1] 72/13
justification [2]
112/14 112/17
justifications [1]
120/15
justified [2] 106/5
112/16
justify [1] 113/17

K
KC [11] 72/9 105/24
108/4 109/19 113/23
170/23 206/7 206/19
206/24 207/2 207/11
186/5
KC's [1] 105/19
Keating [2] 176/2

176/4
Keeling [1] 3/24
keen [3] 55/18 74/6
143/10
keep [9] 41/9 48/23
48/24 50/5 84/9 96/15
121/6 129/3 176/19
keeping [7] 37/16
41/4 41/7 44/22 66/6
76/8 176/24
Keith [4] 96/8 107/13
116/10 122/15
kept [4] 38/14 67/18
79/21 176/8
key [8] 32/17 47/24
50/20 90/22 157/23
176/25 192/11 195/17
killer [1] 54/18
kind [7] 24/22 40/8
45/8 45/8 133/2
147/12 156/23
kindly [1] 1/10
kinds [1] 129/18
King [2] 85/22 86/4
King's [1] 108/12
Kingdom [18] 124/3
126/5 128/13 129/6
140/12 141/3 143/22
144/22 146/22 147/7
148/7 148/9 149/2
157/11 159/11 162/3
171/19 174/1
knew [24] 5/12 5/12
5/13 11/14 11/14
16/16 34/24 35/3
38/10 58/3 62/22 75/3
87/7 87/10 90/15
94/24 124/21 131/3
131/6 131/7 131/24
132/1 156/23 183/17
knock [1] 28/14
know [64] 2/3 2/19
12/20 14/15 17/20
18/1 18/4 18/13 18/15
30/11 31/7 31/8 32/3
35/6 36/8 37/4 38/14
38/15 38/19 41/1
41/20 56/21 62/1
64/19 65/5 65/17
72/22 73/3 75/7 81/7
90/12 91/2 91/10
91/11 94/5 94/15
94/20 95/10 124/6
128/1 129/12 129/19
129/24 130/20 130/25
132/18 132/19 134/19
141/9 145/23 147/10
147/14 149/18 149/20
151/19 152/22 155/5
155/16 164/23 165/23
168/14 171/10 174/4
186/5
knowing [3] 21/2
130/10 130/25

knowledge [5] 26/25
89/20 149/3 191/16
193/11
known [10] 8/1 8/18
48/9 76/24 118/7
119/15 128/17 135/14
164/10 200/23
Kong [2] 148/14
166/11
Korea [10] 92/3 92/8
136/10 151/14 151/21
157/17 159/4 159/9
166/10 174/12
Korean [1] 174/11

L
laboratories [9]
134/3 136/2 136/2
136/4 153/4 153/8
153/14 154/8 155/6
labs [1] 154/14
lack [3] 34/10 81/14
86/12
lacking [1] 185/20
lacuna [1] 87/7
Lady [59] 1/4 50/12
51/5 52/7 72/6 72/10
79/2 79/10 79/16
95/25 96/9 96/14
105/25 106/9 107/20
108/5 108/22 109/2
109/13 109/20 109/25
110/7 110/19 110/25
111/17 112/2 112/13
113/4 114/3 115/12
116/8 116/12 116/22
117/9 118/4 119/3
120/10 122/9 123/8
133/18 140/5 142/22
146/8 146/14 147/22
170/14 170/24 171/12
173/21 175/18 175/21
176/5 177/10 181/9
187/4 189/21 202/19
204/20 205/7
Lady's [2] 12/17
163/11
Ladyship [4] 72/25
99/7 99/10 102/19
Ladyship's [1] 99/10
laid [1] 149/11
Lancet [8] 80/20
94/18 124/17 127/10
127/14 131/7 165/15
189/8
language [1] 27/12
Lansley [1] 135/20
large [11] 13/1 17/24
92/24 130/16 130/21
141/8 151/9 192/4
192/6 192/6 200/5
largely [1] 180/7
larger [1] 200/6
last [19] 1/14 2/4

L	117/24 119/3	38/17 44/1 44/15	67/21 68/20 69/10	loss [1] 166/6
last... [17] 2/25 5/1	legitimate [2] 100/20	45/19 46/13 52/5	69/14 69/16 69/17	lost [5] 34/3 37/3
5/2 6/12 6/12 14/2	101/2	58/10 69/18 70/17	69/19 69/22 71/10	38/22 58/1 162/25
25/1 55/20 56/21	length [1] 191/24	126/4 127/22 128/19	71/12 71/17 72/1	lost February [1]
72/25 79/7 97/14	less [15] 23/24 24/1	145/22 193/24 200/4	77/13 77/15 77/19	34/3
166/12 169/24 170/7	25/1 39/7 50/6 51/20	202/22	77/25 88/12 88/16	lot [19] 12/14 17/1
184/22 196/25	56/12 71/15 74/21	limit [3] 26/24 151/11	147/12 149/13 149/13	24/5 36/13 36/14
lastly [2] 53/17 179/1	76/5 76/13 93/9 100/4	153/2	158/24 159/20 160/24	36/14 37/5 37/14
late [5] 33/14 35/20	101/6 203/3	limitations [1] 134/12	162/2 166/17 168/18	57/17 66/14 66/17
43/12 161/3 161/22	lesser [2] 56/24	limited [16] 29/15	169/17 180/2 188/12	69/16 79/8 83/9 93/12
latent [3] 93/5 93/8	121/17	30/9 30/18 68/11	198/14 199/22 202/5	111/19 132/14 152/21
132/19	lessons [3] 105/9	70/19 92/7 119/21	202/10 204/10	154/21
later [29] 7/19 11/1	179/1 195/9	124/2 136/1 150/20	lockdown 1 [1]	lots [2] 49/14 77/23
18/19 25/2 48/21	let [7] 4/17 46/3	152/7 156/13 157/3	199/22	low [8] 26/2 26/14
50/16 53/18 53/25	76/11 84/4 139/25	166/3 182/21 202/9	lockdowns [8] 46/17	32/1 41/9 64/2 126/6
63/14 63/21 64/12	140/22 143/20	limits [1] 146/8	46/21 68/14 91/18	126/6 203/23
64/20 83/2 90/5 92/15	let's [20] 4/20 4/20	line [7] 19/22 19/22	91/23 138/7 138/8	lower [5] 25/10 89/4
97/9 115/19 136/7	11/22 13/19 14/11	21/11 27/25 43/25	160/2	132/9 172/18 202/24
138/9 142/1 149/20	21/10 30/17 43/24	46/23 104/22	London [7] 7/24 29/1	luck [1] 44/25
155/18 156/16 168/20	46/1 57/4 64/17 66/21	lines [4] 20/1 168/2	84/18 92/5 177/16	Luckily [1] 122/18
171/24 189/23 193/5	93/11 94/9 94/23	184/22 202/8	188/4 188/13	lunch [3] 92/17 95/20
203/5 204/15	162/17 170/16 184/20	link [1] 195/3	London School [1]	123/14
lateral [1] 74/25	187/16 195/8	linkage [1] 195/1	84/18	M
latest [1] 150/1	letting [1] 81/15	linked [4] 37/20	long [20] 3/4 14/22	made [29] 29/12 41/2
latter [1] 25/10	level [11] 4/5 73/16	137/7 154/16 195/14	37/17 41/25 42/1 42/6	47/21 48/21 49/1 51/3
Laura [1] 116/25	76/9 121/3 126/6	list [1] 86/18	61/25 62/1 75/18	53/12 62/21 73/12
law [6] 98/10 98/18	129/2 161/10 163/21	listed [1] 133/17	90/25 91/23 93/5	86/4 96/10 97/9
99/22 101/25 104/9	164/14 167/16 202/24	listen [1] 143/14	96/15 104/15 132/20	101/18 103/20 108/12
106/21	levelling [1] 142/16	literally [1] 74/11	162/22 176/9 199/4	115/11 116/21 120/2
lawful [3] 98/17	levels [8] 61/12	literature [1] 54/8	202/5 205/3	120/22 124/23 143/23
112/14 112/17	153/15 158/17 191/12	little [22] 3/23 5/18	Long Covid [1] 61/25	145/7 149/18 154/24
lawfully [1] 100/13	201/25 202/22 203/23	6/8 16/12 18/7 26/16	long term [1] 42/6	155/19 168/13 172/21
lay [3] 32/8 32/9 58/6	204/3	28/18 33/21 34/23	long-term [1] 42/1	174/19 180/21
layer [2] 57/23 57/25	liberty [1] 111/11	41/22 48/13 55/7	longer [4] 14/13 84/5	madness [1] 136/11
laying [1] 81/14	life [2] 98/8 174/13	70/16 82/2 90/5 104/3	93/5 202/23	Mail [1] 122/4
layperson [1] 177/25	lifelong [1] 164/9	116/24 135/25 137/20	look [41] 1/13 5/17	Mail on Sunday [1]
lead [8] 65/6 79/19	lifestyle [1] 178/8	171/24 184/20 193/5	8/4 10/9 11/22 11/24	122/4
116/11 117/1 123/12	lifetime [1] 53/7	lived [2] 49/11	13/19 14/9 14/11	main [8] 38/7 86/11
206/11 207/4 207/8	light [3] 73/17 113/4	185/13	14/25 18/22 21/10	181/25 183/7 186/21
leading [2] 49/8	141/25	Liverpool [1] 75/2	28/8 28/9 28/11 29/22	188/10 190/12 197/22
189/15	lighthouse [1]	lives [2] 184/14	34/14 34/17 36/19	mainly [3] 58/17
leaked [1] 86/22	154/14	204/8	46/1 47/17 50/24 55/6	58/18 141/22
learned [3] 110/14	lightly [1] 101/21	local [5] 135/22	62/19 62/20 64/18	maintain [1] 91/23
179/2 195/9	like [43] 9/13 10/17	135/24 149/13 184/13	67/9 70/13 92/8 92/17	maintaining [2]
learning [2] 105/9	13/7 18/8 18/21 24/9	185/9	129/12 136/21 138/21	169/18 170/2
195/17	28/5 30/13 30/19	locally [1] 92/1	149/6 154/20 169/11	major [7] 77/18 130/9
learnings [1] 182/16	31/19 36/9 37/13	located [1] 112/25	177/3 180/6 182/4	150/2 178/4 185/7
learnt [3] 53/9 97/10	50/19 58/21 60/4	locations [1] 175/13	182/24 184/22	188/3 204/16
201/23	72/20 77/7 84/14	lock [4] 41/12 56/18	looked [14] 28/18	majority [2] 84/11
least [14] 2/24 8/15	84/18 86/1 86/20	71/14 71/16	35/7 57/21 62/16	84/16
9/5 17/10 40/17 45/17	106/17 122/23 122/25	lockdown [78] 41/1	62/16 62/21 65/8	make [36] 9/25 18/5
66/24 72/7 98/25	125/4 135/25 141/8	41/17 41/19 41/20	141/7 149/24 180/1	20/16 25/14 26/20
101/3 101/21 104/8	141/8 141/8 164/11	42/19 42/24 44/19	194/1 197/24 198/11	37/25 38/18 53/6 59/5
144/14 169/8	173/9 178/2 178/20	46/3 46/7 47/16 47/20	198/14	69/6 75/3 79/5 79/8
leather [1] 95/17	180/25 182/2 182/22	48/12 49/8 49/12	looking [14] 9/1	100/22 102/23 105/18
leaving [1] 198/15	182/24 184/7 184/11	49/12 49/22 50/22	18/18 29/4 29/7 32/25	105/21 108/8 108/9
led [1] 16/9	185/16 186/20 195/4	51/17 51/25 52/2	60/23 69/4 69/5 71/3	108/10 113/4 116/22
left [5] 28/19 98/22	198/20	53/20 53/23 54/5 54/7	72/23 107/10 178/6	130/4 145/2 146/3
98/22 148/13 176/22	likelihood [11] 6/15	54/10 54/25 55/4 55/9	180/25 181/25	147/15 152/3 156/15
legal [12] 54/16	6/16 15/11 31/1 31/24	55/11 55/14 55/18	looks [1] 52/23	170/21 179/1 183/23
95/25 97/24 98/5	125/22 128/25 132/3	55/23 56/8 56/10	lopsided [1] 83/7	185/15 199/16 199/19
101/20 104/6 111/7	144/21 145/24 199/20	56/12 56/13 56/14	Lord [1] 109/7	202/20 204/16
112/6 116/2 117/1	likely [21] 14/2 28/6	56/14 56/16 56/18	Lord Chief [1] 109/7	maker [1] 120/4
	32/20 32/21 35/12	67/11 67/13 67/18	lose [1] 110/20	

M	master [2] 9/24 109/8	75/1	measuring [2] 188/2	mid-2020 [2] 63/13
makers [2] 43/19	material [32] 98/3	McLean [1] 64/19	196/12	199/21
70/19	99/13 100/12 100/24	me [39] 4/17 5/24	mechanism [2] 57/16	Mid-January [1] 3/7
makes [8] 17/2 97/17	101/1 101/18 111/7	5/25 6/20 11/1 11/9	173/11	mid-March [1]
99/8 110/9 124/4	111/12 111/14 112/7	19/15 24/21 32/23	media [11] 85/8	165/12
128/3 136/13 139/20	112/20 112/23 113/2	35/5 35/18 38/6 39/22	96/23 98/18 99/20	middle [2] 89/18
making [13] 11/15	113/11 113/14 113/16	48/14 55/21 58/17	100/9 101/16 105/19	172/19
29/18 48/20 52/12	114/13 115/13 115/24	65/11 66/17 67/22	108/12 109/3 119/25	middle-income [1]
52/21 66/13 69/12	117/21 117/22 118/15	71/20 74/24 77/13	200/25	172/19
96/21 133/4 145/4	118/23 119/8 120/2	78/10 81/16 84/4	medical [13] 11/3	Midlands [1] 92/5
178/14 197/12 202/25	120/3 120/6 120/7	97/12 108/8 108/9	11/11 11/21 12/18	might [30] 5/3 7/9
manage [8] 45/1 45/3	120/21 121/13 121/24	114/4 126/17 141/25	20/19 21/2 21/15	7/15 21/17 40/18
45/7 59/15 59/16	154/24	146/5 153/25 160/11	102/6 142/10 153/10	44/15 45/4 45/18
136/8 142/12 152/23	materials [2] 85/2	163/8 180/12 180/21	168/2 200/2 200/19	45/24 49/15 51/20
manageable [1]	104/2	186/10 200/9	Medicine [1] 127/15	52/17 53/24 53/24
103/1	maternal [2] 80/13	mean [29] 9/14 12/10	Medley [6] 2/25 3/24	57/22 75/25 93/6
managed [3] 89/3	82/4	12/13 26/10 31/23	35/7 36/4 43/17	107/9 110/9 138/4
136/7 175/2	mathematical [1]	39/9 40/7 43/20 44/7	124/20	141/21 143/25 171/4
management [1]	178/13	45/7 45/23 54/13 74/8	meet [2] 14/3 154/9	180/16 180/18 182/24
173/12	mathematics [1]	89/25 94/12 107/5	meeting [16] 22/3	184/25 186/1 186/17
managing [1] 88/7	204/14	112/10 130/5 138/8	22/3 28/24 29/1 29/13	190/21
manner [1] 110/11	matryoshka [1]	147/8 150/23 150/25	60/10 60/16 86/24	mild [4] 16/1 16/5
many [37] 8/1 8/1	106/17	164/14 166/21 168/10	87/3 87/9 88/21 88/21	23/25 134/5
8/20 8/23 9/4 16/1	Matt [1] 29/9	178/1 183/14 190/8	129/11 133/2 133/14	milder [1] 49/20
31/13 31/13 34/7	Matt Hancock [1]	196/10	134/10	mildly [2] 145/21
42/15 49/7 50/20 56/1	29/9	meaning [3] 93/13	meetings [14] 3/15	180/21
59/19 81/11 83/19	matter [15] 8/2 54/1	126/7 128/18	3/19 31/14 33/5 33/22	million [2] 151/20
86/7 86/15 94/4	65/17 96/16 106/21	meaningful [1]	34/19 35/25 36/3 37/7	168/25
102/24 104/17 118/22	106/22 106/23 112/19	175/14	47/14 60/19 86/15	millions [3] 74/11
118/24 124/6 124/7	113/19 142/22 159/22	meaningfully [1]	87/13 183/8	74/15 92/7
135/2 143/9 148/19	160/14 160/17 170/14	119/9	Mellat [2] 100/2	mind [11] 26/12
151/14 151/22 154/22	194/22	means [13] 21/20	120/17	26/13 26/15 28/24
164/8 166/6 168/22	matters [9] 60/9 72/5	25/12 41/11 53/12	member [13] 2/8	36/24 40/20 43/7
190/9 192/25 199/1	111/21 116/1 116/5	98/15 100/5 101/4	2/21 3/2 3/4 3/9 3/22	90/15 97/9 153/16
many weeks [2]	118/11 121/14 195/9	101/6 101/19 104/8	60/17 80/23 83/5	154/10
31/13 31/13	197/13	151/3 160/18 203/1	122/5 182/17 183/7	mine [2] 11/6 40/2
March [37] 33/6 42/3	maxim [4] 39/7 39/22	meant [5] 22/19	186/23	minimise [2] 41/14
42/23 43/12 44/14	40/1 40/11	118/6 141/24 193/5	members [14] 35/4	69/15
47/22 49/9 63/13 81/5	maximising [1] 185/2	204/4	83/11 84/2 86/18	minimised [1] 174/25
81/9 142/16 145/14	may [72] 13/19 17/14	meantime [1] 123/3	89/10 118/22 127/18	minimises [1] 40/24
152/16 156/7 158/1	18/24 22/21 28/5	measles [1] 164/7	127/22 127/23 128/3	Ministry [1] 125/10
158/20 159/7 159/15	29/22 30/21 32/4 32/4	measure [11] 8/22	147/5 153/12 192/4	minority [9] 70/7
160/14 161/9 162/4	32/8 37/20 46/1 46/6	41/21 54/25 78/14	192/5	70/16 70/23 83/5
162/9 162/19 162/23	51/17 54/6 56/2 63/6	123/17 146/3 159/20	membership [5] 81/7	192/24 193/1 193/7
163/2 165/12 165/14	64/18 64/24 65/3 69/8	178/11 187/17 194/20	83/1 86/21 179/5	193/22 194/4
167/5 168/1 169/12	70/22 71/11 72/22	201/20	186/25	minute [1] 43/24
169/16 171/2 171/18	78/3 79/6 80/4 83/1	measured [2] 149/6	memory [1] 195/8	minutes [27] 10/12
171/19 173/25 175/14	83/17 86/2 86/14 87/4	182/5	83/11 97/6	15/8 28/24 29/10
188/19	87/25 88/11 93/7	measures [46] 49/24	mention [5] 95/25	34/19 35/2 35/4 35/8
March 2020 [4] 42/3	95/25 96/20 107/3	56/24 57/15 57/18	138/15 193/13 195/25	35/13 35/15 61/7 62/8
63/13 160/14 175/14	107/5 107/13 111/21	57/20 59/3 59/10	199/15	62/19 86/15 86/20
March 23rd [2] 47/22	112/2 114/25 116/5	59/12 68/19 73/10	mentioned [6] 25/19	87/8 88/20 126/16
49/9	117/3 117/3 117/13	73/18 75/23 88/5	171/23 190/17 191/23	133/8 144/16 145/18
March 24th [1]	117/15 117/17 118/14	99/24 123/15 123/22	192/8 193/8	149/23 150/7 150/10
152/16	118/15 119/4 119/13	124/11 128/22 136/22	MERS [2] 89/17	160/15 169/12 183/8
marginal [1] 54/10	120/23 122/16 123/16	138/13 139/21 140/2	132/3	misconceived [1]
mark [5] 1/5 1/6 1/9	130/15 132/18 132/19	141/8 141/13 141/13	message [7] 19/22	110/19
94/25 206/3	134/20 156/2 162/16	141/14 145/1 145/13	19/23 20/23 129/21	misnomer [1] 135/18
masks [2] 141/9	176/5 181/12 182/8	146/1 146/16 146/21	143/13 203/19 203/21	missing [1] 204/4
179/18	188/8 190/3 193/14	155/9 158/24 165/25	met [4] 21/3 107/23	mistake [1] 11/15
mass [1] 74/10	194/10 196/12 196/14	166/3 168/3 168/17	130/1 133/1	Mitchell [5] 105/22
massive [2] 58/11	203/23	168/19 175/1 179/17	method [1] 136/11	105/24 107/25 110/14
160/6	May 2020 [1] 193/14	180/3 180/17 180/22	mid [5] 3/7 35/20	206/19
	maybe [3] 3/17 73/25	181/4 184/13 201/9	63/13 165/12 199/21	mitigate [8] 13/3 91/4

M	38/25 39/10 166/15	100/23 101/5 101/7	107/25 109/17 113/12	79/16 95/25 96/9
mitigate... [6] 137/9	months [6] 27/3	102/17 103/13 103/15	116/9 118/11 122/15	96/14 105/25 106/9
160/19 162/18 163/7	30/21 46/3 50/22	105/16 105/19 106/24	123/8 134/13 156/2	107/20 108/5 108/22
163/21 167/16	74/25 80/16	107/13 108/12 108/19	163/17 164/9 175/5	109/2 109/25 110/7
mitigating [4] 85/19	months' [1] 150/25	108/24 109/9 113/23	175/16 175/19 175/22	110/19 110/25 111/17
142/16 161/12 162/15	morbidity [1] 61/3	116/10 122/15 176/2	176/23 182/19 184/9	112/2 112/13 113/4
mitigation [6] 139/12	more [70] 4/4 6/9 7/4	176/4 206/16	186/21 188/12 193/24	114/3 115/12 116/8
156/19 158/16 159/24	8/8 8/8 9/6 11/23	Mr Bunting [5] 99/19	195/23 203/5 204/22	116/12 116/22 117/9
160/16 160/17	12/11 12/11 12/14	105/19 108/12 108/24	multiple [2] 195/19	119/3 120/10 122/9
mixture [1] 124/9	17/9 17/22 20/8 22/10	109/9	196/22	123/8 133/18 140/5
Mm [2] 171/7 186/14	23/25 24/9 26/23	Mr Bunting KC [1]	municipal [1] 5/23	142/22 146/8 146/14
Mm-hm [1] 186/14	32/13 32/21 36/24	113/23	must [28] 27/6 53/1	147/22 170/14 170/24
mobilisation [2]	37/18 40/21 44/15	Mr Hill [2] 96/10	59/24 59/24 84/9	171/12 175/18 175/21
129/16 149/12	44/21 44/25 45/11	105/16	98/16 99/24 100/3	176/5 177/10 181/9
mobilise [4] 90/19	50/17 55/7 55/12	Mr Keating [2] 176/2	101/3 107/15 110/4	187/4 189/21 202/19
142/4 149/15 152/12	55/17 55/24 56/2 58/8	176/4	112/11 112/13 112/17	204/20 205/7
mobilised [2] 92/14	58/10 65/3 65/16	Mr Keith [4] 96/8	113/21 114/3 114/6	my Lady's [2] 12/17
151/21	65/20 65/25 67/4	107/13 116/10 122/15	115/12 116/20 120/13	163/11
mobilising [1] 151/24	69/18 71/18 75/4 75/9	Mr O'Connor [8] 1/3	120/16 120/18 122/10	myself [5] 36/9 47/6
mobility [5] 48/11	75/12 90/14 102/6	11/1 11/5 11/18 51/12	124/10 132/23 161/9	97/15 109/16 184/7
48/14 50/25 51/16	104/3 110/10 121/7	74/6 74/24 77/13	161/10 165/23	
52/24	125/5 128/19 132/4	Mr O'Connor's [1]	mutual [1] 104/11	N
model [10] 4/5 20/4	135/15 141/13 147/6	11/4	my [122] 1/4 6/14	Nabarro [1] 165/18
47/25 78/4 78/11	162/15 178/10 178/14	Mr Smith [4] 100/23	9/23 10/23 11/12	name [5] 1/8 4/4
78/20 88/24 141/4	179/24 182/5 183/1	101/7 103/13 103/15	12/17 15/11 20/17	79/22 176/13 176/16
141/5 141/10	184/20 185/16 186/6	Mr Smith's [3] 101/5	21/6 26/25 27/23	namely [1] 106/11
modelled [2] 43/18	193/24 194/2 194/16	102/17 106/24	27/25 31/9 33/12	names [3] 57/5 86/25
78/7	196/14 199/5 202/22	Mr Vallance [1]	35/17 38/5 40/2 40/11	133/18
modellers [3] 88/25	morning [6] 1/4 1/5	108/19	41/21 42/8 42/11 45/5	narrative [1] 197/16
140/10 141/2	23/22 74/22 76/16	Mrs [1] 116/25	45/22 50/12 51/5 52/7	narrow [1] 45/10
modelling [20] 3/25	79/20	Mrs Laura Taylor [1]	56/22 57/25 59/6	narrowness [1]
4/1 4/6 9/11 26/25	Morris [14] 72/7 72/8	116/25	62/18 65/11 65/12	152/9
42/1 68/11 68/13 77/3	72/9 79/3 108/1 108/4	Ms [23] 33/2 72/7	67/8 69/1 72/6 72/10	national [12] 81/13
78/3 140/11 140/15	108/24 170/19 170/22	72/8 72/9 79/3 105/22	73/4 74/1 74/12 76/15	91/18 92/14 102/5
141/21 141/22 144/9	170/23 175/19 206/7	105/24 107/25 108/1	77/4 78/15 79/2 79/2	129/15 138/22 138/22
178/13 180/8 180/14	206/24 207/11	108/4 108/7 108/24	79/10 79/16 81/9	142/3 147/12 149/13
181/8 181/10	mortality [5] 9/6 20/5	109/19 110/14 170/19	81/14 95/25 96/9	193/20 195/4
models [8] 9/11 12/7	61/3 147/13 193/15	170/22 170/23 175/19	96/14 97/14 105/14	nationally [1] 145/15
53/3 76/19 77/6 77/6	most [21] 12/9 41/1	206/7 206/19 206/24	105/25 106/9 107/20	nationwide [1] 166/8
77/9 78/11	44/1 54/22 66/24	207/2 207/11	108/5 108/22 108/22	naturally [1] 38/11
module [14] 1/11	70/16 70/25 80/22	Ms Calderwood [1]	109/1 109/2 109/13	nature [7] 12/1 31/24
1/12 2/1 2/3 37/11	90/20 102/4 104/2	33/2	109/20 109/25 110/7	102/9 110/5 118/10
37/15 79/7 98/1	104/20 128/1 134/18	Ms Campbell [1]	110/14 110/19 110/25	127/2 132/19
104/13 104/13 104/14	135/18 149/16 152/24	108/7	111/17 112/2 112/13	nCoV [1] 125/18
104/14 117/1 189/23	164/25 173/19 192/23	Ms Mitchell [3]	113/4 114/3 115/12	near [1] 28/1
Module 1 [4] 2/1	195/2	105/22 107/25 110/14	116/8 116/12 116/22	nearly [3] 84/2
37/11 37/15 104/13	move [13] 7/8 19/20	MS MITCHELL KC [2]	117/9 118/4 119/3	160/24 192/6
Module 2 [5] 1/12 2/3	28/23 28/25 29/23	105/24 206/19	120/10 122/9 122/18	necessarily [4] 12/23
104/13 104/14 117/1	38/20 38/20 51/5	Ms Morris [8] 72/7	123/2 123/7 123/8	29/19 138/8 159/4
Module 4 [1] 104/14	54/20 116/24 142/3	72/8 79/3 108/1	133/18 136/11 140/5	necessary [13] 48/12
molecular [5] 136/3	187/10 190/15	108/24 170/19 170/22	142/22 146/8 146/14	57/14 71/17 74/23
153/7 153/13 154/8	moved [4] 135/22	175/19	147/22 152/11 152/20	88/5 103/17 103/22
155/6	173/7 173/7 202/15	MS MORRIS KC [2]	154/12 154/19 163/11	112/19 113/2 113/15
moment [17] 5/18	movement [4] 49/20	108/4 206/24	169/24 170/14 170/24	114/22 155/24 170/20
6/17 9/9 14/25 51/6	51/15 51/18 53/21	much [59] 2/2 2/20	171/12 173/21 173/25	need [55] 1/13 5/4
73/7 75/15 83/15 97/7	movements [2]	7/7 8/5 9/6 16/16	175/7 175/16 175/18	13/17 13/21 14/5
109/14 147/21 147/25	48/19 53/4	17/22 23/20 23/24	175/21 176/5 176/21	18/24 20/15 22/18
171/23 178/17 178/23	moves [1] 173/17	23/24 25/5 29/3 43/22	177/10 181/9 182/17	28/9 28/11 38/14 43/7
195/6 195/21	moving [4] 42/24	44/21 45/11 52/24	187/4 189/21 194/1	52/24 57/9 59/9 59/20
Monday [3] 1/1 19/17	127/7 163/4 191/21	65/16 69/1 69/2 70/15	194/19 202/2 202/19	59/21 59/21 59/21
22/3	Mr [33] 1/3 11/1 11/4	71/18 72/4 75/4 75/10	204/11 204/20 205/7	59/23 64/24 76/12
month [8] 25/3 36/6	11/5 11/18 51/12 74/6	75/10 76/7 79/3 79/4	my Lady [55] 1/4	89/11 94/21 95/15
37/3 38/22 38/23	74/24 77/13 96/8	79/9 88/2 90/13 93/8	50/12 51/5 52/7 72/6	95/16 98/11 106/15
	96/10 96/13 99/19	93/9 95/7 105/17	72/10 79/2 79/10	106/20 109/23 109/25

N	22/18 37/18 43/8 43/11 43/25 46/23 52/23 79/17 95/2 97/13 101/3 105/10 112/4 156/17 166/15 176/2	nonetheless [1] 105/6 nor [2] 83/25 120/3 North [1] 92/5 North London [1] 92/5 Northern [4] 85/22 108/3 108/7 206/23 Northern Ireland [3] 85/22 108/3 206/23 not [263] not-much-worse-tha n-a-bad-flu-season [1] 23/20 note [5] 99/15 100/24 101/5 102/17 106/24 noted [2] 76/18 140/5 notes [39] 96/17 96/20 97/4 97/17 97/21 97/25 98/7 98/16 98/19 98/25 99/3 99/24 99/24 100/15 102/7 102/10 102/13 102/24 104/2 104/21 105/1 105/12 110/3 110/5 110/6 110/12 110/12 110/17 110/20 111/1 111/11 111/18 115/18 115/24 116/16 118/18 118/19 119/5 138/15 nothing [3] 13/2 100/20 142/11 noticing [1] 173/2 notion [3] 132/16 168/5 169/10 notwithstanding [1] 67/2 novel [3] 2/14 125/17 144/13 November [5] 67/11 71/11 75/2 203/9 203/20 November 2020 [1] 203/20 now [50] 5/14 7/8 12/6 12/23 14/5 15/8 17/6 18/22 20/11 21/14 24/24 25/16 25/22 28/18 31/18 32/24 39/22 41/16 42/20 49/14 51/4 51/7 51/23 53/5 58/17 63/11 71/16 73/14 88/11 89/13 89/24 91/2 92/17 107/15 111/6 113/4 122/18 122/22 124/10 126/1 127/21 165/11 165/12 170/13 171/14 177/22 177/23 181/7 195/8 196/24 nowhere [1] 164/15 NPI [1] 72/23	NPIs [8] 40/25 49/20 51/19 51/20 55/6 68/15 76/6 141/10 nub [3] 132/25 168/8 169/5 number [51] 8/11 8/17 12/3 12/7 12/24 12/25 13/11 14/20 17/18 17/20 17/21 17/22 17/24 25/6 25/9 31/22 34/12 54/4 57/24 76/8 76/8 85/9 89/13 123/25 128/18 130/11 131/14 131/15 131/19 136/1 139/14 141/7 144/13 144/15 144/16 145/9 151/9 152/7 152/7 153/3 153/10 156/14 157/3 174/6 178/23 179/15 179/19 189/12 199/16 204/8 204/17 Number 10 [1] 204/8 number 2 [1] 174/6 number 7 [1] 145/9 numbers [20] 5/2 7/9 8/8 8/14 9/2 12/15 20/4 32/17 32/23 32/24 41/4 41/7 41/9 41/15 75/17 92/7 149/7 154/9 158/18 201/18 Nurse [1] 153/19 nursing [7] 175/1 190/1 190/21 190/24 191/10 191/12 191/13 nutshell [1] 13/14	obviously [16] 16/21 24/25 30/11 34/11 53/4 83/25 84/13 106/22 112/4 129/18 146/2 152/14 155/7 173/15 205/4 205/4 occasion [2] 7/19 107/4 occasions [1] 62/14 occupation [2] 192/11 197/25 occupational [2] 192/9 192/10 occur [1] 61/16 occurrence [1] 192/3 occurring [1] 26/9 October [6] 1/1 64/20 181/22 193/7 193/12 205/11 October 2020 [1] 193/12 oddity [1] 107/14 off [7] 24/24 27/4 46/16 46/21 49/11 163/20 167/16 offer [1] 53/22 offered [1] 155/14 offering [2] 71/10 172/16 offers [1] 155/19 Office [1] 169/7 Officer [9] 11/3 11/11 11/21 12/18 20/19 21/3 21/15 153/11 168/2 official [1] 82/6 officially [1] 86/23 officials [3] 27/24 122/6 133/18 often [7] 52/8 55/22 70/23 75/23 132/21 183/14 194/25 oh [4] 51/3 83/23 96/3 109/18 okay [6] 78/12 84/10 90/4 153/22 170/18 172/8 old [3] 58/11 58/18 62/3 older [8] 58/15 58/15 61/11 61/15 64/10 65/2 65/3 67/4 Omicron [1] 74/20 ominous [1] 72/23 omitted [1] 15/5 on [343] on/off [2] 46/16 46/21 once [8] 46/24 52/6 53/7 61/16 98/19 106/20 123/24 204/14 one [111] 3/18 11/22 12/7 15/4 17/4 19/7 20/1 21/11 22/13 22/22 24/5 24/16
need... [24] 114/4 121/12 122/16 124/12 124/23 131/13 145/23 151/6 152/13 154/19 155/17 157/18 160/20 164/13 165/24 173/11 173/18 196/15 196/19 196/22 200/7 200/14 202/4 202/22 needed [16] 53/20 53/24 53/25 54/19 59/18 74/17 75/9 103/16 128/23 138/4 142/3 147/10 149/15 161/16 180/16 181/7 needing [1] 17/9 negative [4] 66/21 134/7 134/14 134/25 negatives [1] 134/20 Neil [19] 7/14 7/20 8/1 10/5 13/19 14/17 14/23 18/19 19/9 19/24 20/7 21/25 23/3 26/3 26/8 34/25 46/24 47/1 94/1 Neil Ferguson [15] 7/14 7/20 10/5 14/17 18/19 19/9 19/24 20/7 21/25 23/3 26/3 34/25 46/24 47/1 94/1 Neil Ferguson's [1] 13/19 Neil's [1] 46/24 neither [2] 120/12 139/12 NERVTAG [15] 178/22 179/5 179/6 179/16 179/23 180/5 180/12 180/23 181/1 182/11 182/25 183/23 189/9 193/17 194/14 never [14] 27/22 31/17 40/5 45/17 53/24 56/17 63/3 63/3 69/22 92/16 97/17 161/1 163/9 183/17 nevertheless [1] 88/13 new [14] 30/12 65/13 65/19 73/19 75/22 81/16 92/1 97/10 101/12 127/15 139/2 147/2 168/20 179/19 New York [1] 168/20 newborn [1] 82/4 news [3] 25/5 110/8 119/25 newspapers [2] 81/14 122/1 next [25] 2/21 6/11 7/16 9/1 10/9 14/3 14/12 19/20 22/16	22/18 37/18 43/8 43/11 43/25 46/23 52/23 79/17 95/2 97/13 101/3 105/10 112/4 156/17 166/15 176/2 next week [1] 14/3 NHS [14] 35/9 35/12 36/2 36/11 44/2 44/17 46/25 61/19 61/24 84/15 88/10 135/22 142/13 154/16 nice [1] 94/1 night [2] 14/2 43/12 nine [3] 103/4 149/8 150/25 nine days [1] 149/8 no [94] 3/6 3/16 4/3 4/16 9/18 10/22 12/13 22/5 22/7 22/19 28/19 30/13 41/18 44/4 47/11 52/22 53/8 55/16 56/14 60/21 63/15 65/5 65/14 66/12 68/12 68/25 73/12 73/15 74/9 74/16 74/24 83/3 83/4 83/19 83/23 84/5 87/10 89/24 93/22 93/23 97/9 98/21 98/22 102/20 103/19 103/19 103/24 105/3 105/16 109/13 114/12 114/14 114/25 126/20 128/13 128/14 130/7 131/24 132/1 134/18 134/18 135/16 136/8 138/8 138/14 138/14 138/16 139/21 139/25 140/17 141/24 147/24 147/24 148/20 155/21 155/21 157/8 158/6 158/20 158/24 158/25 159/16 159/19 160/10 160/13 160/18 162/2 166/24 168/7 169/3 175/11 176/10 204/20 204/21 no one [5] 68/25 87/10 131/24 139/25 141/24 Nobel [1] 153/19 nobody [1] 87/7 non [8] 44/9 84/22 156/25 159/19 168/6 170/4 198/10 200/15 non-government [1] 84/22 non-pharmaceutical [6] 44/9 159/19 168/6 170/4 198/10 200/15 none [3] 3/20 76/19 127/7			

<p>O</p> <p>one... [99] 28/19 36/8 36/9 37/18 37/24 38/1 38/7 38/25 39/15 40/20 40/21 41/1 41/2 43/9 45/13 48/18 49/23 50/5 52/22 52/23 54/24 56/24 58/20 58/23 60/20 60/21 61/21 62/4 62/14 63/8 64/22 66/24 68/25 69/24 71/5 72/6 75/6 75/12 77/14 79/7 86/11 87/10 92/15 93/13 93/16 94/8 95/1 101/11 102/24 104/14 109/9 117/22 127/20 128/20 128/25 129/22 130/9 131/24 132/1 134/12 138/14 139/25 141/24 145/19 151/23 160/23 161/4 161/11 161/12 162/15 163/5 168/12 170/12 171/1 173/2 174/21 178/10 179/21 180/20 181/9 182/17 183/7 183/14 183/19 186/11 187/12 188/22 189/22 190/16 190/17 190/23 191/22 192/11 195/9 195/16 196/11 197/17 197/24 199/25</p> <p>ones [5] 36/15 75/9 114/5 115/10 198/2</p> <p>online [3] 87/12 87/13 123/6</p> <p>only [40] 21/3 24/16 33/24 40/20 41/5 48/4 58/23 70/17 75/24 86/23 91/4 92/10 99/3 99/4 101/23 102/15 104/4 106/7 106/11 109/20 112/3 112/15 113/1 113/11 113/14 113/19 115/17 115/19 117/6 118/8 120/7 121/22 136/8 142/12 145/19 152/19 163/19 164/5 174/19 203/1</p> <p>ONS [1] 64/23</p> <p>onset [1] 196/12</p> <p>onwards [2] 97/3 194/10</p> <p>open [10] 67/6 67/19 67/21 100/10 108/15 114/4 119/24 120/5 146/16 147/24</p> <p>opened [1] 64/3</p> <p>opening [4] 85/18 96/21 107/14 198/19</p> <p>openness [4] 113/24</p>	<p>114/7 116/13 120/1</p> <p>operated [1] 105/7</p> <p>operates [1] 140/23</p> <p>operation [1] 186/16</p> <p>operational [1] 144/9</p> <p>operationalised [1] 3/3</p> <p>operationally [1] 61/2</p> <p>opinion [6] 6/23 7/7 67/9 67/9 138/18 140/10</p> <p>opportunities [3] 182/21 184/18 204/5</p> <p>opportunity [3] 72/15 73/20 96/14</p> <p>opposed [4] 138/5 141/20 142/18 158/18</p> <p>opted [1] 3/6</p> <p>optimism [1] 37/20</p> <p>option [4] 48/6 74/13 91/4 147/15</p> <p>options [8] 56/13 56/14 70/19 72/1 74/21 87/24 101/8 147/14</p> <p>or [167] 2/21 2/24 3/5 3/18 4/1 5/12 6/4 7/24 8/15 9/5 9/12 10/19 10/21 11/23 12/11 13/20 14/13 15/18 15/20 16/21 18/12 18/12 20/10 20/25 21/19 22/6 23/18 25/24 27/24 28/1 28/8 31/21 31/24 32/1 32/4 36/8 38/7 40/20 41/4 42/15 44/3 44/17 44/24 46/15 47/2 47/21 48/4 48/24 49/19 49/21 51/25 52/11 53/24 53/25 54/15 55/23 56/14 56/14 56/17 56/24 57/3 62/6 63/12 64/21 64/21 64/25 67/1 68/13 69/6 70/7 70/17 72/6 72/16 73/21 73/25 80/16 80/25 81/8 82/7 82/9 82/19 83/18 85/4 85/5 86/18 86/24 88/9 88/17 91/1 92/18 92/19 96/21 96/21 99/7 102/7 104/1 107/7 107/8 111/8 111/9 111/9 112/6 112/7 112/24 114/9 115/20 115/21 116/14 117/10 117/12 118/6 119/11 120/6 121/15 122/6 124/3 124/8 130/10 130/12 130/16 130/20 130/21 132/17 134/5 134/19</p>	<p>134/24 135/1 135/2 135/14 135/15 136/6 138/14 139/12 139/12 140/2 140/24 142/6 149/1 150/25 150/25 155/6 155/9 158/13 164/18 164/18 165/9 168/7 169/8 170/12 171/24 173/10 174/2 174/20 178/1 178/8 180/23 182/15 182/22 185/20 186/10 191/19 194/3 195/4 196/13 197/12 198/2 202/4</p> <p>oral [5] 1/25 96/9 101/17 106/2 108/10</p> <p>order [15] 26/21 61/21 96/25 98/17 99/7 114/20 121/13 134/15 143/5 161/13 185/11 187/18 187/19 189/18 202/2</p> <p>ordered [1] 114/25</p> <p>orders [1] 138/7</p> <p>ordinary [1] 133/19</p> <p>organisation [16] 5/15 12/16 12/22 16/10 24/21 80/14 90/17 90/18 90/19 125/7 125/13 125/17 125/20 142/24 148/23 172/11</p> <p>Organisation's [1] 34/2</p> <p>organisations [6] 96/24 98/18 99/20 105/20 108/13 109/3</p> <p>organised [1] 104/3</p> <p>origin [1] 169/9</p> <p>original [5] 111/25 117/12 181/11 181/13 181/17</p> <p>originally [2] 178/2 179/7</p> <p>other [75] 9/4 10/20 15/13 21/18 24/5 27/24 29/14 34/8 40/22 40/25 44/20 45/12 45/16 48/6 49/7 49/14 51/24 54/14 55/1 55/12 56/15 56/20 57/25 58/19 58/23 64/4 64/23 68/4 68/14 68/15 69/17 69/17 70/3 75/18 77/4 77/10 82/11 84/17 89/16 93/7 93/15 94/3 107/22 117/14 120/13 123/25 125/22 128/20 136/19 138/13 141/7 145/12 151/22 153/7 153/12 153/13 156/16 159/19 165/17 170/10 172/16 173/2 174/2</p>	<p>176/20 180/3 180/13 180/23 183/5 183/10 192/6 198/2 198/9 198/11 198/21 203/24</p> <p>others [19] 13/16 31/14 35/10 39/17 43/17 54/8 60/5 63/6 90/12 94/1 107/4 112/21 118/24 124/15 126/10 137/21 146/6 157/18 164/24</p> <p>otherwise [2] 70/17 112/23</p> <p>ought [1] 155/3</p> <p>our [36] 1/4 1/11 26/23 49/6 50/20 51/13 62/7 62/10 62/24 79/17 80/22 85/9 86/5 86/24 87/3 89/4 98/5 98/12 100/1 101/14 105/9 112/9 113/5 122/19 124/1 129/17 160/3 168/24 173/14 176/19 180/19 182/22 187/10 189/18 195/8 196/23</p> <p>ourselves [4] 49/6 50/4 53/5 82/5</p> <p>out [65] 12/21 13/11 19/23 24/20 30/12 33/15 33/16 33/17 39/24 44/4 44/7 47/6 53/13 53/18 59/16 62/25 65/6 69/15 74/18 81/14 86/20 94/17 97/1 98/5 106/14 106/20 106/24 123/6 133/12 133/25 134/3 135/16 136/10 139/14 144/11 145/6 145/21 146/19 148/19 149/11 149/15 152/12 152/16 154/5 156/17 157/15 162/13 165/1 168/14 173/20 174/22 175/3 179/7 179/15 185/13 185/18 186/6 189/25 191/22 192/15 195/20 195/21 195/22 199/6 199/21</p> <p>outbreak [14] 16/8 80/18 89/8 89/10 89/22 128/24 129/3 130/10 130/13 131/1 132/19 140/13 148/12 161/11</p> <p>outbreaks [9] 16/15 23/9 92/1 139/16 144/17 145/9 174/25 190/11 190/22</p> <p>outcome [3] 70/17 190/5 190/6</p> <p>outcomes [2] 12/8 44/1</p>	<p>outer [1] 55/5</p> <p>outlined [1] 24/11</p> <p>outlining [1] 24/18</p> <p>outputs [2] 47/25 197/3</p> <p>outright [1] 65/10</p> <p>outset [1] 114/24</p> <p>outside [7] 49/10 85/4 125/12 125/14 126/23 136/5 143/3</p> <p>over [31] 5/21 9/5 31/10 31/12 36/6 36/16 36/19 47/15 52/15 53/9 58/9 60/2 60/5 61/6 83/19 86/13 94/16 120/12 122/25 125/10 128/23 133/20 159/6 168/5 176/20 189/1 193/6 193/21 200/5 200/11 201/21</p> <p>over-recruiting [1] 193/6</p> <p>overall [5] 88/19 150/20 158/18 162/17 182/23</p> <p>overcrowded [1] 186/4</p> <p>overestimation [1] 38/7</p> <p>overleaf [2] 195/23 202/20</p> <p>overload [1] 166/16</p> <p>overloading [1] 166/18</p> <p>overly [1] 70/19</p> <p>oversight [1] 115/7</p> <p>overview [2] 178/20 186/22</p> <p>overwhelm [2] 36/2 61/19</p> <p>overwhelmed [8] 9/7 27/2 35/9 35/12 35/22 36/12 44/17 88/10</p> <p>overwhelming [1] 97/15</p> <p>own [12] 6/14 21/6 33/12 52/21 77/19 113/3 115/6 115/7 124/1 154/15 170/6 182/22</p> <hr/> <p>P</p> <p>P-H-E-I-C [1] 130/5</p> <p>pace [2] 173/17 176/21</p> <p>page [74] 1/14 4/23 4/25 5/1 5/2 5/2 5/3 5/4 6/11 7/9 7/10 7/15 7/15 7/16 13/21 13/23 14/6 15/7 18/24 19/1 19/2 19/20 22/18 22/19 22/20 24/25 29/8 29/9 34/15 36/19 37/19 43/8 43/10</p>
--	---	---	---	---

P	92/25 105/10 123/24 126/3 133/6 136/25 137/10 137/13 137/15 138/5 138/16 139/3 140/14 146/4 147/9 156/21 156/22 157/20 160/12 173/6 174/5 177/19 178/3 188/20 196/10 196/20 199/7 201/7	paragraph 187 [1] 63/10 paragraph 19 [2] 60/24 136/21 Paragraph 2 [1] 29/12 paragraph 20 [1] 139/1 paragraph 21 [1] 139/20 paragraph 26 [1] 150/16 paragraph 273 [1] 4/15 paragraph 281 [2] 70/12 70/13 paragraph 3.10 [1] 190/15 paragraph 3.11 [1] 187/22 paragraph 3.3 [1] 192/9 paragraph 3.4 [2] 191/22 191/25 paragraph 3.9 [1] 189/25 Paragraph 30 [1] 169/14 paragraph 4 [1] 31/6 paragraph 4.12 [1] 184/21 paragraph 4.9 [2] 183/18 183/21 paragraph 5.1 [1] 179/4 paragraph 5.6 [1] 179/22 paragraph 64 [1] 75/13 paragraph 66 [2] 73/2 73/5 paragraph 7 [2] 98/12 100/1 paragraph 7.13 [1] 202/18 paragraph 7.9 [2] 199/18 201/5 paragraph 8 [1] 150/12 paragraph 9.20 [1] 195/14 paragraph of [1] 65/8 paragraph we're [1] 71/3 paragraphs [2] 29/22 97/3 paragraphs 3 [1] 29/22 paragraphs 471 [1] 97/3 parallel [1] 183/10 parameters [1] 25/6 paraphrasing [1] 35/11	pardon [6] 36/14 48/25 66/23 94/13 130/7 154/1 parenthesis [1] 145/10 part [27] 7/3 12/7 57/15 61/22 63/11 70/5 78/11 80/16 105/1 107/18 116/19 117/18 117/19 118/1 119/3 119/4 119/7 139/11 158/13 164/1 165/6 166/22 173/21 178/16 178/19 185/7 197/1 participant [4] 111/10 112/6 115/21 116/14 participants [25] 96/20 97/25 98/20 99/12 101/23 104/1 104/25 106/12 107/17 110/18 110/24 114/11 115/2 116/24 118/19 118/20 119/5 119/8 119/10 119/11 120/8 120/22 121/15 121/23 134/10 participants' [1] 107/11 particular [35] 4/11 8/10 15/4 39/10 39/22 44/9 48/10 49/16 53/2 70/20 71/8 76/17 87/19 88/14 88/18 100/3 107/10 107/16 111/8 111/21 112/25 116/13 116/15 116/20 117/6 117/7 119/6 119/22 120/24 121/14 122/13 127/16 169/6 190/19 200/13 particularly [20] 44/10 54/11 63/25 64/9 65/3 65/12 67/3 67/20 68/20 82/9 85/10 89/6 134/4 141/25 172/13 173/2 180/2 188/25 194/6 198/25 partly [2] 24/4 57/11 parts [10] 115/19 115/20 117/15 121/9 121/21 121/24 176/25 190/4 190/9 199/25 pass [3] 163/22 163/25 164/19 passage [8] 4/14 70/10 104/4 116/15 116/17 117/4 123/5 123/7 passages [3] 29/11 103/9 103/11 passenger [1]	148/12 passengers [1] 148/8 passes [1] 164/2 passing [1] 95/2 past [1] 92/23 paste [1] 113/13 path [1] 45/10 pathogens [1] 2/14 patience [1] 199/14 patients [1] 173/13 Patrick [32] 14/1 21/23 23/2 29/13 39/3 39/17 85/15 86/6 90/12 96/11 96/13 97/17 97/21 98/21 98/24 99/23 104/11 105/3 105/6 106/1 106/6 110/3 114/7 114/12 115/17 118/5 119/13 121/4 121/18 122/14 142/21 206/16 Patrick Vallance [7] 14/1 21/23 23/2 29/13 39/3 90/12 142/21 Patrick's [11] 96/17 97/3 98/8 102/10 102/24 106/5 111/18 112/3 116/16 118/1 119/1 pattern [1] 75/22 patterns [1] 178/6 Paul [1] 153/19 pause [20] 4/19 4/24 10/15 73/6 93/13 93/18 94/10 95/19 125/1 130/4 131/10 131/12 132/15 133/7 135/3 137/12 152/2 153/1 176/7 195/6 pausing [6] 30/4 64/13 95/5 166/1 196/16 202/17 pay [5] 168/25 169/1 190/25 190/25 191/9 paying [2] 28/3 32/7 PCR [1] 75/8 peak [5] 9/6 43/15 44/2 44/13 47/3 peer [1] 11/13 penultimate [1] 202/18 people [103] 8/20 8/23 8/24 9/3 11/14 13/17 16/13 28/6 38/3 38/18 45/16 49/2 49/9 50/23 51/25 53/6 53/11 53/14 53/14 55/24 57/4 59/7 59/16 59/19 59/23 60/1 60/1 61/15 62/2 66/3 74/15 79/11 82/10 83/7 83/8 83/9 85/11 85/21 86/7 92/14 93/7 93/15 94/9
----------	--	--	--	---

P	126/18 128/19 128/20 128/25 149/5 151/7 151/9 152/5	156/23 158/22 159/2 161/18 169/16 190/2	173/5 173/7 173/11 174/18 195/17 196/25 202/20 202/25 203/1	36/12 40/4 51/24 158/14
people... [60] 113/12 122/25 124/15 129/1 130/11 130/15 130/17 130/20 130/21 131/8 131/14 131/19 135/6 137/20 138/24 143/9 147/12 149/15 149/17 149/18 151/9 151/14 151/19 151/20 151/24 152/3 152/7 152/18 152/21 152/25 154/15 154/23 161/8 164/25 168/3 168/5 168/15 168/23 170/10 174/8 178/5 184/12 184/13 186/2 186/3 186/4 186/7 186/12 187/2 191/2 192/24 193/1 193/6 193/22 194/4 194/6 198/1 198/8 198/13 204/13	person infects [1] 93/13 personal [12] 33/12 102/6 104/20 105/5 110/3 110/12 110/20 115/18 115/24 177/14 189/13 195/16 personally [1] 33/18 persons [2] 135/8 148/20 perspective [5] 182/14 182/16 185/14 193/10 199/14 perspectives [2] 180/13 180/14 persuade [2] 143/6 143/17 persuaded [1] 122/2 pessimistic [1] 12/9 peter [2] 129/22 139/14 pharmaceutical [6] 44/9 159/19 168/6 170/4 198/10 200/15 phase [3] 56/7 163/4 172/24 phases [2] 134/5 162/17 PHE [9] 84/15 133/22 135/17 136/16 136/19 151/11 151/25 152/2 152/9 PHEIC [7] 129/24 130/5 143/6 143/10 143/18 143/21 144/2 phenomenon [1] 41/24 phone [1] 152/3 phones [1] 48/20 phrase [4] 34/3 39/20 81/25 197/2 phrased [1] 55/22 phrases [2] 38/25 82/6 physical [2] 147/4 153/14 pick [4] 6/12 13/21 45/14 135/1 picked [2] 183/13 183/14 picture [4] 17/7 28/20 180/20 198/23 pieces [3] 106/18 107/9 149/3 pile [1] 102/21 place [24] 29/1 47/14 54/15 76/2 76/10 87/9 90/18 92/21 95/8 95/19 123/5 139/15 145/13 146/1 147/3 149/14 150/3 150/8	places [1] 84/18 plain [3] 116/22 130/4 137/12 plainly [4] 87/6 88/11 119/25 120/5 plan [5] 133/23 163/7 172/22 174/23 175/8 plane [1] 143/19 planned [1] 202/9 planning [5] 6/18 26/22 29/25 36/22 36/23 plans [1] 133/4 plate [1] 102/21 plausible [1] 30/20 play [5] 23/6 65/3 185/13 185/18 186/6 playing [1] 66/13 please [68] 1/8 4/22 6/11 7/13 7/17 11/25 15/7 18/22 19/20 21/10 28/25 29/9 34/14 36/19 37/19 42/20 43/8 47/17 48/16 48/24 55/6 60/4 60/11 61/6 63/9 69/9 70/11 72/13 72/20 72/21 73/5 75/12 76/15 79/21 80/4 85/14 88/3 95/23 125/10 126/17 133/8 133/20 133/25 136/14 136/21 137/6 138/11 147/19 148/1 150/8 150/15 160/11 163/6 165/12 169/11 171/2 176/6 176/14 176/16 177/3 177/5 177/11 183/18 183/21 195/14 195/21 199/18 202/20 pleased [1] 196/24 pleases [1] 96/9 plus [1] 94/5 pm [5] 96/5 96/7 148/2 148/4 205/9 pneumonia [1] 125/8 pocket [1] 10/12 point [55] 9/25 13/12 14/7 17/4 24/22 25/14 26/17 27/23 28/21 29/18 33/8 34/23 35/17 37/21 37/25 38/1 48/13 52/17 56/6 58/14 59/5 68/16 71/22 73/12 73/13 73/14 73/15 81/8 93/10 111/25 115/12 117/8 123/21 126/17 128/12 135/16 136/8 136/10 137/20 139/20 146/15 156/3 163/5 164/12 170/21 172/17	point 7 [1] 126/17 pointed [1] 35/19 pointing [1] 35/21 points [8] 37/18 72/20 79/8 81/11 89/13 102/23 134/15 202/18 policies [3] 75/19 129/17 138/23 policy [30] 43/14 43/19 43/19 44/12 45/9 55/2 55/10 55/11 56/19 56/20 57/1 57/7 59/17 60/2 61/8 62/6 62/8 62/11 69/11 70/19 70/20 71/8 72/1 85/17 167/7 169/5 174/15 174/15 182/21 184/17 policy makers [1] 70/19 policymakers [2] 70/24 71/4 politicians [2] 203/16 203/18 poor [4] 109/1 168/22 174/12 174/20 population [28] 8/20 41/6 48/20 49/20 51/14 58/5 61/22 62/13 76/18 81/16 93/15 128/20 132/14 151/21 152/15 160/5 163/22 163/25 164/1 164/20 165/6 166/7 166/13 166/20 185/24 186/1 194/8 194/22 populations [4] 61/11 178/5 178/7 182/6 posed [1] 104/17 position [17] 6/14 31/23 48/2 63/20 90/9 98/5 104/6 113/21 134/9 153/6 155/1 156/7 157/24 158/5 167/4 186/19 193/8 positions [2] 186/3 186/7 positive [3] 134/14 134/21 148/13 positives [1] 134/19 possession [1] 117/14 possibilities [2] 24/18 32/18 possibility [18] 14/18 18/9 23/18 23/22 27/7 27/13 28/9 28/10 28/13 28/16 35/9 35/20 35/21 36/2	possible [19] 12/8 23/14 34/12 37/2 37/24 43/22 45/15 52/25 55/1 78/4 85/18 92/19 101/9 103/8 110/10 135/2 143/25 152/15 162/22 possibly [4] 6/3 41/9 69/6 196/13 potential [5] 26/20 61/10 61/19 76/1 135/2 potentially [3] 145/19 200/6 203/3 powerful [1] 66/5 PPE [1] 179/18 practical [9] 35/14 66/25 102/18 106/22 140/12 141/19 160/18 186/13 187/2 practice [2] 117/2 134/12 practices [1] 89/2 pre [1] 3/11 pre-pandemic [1] 3/11 precarious [1] 186/2 precautionary [6] 126/12 126/15 132/7 132/17 132/24 155/22 precautions [3] 52/3 61/4 77/23 precedence [1] 120/12 preceding [1] 87/1 precise [2] 12/12 132/18 precisely [2] 31/8 76/6 precision [1] 45/8 predicted [1] 143/15 predicting [3] 27/25 53/8 53/10 prediction [4] 9/14 15/18 27/7 27/13 predictions [3] 9/12 53/12 178/14 predictive [1] 53/10 preferable [1] 203/5 premise [1] 116/23 preparation [4] 103/17 124/22 171/6 200/8 prepare [4] 113/10 124/12 129/7 200/12 prepared [3] 1/10 55/24 157/17 preparedness [5] 21/6 26/24 34/1 174/5 174/22 preparing [6] 13/17 28/17 199/23 199/23

P	118/10 118/16 121/3 121/5 121/6 121/6 privately [1] 118/5 prize [1] 153/19 proactive [2] 145/25 183/1 probably [13] 15/25 18/1 41/8 49/19 52/20 94/25 144/4 176/18 178/16 182/9 189/4 189/4 193/7 probe [2] 114/13 114/13 probed [4] 111/9 111/10 115/5 116/1 probing [1] 111/12 problem [9] 14/22 28/5 36/22 61/25 79/12 91/3 149/19 165/2 176/10 problems [3] 62/3 80/10 130/9 procedural [1] 96/16 procedure [3] 70/5 70/7 106/24 procedures [1] 142/5 proceed [2] 107/21 158/12 process [8] 21/9 86/13 115/7 119/7 119/9 135/5 150/3 158/9 processes [1] 159/13 processing [1] 153/8 prod [1] 108/8 produce [1] 187/25 produced [8] 9/12 85/15 87/13 102/14 103/23 104/23 140/1 165/11 product [1] 104/18 professional [3] 7/24 80/4 177/13 professor [129] 1/5 1/6 1/10 1/24 2/5 2/19 2/25 3/24 3/24 4/9 5/6 8/4 9/9 10/16 11/6 19/21 23/22 32/8 33/1 35/7 35/7 38/20 39/4 42/17 42/21 42/22 42/25 43/3 43/17 46/1 46/14 47/13 47/19 48/8 48/23 51/13 52/22 53/17 54/20 56/23 57/6 58/25 60/15 63/5 64/19 67/25 70/2 70/22 72/4 72/11 72/14 72/22 73/3 73/12 75/12 75/16 76/4 79/1 79/4 79/17 79/18 79/20 79/24 80/5 84/7 95/20 96/2 103/4 103/4 103/5 103/6 122/22	123/11 123/13 125/2 126/17 130/8 133/9 134/9 136/11 137/6 138/9 140/18 144/11 145/6 146/13 147/6 148/6 148/7 150/6 151/4 153/20 153/21 155/16 156/7 157/7 157/24 160/8 161/6 162/12 163/12 163/18 165/13 165/13 166/1 167/25 168/13 169/15 170/20 170/25 171/4 171/14 171/20 172/9 175/16 175/23 176/6 176/9 176/11 176/17 176/18 177/15 190/17 204/18 204/22 206/3 206/9 207/6 207/13 Professor Andrew Hayward [2] 176/6 176/17 Professor Costello [5] 79/17 122/22 123/13 170/25 175/23 Professor Dame [3] 171/4 171/20 172/9 Professor Edmunds [5] 42/17 43/3 47/13 64/19 103/4 Professor Edmunds's [2] 46/1 46/14 Professor Ferguson [1] 103/4 Professor Hale [4] 39/4 72/22 73/12 75/16 Professor Hale's [1] 75/12 Professor Hayward [1] 204/18 Professor Keeling [1] 3/24 Professor Mark Woolhouse [1] 1/5 Professor Medley [4] 2/25 3/24 35/7 43/17 Professor Riley [1] 42/25 Professor Rubin [1] 103/6 Professor Sir [1] 165/13 Professor Stephen Reicher [1] 168/13 Professor Steven Riley [1] 42/22 Professor Venki Ramakrishnan [1] 153/20 Professor Woolhouse [5] 1/10 10/16 72/11 76/4	130/8 Professor Yardley [1] 103/5 profile [1] 200/21 programme [1] 187/12 progress [1] 142/12 promise [1] 79/5 promoting [2] 88/9 174/1 proper [8] 85/11 95/11 108/20 149/11 150/3 159/21 161/17 166/24 properly [5] 62/20 115/5 116/1 118/18 160/19 proportion [5] 8/23 130/15 130/16 130/21 130/22 proportional [1] 152/14 proportionality [2] 100/1 120/17 proportionate [3] 98/17 99/25 102/18 proposal [3] 62/13 62/16 62/21 proposals [1] 103/3 propose [1] 100/20 proposed [9] 55/3 56/25 57/7 59/1 59/3 59/10 74/12 101/10 111/6 proposition [1] 98/10 protect [6] 59/7 59/22 59/25 60/1 97/6 142/13 protected [4] 110/10 118/15 118/16 118/21 protecting [3] 57/3 59/23 198/8 protection [2] 110/20 152/10 protections [1] 110/4 protective [1] 189/14 prove [1] 74/4 proved [1] 103/22 provide [7] 22/12 100/13 104/14 176/16 182/23 184/8 192/3 provided [14] 79/25 80/2 87/18 97/2 97/21 104/13 104/20 108/11 110/18 118/20 121/20 178/18 183/23 191/10 provides [1] 43/2 providing [1] 184/10 provision [3] 79/24 118/9 119/8 prudent [1] 6/17 psychologists [1] 168/10 public [85] 2/9 52/8	52/21 55/10 55/10 56/15 56/19 56/19 64/22 68/10 69/4 69/11 81/2 81/3 81/15 83/4 83/10 85/8 87/3 87/12 87/15 95/18 100/11 100/11 102/1 106/4 112/22 112/24 113/23 113/25 114/1 115/4 115/8 115/11 115/11 115/16 115/19 118/12 120/9 121/2 121/7 121/17 125/11 126/5 127/23 129/25 135/5 135/17 135/18 135/19 135/21 135/23 135/24 136/5 141/23 143/23 147/5 151/4 152/10 153/3 169/20 169/25 172/13 172/15 173/17 174/10 177/15 181/21 183/24 184/3 184/6 184/13 184/15 184/24 185/5 185/8 185/12 187/2 192/4 194/15 198/3 198/16 198/21 203/13 203/18 publication [4] 85/1 97/18 111/3 122/3 publicly [6] 120/6 120/22 203/7 203/8 203/12 203/19 publish [4] 114/25 119/11 121/8 121/13 published [35] 12/5 12/15 16/17 42/3 62/17 66/10 86/14 86/18 87/8 87/23 87/25 89/9 94/18 99/6 105/6 108/21 115/19 116/20 117/7 117/12 118/6 119/13 120/2 121/12 121/21 124/17 125/17 127/11 127/13 146/5 149/9 162/9 177/11 189/7 194/18 publishing [3] 86/19 99/13 112/4 pubs [1] 198/20 pulled [1] 181/6 pulling [1] 150/2 punch [1] 54/18 purely [2] 52/10 180/14 purpose [8] 50/17 100/3 100/14 100/20 101/2 101/4 106/13 110/13 purpose-built [1] 50/17 purposes [9] 26/22 60/11 80/22 99/5 103/2 103/10 103/12 110/21 123/18
----------	---	--	---	--

<p>P</p> <p>pursue [2] 89/11 159/24</p> <p>pursued [1] 160/16</p> <p>pursuing [1] 158/16</p> <p>put [43] 9/16 31/22 32/18 32/23 32/24 44/20 55/7 56/6 58/6 59/13 70/15 78/10 81/11 90/12 90/18 92/21 103/9 111/19 112/18 113/1 113/19 114/17 115/4 115/19 116/17 117/15 121/9 121/10 121/16 121/22 123/6 139/15 141/19 145/12 145/25 146/14 147/2 149/14 152/16 156/17 164/24 174/21 175/3</p> <p>putting [5] 20/3 37/23 85/12 104/1 150/3</p>	<p>207/11 207/15</p> <p>quickly [14] 9/2 16/13 50/15 89/21 91/21 92/2 92/2 131/6 137/22 139/16 151/24 154/18 165/1 196/9</p> <p>quite [35] 4/18 10/1 15/6 15/16 17/24 17/25 20/14 26/13 30/6 36/8 37/7 43/11 45/2 49/2 49/5 49/24 52/8 53/3 54/12 63/11 64/8 64/13 67/10 83/23 91/5 94/20 117/2 118/18 122/17 131/6 151/2 165/24 183/17 204/3 205/4</p> <p>quotation [1] 173/21</p> <p>quote [3] 94/1 97/11 106/3</p> <p>quoted [1] 204/7</p> <p>quoting [1] 127/4</p>	<p>188/2 190/25 194/3 194/20 198/4 204/1 204/3</p> <p>rather [19] 4/5 12/20 32/13 33/14 39/5 40/23 97/13 107/14 133/5 137/9 144/1 147/11 159/24 160/17 164/11 180/12 181/24 183/1 184/10</p> <p>ratio [1] 17/18</p> <p>rationale [3] 181/6 181/7 203/15</p> <p>re [3] 64/3 85/18 161/14</p> <p>re-emerged [1] 161/14</p> <p>re-opened [1] 64/3</p> <p>re-opening [1] 85/18</p> <p>reach [3] 126/24 144/22 204/3</p> <p>reached [7] 24/2 26/17 30/8 61/13 123/7 144/21 201/25</p> <p>reaches [1] 135/15</p> <p>reaction [1] 31/4</p> <p>reactive [1] 183/1</p> <p>read [14] 24/15 29/20 43/24 72/15 73/7 86/8 103/16 109/16 123/6 144/10 144/19 145/6 170/6 173/20</p> <p>reader [2] 32/8 32/9</p> <p>readership [1] 189/9</p> <p>readily [2] 112/22 119/13</p> <p>reading [2] 104/16 109/5</p> <p>ready [4] 96/2 123/2 134/1 150/13</p> <p>real [12] 28/10 28/13 28/16 51/24 52/25 53/4 91/4 111/2 115/12 158/24 185/13 197/25</p> <p>realisation [1] 74/16</p> <p>realise [1] 46/25</p> <p>realised [1] 41/20</p> <p>realistic [1] 74/13</p> <p>reality [5] 90/15 150/6 157/7 157/14 158/3</p> <p>really [43] 10/1 28/19 28/22 29/17 38/15 39/14 41/5 48/4 53/20 54/19 58/20 59/8 61/7 71/2 81/4 85/7 90/21 90/22 94/2 134/17 149/21 166/14 173/7 178/4 178/6 178/9 180/14 181/24 182/4 185/22 190/12 192/22 194/20 195/10 198/11 199/8 199/14 200/3</p>	<p>201/24 202/5 202/20 203/4 203/21</p> <p>reason [23] 6/23 12/24 17/13 17/14 30/13 44/18 53/2 63/17 65/14 76/6 76/9 77/2 92/12 92/13 113/1 113/17 114/18 114/24 160/1 169/3 169/19 169/21 170/3</p> <p>reasonable [24] 12/8 26/21 27/21 27/22 30/1 30/22 30/23 31/9 31/14 31/18 32/5 32/15 32/20 33/12 37/6 37/9 37/16 98/21 98/24 99/17 117/25 119/1 119/14 120/20</p> <p>reasonably [5] 48/24 104/12 121/19 124/24 162/22</p> <p>reasons [8] 32/16 40/17 40/20 50/5 61/7 120/20 171/13 201/11</p> <p>reassurance [1] 11/16</p> <p>recall [11] 1/17 14/15 15/8 16/7 18/18 37/5 51/4 86/22 120/10 156/7 162/12</p> <p>recalls [1] 73/24</p> <p>receive [1] 163/11</p> <p>received [6] 4/12 5/22 23/2 108/11 114/25 163/11</p> <p>receiving [1] 113/5</p> <p>recently [2] 65/1 171/9</p> <p>recognised [3] 59/11 115/6 170/2</p> <p>recognising [1] 14/19</p> <p>recognition [2] 163/23 192/22</p> <p>recollection [1] 62/18</p> <p>recommend [1] 56/17</p> <p>recommendation [2] 47/24 88/4</p> <p>recommendations [2] 87/19 202/8</p> <p>recommended [2] 167/13 203/11</p> <p>recommending [2] 56/11 141/12</p> <p>record [4] 41/18 126/16 136/14 145/18</p> <p>recorded [2] 17/19 31/5</p> <p>records [2] 29/12 64/21</p> <p>recourse [1] 104/23</p> <p>recruit [1] 192/25</p>	<p>recruiting [1] 193/6</p> <p>redacted [2] 98/20 133/19</p> <p>redaction [1] 116/4</p> <p>redactions [3] 98/4 104/22 110/17</p> <p>redrafts [1] 71/3</p> <p>reduce [9] 57/14 57/20 59/20 89/3 91/4 161/10 191/11 200/17 202/2</p> <p>reduced [1] 41/6</p> <p>reducing [3] 61/3 74/6 158/17</p> <p>reduction [1] 49/19</p> <p>refer [16] 10/10 17/8 25/5 37/19 63/11 63/13 63/14 65/7 70/5 107/17 115/22 146/12 150/24 166/10 167/8 183/22</p> <p>reference [12] 4/17 39/10 60/24 63/15 101/18 103/1 136/16 137/12 137/13 166/20 167/10 175/7</p> <p>references [2] 11/23 153/12</p> <p>referred [14] 20/2 27/15 38/21 54/24 55/5 66/25 100/21 116/15 117/4 123/1 127/10 137/14 150/11 154/12</p> <p>referring [8] 12/2 19/13 26/2 34/4 47/6 47/8 151/1 151/25</p> <p>refers [2] 77/12 135/16</p> <p>reflect [3] 53/19 121/1 122/24</p> <p>reflected [3] 35/3 35/13 141/15</p> <p>reflection [1] 33/8</p> <p>reflections [3] 68/3 105/5 194/19</p> <p>reflective [5] 110/3 110/12 115/18 130/12 158/4</p> <p>reforms [1] 135/20</p> <p>regard [2] 106/25 173/23</p> <p>regarding [8] 36/21 125/8 183/19 183/24 194/11 199/16 199/20 201/14</p> <p>regardless [1] 169/25</p> <p>regards [1] 151/18</p> <p>regimes [1] 191/14</p> <p>regional [2] 150/17 153/3</p> <p>regular [6] 60/17 78/22 188/5 189/16</p>
<p>Q</p> <p>QE [1] 160/6</p> <p>qualifications [1] 80/5</p> <p>qualifying [1] 28/12</p> <p>quality [2] 26/2 26/14</p> <p>quarantine [5] 16/14 57/18 57/19 129/17 166/8</p> <p>quarantined [2] 138/24 148/11</p> <p>quarantining [1] 95/12</p> <p>query [1] 153/17</p> <p>question [37] 6/5 7/4 10/22 12/17 14/24 16/21 55/21 63/8 65/19 67/1 68/7 69/22 73/4 77/12 83/19 92/22 104/10 107/7 107/16 111/8 112/7 112/7 112/13 114/6 114/9 115/14 115/15 130/25 136/18 138/11 169/24 169/25 171/21 173/25 175/7 184/1 197/11</p> <p>questioning [1] 100/25</p> <p>questions [32] 1/7 4/10 60/4 68/1 72/6 72/9 72/12 79/2 79/19 81/2 96/21 104/17 111/11 123/12 147/19 147/23 153/23 170/15 170/16 170/19 170/23 170/25 175/17 176/12 204/20 204/21 206/5 206/7 206/11 207/8</p>	<p>R</p> <p>R number [3] 8/11 76/8 76/8</p> <p>R value [1] 139/14</p> <p>RO [7] 8/17 12/3 12/25 20/2 27/19 145/15 146/7</p> <p>RO number [1] 12/25</p> <p>raft [3] 49/23 56/15 57/20</p> <p>raise [5] 17/15 72/5 198/6 200/3 203/8</p> <p>raised [7] 16/25 78/21 126/6 131/12 180/5 187/4 189/9</p> <p>raising [1] 194/14</p> <p>Ramakrishnan [1] 153/20</p> <p>ran [2] 87/12 157/15</p> <p>range [7] 32/18 72/1 83/10 87/14 183/5 183/15 183/16</p> <p>ranges [1] 180/20</p> <p>rapid [4] 47/25 90/18 90/18 136/23</p> <p>rapidly [2] 77/16 181/5</p> <p>rate [37] 8/12 8/18 8/22 9/6 12/4 12/25 13/5 13/5 14/17 17/17 20/2 20/3 20/5 20/10 27/19 27/20 38/9 38/15 57/14 57/21 74/6 90/25 94/7 124/5 131/8 131/13 131/17 131/22 131/25 132/2 132/8 132/9 132/22 139/22 147/13 188/25 194/6</p> <p>rates [12] 77/20 78/13 89/4 89/4 174/7</p>	<p>207/11 207/15</p> <p>quickly [14] 9/2 16/13 50/15 89/21 91/21 92/2 92/2 131/6 137/22 139/16 151/24 154/18 165/1 196/9</p> <p>quite [35] 4/18 10/1 15/6 15/16 17/24 17/25 20/14 26/13 30/6 36/8 37/7 43/11 45/2 49/2 49/5 49/24 52/8 53/3 54/12 63/11 64/8 64/13 67/10 83/23 91/5 94/20 117/2 118/18 122/17 131/6 151/2 165/24 183/17 204/3 205/4</p> <p>quotation [1] 173/21</p> <p>quote [3] 94/1 97/11 106/3</p> <p>quoted [1] 204/7</p> <p>quoting [1] 127/4</p>	<p>188/2 190/25 194/3 194/20 198/4 204/1 204/3</p> <p>rather [19] 4/5 12/20 32/13 33/14 39/5 40/23 97/13 107/14 133/5 137/9 144/1 147/11 159/24 160/17 164/11 180/12 181/24 183/1 184/10</p> <p>ratio [1] 17/18</p> <p>rationale [3] 181/6 181/7 203/15</p> <p>re [3] 64/3 85/18 161/14</p> <p>re-emerged [1] 161/14</p> <p>re-opened [1] 64/3</p> <p>re-opening [1] 85/18</p> <p>reach [3] 126/24 144/22 204/3</p> <p>reached [7] 24/2 26/17 30/8 61/13 123/7 144/21 201/25</p> <p>reaches [1] 135/15</p> <p>reaction [1] 31/4</p> <p>reactive [1] 183/1</p> <p>read [14] 24/15 29/20 43/24 72/15 73/7 86/8 103/16 109/16 123/6 144/10 144/19 145/6 170/6 173/20</p> <p>reader [2] 32/8 32/9</p> <p>readership [1] 189/9</p> <p>readily [2] 112/22 119/13</p> <p>reading [2] 104/16 109/5</p> <p>ready [4] 96/2 123/2 134/1 150/13</p> <p>real [12] 28/10 28/13 28/16 51/24 52/25 53/4 91/4 111/2 115/12 158/24 185/13 197/25</p> <p>realisation [1] 74/16</p> <p>realise [1] 46/25</p> <p>realised [1] 41/20</p> <p>realistic [1] 74/13</p> <p>reality [5] 90/15 150/6 157/7 157/14 158/3</p> <p>really [43] 10/1 28/19 28/22 29/17 38/15 39/14 41/5 48/4 53/20 54/19 58/20 59/8 61/7 71/2 81/4 85/7 90/21 90/22 94/2 134/17 149/21 166/14 173/7 178/4 178/6 178/9 180/14 181/24 182/4 185/22 190/12 192/22 194/20 195/10 198/11 199/8 199/14 200/3</p>	<p>201/24 202/5 202/20 203/4 203/21</p> <p>reason [23] 6/23 12/24 17/13 17/14 30/13 44/18 53/2 63/17 65/14 76/6 76/9 77/2 92/12 92/13 113/1 113/17 114/18 114/24 160/1 169/3 169/19 169/21 170/3</p> <p>reasonable [24] 12/8 26/21 27/21 27/22 30/1 30/22 30/23 31/9 31/14 31/18 32/5 32/15 32/20 33/12 37/6 37/9 37/16 98/21 98/24 99/17 117/25 119/1 119/14 120/20</p> <p>reasonably [5] 48/24 104/12 121/19 124/24 162/22</p> <p>reasons [8] 32/16 40/17 40/20 50/5 61/7 120/20 171/13 201/11</p> <p>reassurance [1] 11/16</p> <p>recall [11] 1/17 14/15 15/8 16/7 18/18 37/5 51/4 86/22 120/10 156/7 162/12</p> <p>recalls [1] 73/24</p> <p>receive [1] 163/11</p> <p>received [6] 4/12 5/22 23/2 108/11 114/25 163/11</p> <p>receiving [1] 113/5</p> <p>recently [2] 65/1 171/9</p> <p>recognised [3] 59/11 115/6 170/2</p> <p>recognising [1] 14/19</p> <p>recognition [2] 163/23 192/22</p> <p>recollection [1] 62/18</p> <p>recommend [1] 56/17</p> <p>recommendation [2] 47/24 88/4</p> <p>recommendations [2] 87/19 202/8</p> <p>recommended [2] 167/13 203/11</p> <p>recommending [2] 56/11 141/12</p> <p>record [4] 41/18 126/16 136/14 145/18</p> <p>recorded [2] 17/19 31/5</p> <p>records [2] 29/12 64/21</p> <p>recourse [1] 104/23</p> <p>recruit [1] 192/25</p>

R	remotest [1] 40/4	49/10	retrospectively [1] 103/23	risk [29] 31/21 32/13 32/15 58/5 58/8 60/23 61/1 61/5 61/24 63/17 63/23 63/24 64/1 64/5 64/7 75/25 76/24 126/6 168/15 173/9 188/8 188/11 190/10 190/22 192/3 192/12 193/15 198/3 198/17
regular... [2] 191/14 191/19	remove [1] 158/14	residents [1] 191/13	return [3] 51/8 70/11 197/9	risk-structured [1] 60/23
regulations [3] 52/11 52/19 144/4	repeat [4] 32/3 98/6 176/15 197/14	resilience [1] 105/10	returning [3] 78/3 99/22 122/22	risks [3] 175/2 192/9 192/10
Reicher [1] 168/13	repeated [2] 39/18 125/25	resisting [1] 71/24	Reuters [2] 34/16 124/21	roadmap [1] 199/6
reinforced [1] 119/19	repeatedly [1] 37/8	resolved [1] 117/9	reveal [2] 112/9 113/2	robust [2] 196/11 196/23
related [7] 16/18 55/1 163/16 182/9 182/20 183/2 192/8	repeating [1] 114/4	resort [1] 56/22	revealed [1] 113/11	role [6] 7/1 65/4 69/3 179/11 185/8 197/24
relates [1] 57/11	replay [1] 23/13	respect [6] 98/16 99/24 101/18 104/11 114/15 196/23	reverse [2] 61/21 134/15	roles [2] 133/15 178/21
relating [2] 102/5 175/7	report [42] 5/23 14/7 14/8 14/13 26/3 33/25 34/3 64/18 64/25 65/5 65/9 72/16 72/17 73/2 75/12 76/18 85/16 85/16 86/1 86/9 87/23 88/11 101/17 114/16 114/17 125/18 125/20 126/1 128/17 145/14 146/10 148/22 149/4 149/9 189/19 194/17 195/19 200/1 200/18 200/19 200/21 201/2	respected [1] 10/19	reverted [1] 3/10	roll [1] 74/18
relation [28] 72/14 93/8 106/22 127/16 148/24 179/21 182/10 184/22 187/21 187/23 188/16 191/6 192/1 192/19 193/11 194/9 196/25 197/11 197/13 197/15 197/16 199/19 199/22 202/17 202/19 203/9 203/10 203/12	report 29 [1] 85/16	respectfully [4] 106/15 106/19 107/2 107/20	review [3] 56/5 75/15 197/2	rolled [1] 134/3
relationship [2] 146/7 180/18	reported [4] 125/11 125/14 142/24 200/25	respond [5] 37/12 37/13 53/11 89/21 90/10	reviewed [2] 11/13 34/1	rolling [1] 86/20
relative [1] 58/24	reporting [3] 100/17 100/21 154/17	responded [3] 13/20 15/13 171/21	revolves [1] 23/22	Rolls [1] 109/8
relatively [4] 58/4 165/4 166/3 194/18	reports [10] 64/21 65/1 86/5 87/13 87/18 127/10 131/8 193/14 193/19 193/21	responders [1] 173/15	Richard [1] 165/15	room [4] 73/23 100/17 100/22 114/16
Relativity [1] 171/13	reporting [3] 100/17 100/21 154/17	responding [1] 52/10	Richard Horton [1] 165/15	root [1] 38/6
release [1] 97/12	reports [10] 64/21 65/1 86/5 87/13 87/18 127/10 131/8 193/14 193/19 193/21	response [36] 7/8 7/10 11/25 13/19 13/22 15/23 17/5 21/1 21/11 21/11 22/8 22/9 22/12 24/9 33/8 34/1 34/2 34/6 36/22 36/25 39/16 41/8 46/1 46/11 46/16 53/16 88/8 88/15 88/19 97/20 104/17 143/12 149/22 172/2 174/23 182/23	right [77] 1/21 4/18 5/7 5/10 6/5 7/21 9/20 11/25 15/10 18/16 22/1 28/4 32/22 43/2 44/20 47/18 51/4 63/5 64/8 64/13 67/24 78/18 82/18 84/17 84/25 86/13 87/16 89/7 98/8 99/23 112/16 114/3 119/20 120/14 120/16 121/4 121/5 122/11 122/22 128/15 130/7 131/5 132/6 132/10 140/4 140/25 141/17 142/22 143/22 144/7 148/1 155/1 155/21 156/2 156/5 158/11 160/22 160/24 162/7 165/10 166/24 167/2 167/21 168/20 169/3 171/6 172/22 179/14 186/10 189/7 192/2 192/5 192/10 192/15 195/11 196/25 205/1	roughly [4] 5/22 44/22 50/13 193/3
released [4] 86/23 86/24 87/2 112/24	represent [5] 45/20 76/21 83/3 97/7 171/17	responsible [1] 184/12	route [3] 40/18 70/21 71/8	round [1] 152/3
releases [1] 138/20	representation [3] 184/2 192/23 193/21	rest [7] 116/18 116/18 117/11 117/12 121/12 148/18 149/14	routine [1] 194/22	route [3] 40/18 70/21 71/8
releasing [2] 14/12 191/8	representatives [1] 84/15	restaurants [1] 198/21	routinely [1] 195/18	route [3] 40/18 70/21 71/8
relevance [2] 117/14 117/17	represented [1] 77/2	restrain [1] 136/15	Roy [1] 93/25	route [3] 40/18 70/21 71/8
relevancy [1] 92/23	representing [1] 106/1	restraining [1] 122/3	Roy Anderson [1] 93/25	route [3] 40/18 70/21 71/8
relevant [16] 100/25 101/12 104/24 106/12 107/8 107/12 111/14 113/14 114/9 115/10 116/1 116/5 118/12 119/6 123/7 173/21	reproduction [4] 25/6 25/8 94/7 128/18	restricted [1] 75/8	Rubella [1] 164/7	route [3] 40/18 70/21 71/8
reliable [2] 26/6 91/13	request [4] 97/20 97/21 114/19 115/23	restriction [4] 96/25 114/20 114/23 147/4	Rubin [1] 103/6	route [3] 40/18 70/21 71/8
relief [2] 122/3 196/21	requested [1] 92/8	restrictions [9] 40/8 44/24 49/24 54/15 169/16 199/1 201/15 201/16 202/21	Rudimentary [1] 94/20	route [3] 40/18 70/21 71/8
relying [2] 41/5 75/4	requests [1] 125/25	restrictive [2] 74/21 75/23	Rule [2] 118/9 170/15	route [3] 40/18 70/21 71/8
remain [1] 123/13	require [3] 99/2 102/2 103/8	result [3] 106/13 134/7 147/13	Rule 10 [1] 170/15	route [3] 40/18 70/21 71/8
remained [4] 64/1 65/18 67/5 97/19	required [8] 36/24 82/20 110/23 115/2 117/8 123/23 134/11 154/6	resulted [2] 162/1 162/2	Rule 9 [1] 118/9	route [3] 40/18 70/21 71/8
remaining [1] 54/21	requirement [1] 54/17	results [2] 134/14 194/14	ruled [2] 145/21 146/19	route [3] 40/18 70/21 71/8
remarks [1] 167/8	requires [4] 101/25 104/2 104/9 195/1	retains [2] 98/24 99/23	rules [2] 52/11 52/19	route [3] 40/18 70/21 71/8
remember [12] 31/12 39/17 78/21 78/23 128/6 143/11 149/12 159/3 162/16 171/8 174/12 181/22	research [9] 2/12 2/13 49/6 80/10 137/9 154/22 162/18 163/7 194/1	retired [1] 152/22	ruling [3] 115/17 117/13 117/17	route [3] 40/18 70/21 71/8
remembering [1] 111/17	researching [1] 162/15	retrospective [2] 54/4 160/11	run [4] 134/2 135/4 150/14 180/2	route [3] 40/18 70/21 71/8
remit [2] 4/6 181/24	residential [2] 49/3		run-up [1] 180/2	route [3] 40/18 70/21 71/8
remotely [1] 100/19			running [2] 44/14 129/10	route [3] 40/18 70/21 71/8
			runs [1] 113/6	route [3] 40/18 70/21 71/8

S				
SAGE... [99] 60/17	103/5 107/5 111/14	116/3 119/7 122/23	67/22	186/15 187/10 189/18
60/19 60/22 60/25	111/24 115/25 120/19	125/20 126/13 127/13	schools [17] 64/3	197/4 198/14 199/7
62/5 62/15 62/23 68/2	123/3 128/16 131/19	130/4 132/8 134/21	66/1 66/5 66/9 66/12	secondary [1] 188/4
68/4 68/5 70/3 70/8	132/12 148/22 151/13	135/8 138/6 138/14	66/19 67/1 67/5 67/12	secondly [5] 61/17
70/8 70/15 71/13	155/11 159/10 159/21	139/1 142/8 143/14	67/14 67/19 67/21	91/12 123/19 178/23
71/20 74/2 80/23	174/13 174/13 174/14	144/2 153/16 155/22	67/23 77/7 77/8 175/2	187/13
80/25 81/1 81/8 81/19	188/12 194/13	157/10 157/11 163/17	202/11	secretariat [1]
81/20 81/22 81/22	SARS [29] 16/3 16/8	166/11 166/13 170/12	Schools' [1] 85/17	133/19
81/23 81/25 82/2 82/4	16/10 16/17 16/18	171/10 171/18 172/2	science [14] 53/9	section [6] 60/14
82/5 82/6 82/12 82/13	16/22 16/24 17/2	174/21 178/9 183/2	53/10 56/4 89/6 124/4	75/12 96/24 114/19
82/15 82/18 82/19	23/14 24/8 24/12	184/23 185/4 189/8	146/4 146/15 154/12	114/22 119/19
82/21 82/22 82/23	30/13 37/13 39/25	190/12 196/8	169/15 172/23 175/9	section 19 [1] 114/22
83/7 83/11 83/15	58/24 89/8 89/16	saying [42] 12/9 14/1	180/18 182/20 184/17	section headed [1]
83/17 83/21 84/2	89/23 91/6 94/7 94/10	15/10 15/16 18/10	Sciences [2] 200/2	60/14
84/12 85/2 85/5 85/10	94/11 94/12 94/13	25/22 26/18 27/16	200/19	sections [2] 76/17
85/16 85/24 86/1 86/1	94/15 94/16 132/2	28/13 36/5 36/13 38/2	scientific [17] 2/13	104/24
86/6 86/9 86/11 86/13	132/3 146/6	44/13 50/5 56/12	29/14 54/8 81/21 82/2	sector [1] 191/7
86/14 86/18 86/19	SARS outbreak [1]	62/24 67/2 71/14 74/5	82/15 84/1 84/14	sectors [3] 185/24
86/21 87/8 87/12	16/8	78/10 78/12 82/11	85/23 140/14 142/10	199/2 199/3
88/13 88/17 89/10	SARS-1 [8] 89/8	90/17 113/8 124/18	150/19 153/11 178/24	security [5] 102/5
126/12 133/13 133/15	89/16 89/23 91/6	127/6 129/13 132/18	184/8 187/11 203/15	109/19 109/21 177/22
139/20 141/18 144/5	94/11 94/15 132/3	139/3 142/1 145/9	scientist [4] 5/14	207/1
144/9 145/18 149/24	146/6	145/11 151/11 156/18	84/6 84/22 179/11	see [59] 4/15 6/4
150/7 151/4 151/5	SARS-2 [3] 94/12	156/22 157/20 161/9	84/13 84/17 84/17	7/18 8/10 14/6 15/18
153/12 160/15 163/10	94/13 94/16	161/24 164/16 168/7	91/7 133/23 140/11	17/9 18/20 19/20 20/1
168/11 169/12 170/1	SARS-CoV-2 [1]	190/16 204/7	141/2 165/20	21/10 21/11 21/14
178/22 179/9 181/10	16/17	says [19] 8/22 13/24	84/13 84/17 84/17	22/23 24/15 29/2 29/8
181/17 181/24 182/12	sat [2] 126/12 126/12	14/5 14/11 21/12 22/2	91/7 133/23 140/11	33/4 43/25 44/2 44/8
182/15 183/7 183/16	satisfied [3] 106/14	29/14 29/24 30/17	141/2 165/20	44/11 47/14 50/1 50/4
186/21 186/25 187/1	107/22 107/23	46/2 61/9 73/13 73/14	Scotland [17] 2/15	50/7 50/23 55/20
202/7 203/11 204/9	Saturday [2] 19/7	85/19 113/23 169/14	3/25 4/4 11/3 11/11	60/13 60/22 63/1
SAGE 8 [1] 151/4	32/11	172/9 188/18 201/5	11/22 12/18 21/3 21/5	64/24 69/6 71/13
SAGE EMG [1]	save [2] 115/3 161/4	scale [10] 38/13	21/7 22/13 23/9 26/20	72/17 74/10 92/12
178/22	saved [1] 204/8	73/10 74/10 74/15	27/21 43/20 74/2 92/6	92/13 101/23 115/8
SAGE's [1] 87/9	saw [3] 65/9 142/10	75/10 90/20 127/5	Scotland/UK [1] 23/9	121/23 125/6 133/12
said [59] 14/7 23/3	198/19	130/12 153/15 158/6	Scottish [6] 3/22 4/1	133/23 149/23 154/20
24/4 24/6 24/19 26/3	say [125] 6/13 9/1	scaled [9] 91/8 92/20	4/3 32/11 105/23	166/14 170/16 177/5
26/5 27/10 27/24	9/21 12/1 13/12 18/16	154/4 154/9 155/7	206/18	183/4 183/6 186/24
28/10 28/10 30/22	19/10 19/14 22/15	158/21 159/5 159/13	Scottish	190/15 194/5 198/14
30/25 31/5 31/18 32/4	22/24 22/25 23/10	162/23	Government's [1]	198/20 201/17 201/22
33/2 35/9 36/8 37/8	25/11 25/15 26/13	scaled-up [1] 92/20	4/3	201/25
38/5 41/22 45/9 46/19	26/15 27/5 27/12 28/8	scaling [1] 138/22	scrap [1] 9/13	seeing [2] 52/17
51/15 53/18 54/3 54/9	31/25 32/21 33/10	scenario [30] 12/8	screen [14] 1/13 4/16	114/8
54/18 56/7 57/11	33/14 34/15 36/11	12/10 12/14 16/25	96/18 100/15 104/5	seeking [1] 10/18
66/11 69/13 71/7	36/20 39/6 40/4 40/5	23/19 23/20 24/10	111/13 112/24 113/14	seeks [1] 115/17
71/14 71/20 76/16	40/22 43/13 43/17	24/11 24/12 26/23	115/19 116/17 117/5	seem [6] 9/16 35/4
81/10 87/18 100/21	43/18 43/25 43/25	27/10 27/16 27/22	121/10 121/16 162/11	35/13 45/17 109/4
81/10 87/18 100/21	45/16 46/11 46/12	30/1 30/6 30/9 30/19	screening [1] 135/1	112/22
114/16 124/10 124/21	46/19 47/23 49/14	30/20 30/23 30/24	screenshots [1]	seemed [3] 5/24 45/2
126/1 129/12 142/21	55/8 56/10 60/5 62/14	31/9 31/15 31/18 37/6	117/19	141/22
143/1 154/5 154/13	63/15 63/17 66/8 66/9	37/9 37/17 46/13	scroll [1] 133/25	seems [7] 4/16 18/10
158/20 163/9 168/2	66/17 66/24 68/8	46/14 46/20 154/14	season [2] 23/20	24/21 27/2 57/2
169/1 170/7 170/9	68/24 70/13 70/13	scenarios [7] 9/12	150/22	107/14 110/14
172/3 173/14 173/23	71/6 71/7 76/25 87/13	12/6 23/6 28/22 30/2	seasonal [4] 13/6	13/6 42/5 132/4
174/23	93/5 93/11 94/9 94/10	30/5 30/17	13/6 42/5 132/4	second [31] 8/10
sake [1] 151/10	95/14 95/22 98/6	scheduled [1] 96/1	15/18 19/10 23/18	23/18 25/14 30/17
same [41] 8/5 8/8	98/15 98/18 98/19	scheme [1] 169/2	30/18 30/20 41/2	76/15 88/21 97/4

S	seriousness [2] 34/20 35/15	shortly [5] 11/20 19/6 19/8 22/10 137/6	30/23 34/12 174/14 174/20 194/16	slightly [3] 17/6 25/10 27/12
segmentation... [2] 61/16 62/11	serological [1] 64/22	should [65] 28/3 28/17 32/6 38/22	simply [20] 4/6 18/12 18/14 28/8 34/5 41/4	slipped [1] 186/18
segmented [1] 61/23	served [1] 102/19	38/24 42/12 47/21	52/18 53/25 71/13	slow [5] 6/6 48/24 74/18 139/9 140/13
Select [1] 163/3	service [3] 184/24 198/2 200/12	54/25 56/22 59/3	88/6 88/9 88/24 91/3	slowing [2] 139/11 141/4
self [8] 54/16 59/14 74/14 74/18 75/1 128/21 168/21 168/23	services [2] 79/6 135/19	60/15 65/22 67/1	103/16 111/13 113/12	slowness [1] 143/12
self-imposed [1] 54/16	session [1] 36/4	68/17 71/13 72/2	115/8 115/25 163/23	small [9] 20/1 54/12 58/4 73/10 110/17 130/15 130/22 163/5 165/6
self-isolation [3] 59/14 168/21 168/23	set [29] 42/21 47/16 50/20 68/11 70/19	78/10 88/5 96/17	168/23	small-scale [1] 73/10
self-sustaining [1] 128/21	71/9 73/24 81/1 82/3	98/10 104/9 104/24	since [5] 41/17 48/11	smaller [2] 106/18 106/18
self-testing [2] 74/14 74/18	82/25 85/11 92/15	107/21 110/17 111/16	97/23 170/8 177/21	Smith [5] 21/14 100/23 101/7 103/13 103/15
self-tests [1] 75/1	97/1 98/5 129/15	113/25 114/5 115/11	Singer [1] 129/22	Smith's [3] 101/5 102/17 106/24
send [3] 18/20 22/15 133/22	138/21 142/4 146/24	115/14 115/16 115/24	single [4] 70/18 121/11 128/19 178/19	snapshot [1] 97/7
sending [4] 14/8 15/13 20/23 86/9	153/18 179/7 179/15	116/6 122/23 124/9	Sir [41] 5/9 85/15	so [323]
sense [3] 55/13 77/14 184/16	181/11 181/11 182/19	124/9 127/20 129/6	85/22 86/4 86/6 96/11	so -- may I [1] 71/11
sensible [2] 20/18 103/19	182/22 189/25 191/21	129/14 129/17 133/2	96/13 96/17 97/3	so-called [1] 141/10
sensitive [3] 70/25 100/12 121/24	194/23 195/20	133/4 134/1 136/10	97/17 97/21 98/8	social [14] 44/5 44/10 59/21 68/19 133/22 147/3 165/25 166/3 169/16 179/22 180/16 181/4 199/17 201/9
sensitivity [3] 98/3 105/13 134/4	sets [2] 39/15 162/13	137/1 140/19 140/20	98/21 98/24 99/23	social care [1] 59/21
sent [18] 4/11 5/6 7/14 7/18 7/19 14/6	setting [3] 73/8 129/14 188/4	149/1 149/21 150/1	102/10 102/24 104/11	societal [1] 68/22
15/1 15/9 15/14 22/9	settings [12] 76/21	150/13 154/19 155/10	105/3 105/6 106/1	society [6] 40/25 53/15 68/14 138/6 198/19 199/2
22/23 25/1 29/7 46/11	77/10 77/25 78/1 78/4	157/11 157/12 169/18	106/5 106/6 110/3	solicitor [1] 117/1
117/22 129/21 143/13	78/7 136/23 182/7	169/21 170/2 173/24	111/18 112/3 114/7	solicitors [1] 102/20
167/5	189/6 189/15 198/12	176/19 179/24 180/1	114/12 115/17 116/16	solutions [1] 80/9
sentence [2] 166/12 178/1	198/24	180/5 183/13 194/20	118/1 118/5 119/1	sombrero [2] 142/18 161/10
sentences [1] 8/14	several [2] 39/18 155/13	show [9] 49/8 69/25	119/13 121/4 121/18	sombrero as [1] 142/18
sentiment [1] 34/12	severe [10] 26/23 40/7 44/3 44/19 44/23	82/24 89/6 137/21	122/14 153/19 163/8	some [77] 3/17 4/10 12/19 15/14 20/16 25/4 25/4 25/16 25/22 26/8 28/5 29/18 32/17 33/22 35/3 35/7 36/21 40/8 42/15 49/6 50/14 51/16 52/5 54/5 60/4 63/24 66/3 68/1 74/21 82/10 83/3 83/9 83/18 84/9 85/1 85/3 88/8 89/16 94/20 97/14 102/1 103/1 103/14 104/15 105/1 108/10 125/4 135/6 144/5 146/3 146/5 150/6 152/22 156/8 165/24 168/14 169/11 170/14 170/16 171/5 171/17 172/4 172/8 172/20 173/4 173/8 178/25 180/15 181/6 182/9 183/23 192/6 193/2
separate [5] 65/17 82/24 117/5 136/20 149/3	49/24 54/10 76/13	146/5 146/8 189/5	165/13 206/16	
separating [1] 186/16	202/4 203/3	197/25	Sir David King [2] 85/22 86/4	
separation [1] 184/16	severely [1] 143/11	showed [10] 91/7 127/16 140/1 145/14	Sir Jeremy Farrar [2] 5/9 163/8	
September [5] 80/1 177/4 177/6 203/11 204/10	severity [1] 23/23	145/19 147/16 148/20	Sir Patrick [15] 97/17	
September 2020 [1] 203/11	sexual [1] 155/13	148/23 160/15 168/18	97/21 98/21 98/24	
sequelae [2] 62/1 77/17	shall [5] 2/17 11/7 14/9 51/8 122/24	showing [5] 42/3 89/10 100/15 101/6 126/21	99/23 104/11 105/3	
sequence [2] 16/17 35/18	share [1] 34/16	shown [4] 99/7 102/4 104/4 115/25	105/6 106/6 110/3	
sequitur [1] 156/25	shared [6] 14/23 21/13 77/5 97/18	shows [4] 94/2 146/6 146/16 155/3	114/7 114/12 115/17	
serial [2] 94/25 160/1	115/1 132/12	sick [6] 157/10 168/25 169/1 190/25 191/2 191/9	118/5 119/13	
series [2] 4/11 60/5	shares [1] 105/8	side [1] 178/12	Sir Patrick Vallance [9] 85/15 86/6 96/11 96/13 106/1 121/4 121/18 122/14 206/16	
serious [7] 24/2 74/12 81/16 124/14 124/19 124/22 132/4	sharing [1] 21/18	sides [1] 98/1	Sir Patrick's [11] 96/17 97/3 98/8	
seriously [3] 99/10 130/11 147/3	sharp [1] 196/20	sight [2] 49/25 58/1	102/10 102/24 106/5	
	she [9] 20/25 21/11 21/12 21/12 22/2 22/2	signal [2] 194/5 196/13	111/18 112/3 116/16	
	172/3 172/15 174/19	signals [1] 201/22	118/1 119/1	
	she's [1] 108/8	signed [4] 1/20 80/1 99/4 177/6	sister [2] 187/14 192/19	
	shielding [5] 57/12 57/23 59/11 59/13 62/11	significance [7] 8/15 16/4 39/12 108/18	sit [1] 108/23	
	ship [4] 148/8 148/10 148/13 148/16	108/18 125/19 156/11	sits [1] 176/21	
	shocked [1] 81/5	significant [15] 6/14 8/15 15/11 17/23	sitting [1] 68/5	
	Shoe [1] 95/17	19/16 63/16 65/3	situation [9] 18/8 24/17 34/21 35/16	
	shops [1] 198/17	73/11 75/19 125/5	39/23 97/16 127/7	
	short [13] 51/10 72/13 72/20 87/13	163/21 171/17 178/24	149/6 194/24	
	91/1 96/6 97/4 108/22	191/5 191/16	six [5] 91/17 125/15 157/16 157/19 174/23	
	148/3 158/24 159/20	significantly [3] 80/22 132/4 191/24	six weeks [3] 91/17 157/16 157/19	
	169/17 204/15	similar [7] 19/22 30/4	sizable [1] 201/10	
	shorter [1] 93/8		size [2] 44/23 152/15	
	shorthand [1] 132/18		sizeable [1] 199/20	
			skeleton [1] 119/24	

S	151/14 159/4 159/9 166/10 174/11 174/12	spread [28] 30/3 30/14 30/18 49/15 73/10 74/4 74/7 81/16 88/7 91/4 91/10 93/24 123/19 126/23 131/3 137/8 139/9 139/11 140/13 141/5 142/6 146/7 148/15 158/18 160/5 178/5 182/1 188/9	146/25 154/13 156/18 157/10 158/12 163/17 167/22 169/6 170/5 170/7 175/10 177/3 177/7 178/18 179/4 179/15 183/22 184/21 187/22 191/23 193/13 195/13 195/23 199/19	strategically [1] 159/22
some... [4] 193/18 194/2 194/14 205/4	South Korea [6] 136/10 151/14 159/4 159/9 166/10 174/12	spreading [6] 131/6 143/15 144/24 147/9 155/8 162/4	statements [8] 96/22 104/13 107/12 107/14 107/19 123/1 153/10 168/14	strategies [1] 146/9 strategy [29] 23/10 88/23 89/11 91/3 92/24 93/1 93/9 137/8 137/11 137/14 137/15 137/17 140/21 141/15 142/15 142/15 157/20 159/25 160/16 162/8 162/13 162/20 163/24 164/17 167/6 186/17 196/2 196/18 196/19
somebody [5] 8/2 69/5 95/15 132/21 182/14	South Korean [1] 174/11	spreads [4] 123/23 131/1 132/13 135/14	statistic [1] 58/8 statistical [1] 9/14 statutorily [1] 119/19	stream [1] 49/16 streets [1] 124/16 strength [1] 23/3 stress [1] 27/6 stressed [1] 198/7 stressful [1] 97/6 strict [5] 99/1 99/12 110/22 115/3 173/4 strictly [1] 71/17 strike [1] 22/8 strikes [1] 101/16 striking [1] 67/20 stringent [1] 168/3 strong [2] 78/1 185/22
somehow [1] 45/3	space [2] 97/15 121/5	spring [1] 60/6	stay [8] 41/14 54/11 54/17 69/15 77/21 138/6 149/7 199/11	strongly [4] 44/21 55/8 73/22 143/17
someone [6] 5/12 7/22 36/9 58/9 132/20 201/15	spaces [1] 198/21	Sridhar [1] 165/18	stayed [1] 152/25	struck [3] 81/16 100/6 161/22
something [29] 4/2 10/1 10/3 10/10 12/11 13/7 13/16 18/11 20/18 28/7 28/17 35/20 36/2 39/2 41/13 41/16 45/25 52/25 60/2 63/2 63/6 71/23 101/13 131/12 132/11 165/9 168/2 174/20 185/20	SPC [1] 140/20 SPC-M [1] 140/20	staff [11] 122/5 173/14 173/15 190/13 190/18 190/20 190/21 190/25 191/11 191/13 191/17	stenographer [4] 122/17 122/19 136/14 176/21	structure [3] 68/4 159/1 186/19
sometimes [1] 73/24	species [1] 16/20	stage [23] 11/2 18/4 41/17 79/12 94/17 130/19 131/24 133/9 135/5 145/23 146/5 146/22 147/8 150/1 151/13 158/6 193/3 194/9 194/12 197/5 198/16 203/23 204/15	step [5] 101/3 155/3 155/5 162/19 182/22	structured [1] 60/23 structures [2] 50/20 78/16
sometimes [1] 164/7	specific [6] 65/25 134/1 150/13 182/20 185/16 186/16	stages [4] 14/21 76/20 95/15 159/3	step 1 [1] 162/19	studies [15] 54/5 66/11 131/7 178/24 182/5 182/10 187/11 187/13 191/21 192/7 192/23 193/20 197/9 197/16 197/24
somewhat [1] 81/5	specifically [3] 81/1 82/12 159/6	stand [2] 26/19 44/5	steps [5] 129/7 141/19 145/25 147/3 155/24	study [28] 178/3 187/14 187/15 187/15 187/16 187/21 187/23 188/11 188/17 189/1 189/4 189/11 189/18 189/19 190/2 190/4 190/5 190/7 191/5 192/14 192/19 192/20 192/22 193/4 193/8 197/11 197/17 201/20
somewhere [3] 69/5 94/15 95/3	speculate [1] 144/6	standard [1] 9/18	Stephen [1] 168/13	style [1] 168/16
soon [5] 16/16 85/18 123/2 194/18 198/19	speed [1] 144/25	standing [3] 3/4 14/22 151/13	steps [5] 129/7 141/19 145/25 147/3 155/24	subcommittee [1] 144/9
sooner [1] 143/6	speedily [1] 122/17	start [14] 4/9 4/10 5/5 6/18 10/16 13/17 21/5 43/9 80/4 134/17 147/3 151/14 185/15 193/2	Stephen [1] 168/13	subcommittees [3] 34/20 83/21 186/22
sophisticated [1] 20/14	spend [1] 177/23	started [10] 86/19 88/16 92/4 92/9 129/20 172/24 181/20 188/12 198/20 201/25	step 1 [1] 162/19	subgroup [15] 179/8 181/11 181/13 181/16 181/17 181/18 181/19 181/23 181/23 182/11 182/15 182/18 183/4 183/7 186/23
sorry [31] 6/3 7/12 10/13 11/18 18/25 22/19 22/22 47/10 48/23 48/25 57/19 59/2 65/2 66/21 66/23 79/20 84/7 95/24 96/4 109/11 115/15 136/11 148/5 154/1 159/6 160/8 176/8 176/15 187/7 197/14 205/3	spending [2] 49/10 169/2	stander [1] 165/24	step 1 [1] 162/19	
sort [21] 6/25 9/22 16/2 19/11 31/21 33/7 35/14 55/3 60/6 62/3 63/12 64/23 68/10 135/25 138/4 178/9 178/10 181/25 182/21 187/19 189/8	spent [4] 80/16 160/4 168/25 184/13	stand [2] 26/19 44/5	steps [5] 129/7 141/19 145/25 147/3 155/24	
sort of [16] 6/25 9/22 16/2 31/21 35/14 55/3 60/6 62/3 64/23 68/10 138/4 178/10 181/25 182/21 187/19 189/8	SPI [34] 2/22 3/2 3/14 31/13 33/5 35/24 36/3 37/6 42/23 43/5 62/19 66/3 67/11 68/4 68/7 68/9 68/13 68/24 69/1 76/19 78/22 78/23 83/12 139/8 140/8 140/11 141/1 144/9 144/20 145/6 168/12 180/8 180/9 180/9	standard [1] 9/18	step 1 [1] 162/19	
sorts [2] 153/15 154/9	SPI-B [2] 83/12 168/12	standing [3] 3/4 14/22 151/13	steps [5] 129/7 141/19 145/25 147/3 155/24	
sought [1] 118/8	SPI-M [10] 3/2 66/3 67/11 139/8 140/8 140/11 141/1 180/8 180/9 180/9	start [14] 4/9 4/10 5/5 6/18 10/16 13/17 21/5 43/9 80/4 134/17 147/3 151/14 185/15 193/2	step 1 [1] 162/19	
sound [4] 13/15 53/8 62/5 190/3	SPI-M-O [22] 2/22 3/14 31/13 33/5 35/24 36/3 37/6 42/23 43/5 62/19 68/4 68/7 68/9 68/13 68/24 69/1 76/19 78/22 78/23 144/9 144/20 145/6	started [10] 86/19 88/16 92/4 92/9 129/20 172/24 181/20 188/12 198/20 201/25	steps [5] 129/7 141/19 145/25 147/3 155/24	
sounding [1] 7/4	spillover [1] 61/11	starting [7] 11/24 24/22 33/8 42/8 44/11 60/14 201/18	step 1 [1] 162/19	
sounds [1] 67/16	spinning [1] 102/21	starts [1] 19/1	steps [5] 129/7 141/19 145/25 147/3 155/24	
source [1] 50/17	spirit [1] 113/24	stated [2] 128/22 174/4	step 1 [1] 162/19	
sources [2] 102/25 186/9	spoke [3] 85/8 200/11 203/19	statement [63] 1/11 1/15 1/17 1/18 1/19 2/20 4/14 4/20 34/10 34/15 35/10 39/3 39/5 47/18 48/8 49/18 54/23 55/6 63/9 63/11 65/8 68/3 68/9 70/6 70/11 76/3 76/19 79/25 79/25 86/12 97/3 97/4 104/15 107/10 125/8 142/8 144/10 144/20 146/12	step 1 [1] 162/19	
South [7] 136/10	spoken [2] 203/7 203/8	statement [63] 1/11 1/15 1/17 1/18 1/19 2/20 4/14 4/20 34/10 34/15 35/10 39/3 39/5 47/18 48/8 49/18 54/23 55/6 63/9 63/11 65/8 68/3 68/9 70/6 70/11 76/3 76/19 79/25 79/25 86/12 97/3 97/4 104/15 107/10 125/8 142/8 144/10 144/20 146/12	step 1 [1] 162/19	

S	suggested [2] 65/20 101/13	147/15 149/18 150/24 151/2 152/4 156/15	166/11	technical [2] 17/4 171/13	
subgroups [12]	suggesting [3] 24/16 46/6 84/11	surely [2] 114/22 161/14	take [43] 3/8 4/14 4/17 9/2 11/20 12/2 15/5 19/21 21/21 24/17 30/21 32/9 33/1 33/21 48/5 52/22 60/8 61/21 63/6 67/18 69/11 70/22 88/5 94/21 95/8 107/4 124/10 125/4 126/17 139/8 140/13 141/3 145/25 146/16 146/24 155/5 155/24 156/2 170/9 171/14 194/24 195/5 199/4	take weeks [1] 30/21	technically [1] 8/18
70/15 181/9 182/18 183/16 183/20 185/20 186/11 186/12 186/12 186/16 186/16 194/21	suggestion [2] 19/17 114/14	surfaces [1] 182/3	taken [22] 42/18 61/8 71/18 98/2 98/16 99/9 99/24 100/2 101/1 103/7 105/12 106/9 114/12 120/16 127/20 141/19 146/21 148/14 155/4 169/21 170/3 202/13	technology [1] 74/25	
subject [4] 11/14 41/18 118/22 132/16	suggests [1] 131/14	surprise [1] 103/6	talk [9] 20/3 20/4 23/6 26/1 47/5 57/4 63/18 95/18 159/6	Tedros [5] 143/1 143/14 143/19 156/17 167/13	
submissions [31]	suited [1] 68/9	surveillance [14]	talking [16] 2/20 12/18 20/7 21/18 51/1 62/9 64/7 64/14 73/7 75/6 75/7 75/16 123/14 133/3 136/6 145/8	Tedros Ghebreyesus [1] 143/1	
96/9 96/13 96/23 97/2 98/6 98/12 99/20 100/2 100/22 101/14 105/15 105/18 105/19 105/23 106/2 108/2 108/8 108/10 108/11 108/22 109/3 109/6 109/19 114/21 116/11 122/24 206/15 206/18 206/21 207/1 207/4	summarise [12] 26/17 33/20 33/21 33/23 57/6 68/8 123/16 171/15 188/1 188/1 189/20 190/6	survey [3] 50/18 54/20 190/8	talks [2] 39/3 172/16	Tedros' [1] 167/8	
submit [3] 86/5 107/2 107/21	summary [4] 33/7 48/2 58/25 188/5	surveying [1] 50/24	target [5] 45/25 73/24 75/5 75/7 116/24	Tedros's [2] 129/22 143/13	
submitted [3] 85/21 106/15 106/19	summer [4] 60/6 73/25 165/8 200/22	suspect [2] 10/25 38/18	targeting [2] 59/8 92/11	teenaged [1] 64/10	
subsequent [3]	sums [1] 58/9	suspected [1] 18/12	task [1] 72/23	tell [10] 5/9 8/14 21/20 39/9 55/24 63/3 66/3 68/16 68/25 159/23	
14/15 20/9 161/4	Sunak [1] 171/3	sustainability [1]	tasked [1] 72/22	telling [7] 27/11 45/20 52/23 71/13 130/8 134/21 134/24	
subsequently [4]	Sunday [3] 22/16 22/24 122/4	sustainable [7] 40/11 41/21 42/9 42/11 55/12 80/6 126/19	tasks [2] 68/11 152/20	tells [2] 13/1 64/25	
31/13 88/25 152/19 192/7	Sunetra [1] 164/24	sustained [1] 127/17	taxonomy [1] 16/19	temporarily [1] 46/8	
subset [2] 58/4 59/8	Sunetra Gupta [1] 164/24	sustaining [1] 128/21	Taylor [1] 116/25	ten [7] 20/1 38/19 74/15 93/15 95/4 144/14 150/25	
substance [1] 117/24	supplied [1] 106/11	swab [1] 64/23	teachers [1] 63/18	ten days [1] 95/4	
substantial [1] 126/3	supplies [1] 155/9	swine [4] 37/22 37/25 38/8 77/9	teaching [1] 80/10	ten lines [1] 20/1	
substantially [1]	support [20] 47/19 56/10 56/17 73/10 73/17 114/6 115/23 124/24 149/16 150/5 158/22 159/1 159/17 160/21 161/17 167/2 168/20 168/21 170/8 186/7	swine flu [4] 37/22 37/25 38/8 77/9	team [24] 80/17 97/23 97/24 99/10 101/20 101/22 102/20 111/7 111/19 112/6 112/22 113/1 113/5 113/5 113/6 113/8 113/20 114/10 116/3 117/2 149/5 152/10 155/14 169/8	ten months' [1] 150/25	
150/21	supported [1] 138/25	switching [1] 156/19	teams [2] 113/9 135/23	ten years [1] 38/19	
substantive [2] 6/13 29/10	supporting [1] 56/8	symptom [1] 138/2		tend [1] 192/23	
substitute [1] 109/1	supporting [1] 56/8	symptomatic [3]		tended [1] 193/23	
success [1] 73/8	suppose [1] 107/7	symptoms [11] 16/12 16/13 25/17 93/21 95/2 95/3 126/21 128/7 134/5 137/21 148/21		tens [1] 113/7	
successful [5] 16/11 45/10 59/17 61/3 173/4	supposed [1] 22/4	Syndrome [1] 89/18		term [7] 9/10 34/10 42/1 42/6 62/1 126/9 132/17	
successfully [1]	supposition [1] 128/1	system [40] 9/7 12/7 35/22 68/17 75/24 85/11 88/2 89/21 91/9 91/14 91/25 92/15 92/20 95/12 103/11 123/3 123/5 138/22 138/23 139/15 142/3 147/2 150/7 151/8 154/2 154/4 158/22 159/17 159/22 160/21 161/17 162/1 162/24 163/18 166/16 166/18 166/22 172/15 202/16 203/25		terminology [1] 140/23	
122/2	suppress [19] 85/12 90/25 92/1 137/10 138/20 139/1 139/10 142/7 145/5 147/17 161/10 163/21 163/24 167/19 167/19 167/19 202/3 202/13 203/22	system [40] 9/7 12/7 35/22 68/17 75/24 85/11 88/2 89/21 91/9 91/14 91/25 92/15 92/20 95/12 103/11 123/3 123/5 138/22 138/23 139/15 142/3 147/2 150/7 151/8 154/2 154/4 158/22 159/17 159/22 160/21 161/17 162/1 162/24 163/18 166/16 166/18 166/22 172/15 202/16 203/25		terms [21] 8/7 33/23 34/6 58/6 73/8 89/20 99/1 99/2 99/9 99/12 118/23 177/13 177/25 178/17 182/19 185/1 186/21 191/16 192/14 195/8 196/6	
such [15] 78/1 79/12 82/20 102/6 117/21 119/4 120/6 123/22 124/2 163/24 164/10 184/7 189/5 196/19 201/25	suppressing [3] 57/24 91/17 91/21 142/18 158/18 161/11	systems [5] 27/1 174/14 194/23 195/18 196/23		terrible [2] 33/11 158/4	
suffer [2] 61/23 91/19	suppression [11] 74/23 88/6 88/25 90/2 128/11 139/12 139/13 157/23 158/15 159/25 160/18			test [52] 56/8 75/3 75/4 75/5 90/18 91/11 92/19 93/23 95/15 99/25 106/11 106/13 106/16 106/20 107/22 124/23 129/15 134/1 134/4 134/6 134/7 134/16 134/18 135/1 137/20 137/24 139/18 141/6 142/3 146/2 147/2 150/3 150/13 156/15 158/21 159/1 159/4 159/10 159/16 159/21 160/20 161/1 161/17 162/1 162/23 171/22 171/22 171/22 171/25 171/25 172/20	
suffered [1] 91/20	Supreme [1] 120/18				
suffice [1] 135/13	Supreme Court [1] 120/18				
sufficiency [1]	sure [22] 1/14 7/9 15/16 30/14 50/12 60/15 62/7 65/9 66/3 73/23 77/4 79/4 83/14 84/8 108/7 132/20				
194/11					
sufficient [6] 113/17 157/21 176/25 180/9 180/23 184/2					
sufficiently [2] 81/24 82/19					
suggest [10] 34/12 39/5 45/23 65/2 110/14 139/7 146/24 169/8 193/15 196/18					

T	63/10 67/24 70/2 72/4 72/8 72/10 73/5 75/11 75/14 76/14 78/25 78/25 79/2 79/3 79/4 79/9 79/10 79/13 79/14 79/24 88/2 95/20 105/17 107/25 108/5 109/17 116/9 122/15 123/8 123/10 125/1 163/12 163/13 170/24 171/11 172/8 175/6 175/16 175/18 175/19 175/21 175/22 175/24 176/3 176/5 176/13 176/18 176/23 177/9 186/8 187/7 191/25 195/23 195/24 199/12 202/20 204/22 204/23 205/7 205/8 thank you [57] 1/23 3/21 4/8 4/21 5/5 8/25 18/16 18/23 22/21 24/14 24/23 26/17 29/21 33/1 42/14 56/23 63/5 63/10 67/24 70/2 72/8 72/10 73/5 75/11 75/14 76/14 78/25 78/25 79/2 79/10 79/13 79/14 79/24 95/20 108/5 123/10 125/1 163/12 163/13 170/24 171/11 172/8 175/6 175/18 175/21 176/5 176/13 176/18 177/9 187/7 191/25 195/24 199/12 202/20 204/23 205/7 205/8 thanks [2] 15/19 21/12 that [1323] that the [1] 164/15 that's [118] 1/11 2/16 2/23 3/12 4/18 5/3 5/5 5/10 5/17 7/21 8/13 8/17 12/2 12/4 13/15 13/25 16/7 17/18 18/7 19/11 22/9 24/4 24/12 25/8 28/4 28/10 29/17 29/20 30/4 30/14 30/16 32/25 37/24 38/5 39/2 39/25 41/14 42/11 44/7 44/20 45/14 46/5 46/9 46/17 46/22 47/11 49/14 50/9 55/21 56/18 56/23 58/20 58/22 59/8 59/25 63/5 67/13 69/24 70/25 70/25 75/2 76/23 77/9 78/25 80/8 80/12 83/8 83/23 86/17 87/2 90/16 91/2 91/5 91/16 93/11 93/25 95/1 95/19	98/23 103/2 103/18 116/3 123/8 128/4 130/1 130/7 131/19 133/2 136/6 136/20 138/9 138/19 142/22 147/18 157/22 161/24 169/13 173/6 177/17 177/18 179/10 179/14 181/16 182/13 183/2 183/21 185/17 187/22 188/24 191/22 191/25 192/5 193/17 195/7 197/6 201/13 202/24 203/1 that: [1] 55/22 that: you [1] 55/22 their [47] 23/12 52/1 52/3 52/4 52/21 59/20 59/23 62/12 62/21 77/17 77/19 83/1 83/20 88/20 88/21 89/3 90/8 91/21 92/2 92/9 98/1 103/10 105/4 107/18 110/13 113/3 113/22 114/21 123/1 135/10 135/21 137/7 137/8 142/11 144/25 145/15 148/24 149/7 149/17 149/17 154/15 156/13 157/20 174/15 184/14 184/15 185/9 them [51] 4/15 16/14 16/14 20/13 23/7 23/7 27/20 33/4 40/20 42/15 44/1 49/23 50/4 50/7 54/5 56/17 59/22 63/4 66/6 71/10 77/10 77/11 89/14 91/25 92/1 95/3 97/8 97/8 97/9 97/10 97/18 103/1 104/3 104/23 111/20 113/13 119/11 121/6 122/24 138/21 139/16 143/6 143/20 152/20 164/9 173/16 173/17 188/14 195/3 195/3 196/15 theme [2] 8/5 70/11 themes [2] 42/15 54/22 themselves [7] 4/13 52/13 66/4 67/3 67/6 121/23 188/8 then [99] 3/8 3/22 5/19 6/8 6/11 8/16 9/1 10/9 11/7 13/4 14/16 15/1 15/23 16/23 17/23 18/20 23/18 24/1 24/10 26/16 27/5 29/22 30/7 30/21 32/25 33/9 36/19 41/9 42/8 43/18 46/10 46/10 46/23 47/15	53/23 58/15 61/7 61/22 63/6 63/13 63/18 70/3 70/10 74/18 81/6 81/12 87/12 90/24 91/14 91/22 91/24 94/24 97/23 98/21 111/1 112/3 112/13 113/14 116/20 123/6 128/8 128/17 129/11 133/17 133/20 134/9 136/16 137/11 137/21 138/20 139/15 142/24 146/8 148/18 149/8 149/14 150/8 157/24 158/12 160/17 160/25 161/6 161/12 166/10 166/11 167/8 171/3 172/15 173/13 173/17 177/21 178/12 181/13 181/23 184/17 186/6 186/25 202/4 204/15 theoretical [1] 181/25 there [237] there's [19] 8/19 15/11 17/14 20/12 20/16 40/13 40/16 57/16 57/20 58/19 61/24 71/16 89/13 137/20 138/14 178/12 187/11 192/17 196/18 thereafter [1] 107/10 therefore [21] 10/18 42/8 89/20 90/17 91/3 91/8 93/22 108/16 117/5 117/22 123/24 124/22 125/21 128/3 129/1 129/10 131/6 142/6 143/13 143/16 147/10 these [44] 10/3 13/14 18/5 28/18 29/4 33/7 37/18 40/20 57/21 58/6 59/19 60/9 60/11 61/6 62/8 68/1 73/17 74/21 76/24 77/10 86/8 103/2 103/12 107/15 110/6 110/12 110/20 111/1 111/11 111/17 113/11 114/1 115/16 136/12 154/23 155/24 178/11 185/15 187/20 190/20 195/5 196/2 199/4 201/22 they [216] they'd [5] 50/1 50/2 50/7 78/7 127/6 they'll [2] 66/3 203/1 they're [15] 32/14 54/15 66/12 66/13 66/15 69/18 102/3 102/3 107/12 118/21 135/9 138/19 145/7	151/25 172/18 they've [1] 111/22 thing [15] 8/8 10/21 33/10 38/12 45/6 54/19 55/20 90/22 102/22 128/2 133/2 163/19 170/12 174/21 204/12 things [26] 15/13 29/14 36/14 38/22 49/15 49/23 54/14 56/21 62/4 69/17 77/7 77/15 81/6 85/10 107/15 124/14 129/18 129/20 142/6 178/11 182/2 183/13 186/17 189/12 192/11 198/20 think [177] 2/1 3/7 3/9 4/25 5/1 5/10 7/9 7/12 7/15 9/21 11/4 11/10 14/2 14/5 15/19 18/1 18/24 20/8 21/5 21/15 22/9 23/21 26/2 28/6 29/10 30/16 31/25 33/10 33/22 34/7 35/17 37/8 38/17 38/24 39/4 39/12 39/14 39/14 39/19 40/2 40/12 41/3 41/7 42/2 42/22 43/2 43/7 44/20 45/1 45/11 45/19 46/12 46/19 48/6 50/14 51/19 51/21 52/5 53/17 54/3 54/24 55/9 56/18 58/1 58/2 58/14 58/23 60/18 61/6 62/9 62/10 62/15 64/7 64/17 66/4 67/2 67/20 68/17 69/1 69/3 69/18 69/23 71/19 71/25 72/6 73/13 73/24 78/9 79/16 80/15 82/8 82/9 85/7 86/7 87/5 87/12 87/24 90/14 90/21 94/16 94/19 111/23 111/25 122/15 127/13 127/24 129/9 132/8 133/1 136/2 142/20 142/20 142/22 144/4 145/6 148/12 151/15 151/25 154/9 156/10 156/13 156/18 156/24 162/16 163/1 165/18 171/4 171/10 174/19 175/15 179/23 180/6 180/15 180/21 181/1 181/3 181/3 181/5 181/22 182/8 182/17 182/23 183/2 183/12 184/2 184/5 184/16 185/7 185/15 185/16 186/20 187/1 187/3 187/18 188/10 188/14
----------	---	--	--	---

T	38/3 44/15 54/7 65/4 94/8 118/14 119/4 132/9 132/10 179/25 201/7 203/16 thoughtful [1] 104/16 thoughts [3] 6/19 121/6 180/24 thousand [1] 151/21 thousands [4] 102/25 113/7 135/15 204/8 threat [4] 38/8 38/13 38/16 126/3 three [11] 23/6 24/18 30/5 89/9 94/9 124/16 127/10 127/12 129/1 184/22 197/22 three weeks [1] 127/12 threw [1] 109/11 through [21] 8/19 11/16 19/21 33/5 52/6 80/10 88/6 89/17 125/4 132/25 155/18 163/22 163/25 164/1 164/19 172/22 172/25 178/5 180/15 186/18 198/9 throughout [3] 21/18 39/13 64/2 throw [1] 134/14 throwback [1] 137/14 thrown [1] 62/25 tier [2] 202/16 203/25 time [94] 2/4 5/9 6/19 7/1 10/2 11/10 17/8 17/20 18/12 18/14 21/3 21/7 21/16 23/25 25/7 25/24 26/11 29/3 29/18 30/16 32/23 41/25 43/6 45/21 45/23 46/15 47/1 47/20 48/3 48/10 49/9 49/25 50/4 50/14 50/22 51/17 52/25 54/4 56/11 62/10 65/6 65/15 78/7 80/16 83/20 86/19 87/9 89/2 90/17 91/23 92/3 93/19 93/22 93/23 94/16 117/6 124/22 126/11 127/3 127/5 128/16 129/21 142/1 144/23 148/22 150/25 155/7 156/8 157/22 161/20 164/17 165/11 165/12 166/1 168/5 176/25 177/18 177/23 180/4 180/6 188/12 188/13 188/23 189/18 190/3 192/14 194/13 195/5 199/4 199/21 201/19 201/21 202/7	202/12 timeline [1] 178/20 times [9] 39/18 48/1 56/1 56/4 58/9 58/11 89/4 144/15 174/7 timescales [1] 97/23 title [1] 172/10 titled [1] 87/23 today [7] 36/16 171/6 176/23 177/1 178/18 204/19 205/2 together [3] 8/4 126/15 181/6 told [11] 17/6 23/4 23/21 31/20 44/1 60/18 74/11 84/5 153/2 167/10 187/1 toll [3] 46/25 55/19 75/20 Tom [1] 56/4 Tom Whipple [1] 56/4 tomorrow [3] 7/23 42/25 205/6 tone [1] 39/15 too [14] 19/18 32/1 32/1 38/6 38/10 38/10 53/25 54/1 67/22 70/15 70/16 113/12 168/3 168/15 took [6] 29/1 47/14 48/3 87/9 174/14 190/2 tools [1] 147/11 top [7] 15/23 29/2 37/19 155/25 163/20 167/16 195/25 topic [11] 49/6 51/5 51/19 76/15 78/22 108/10 171/1 179/3 187/10 189/21 195/7 topics [2] 72/13 112/10 totally [1] 166/15 touch [8] 19/3 19/4 178/16 179/20 179/22 184/21 187/12 189/24 touched [3] 183/25 195/13 200/18 towards [7] 4/12 47/15 47/16 70/10 174/16 191/17 195/13 trace [16] 123/17 124/23 139/18 141/6 147/2 150/4 158/21 159/1 159/16 159/21 160/20 161/1 161/17 162/1 166/22 174/24 traced [2] 124/1 173/1 tracers [5] 152/1 152/3 152/14 155/12 155/13 tracing [21] 73/9	73/16 90/20 91/13 92/14 95/12 129/16 138/23 142/4 144/18 145/11 151/7 151/8 151/18 152/24 155/11 166/8 166/25 173/9 175/13 185/17 track [2] 48/19 158/25 tracks [2] 142/19 158/19 tragedy [1] 58/2 trail [1] 13/11 training [2] 172/16 184/6 transcribed [2] 111/18 111/22 transcribing [1] 111/20 transcripts [1] 102/14 transient [1] 41/24 transit [1] 49/4 transmission [60] 16/12 16/23 17/1 17/23 24/6 25/16 25/18 25/24 26/7 26/11 29/16 57/14 57/21 63/8 65/4 65/23 65/25 66/14 76/25 77/20 78/12 90/25 91/15 123/20 124/8 124/18 125/21 126/2 126/18 126/19 127/9 127/18 127/20 128/21 128/23 131/2 139/22 143/3 145/20 145/21 145/24 146/17 146/19 147/5 161/4 174/24 179/1 179/18 181/16 181/18 181/21 182/8 182/11 189/5 190/13 191/6 198/22 199/16 202/2 203/22 transmit [1] 16/2 transmits [1] 180/19 transmitted [1] 182/6 transmitting [2] 77/22 93/12 transparency [5] 86/13 108/16 113/25 114/7 120/1 transport [1] 198/16 transposed [1] 181/23 travellers [2] 124/2 135/7 traverse [1] 118/11 treated [2] 102/11 169/19 tremendously [6] 57/25 58/5 58/6 59/6 74/19 77/16 trial [1] 120/4	trilled [1] 75/2 tribunal [1] 100/3 tried [1] 52/18 trifecta [1] 75/16 triple [1] 20/6 true [10] 1/19 34/7 66/18 66/19 71/1 80/3 80/11 83/23 91/22 183/2 Trust [2] 5/11 15/15 truth [3] 1/18 52/5 177/7 try [15] 39/24 47/6 48/23 66/21 67/25 109/13 135/10 136/14 143/17 162/17 184/15 190/10 194/2 196/9 203/14 trying [21] 9/25 20/17 24/3 28/14 40/10 44/12 44/21 46/12 46/19 55/15 60/1 79/11 142/18 178/11 180/14 185/10 185/11 197/4 198/12 198/24 199/2 Tuesday [2] 5/7 205/11 turn [13] 30/12 33/15 33/17 178/22 178/24 179/4 183/18 187/21 187/25 195/14 195/23 199/18 202/19 turned [2] 33/16 59/16 Turning [1] 117/24 tweet [2] 81/12 167/4 two [44] 3/18 10/23 11/23 25/6 29/11 30/1 30/17 40/17 49/21 49/23 54/22 63/7 64/21 67/20 68/6 72/6 72/7 72/13 72/20 82/6 83/11 84/2 89/6 91/6 91/8 92/3 92/4 93/17 103/3 129/1 134/11 134/13 134/15 144/11 147/19 147/23 149/3 165/11 167/5 178/1 178/9 186/9 197/9 197/16 two days [2] 93/17 167/5 two weeks [1] 67/20 two-thirds [1] 84/2 type [8] 17/5 47/3 52/25 88/14 106/17 117/3 172/20 179/16 types [1] 9/11 typographical [1] 73/13
			U	
			UCL [4] 80/6 80/21	

U	78/16 100/16 123/19 124/4 126/25 155/8 178/4 180/19 182/2 189/7 191/6 192/2 192/15 197/1	75/1 80/13 94/6 99/6 123/7 134/16 192/16 201/24 205/10 unusual [2] 58/22 102/1	176/16 177/4 196/22 199/22 201/5 201/20 USA [1] 174/5 use [16] 12/20 27/11 34/10 45/15 81/25 82/5 82/13 82/14 96/20 98/7 108/24 166/21 189/13 189/13 190/20 191/11 used [20] 9/10 12/24 20/9 20/17 26/22 28/12 34/3 45/4 49/5 76/19 82/6 99/4 105/1 107/11 137/1 152/19 152/20 154/15 154/18 155/10 useful [3] 121/25 134/6 185/14 Usher [1] 2/8 Usher Institute [1] 2/8 using [8] 7/4 31/17 33/7 36/9 48/18 114/13 180/12 198/15 usual [3] 80/2 101/6 122/20 usually [1] 141/13 utilised [2] 179/24 181/2 utilising [1] 123/4 utmost [1] 108/15	very [182] 2/2 4/10 5/21 6/14 6/24 7/7 8/5 9/18 9/18 9/21 9/21 10/22 13/2 13/4 13/4 13/8 13/8 13/12 13/12 13/22 14/20 16/1 16/9 16/11 16/18 16/18 16/18 17/2 17/10 18/25 19/6 19/13 19/22 21/4 21/4 21/8 22/10 25/2 26/5 26/24 27/23 28/21 28/21 29/3 29/19 33/14 33/14 34/11 35/4 37/5 40/3 40/9 40/13 41/13 41/13 43/10 44/18 45/9 45/10 50/15 51/24 52/5 52/16 53/2 53/11 53/12 53/12 54/6 54/10 54/16 55/16 55/16 56/6 56/9 56/9 56/23 57/12 57/12 58/2 58/3 58/22 59/15 59/15 59/15 59/16 62/15 62/15 69/12 72/4 73/22 73/22 76/7 78/10 78/22 79/3 79/4 79/8 79/9 81/15 81/25 82/14 83/6 83/9 85/13 86/4 86/23 86/24 87/14 88/2 88/20 89/11 90/16 91/7 91/21 92/1 92/2 95/19 105/16 105/17 106/24 107/25 109/17 109/20 114/5 114/24 116/9 117/20 118/11 122/15 122/24 123/8 124/12 124/19 124/21 126/6 127/3 130/15 130/16 133/5 138/23 143/11 145/4 146/8 149/10 150/1 151/24 155/1 156/17 159/9 160/8 165/1 165/6 168/4 172/21 172/21 173/3 173/4 173/4 173/18 175/16 175/19 175/22 175/25 176/23 180/1 182/18 184/9 185/9 185/12 186/2 188/11 188/20 191/12 194/5 194/16 195/23 199/13 201/9 204/16 204/18 204/22 204/24 viable [1] 45/11 video [3] 102/7 171/14 173/22 view [56] 11/13 35/11 42/12 44/13 45/16 45/18 46/9 48/3 48/9 52/6 52/15 53/22 54/2 55/17 56/22 57/13	
UCL... [2] 177/16 188/4	understands [2] 140/7 155/2	up [97] 1/13 3/14 4/16 6/12 13/21 36/6 36/16 44/3 44/14 44/16 45/14 46/13 46/20 46/21 46/21 49/8 49/25 50/21 50/22 51/25 57/4 58/9 62/12 63/6 71/11 71/25 72/19 73/1 73/8 76/10 76/11 81/1 81/6 82/3 85/11 88/1 88/22 91/8 92/10 92/16 92/20 107/9 107/15 116/17 117/3 117/15 117/20 119/16 120/23 121/16 122/10 123/6 129/14 129/15 134/14 135/1 137/8 138/21 138/22 142/4 142/20 146/24 147/14 148/24 151/16 153/15 153/18 154/4 154/9 155/7 155/18 158/7 158/21 159/13 160/1 160/2 160/3 160/5 160/25 162/20 162/23 169/1 174/7 176/19 180/2 181/11 181/11 182/3 183/13 183/14 192/16 192/18 193/25 194/23 198/19 202/14 204/1	USA [1] 174/5	use [16] 12/20 27/11 34/10 45/15 81/25 82/5 82/13 82/14 96/20 98/7 108/24 166/21 189/13 189/13 190/20 191/11	very [182] 2/2 4/10 5/21 6/14 6/24 7/7 8/5 9/18 9/18 9/21 9/21 10/22 13/2 13/4 13/4 13/8 13/8 13/12 13/12 13/22 14/20 16/1 16/9 16/11 16/18 16/18 16/18 17/2 17/10 18/25 19/6 19/13 19/22 21/4 21/4 21/8 22/10 25/2 26/5 26/24 27/23 28/21 28/21 29/3 29/19 33/14 33/14 34/11 35/4 37/5 40/3 40/9 40/13 41/13 41/13 43/10 44/18 45/9 45/10 50/15 51/24 52/5 52/16 53/2 53/11 53/12 53/12 54/6 54/10 54/16 55/16 55/16 56/6 56/9 56/9 56/23 57/12 57/12 58/2 58/3 58/22 59/15 59/15 59/15 59/16 62/15 62/15 69/12 72/4 73/22 73/22 76/7 78/10 78/22 79/3 79/4 79/8 79/9 81/15 81/25 82/14 83/6 83/9 85/13 86/4 86/23 86/24 87/14 88/2 88/20 89/11 90/16 91/7 91/21 92/1 92/2 95/19 105/16 105/17 106/24 107/25 109/17 109/20 114/5 114/24 116/9 117/20 118/11 122/15 122/24 123/8 124/12 124/19 124/21 126/6 127/3 130/15 130/16 133/5 138/23 143/11 145/4 146/8 149/10 150/1 151/24 155/1 156/17 159/9 160/8 165/1 165/6 168/4 172/21 172/21 173/3 173/4 173/4 173/18 175/16 175/19 175/22 175/25 176/23 180/1 182/18 184/9 185/9 185/12 186/2 188/11 188/20 191/12 194/5 194/16 195/23 199/13 201/9 204/16 204/18 204/22 204/24
UK [41] 9/4 21/19 23/9 24/2 29/25 30/20 33/24 34/5 34/7 39/16 40/14 49/9 54/12 59/13 72/13 72/24 73/8 73/15 75/17 75/22 85/21 85/23 87/24 92/23 109/19 109/21 126/6 130/19 134/4 139/8 141/23 142/9 142/10 142/11 149/22 150/17 156/18 166/2 172/21 177/22 207/1	undertaken [2] 36/23 187/20	unusual [2] 58/22 102/1	use [16] 12/20 27/11 34/10 45/15 81/25 82/5 82/13 82/14 96/20 98/7 108/24 166/21 189/13 189/13 190/20 191/11	very [182] 2/2 4/10 5/21 6/14 6/24 7/7 8/5 9/18 9/18 9/21 9/21 10/22 13/2 13/4 13/4 13/8 13/8 13/12 13/12 13/22 14/20 16/1 16/9 16/11 16/18 16/18 16/18 17/2 17/10 18/25 19/6 19/13 19/22 21/4 21/4 21/8 22/10 25/2 26/5 26/24 27/23 28/21 28/21 29/3 29/19 33/14 33/14 34/11 35/4 37/5 40/3 40/9 40/13 41/13 41/13 43/10 44/18 45/9 45/10 50/15 51/24 52/5 52/16 53/2 53/11 53/12 53/12 54/6 54/10 54/16 55/16 55/16 56/6 56/9 56/9 56/23 57/12 57/12 58/2 58/3 58/22 59/15 59/15 59/15 59/16 62/15 62/15 69/12 72/4 73/22 73/22 76/7 78/10 78/22 79/3 79/4 79/8 79/9 81/15 81/25 82/14 83/6 83/9 85/13 86/4 86/23 86/24 87/14 88/2 88/20 89/11 90/16 91/7 91/21 92/1 92/2 95/19 105/16 105/17 106/24 107/25 109/17 109/20 114/5 114/24 116/9 117/20 118/11 122/15 122/24 123/8 124/12 124/19 124/21 126/6 127/3 130/15 130/16 133/5 138/23 143/11 145/4 146/8 149/10 150/1 151/24 155/1 156/17 159/9 160/8 165/1 165/6 168/4 172/21 172/21 173/3 173/4 173/4 173/18 175/16 175/19 175/22 175/25 176/23 180/1 182/18 184/9 185/9 185/12 186/2 188/11 188/20 191/12 194/5 194/16 195/23 199/13 201/9 204/16 204/18 204/22 204/24	
UK advisory [1] 142/9	undertaking [7] 9/17 99/2 99/4 99/13 118/22 194/13 197/24	up [97] 1/13 3/14 4/16 6/12 13/21 36/6 36/16 44/3 44/14 44/16 45/14 46/13 46/20 46/21 46/21 49/8 49/25 50/21 50/22 51/25 57/4 58/9 62/12 63/6 71/11 71/25 72/19 73/1 73/8 76/10 76/11 81/1 81/6 82/3 85/11 88/1 88/22 91/8 92/10 92/16 92/20 107/9 107/15 116/17 117/3 117/15 117/20 119/16 120/23 121/16 122/10 123/6 129/14 129/15 134/14 135/1 137/8 138/21 138/22 142/4 142/20 146/24 147/14 148/24 151/16 153/15 153/18 154/4 154/9 155/7 155/18 158/7 158/21 159/13 160/1 160/2 160/3 160/5 160/25 162/20 162/23 169/1 174/7 176/19 180/2 181/11 181/11 182/3 183/13 183/14 192/16 192/18 193/25 194/23 198/19 202/14 204/1	used [20] 9/10 12/24 20/9 20/17 26/22 28/12 34/3 45/4 49/5 76/19 82/6 99/4 105/1 107/11 137/1 152/19 152/20 154/15 154/18 155/10	very [182] 2/2 4/10 5/21 6/14 6/24 7/7 8/5 9/18 9/18 9/21 9/21 10/22 13/2 13/4 13/4 13/8 13/8 13/12 13/12 13/22 14/20 16/1 16/9 16/11 16/18 16/18 16/18 17/2 17/10 18/25 19/6 19/13 19/22 21/4 21/4 21/8 22/10 25/2 26/5 26/24 27/23 28/21 28/21 29/3 29/19 33/14 33/14 34/11 35/4 37/5 40/3 40/9 40/13 41/13 41/13 43/10 44/18 45/9 45/10 50/15 51/24 52/5 52/16 53/2 53/11 53/12 53/12 54/6 54/10 54/16 55/16 55/16 56/6 56/9 56/9 56/23 57/12 57/12 58/2 58/3 58/22 59/15 59/15 59/15 59/16 62/15 62/15 69/12 72/4 73/22 73/22 76/7 78/10 78/22 79/3 79/4 79/8 79/9 81/15 81/25 82/14 83/6 83/9 85/13 86/4 86/23 86/24 87/14 88/2 88/20 89/11 90/16 91/7 91/21 92/1 92/2 95/19 105/16 105/17 106/24 107/25 109/17 109/20 114/5 114/24 116/9 117/20 118/11 122/15 122/24 123/8 124/12 124/19 124/21 126/6 127/3 130/15 130/16 133/5 138/23 143/11 145/4 146/8 149/10 150/1 151/24 155/1 156/17 159/9 160/8 165/1 165/6 168/4 172/21 172/21 173/3 173/4 173/4 173/18 175/16 175/19 175/22 175/25 176/23 180/1 182/18 184/9 185/9 185/12 186/2 188/11 188/20 191/12 194/5 194/16 195/23 199/13 201/9 204/16 204/18 204/22 204/24	
UK Government [1] 156/18	undertakings [4] 110/22 115/3 118/24 120/8	unusual [2] 58/22 102/1	use [16] 12/20 27/11 34/10 45/15 81/25 82/5 82/13 82/14 96/20 98/7 108/24 166/21 189/13 189/13 190/20 191/11	very [182] 2/2 4/10 5/21 6/14 6/24 7/7 8/5 9/18 9/18 9/21 9/21 10/22 13/2 13/4 13/4 13/8 13/8 13/12 13/12 13/22 14/20 16/1 16/9 16/11 16/18 16/18 16/18 17/2 17/10 18/25 19/6 19/13 19/22 21/4 21/4 21/8 22/10 25/2 26/5 26/24 27/23 28/21 28/21 29/3 29/19 33/14 33/14 34/11 35/4 37/5 40/3 40/9 40/13 41/13 41/13 43/10 44/18 45/9 45/10 50/15 51/24 52/5 52/16 53/2 53/11 53/12 53/12 54/6 54/10 54/16 55/16 55/16 56/6 56/9 56/9 56/23 57/12 57/12 58/2 58/3 58/22 59/15 59/15 59/15 59/16 62/15 62/15 69/12 72/4 73/22 73/22 76/7 78/10 78/22 79/3 79/4 79/8 79/9 81/15 81/25 82/14 83/6 83/9 85/13 86/4 86/23 86/24 87/14 88/2 88/20 89/11 90/16 91/7 91/21 92/1 92/2 95/19 105/16 105/17 106/24 107/25 109/17 109/20 114/5 114/24 116/9 117/20 118/11 122/15 122/24 123/8 124/12 124/19 124/21 126/6 127/3 130/15 130/16 133/5 138/23 143/11 145/4 146/8 149/10 150/1 151/24 155/1 156/17 159/9 160/8 165/1 165/6 168/4 172/21 172/21 173/3 173/4 173/4 173/18 175/16 175/19 175/22 175/25 176/23 180/1 182/18 184/9 185/9 185/12 186/2 188/11 188/20 191/12 194/5 194/16 195/23 199/13 201/9 204/16 204/18 204/22 204/24	
UK's [1] 36/21	undertook [1] 187/13	unusual [2] 58/22 102/1	use [16] 12/20 27/11 34/10 45/15 81/25 82/5 82/13 82/14 96/20 98/7 108/24 166/21 189/13 189/13 190/20 191/11	very [182] 2/2 4/10 5/21 6/14 6/24 7/7 8/5 9/18 9/18 9/21 9/21 10/22 13/2 13/4 13/4 13/8 13/8 13/12 13/12 13/22 14/20 16/1 16/9 16/11 16/18 16/18 16/18 17/2 17/10 18/25 19/6 19/13 19/22 21/4 21/4 21/8 22/10 25/2 26/5 26/24 27/23 28/21 28/21 29/3 29/19 33/14 33/14 34/11 35/4 37/5 40/3 40/9 40/13 41/13 41/13 43/10 44/18 45/9 45/10 50/15 51/24 52/5 52/16 53/2 53/11 53/12 53/12 54/6 54/10 54/16 55/16 55/16 56/6 56/9 56/9 56/23 57/12 57/12 58/2 58/3 58/22 59/15 59/15 59/15 59/16 62/15 62/15 69/12 72/4 73/22 73/22 76/7 78/10 78/22 79/3 79/4 79/8 79/9 81/15 81/25 82/14 83/6 83/9 85/13 86/4 86/23 86/24 87/14 88/2 88/20 89/11 90/16 91/7 91/21 92/1 92/2 95/19 105/16 105/17 106/24 107/25 109/17 109/20 114/5 114/24 116/9 117/20 118/11 122/15 122/24 123/8 124/12 124/19 124/21 126/6 127/3 130/15 130/16 133/5 138/23 143/11 145/4 146/8 149/10 150/1 151/24 155/1 156/17 159/9 160/8 165/1 165/6 168/4 172/21 172/21 173/3 173/4 173/4 173/18 175/16 175/19 175/22 175/25 176/23 180/1 182/18 184/9 185/9 185/12 186/2 188/11 188/20 191/12 194/5 194/16 195/23 199/13 201/9 204/16 204/18 204/22 204/24	
UKHSA [5] 110/2 114/6 115/23 195/25 196/16	undesirable [1] 101/9	unusual [2] 58/22 102/1	use [16] 12/20 27/11 34/10 45/15 81/25 82/5 82/13 82/14 96/20 98/7 108/24 166/21 189/13 189/13 190/20 191/11	very [182] 2/2 4/10 5/21 6/14 6/24 7/7 8/5 9/18 9/18 9/21 9/21 10/22 13/2 13/4 13/4 13/8 13/8 13/12 13/12 13/22 14/20 16/1 16/9 16/11 16/18 16/18 16/18 17/2 17/10 18/25 19/6 19/13 19/22 21/4 21/4 21/8 22/10 25/2 26/5 26/24 27/23 28/21 28/21 29/3 29/19 33/14 33/14 34/11 35/4 37/5 40/3 40/9 40/13 41/13 41/13 43/10 44/18 45/9 45/10 50/15 51/24 52/5 52/16 53/2 53/11 53/12 53/12 54/6 54/10 54/16 55/16 55/16 56/6 56/9 56/9 56/23 57/12 57/12 58/2 58/3 58/22 59/15 59/15 59/15 59/16 62/15 62/15 69/12 72/4 73/22 73/22 76/7 78/10 78/22 79/3 79/4 79/8 79/9 81/15 81/25 82/14 83/6 83/9 85/13 86/4 86/23 86/24 87/14 88/2 88/20 89/11 90/16 91/7 91/21 92/1 92/2 95/19 105/16 105/17 106/24 107/25 109/17 109/20 114/5 114/24 116/9 117/20 118/11 122/15 122/24 123/8 124/12 124/19 124/21 126/6 127/3 130/15 130/16 133/5 138/23 143/11 145/4 146/8 149/10 150/1 151/24 155/1 156/17 159/9 160/8 165/1 165/6 168/4 172/21 172/21 173/3 173/4 173/4 173/18 175/16 175/19 175/22 175/25 176/23 180/1 182/18 184/9 185/9 185/12 186/2 188/11 188/20 191/12 194/5 194/16 195/23 199/13 201/9 204/16 204/18 204/22 204/24	
ultimately [2] 100/5 142/13	undoubtedly [2] 81/18 120/19	unusual [2] 58/22 102/1	use [16] 12/20 27/11 34/10 45/15 81/25 82/5 82/13 82/14 96/20 98/7 108/24 166/21 189/13 189/13 190/20 191/11	very [182] 2/2 4/10 5/21 6/14 6/24 7/7 8/5 9/18 9/18 9/21 9/21 10/22 13/2 13/4 13/4 13/8 13/8 13/12 13/12 13/22 14/20 16/1 16/9 16/11 16/18 16/18 16/18 17/2 17/10 18/25 19/6 19/13 19/22 21/4 21/4 21/8 22/10 25/2 26/5 26/24 27/23 28/21 28/21 29/3 29/19 33/14 33/14 34/11 35/4 37/5 40/3 40/9 40/13 41/13 41/13 43/10 44/18 45/9 45/10 50/15 51/24	

V	voice [2] 10/17 48/24	187/14 191/22 192/14	47/13 47/15 49/8	49/14 50/23 52/1
view... [40] 58/1 59/6	voices [1] 176/19	192/17 193/9 197/10	49/11 49/21 51/25	55/18 60/17 60/19
66/2 66/18 67/5 67/12	voluntarily [2] 97/21	water [1] 45/6	72/25 103/3 124/15	61/23 70/7 70/8 77/2
67/18 69/11 70/18	104/23	wave [23] 8/19 8/21	126/22 129/5 129/5	77/11 77/21 78/16
70/23 71/5 71/19	volunteered [1]	13/2 13/4 61/15 74/20	134/2 143/16 147/1	78/18 81/22 87/8
71/23 74/1 82/19	152/22	75/23 76/1 161/11	150/13 151/6 170/7	119/9 142/5 145/11
85/13 90/13 110/16	volunteers [3]	161/12 161/13 161/13	weekend [3] 19/15	149/18 152/19 154/25
112/9 132/12 140/24	151/22 152/17 197/20	161/20 162/5 196/10	29/5 47/16	181/12 182/11 183/10
142/11 142/14 144/20	vulnerability [1]	199/7 199/20 200/5	weekly [1] 87/12	West [2] 92/5 154/13
149/1 149/2 154/19	76/17	200/7 201/7 201/10	weeks [13] 25/20	what [200] 5/19 6/9
160/11 164/24 167/3	vulnerable [2] 59/7	201/23 204/13	30/21 31/13 31/13	6/9 8/23 11/3 13/4
170/8 173/24 182/25	175/13	waves [2] 73/11	33/19 67/20 91/17	15/16 17/9 18/7 18/10
185/19 195/22 197/4	W	73/19	127/12 147/18 150/18	19/20 20/25 21/4
201/6 201/12 201/14	wait [5] 19/18 50/8	way [56] 6/1 9/16	157/16 157/19 196/13	21/20 23/4 23/19
202/2	134/16 201/24 204/15	12/9 16/24 17/2 21/21	weigh [2] 108/19	23/21 24/3 24/4 25/23
viewers [1] 173/3	waited [2] 19/17 50/7	24/7 37/11 37/13	147/14	27/11 28/1 28/10
viewpoint [1] 143/22	waiting [6] 22/11	37/22 38/3 38/10	weighed [1] 122/10	30/11 31/5 32/3 35/1
views [12] 8/2 10/18	52/2 79/21 176/8	38/10 40/21 41/4 41/7	weighing [4] 117/20	36/5 36/9 38/2 38/14
45/21 65/7 65/11	176/24 204/2	41/14 44/4 52/6 57/3	119/15 120/23 122/10	38/17 38/24 39/9
65/12 65/24 70/7	Wales [8] 4/1 98/11	58/24 68/4 68/8 68/22	well [92] 5/12 5/13	39/25 40/22 41/10
70/16 77/4 109/21	99/15 99/16 109/4	70/3 92/15 96/19	6/5 7/15 17/21 21/3	43/25 45/19 46/12
118/16	110/8 110/11 120/11	97/14 102/2 102/3	22/9 22/15 28/12	46/14 46/19 46/20
vigorous [1] 36/25	walk [1] 44/21	102/4 102/18 103/20	30/11 32/15 33/10	46/22 47/6 47/8 48/14
viral [4] 81/12 89/22	walk [1] 44/21	103/25 110/12 111/22	35/17 37/4 37/24 38/5	49/7 49/18 51/17 52/9
90/10 182/2	want [49] 4/9 6/12	113/11 116/24 117/16	39/12 44/25 45/1	52/11 52/16 52/22
virology [6] 87/15	7/8 11/12 11/13 12/19	119/22 119/23 121/10	45/22 53/3 54/3 59/10	53/5 53/7 53/17 54/9
136/4 153/7 153/13	23/7 27/9 28/23 29/11	124/1 132/23 132/24	63/5 68/9 75/6 76/8	55/11 55/14 56/12
154/8 155/6	32/2 34/13 38/20	134/13 136/12 138/14	78/10 78/14 81/25	56/20 57/6 57/7 57/11
virtually [1] 201/8	38/24 39/20 39/21	139/18 157/17 158/17	82/24 83/23 83/25	57/15 58/25 59/3
virtue [2] 56/8 120/21	39/21 40/19 42/10	172/22 175/14 184/7	86/2 86/4 89/17 90/12	62/23 63/14 64/7
virus [70] 23/12	42/10 42/11 42/16	189/23 203/17	93/11 94/11 95/19	64/13 64/25 65/23
23/15 30/7 30/9 30/12	43/1 43/9 48/14 54/20	ways [4] 55/12 68/2	98/14 99/25 102/19	67/2 68/1 69/3 69/7
39/24 40/3 40/22	55/16 55/20 55/22	83/3 106/25	103/13 112/1 119/15	71/6 71/7 71/14 74/2
41/24 42/4 49/16	57/12 59/5 60/8 63/7	we [430]	120/10 124/12 125/23	74/5 74/10 74/17
57/14 58/8 59/8 59/24	68/6 69/14 71/21	we'd [10] 50/3 50/6	127/3 128/23 129/9	76/16 77/9 77/19
73/11 77/22 77/24	71/22 71/22 88/12	62/21 76/9 110/19	133/13 134/17 135/7	78/13 80/25 81/22
81/16 85/12 88/6 89/1	113/12 135/1 147/15	157/16 174/11 193/18	137/5 138/9 139/7	82/18 87/24 88/13
91/10 91/15 91/17	147/23 153/17 155/18	200/7 201/23	140/14 140/17 141/1	89/7 90/16 91/5 91/10
93/4 93/11 94/6 95/11	167/3 178/17 183/18	we'll [19] 2/20 5/17	143/8 144/23 145/14	91/11 91/16 92/18
123/19 124/23 124/25	190/5	9/20 13/21 22/18	146/2 149/4 153/17	93/10 93/18 93/25
126/23 127/2 129/8	wanted [16] 12/13	29/22 41/7 43/7 43/10	153/21 154/11 156/8	97/15 100/3 100/21
131/1 132/13 132/23	18/7 18/16 40/15	44/2 44/3 46/19 62/8	160/1 164/5 164/10	100/21 100/23 101/3
134/22 135/14 137/8	45/14 47/5 70/4 72/5	83/13 136/18 162/11	172/2 172/14 174/3	101/24 106/15 111/6
137/11 138/20 139/2	73/20 74/10 108/9	170/20 178/16 178/22	176/24 178/2 180/11	113/8 113/15 113/23
140/21 142/19 144/21	152/11 152/18 156/14	we're [20] 14/19	181/20 184/5 184/20	114/7 118/17 123/21
145/5 148/14 148/25	157/5 187/7	22/20 33/3 38/15	185/7 188/6 188/16	124/6 125/19 126/25
154/18 155/8 155/25	wanting [1] 15/21	41/18 45/24 53/5 71/3	189/1 192/18 194/13	128/7 128/16 129/13
158/16 158/17 158/25	wants [2] 112/11	71/9 79/16 89/24	199/25 200/23 200/24	129/16 131/24 132/18
162/3 163/20 163/24	114/9	96/14 122/22 136/6	201/1	132/21 133/4 134/12
164/5 164/15 164/19	warning [1] 36/12	169/17 178/11 178/13	well known [2]	136/7 137/3 138/19
187/14 191/22 192/14	was [626]	187/11 187/25 194/22	119/15 164/10	140/1 140/10 140/23
192/17 193/9 197/10	was 2.8 [1] 94/19	we've [23] 3/13 3/17	wellbeing [1] 68/22	141/10 141/11 141/18
199/17 202/13	washing [1] 179/18	9/10 12/6 24/12 28/18	Wellcome [4] 5/10	141/21 142/1 142/20
Virus Watch [6]	wasn't [31] 6/25	29/7 31/10 32/16	5/11 7/3 15/15	143/23 144/20 145/23
187/14 191/22 192/14	11/15 21/2 22/11	34/25 36/15 43/16	Wellcome Trust [1]	147/18 148/19 149/1
192/17 193/9 197/10	27/20 27/21 36/24	57/24 92/7 156/20	5/11	149/1 150/23 151/2
virus-free [1] 59/24	37/15 41/20 41/23	172/21 174/8 176/24	went [13] 18/20	151/24 153/16 156/11
Viruses [1] 16/20	48/9 50/14 50/21 54/9	179/6 180/9 187/1	22/22 40/14 40/15	157/8 158/20 159/15
vital [6] 74/4 74/7	59/11 66/19 67/6 69/2	200/18 201/5	41/19 42/23 47/5	160/23 161/24 163/7
91/8 119/17 130/24	70/23 72/17 74/8 75/1	website [3] 96/18	59/10 81/12 84/4 89/1	164/3 164/3 164/18
155/3	78/14 78/19 81/20	100/15 115/20	89/2 129/11	166/18 167/10 167/13
Vivaldi [3] 187/13	81/23 133/9 148/17	Wednesday [1] 43/12	were [271]	170/17 171/10 173/11
189/18 190/1	157/25 160/9 185/22	week [23] 2/25 14/3	weren't [29] 15/16	173/23 173/24 178/1
	watch [7] 36/4	25/1 25/13 27/10	21/24 29/2 35/24	178/5 178/10 179/6

W	whether [53] 7/5 9/12 15/17 16/21 18/4 21/17 31/25 35/6 40/19 47/21 48/12 53/19 53/22 54/15 64/14 65/19 65/25 67/1 73/21 85/4 92/18 92/19 92/21 100/4 100/5 107/7 107/8 110/1 111/3 111/16 115/13 116/13 117/10 117/25 126/19 126/20 130/10 130/20 136/18 138/1 144/17 144/25 145/9 145/25 146/15 146/18 154/4 154/20 155/2 155/6 164/5 164/18 180/5	158/5 158/14 159/10 159/15 160/18 161/22 162/9 162/13 163/16 164/1 165/11 165/12 166/9 166/15 167/10 167/14 170/7 172/23 177/3 178/3 178/10 178/13 178/22 178/24 179/19 179/21 179/22 181/10 181/14 181/14 181/21 181/25 182/9 183/18 183/24 185/20 187/4 187/10 187/12 187/25 188/17 188/17 189/3 189/16 189/22 190/22 191/1 191/13 191/21 191/22 193/8 194/11 197/10 198/6 198/24 199/3 203/25	whom [3] 10/19 70/8 168/12 whose [1] 8/2 why [42] 5/19 6/20 8/14 10/10 10/16 13/15 16/25 18/8 19/11 37/2 38/13 40/17 45/14 50/5 56/18 61/7 77/2 81/18 82/23 83/8 92/10 92/12 92/13 93/3 93/10 110/6 113/20 138/18 154/13 156/24 157/10 159/22 160/14 160/16 166/6 169/3 180/9 180/16 180/18 181/6 201/11 203/11 wide [7] 40/7 41/10 87/14 183/4 183/15 183/16 189/8 widely [5] 49/5 65/20 131/1 149/10 200/23 widening [1] 189/13 wider [8] 39/19 39/21 42/11 71/22 77/20 95/7 193/10 195/22 widespread [1] 201/8 Wild [1] 154/13 wilderness [1] 10/18 will [75] 1/17 4/15 8/20 8/24 14/3 14/12 15/19 15/20 15/24 16/4 18/20 25/12 26/4 26/24 28/2 33/4 39/1 40/5 41/12 46/7 47/13 51/7 60/13 70/20 71/4 71/7 72/6 77/4 91/14 92/17 96/9 98/2 100/13 100/20 101/19 103/1 103/25 104/14 105/1 108/7 108/14 109/25 111/1 111/4 111/12 112/15 112/19 114/16 117/20 118/23 120/10 121/8 123/2 123/3 123/6 124/7 126/9 130/12 134/18 135/1 136/12 139/14 145/17 147/24 163/11 163/25 164/2 168/3 168/15 173/3 173/17 176/2 176/19 178/24 204/15 Wilson [1] 154/11 window [3] 95/5 95/7 137/24 winner [1] 153/20 winter [9] 150/21 150/24 151/1 199/20 199/24 200/3 200/6 200/20 201/10 wisdom [2] 164/17 167/11 wish [4] 104/4	105/21 106/23 170/21 wishes [2] 105/18 115/21 withdraw [1] 170/5 withdrew [3] 79/15 176/1 204/25 within [22] 13/20 21/7 23/9 23/12 27/3 30/3 30/8 30/15 77/22 84/9 91/17 97/22 110/2 150/18 152/9 183/4 185/14 188/13 189/5 191/12 193/17 195/3 within weeks [1] 150/18 without [17] 11/12 11/13 23/16 44/23 56/11 61/1 102/22 104/21 104/23 123/16 126/15 130/24 145/3 160/23 166/13 166/24 201/8 witness [27] 1/4 1/10 4/14 39/3 79/15 79/17 79/24 86/12 101/1 103/17 103/19 104/13 111/8 114/10 114/14 114/18 115/21 116/17 117/3 121/15 123/1 142/23 154/12 170/6 176/1 176/2 204/25 witness's [1] 100/25 witnesses [7] 3/17 96/21 100/11 103/7 103/9 121/9 121/22 wolf [1] 38/19 won't [7] 9/15 46/24 79/5 96/15 98/6 109/14 144/11 wonder [2] 48/12 65/11 wondering [1] 147/20 Woolhouse [9] 1/5 1/6 1/9 1/10 10/16 72/11 76/4 130/8 206/3 word [10] 28/12 45/15 45/15 82/5 82/8 111/21 113/13 116/4 150/19 166/21 words [8] 20/8 68/4 75/20 90/1 97/5 101/8 104/15 145/7 work [50] 12/14 41/25 44/15 45/17 46/8 47/6 53/13 62/22 62/23 62/24 67/13 68/24 77/14 92/16 98/1 99/5 102/9 103/14 103/17 104/19 105/8 111/19 113/9 113/12 118/13 148/19
what... [24] 181/1 181/20 182/23 183/4 183/6 183/9 183/10 186/6 186/22 189/11 190/6 190/10 190/11 190/16 192/21 193/3 197/20 199/6 201/14 201/17 201/23 202/15 203/19 204/2 what's [10] 8/18 11/24 16/4 26/16 31/4 33/8 53/15 67/19 69/14 129/13 whatever [6] 42/8 53/12 59/7 63/20 134/13 141/9 WhatsApps [2] 117/17 117/18 when [75] 3/10 5/22 20/6 24/2 26/4 29/6 47/20 49/5 49/12 50/11 51/4 53/20 55/11 56/20 62/18 64/3 66/10 74/11 75/3 75/24 75/25 78/21 78/23 82/25 86/21 86/24 87/2 87/10 92/3 92/9 93/6 93/6 94/10 96/20 96/21 97/10 107/8 107/10 110/16 112/20 114/23 115/4 115/17 121/19 123/23 123/25 124/3 124/8 124/9 124/13 124/15 124/16 129/21 130/4 130/9 133/1 134/5 134/22 134/24 135/20 136/6 152/16 154/14 154/24 155/16 155/20 161/14 163/2 165/2 170/17 172/21 181/18 192/14 202/21 203/23 where [45] 6/8 12/7 23/14 29/5 29/10 30/9 31/7 31/8 32/3 35/19 39/23 49/2 49/11 59/25 60/9 62/14 70/25 73/3 103/8 106/18 116/14 119/25 120/5 139/1 139/13 157/16 160/15 164/12 168/20 169/22 173/6 173/7 173/18 174/5 177/18 178/11 178/13 179/23 186/19 190/2 197/3 197/18 198/2 198/12 199/21 whereas [3] 20/6 159/13 168/22 whereby [2] 123/5 139/15 wherever [1] 23/15	which [203] 2/8 2/13 2/24 3/13 4/14 5/24 6/17 7/15 10/5 16/8 17/19 24/10 24/21 24/25 25/1 26/23 27/18 29/10 32/4 34/1 34/3 34/11 34/13 37/21 38/13 38/22 40/6 40/24 42/23 42/23 47/16 48/18 50/2 50/5 50/17 50/18 51/15 51/16 51/20 51/21 53/18 54/21 54/24 54/25 55/1 55/2 56/25 57/16 61/14 62/1 62/11 62/22 64/8 64/19 65/18 65/18 65/19 66/2 66/8 66/25 69/4 70/3 71/5 73/17 75/4 76/24 77/13 80/15 81/12 81/13 82/12 82/13 86/19 93/7 93/8 93/12 95/6 95/10 98/11 101/11 101/18 106/12 108/13 108/17 109/4 110/11 111/3 111/14 115/1 116/19 116/25 117/3 117/14 117/15 118/4 118/19 119/23 120/3 120/7 120/11 120/20 121/9 121/14 122/1 122/4 122/10 123/4 124/5 124/21 124/23 125/14 126/1 126/3 126/9 126/24 127/4 127/10 127/11 128/17 128/20 129/11 130/11 133/8 134/25 136/4 136/13 136/19 137/24 140/1 140/23 141/15 146/6 146/12 146/15 148/10 148/23 148/25 149/8 149/19 150/8 150/10 150/25 154/5 155/20 156/22 158/5	while [2] 6/16 41/22 whilst [1] 195/7 Whipple [1] 56/4 white [1] 194/8 Whitty [11] 14/2 21/19 21/23 23/1 29/23 31/5 132/10 142/21 163/1 165/13 165/14 who [76] 2/25 5/12 7/22 12/5 16/2 20/19 21/14 72/7 77/21 79/17 82/1 82/11 82/14 83/8 83/11 83/20 84/5 84/12 87/7 89/1 100/18 105/18 112/6 113/9 116/25 125/23 125/24 129/13 129/22 129/22 130/1 130/15 130/17 130/20 130/21 131/14 131/19 131/20 133/3 135/6 135/8 141/11 142/1 143/5 143/9 143/11 145/4 145/4 149/4 152/3 153/6 154/15 156/22 161/9 164/24 165/20 166/9 167/7 168/10 168/12 171/21 172/1 172/3 172/10 174/19 174/21 176/21 182/14 184/12 186/3 190/21 198/4 198/5 198/9 199/9 199/10 who's [1] 151/7 who've [1] 184/13 whole [17] 33/19 39/15 45/22 48/20 49/23 55/2 56/14 57/20 75/25 81/3 101/7 102/22 121/20 130/12 138/6 141/7 152/17 whole-society [1] 138/6		

W	17/25 20/6 20/15 20/25 21/5 23/13 24/1 24/7 24/8 24/15 29/20 30/12 30/13 30/19 31/11 31/21 31/22 32/21 33/22 35/12 35/14 37/13 38/2 38/12 39/19 40/1 42/4 42/4 43/22 44/16 44/17 44/25 52/9 54/9 55/18 55/20 56/15 56/17 57/8 57/20 61/10 61/14 61/16 61/19 61/23 63/2 69/2 69/11 69/20 69/25 69/25 73/18 74/4 74/7 75/25 76/3 76/5 78/9 78/15 86/5 86/7 91/22 94/9 94/21 95/10 97/19 101/10 102/13 102/14 103/6 103/22 103/23 105/4 107/2 107/20 109/9 113/9 116/19 119/12 121/18 121/21 121/22 121/23 124/14 124/22 125/4 126/3 126/23 126/24 127/24 128/19 128/25 129/3 129/12 132/7 132/10 134/6 134/14 135/13 136/7 138/24 140/2 140/16 143/23 144/4 144/20 144/21 144/23 144/25 145/1 145/2 146/8 146/21 147/1 147/10 147/18 150/25 151/6 151/10 152/13 152/15 152/21 153/17 154/23 158/25 159/20 161/16 164/8 164/8 164/22 166/19 168/5 168/16 169/4 170/5 170/9 170/11 173/1 174/16 175/5 178/10 180/22 180/25 181/7 182/1 183/2 183/9 183/14 184/12 185/4 185/14 185/15 185/23 185/25 186/6 186/21 190/20 190/23 191/3 196/8 200/5 200/23 201/9 202/4 202/12 203/24 204/1 wouldn't [13] 9/19 31/23 32/2 44/16 62/22 62/23 62/24 64/3 67/13 86/3 112/23 115/3 130/25 write [1] 81/13 writing [2] 97/8 121/6 written [13] 91/6 93/25 97/1 97/5 98/5 99/18 100/1 101/14 105/5 106/2 111/18	114/21 171/18 wrong [14] 4/16 24/15 52/20 81/17 83/6 89/5 98/18 98/23 140/10 140/20 140/21 156/20 158/3 186/10 wrote [4] 56/4 56/5 81/9 165/13 Wuhan [10] 5/21 5/23 6/7 125/9 125/25 127/6 149/13 151/20 152/13 168/16 Wuhan-style [1] 168/16	23/18 24/4 24/13 24/19 25/21 26/2 26/13 27/17 28/15 28/16 28/21 29/10 29/20 31/20 34/9 34/24 36/1 36/18 37/24 41/10 43/4 43/6 43/8 43/21 44/7 44/11 45/23 46/18 47/22 47/23 48/6 48/14 48/16 50/10 51/3 51/3 51/7 51/24 52/14 53/17 56/3 57/10 60/4 60/7 60/14 64/11 64/12 64/16 65/9 65/14 67/8 67/15 69/9 71/1 72/3 77/1 78/5 88/20 109/18 132/8 137/16 142/20 147/22 151/18 162/17 163/11 166/23 168/10 170/5 170/11 172/7 174/3 176/16 177/20 180/9 183/2 187/5 187/6 187/9 189/2 189/10 190/4 190/5 191/14 191/18 192/17 195/12 196/8 201/4 205/7 yesterday [1] 24/11 yet [3] 26/25 126/20 128/12 York [1] 168/20 you [777] you know [17] 12/20 36/8 38/19 41/20 90/12 94/15 94/20 128/1 129/19 134/19 141/9 147/14 149/18 151/19 164/23 168/14 186/5 you on [1] 19/15 you'd [2] 20/10 171/18 you'll [4] 15/8 16/7 18/18 162/12 you're [47] 1/14 2/8 9/17 12/9 13/2 13/3 13/16 15/21 19/13 22/24 22/25 24/3 24/17 25/3 25/22 32/11 38/2 39/24 44/11 44/13 45/19 55/14 55/23 60/1 60/16 64/7 64/8 64/13 64/19 67/2 80/22 91/12 93/4 124/6 127/4 130/2 134/24 137/10 155/21 161/24 171/10 177/14 185/17 186/17 195/15 195/16 196/17 you've [55] 6/4 6/9 9/9 17/6 18/8 20/2 23/21 28/12 31/20	38/21 41/2 43/18 45/22 52/22 53/17 54/24 55/4 60/18 65/14 76/16 76/18 79/20 80/1 80/2 89/15 93/11 93/22 93/23 94/6 94/23 94/23 110/16 110/23 131/12 132/12 132/16 134/16 134/21 134/24 153/2 158/20 159/9 167/10 173/23 177/6 178/18 179/15 187/18 191/23 195/9 196/5 196/16 202/25 203/7 203/8 younger [4] 61/11 61/13 61/18 193/24 your [171] 1/8 2/4 2/19 4/14 5/19 6/9 6/19 7/5 8/7 10/11 10/20 11/6 12/1 12/3 13/14 15/17 17/9 22/24 24/16 28/20 30/6 31/4 31/23 32/9 32/14 33/8 34/10 34/14 35/23 36/4 36/13 39/5 39/23 40/8 41/8 44/13 45/15 45/20 46/13 46/20 47/17 48/8 48/23 48/25 49/18 51/21 54/22 55/6 62/6 63/9 63/11 65/7 65/8 65/24 66/23 68/3 68/8 69/14 70/5 70/11 70/23 76/18 76/18 79/6 79/9 79/21 79/22 80/4 81/18 82/19 83/17 86/11 87/18 93/23 94/13 96/19 97/23 99/7 99/10 99/10 101/22 102/19 104/1 111/6 111/9 111/19 112/19 112/22 113/1 113/5 113/6 113/8 113/20 114/10 115/6 115/7 122/16 123/15 127/25 130/7 132/23 136/15 138/18 140/10 140/24 142/8 142/14 146/12 146/13 146/24 148/5 149/1 149/2 149/25 154/1 154/5 155/8 157/1 157/10 158/12 163/17 163/19 167/3 167/4 167/22 169/6 171/6 171/23 173/24 175/25 176/13 176/16 176/25 177/3 177/21 177/23 178/20 179/4 179/4 179/11 179/15 182/10 182/10 182/14 182/16 182/25 182/25 183/21 184/21
----------	---	--	--	---

Y

your... [22] 185/19
185/19 187/22 188/16
191/23 193/13 195/8
195/13 195/15 195/17
196/17 197/1 197/2
197/5 197/15 199/13
199/14 199/18 201/6
201/14 204/18 204/22
your Ladyship [3]
99/7 99/10 102/19
your Ladyship's [1]
99/10
yourself [5] 82/20
112/5 143/5 171/19
188/2
yourselves [1] 82/23
YouTube [1] 171/5

Z

zero [1] 59/20
Zika [1] 80/17