

Public Administration and Constitutional Affairs Committee

Oral evidence: Data Transparency and Accountability: Covid-19, HC 803

Tuesday 24 November 2020

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Members present: Mr William Wragg (Chair); Ronnie Cowan; Jackie Doyle-Price; Rachel Hopkins; Mr David Jones; David Mundell; Tom Randall; Karin Smyth; John Stevenson.

Questions 123 - 176

Witnesses

I: Will Moy, Chief Executive, Full Fact; Professor Sylvia Richardson CBE, President-elect, Royal Statistical Society; Professor Sir David John Spiegelhalter OBE FRS, Winton Professor of the Public Understanding of Risk, University of Cambridge; and Dr Ben Worthy, Department of Politics, Birkbeck, University of London.

Written evidence from witnesses:

- [Dr Ben Worthy](#)
- [Royal Statistical Society](#)
- [Full Fact](#)

Examination of Witnesses

Witnesses: Will Moy, Professor Sylvia Richardson, Professor Sir David Spiegelhalter and Dr Ben Worthy.

Q123 **Chair:** Good morning and welcome to a hybrid public meeting of the Public Administration and Constitutional Affairs Committee. I am here in a Committee Room in the Palace of Westminster with a small number of staff required to facilitate the meeting, suitably socially distanced from one another, of course. Our witnesses and my colleagues are in their homes and offices across the UK. The Committee is grateful to everybody for sparing their time at such a busy period this morning.

I will begin with an opening question, which I am going to pose to Will Moy first. If our panellists could introduce themselves for the record at the outset, that would be helpful. Briefly, how well have the Government



communicated data and information about Covid-19?

Will Moy: Thank you, Mr Chairman. Thank you, members of the Committee, for putting your time into this important topic. My name is Will Moy. I am the chief executive of Full Fact, a charity that tries to tackle the harm bad information does in public life.

This year we have focused predominantly on the pandemic. We have done hundreds of fact checks on different claims made by Government, by other political figures, by media and online, and we have found lots of confusion about what is going on and what responses are available. We have had to ask dozens of claimants to correct the record. We have also had thousands of requests from the public with specific questions that they want answers to about what is going on, who is responsible, what they are allowed to do and so on.

It is important to recognise the difficulty of the Government's position in responding to a pandemic and in trying to help learn lessons. I do not mean to be critical without understanding those difficulties. None the less, we are concerned about the quality of responses to questions that we pose to the Government, which are too often slow, unclear or inaccurate. We have been told contradictory things and we have faced unwillingness to engage with questions of accuracy.

We believe that standards of accuracy in understanding this pandemic and in communicating that understanding to the public must be higher. The Departments have to engage when they make mistakes and correct the record publicly, and Ministers need to set an example about that. Trust must be earned, and too often the Government have not done enough to earn trust during the pandemic.

Professor Richardson: I am Professor Richardson. I am director of the MRC Biostatistics unit in Cambridge. I am president-elect of the Royal Statistical Society and, with David Spiegelhalter, we are co-chairing a Royal Statistical Society task force on Covid.

The RSS feel that there has been a general lack of transparency in the Government communication of data. When managing public health emergency in real time the decision process continually evolves, and what is important to explain is that Government and public health officials are trying to make the best decision, given the available evidence, while highlighting areas of uncertainty. The decision process in public health emergencies is different from that used to approve therapies.

That is why we feel it is of paramount importance to be transparent about any assumptions that are made, what evidence is used from the literature and when there are data available to support the decision and when data are lacking. Uncertainty should be acknowledged, and we believe that communicating these areas of uncertainty and being transparent about the evidence could have been more systematically highlighted in the Government communication.



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We discussed a number of cases where supporting data were not made available. A recent example is yesterday's PM statement about the Liverpool mass testing having contributed to decreasing cases. To the best of my knowledge, the evidence for this is not publicly available. Transparency about supporting evidence will help both the science and the public health community joining their priorities and will build public trust.

Professor Sir David Spiegelhalter: There has been good and bad. I would tend to point to the good communication having been done by the professionals. For example, the current Public Health England dashboard is extremely good. The Office for National Statistics is also good.

I should mention the various hats I am wearing. I am sorry, I should have started with that. I am chair of the Winton centre for risk and evidence communication at the University of Cambridge. I am co-chair of the Royal Statistical Society Covid task force. I am also a non-executive director on the board of the UK Statistics Authority, which oversees the work of the Office for National Statistics and the Office of Statistics Regulation. However, here I am speaking in my personal capacity so I can let rip.

There has been some very good communication by the professionals, because I would say that about the ONS, it has done a fantastic job. Where the poor examples have happened is when the data have started being used in public relations. I am on record as having complained about what I call the number theatre of briefings, in which big numbers were being thrown out. That seemed to be intended to give an effect favourable to politicians rather than genuinely trying to inform the public, who are sacrificing so much over this whole period.

Yesterday, a new page announcing the Government plans had one of the worst graphs I have seen being presented. It was just put up there. Therefore it is very good to see last week's briefing, which was staffed only by scientists.

To come back to an issue of trust, both Will Moy and Sylvia have mentioned the importance of trust. I always go back to Onora O'Neill, who did the Reith lectures on trust, and she emphasised that if organisations and experts want to be trusted they have to demonstrate trustworthiness. Trustworthiness is the first pillar of the code of practice of statistics in this country.

To finish off, I would like to refer to a recent article our team published in *Nature* last week, in which we argue for five principles of trustworthy evidence communication, which I think will come up during the rest of this morning. First, it should be to do with informing rather than trying to persuade or manipulate people. It should offer balance, the pros and cons, rather than just one side and not false balance. It should be open about uncertainties. It should be clear about the limitations of the quality of the evidence, and it should try to pre-empt the misinformation that is so prevalent around Covid and will be even more in the future. Those are the points that we might come back to.



Dr Worthy: My name is Dr Ben Worthy. I am a senior lecturer in politics at Birkbeck College, University of London. My main expertise is around transparency and openness. I have studied the impact of the Freedom of Information Act and open data in the UK. At the moment I am working on a Leverhulme Trust-funded study with Dr Langehennig, who co-authored my evidence, where we look at how people are using data to monitor what is happening in Parliament. This is the angle my evidence comes from.

I would agree with what the other three witnesses said, in that the general sense, backed up by the evidence to your Committee and by polls, is that the Government have not done particularly well—they have done quite badly—in communicating in two ways. First, as Professor Spiegelhalter said, in what they have communicated and how they have done it with the famous slides from the other week, but also in what they have been transparent or secret about. I would flag up the National Audit Office report last week on procurement, which highlighted a lack of an audit trail and a lack of transparency around the key issue of procurement.

A final point. It is difficult, as everybody will attest, to know exactly what the public understand and know about any situation. It is difficult to measure, and political scientists and others have worked for decades to understand both to what extent things are understood and what impact that has, if any, on their behaviour. This is particularly difficult in the context of Covid, where the information is both changing but is also contested in numerous ways.

It is interesting to note that the public seem to have a quite nuanced understanding of a lot of the trade-offs that are involved here, hence Professor Spiegelhalter's point about uncertainty is important.

Q124 **Ronnie Cowan:** This is a question to Dr Worthy, but if any other witnesses want to jump in, then please do. What are the main avenues through which the public is receiving data and information on Covid-19?

Dr Worthy: There are two ways of looking at this. There is both the direct method and the indirect method. If you think directly, there is the ONS site, there is the Government's Covid dashboard, which has 300,000 hits a day and 10,000 people waiting at 4 pm for when it is updated. There is even some evidence of the public directly accessing scientific journals themselves, but the primary method is the media indirectly. That is both the traditional media and, to a lesser extent, social media. There is a generational split between older people, who tend to rely on the traditional media, whereas younger people seem exactly split, according to an Ofcom survey, between social media and traditional media.

The one area we do not know about is to what extent people are using things like messaging apps or closed communication to pass on what they know. This is important in terms of how people meet this information and data, because it is very different to see one isolated number in a tweet or on a website than it is to see data as part of a story in a news article. How they meet this can have an impact. Primarily it seems to be the media, the



indirect meeting of it like this, but there are plenty of other routes that people are finding.

Q125 **Ronnie Cowan:** Do you think this pandemic has changed the way in which people are accessing data? You talked of accessing scientific sites. Is that new to people? Are people in a position where they can read that information and come to their own conclusions? I am working in relation to conspiracy theories here.

Dr Worthy: It is difficult to know and, in some senses, it is too early to tell. But there has been some interesting work by the Reuters Foundation where they ask people eight basic questions about Covid to see how they do, and other ways of measuring it where it seems that people do know at least basic guidance and fundamentals. When it gets to questions of things like graphs and data—the two professors can probably answer better than me—it is less certain to what extent people have varying levels of numeracy.

Q126 **Ronnie Cowan:** The way the public are choosing to access data, does that change their perceptions of the pandemic?

Dr Worthy: It would change how you meet it. For example, we do not know to what extent people speak about the R number, but the R number is only one measure and, if taken in isolation, it may not necessarily tell you very much. This is probably accelerating trends that are already happening about the different ways in which people understand the world around them. It is not a revolution, but it is probably a very rapid evolution in terms of the very different ways in which people are meeting.

Q127 **Ronnie Cowan:** There is a common interest that we all have where people are looking for information on things that are of interest to them. But Covid is of interest to so many people I am wondering if it is easier to see that trend of people accessing information because of the sheer volume of numbers.

Dr Worthy: It would be, and probably we need to wait a bit longer and do more detailed research to understand this. One point to make is that we very rarely look at pieces of data or numbers in isolation. What we often do is narrativise it and fit it within a story that is already in our heads or already in circulation around us. It is not often that we are blank slates examining this, but it is our own prejudices, our own levels of trust that will shape exactly how each individual reacts to this.

Q128 **Ronnie Cowan:** What about the spread of misinformation? What impact might this be having?

Dr Worthy: I may hand over, if that is okay, to Will Moy from Full Fact. He will know better than me and will be able to say with a little more accuracy.

Will Moy: I am very happy to pick up there. I will come back on the point about how the public get information as well, but in terms of harms—and



they are real harms that that information does in the pandemic—we can talk about different kinds. First, there is bad health advice that has led some people to attempt things that are bad for their health in the search for a cure or for protection, or that has led people to disregard good health advice.

Q129 Ronnie Cowan: I can find a website that says the wearing of masks is a bad thing to do. A constituent wrote to me saying, “Go to this website. It is in *The Lancet*. It tells us this is bad,” so how do we get through that information?

Will Moy: If I can just talk about some of the other harms and then talk about that as a general point. As well as the health harms, there are financial harms. We have seen people running scams trying to suggest you can get this or that, get the Government grant and take advantage of people who might fall for that. We have seen the promotion of hate off the back of a pandemic, “This group of people or this community have a cure, they are not sharing it with the rest of us” and so on. These are all familiar tropes of misinformation caught here.

Responding is a complex thing. It starts with the provision of good, reliable and trusted information, which is why this inquiry is so important. It also requires a response to the misinformation and deliberate disinformation as well. One of the characteristics of this year is how much of that response has been improvised and the fact that there were not relationships between health authorities, media outlets, Government and internet companies that were ready to go in the event of an emergency like this. Despite the fact it was near the top of the national risk register—I would have to check—there was no preparedness for a situation like this.

Last Friday we announced that Full Fact has convened meetings, including with representatives of UK and Canadian Governments, officials and the major internet companies and civil society to try to build a framework for preparing responses to future information crises, so there is less improvisation in future. That framework needs to include both providing trustworthy information, identifying and responding to misinformation, doing audience research so we know what the public is seeing and how they are seeing it, and joining up with experts so that expert voices are heard because experts are best placed to communicate in a trusted way.

The overriding story of where people get their information from over the last decade has been one of fragmentation, going from sources of information that provide shared experiences like television, radio and traditional newspapers to sources of information that provide personalised experiences like social media and Netflix. That fragmentation makes it tremendously harder to get the same message out to all of the public in a way that is trusted.

This year we have seen a slight hiccup in that trend, in that there has been a flight to TV to get reliable information, for example, but the broad trend of fragmentation is an underlying threat that makes everything your



inquiry will consider harder to respond to. One of the places we are seeing this, which Dr Worthy mentioned, is end-to-end encrypted messaging services. Full Fact launched a service, fact checking on WhatsApp, where people can forward us things they are seeing on WhatsApp that they are worried about. We have only been running this a few weeks—it is only a pilot project at this stage—and it is already providing some insights into the fact that dangerous false information is spreading on these networks in a way that is essentially invisible to people outside the communities they are spreading in. We will have to think much harder and invest more in effective communications to cut through in a world of fragmented media than we used to when everybody watched the 6 o'clock news or read the same 10 newspapers.

Q130 Ronnie Cowan: Dr Worthy, just talking about newspapers, I know you have done a lot of work on freedom of information. I am told that a lot of journalists are putting in FOIs into the Cabinet Office and not getting a response. There is a thing described as the “clearing house” where journalists seem to be on a blacklist. Have you heard about this?

Dr Worthy: I know a little about it, but not a lot. The overall pattern on freedom of information is of a slowdown across central Government. If you look at the analysis by the Institute for Government you can see that. That is worrying because the more that all central authorities do not comply, the easier it is not to comply.

The clearing house has been a point of contention for quite a long time, because it seems to have a dual job. On the surface, the job is to co-ordinate requests that come in to different Departments to make sure they are all saying the same thing, but that is a double-edged sword, in that it could also be about ensuring that the same message is kept and that they had a more Orwellian—in the controlling sense, rather than a positive sense—way of making sure there is message discipline. We have seen similar things happen in Canada and elsewhere.

We are not yet sure to what extent it does one of those tasks, the more Orwellian one, or it is just for co-ordination. I would flag up that the openDemocracy group have written a piece today about that and there is also a piece in *The Guardian* about it as well.

Q131 Tom Randall: Professor Spiegelhalter, do you think the reasoning for the decision to go into a second national lockdown was adequately communicated to the public?

Professor Sir David Spiegelhalter: We can all agree the communication in that Saturday evening briefing was particularly poor. They were rushed into the briefing because somebody had leaked the main graph to the BBC the day before, and this graph claiming a projection of up to 4,000 deaths a day was widely ridiculed, quite rightly. That was never intended for public communications, and it was out of date even at the time it was released. It just should not have been shown.



What this shows is a real problem that we have seen throughout this pandemic of the use of reasonable worst-case scenarios for public communication. There is a role for those, but it is supposed to be for planning, essentially planning how many body bags to buy and that sort of stuff. Three times I can think of, for example, right at the beginning we were told up to 500,000 deaths would occur. Yes, if we did absolutely nothing. Then we had that graph, the famous one where cases were going to double every week and we would end up with 49,000 by the end of October. In fact, we had 14,000 reported by the end of October. That is not trustworthy communication. These are based on extreme assumptions essentially that we just do not do anything. Then this final one, the 4,000 deaths a day, which again was completely unreliable communication.

I do not want to ascribe motivations to anyone, but if someone were trying to manipulate the audience, to frighten them and to persuade them that what was being done was correct, rather than genuinely inform them, then this is the kind of thing they might do. Because whatever you say, no matter how much people talk about scenarios, they will be interpreted as predictions.

Scenarios are fine, but when they are used in proper planning you have multiple scenarios, you do not just produce one. You do not produce the worst possible. You show people reasonable ones, optimistic ones, pessimistic ones and you get an idea of the fan of possibilities and what sort of decisions might lead us into those different scenarios. These are just possible futures. To choose one to show to people breaks all the rules that I laid out earlier.

Q132 Tom Randall: You probably characterise that as a misuse of data in the way they have been presented. Would you say that has been a very common thing? Do you think the lockdown decisions that have been made have been data-led and following the science, or do you think there have been other factors involved?

Professor Sir David Spiegelhalter: You do not make a lockdown decision just by looking at the scientific advice about Covid outcomes, because that is largely what the modelling does. Any decision that affects the whole of society has to take into account much broader criteria, and that is why it is the job of the politicians and not the scientists to make those decisions.

On the whole, there has been good use of data by the Government. Again, from what I hear, it has been brought together. The decisions about what tier areas should be in has tried to use the best available data. It has not been public up to now, but apparently that is going to be revised. Yesterday's announcement on the winter policy said it will be transparent about the decisions it takes and make available the evidence informing those decisions, which is great. I am looking forward to that happening.

As others will say, the Royal Statistical Society and so on, the problem is that the data—let alone for the public, but for the decision-makers—has been chronically fragmented, not because we are four different nations but



because of the different organisations. There has been a lack of important data because of the lack of testing early on in the pandemic, the lack of surveys added on to test and trace to see how many people who are being asked to isolate were positive. It has been suggested now that people can get a test, but why were surveys not being done to find out how effective this call for isolation was being?

There has been a real effort to use the best possible data, but there has not been sufficient effort to gather new data that might have helped inform the decisions.

Q133 Karin Smyth: Professor Spiegelhalter, I have listened to you very often. We heard from Professor Diamond from the ONS in, I think, May about the brilliance of the data that we had and that it was being brought together. I would have to check if it was our May or July session, but certainly before the summer. Why then, when we had all that data available and the great work that has been done, has that not been able to be brought together for those clear and simple messages? I know you do not want to ascribe motive, I understand that, but we need to get to that core point as to why we ended up in a situation where those graphs were presented a couple of weeks ago.

Professor Sir David Spiegelhalter: I cannot say. It is desperately unfortunate because Ian Diamond and other people—Public Health England and the Joint Biosecurity Centre—have been doing a fantastic job of marshalling this data and bringing all this data together to help the decision-making. The efforts to make this available in order to provide transparent evidence for the decisions that are being made have been far weaker.

Some groups have been very good at providing it. PHE is providing an API so anyone can download their data and write their own apps. It has been fantastic, and some people have made such an effort. But you will have to draw your own conclusions about why it has clearly not been a top-level priority to enable this evidence to be made available to the general public. As I said back in May on *The Andrew Marr Show*, this is a chronic shame. The public out there are making huge sacrifices—I am just going to repeat what I said—and they deserve better. They deserve to be presented this evidence in a balanced way, to be informed of why we are all having to make such sacrifices, which is going to continue until a vaccine comes along, and yet we are being asked largely to take this on trust. This is very inappropriate. A lot of the evidence is there. It looks like there has been a change of heart, and it looks like we are going to get a lot better now. A bit late, but better late than never.

Professor Richardson: I want to emphasise that it seems we have had a change recently. Last week's presentation was stronger and presented data from ONS and from a different survey, and the slides quoted where the data came from.. Giving scientists responsibility for presenting the data is very important, and we are seeing a shift in the Government's way of doing things, which I would applaud.



Q134 **Mr David Jones:** If I could come back to Professor Spiegelhalter, who I think wanted to intervene anyway. I want to go back to the question of imputation of motive. Politicians generally are generalists, and they rely on experts to make up their mind as to what course of action to take. It would not seem unreasonable that any politician who is presented with scientific advice that potentially there could be 4,000 deaths a day by December should make a fairly extreme decision, in other words, to lock down the population. Ignoring the question of political motive, could I ask you to comment on what the scientific motive might have been?

Professor Sir David Spiegelhalter: Those projections were made by one team early in October under certain very pessimistic assumptions. They had already been revised twice by the time they were shown to the public, so it was completely inappropriate to present them to the public.

For the actual decision-makers, who will be receiving all sorts of projections and scenarios all the time about hospital occupancy, people making projections on the short term, about longer-term patterns over the winter, and then they have to make an appropriate judgment about those. Similarly with the R number, there will be lots of different estimates coming up from different groups. SAGE will be putting those together and then presenting that to the decision-makers.

This is a very complex problem where there is a lot of uncertainty about the evidence, and then a judgment has to be made on the basis of that. I am certainly not saying the judgment made by the decision-makers was wrong. I am not making any comment about that. What I am objecting to very strongly is that such spurious data and graphs were being presented to the public as justification for the decisions that were made.

As Chris Whitty and Patrick Vallance made very clear when they were presenting to the parliamentary Committee in the following week, you did not need that graph; you just needed quite short-term projections to realise that something extra had to be done, otherwise we were going to be in real trouble very quickly. It was not even necessary. Again, there is good data available, and yet at some point the need to persuade people, to instil a certain emotional reaction in people, seems to take over at a high level of decision-making and it is very unfortunate.

The point I want to make in support of ONS—again, I would say this—is that it has a degree of independence that other bodies we are talking about do not have. It answers to Parliament through the Statistics Act, not to a Government Department. That has enabled it to do its public communications independently. It goes on everything from Jeremy Vine on talkRADIO to the *Today* programme. At all levels of the organisation there are people out there talking. But other organisations, such as Public Health England, Test and Trace and JBC, seem to operate much more in a bunker mode of not getting out there and talking directly to the public. Again, this is very unfortunate. We are lucky to have an independent statistics authority that can have this independence of action.



Q135 **Mr David Jones:** Can I just press my first point? It seems to me that politicians need better scientific translators to pull together the evidence that has been presented to them and to give them a clear steer as to how that data should be interpreted.

Professor Sir David Spiegelhalter: Chris Whitty and Patrick Vallance, who are essentially those primary translators, I have good confidence in them in assessing the evidence. We have heard about face masks. I was on one SAGE meeting that discussed face masks. There is all sorts of evidence. The evidence has never been top-level evidence in the way it has been, for example, about the vaccine or about the treatments, where you have fantastically strong evidence. It is not that good, but it can be sufficient to say, "This will have some impact, not huge, but it will have some impact and therefore it is a reasonable policy" but it is a political decision whether to implement it.

Public communication of data and the openness about data that all of us are calling for can have some side effects, and we just have to take that hit, in that certain people will take that data and do things with it, draw graphs. We have seen this coming into mainstream media, of deeply spurious analysis that was done, but that is just part of the hit we have to take.

Q136 **Rachel Hopkins:** Building on what you have just said, Professor Spiegelhalter, is sharing data a good mechanism for communicating risk?

Professor Sir David Spiegelhalter: Risk is a bit tricky because what are we talking about? Are we talking about risk to society? In which case sharing overall data of what is happening with trends of infections and hospitalisations is a good way because we can see the pressure being put on the health service, the risks that we all face.

When it comes to risks to individuals, we have been doing a lot of research on this because there are risk calculators now available. There are a couple of good ones out there if people want to look at it: Cue Covid, which looks at the risk of catching it and then dying; the Covid age one, which looks at your vulnerability if you catch it. They are good, but our research has shown that if you put someone's risk into a number—I can give you the percentage—if I caught Covid now there is roughly about a 1% chance I would die. What does that mean? How does that compare? It is roughly the risk I would die this year of something else. That is one comparator to make.

What we found is that these numbers—sadly for me, as a statistician who loves the numbers—do not make a lot of sense to people, and so it is not the numbers alone. What helps is to give them context by comparing them with other personas. This is the risk of a healthy 25-year-old woman; this is the risk of a middle-aged Asian man with diabetes; this is the risk of an 85-year-old in a care home and something else. If you put those on a scale and say, "You are in here," that enables people to get a much better idea of where they lie. Risk communication is a tricky business and it is certainly



not a matter of just giving people the numbers. People need help. I need help in understanding.

Q137 Rachel Hopkins: Dr Worthy now, do people base their understanding of the pandemic on their perceived risk to themselves, or do they take other factors into account?

Dr Worthy: Yes, in the main, they have this individual level of risk, but then there is this interaction with all sorts of other factors. It is a perception of risk based on, as Professor Spiegelhalter said, possibly very different sources. It is also things like the political context in which they find themselves and their trust in particular institutions, even their trust in where the information is coming from. There has been some interesting work by people like Will Jennings around Covid and trust. It is also about your pre-existing attitudes and approaches to, for example, the Government and how open you think they have been in the past. All these things come together to shape it. Risk perception is at the centre of it, but it is moulded by all these other different factors that impact upon it.

Q138 Rachel Hopkins: Professor Spiegelhalter, do we know how these interpretations affect behaviour or compliance with the rules?

Professor Sir David Spiegelhalter: I may not be the best person to ask about this, but I would like to address it because I have to leave at quarter to, unfortunately. An anxiety that many communicators have about admitting uncertainty is that, if we admit we do not quite know what the benefits of face masks are and things like that, maybe people will not want to wear them, maybe people will not obey the rules. That can lead people to overclaim their confidence in the conclusions they are making. SAGE is extremely good at measuring the confidence it has in any of the estimates it makes, and a lot of what it says, it admits, is low confidence because of the inadequacies of evidence.

Our research has suggested that, if you are unapologetic about your uncertainty, there is not a loss of trust from the audience, if you are up front and just admit there are things you do not know. Crucially, just because we do not know everything does not mean we cannot be fairly confident about what should be done. Even if it is to be on the safe side, "We strongly believe this is an appropriate action even though we cannot say exactly what the benefit or benefits might be."

My final word on this, I always go back to Lord Krebs. When he was head of the Food Standards Agency he was bombarded with crises, he had BSE, foot and mouth and everything being thrown at him, and he developed a very nice communications strategy that I look at every time I see someone get up in a crisis. He says you start off with what you know, but then you follow it with what you do not know and you are absolutely up front about what you do not know. But then you say what we are doing to find out, all the work we are doing now, and then you tell people what they can do in the meantime. You can do that with confidence, "We feel this is appropriate." Crucially, you then say, "The advice will change, we will



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change. This is not a U-turn. We will change our mind as we learn more." I watched Chris Whitty back in March and I was ticking these off. He was going through that sort of script beautifully. It is a script I wish more people would follow.

Q139 Rachel Hopkins: Ben, you recently described lockdown as one of the most popular policies of the last 30 years. Does that remain the case, and how does the way people interact with data change perceptions of lockdown?

Dr Worthy: According to YouGov, it is one of the most popular policies in recent history. There is a great post from October that said the only policy that has near universal acceptance is, "Let's plant more trees," and lockdown—both 1 and 2—is up there with it. What was also interesting from that analysis is digging down into other associated policies like the wearing of masks, which was also very strongly supported.

To go to your point about data, where it became difficult and views became much more diverse was in the relaxing of lockdown. There you saw lots of different opinions, and that may be partly going back to what Professor Spiegelhalter said there—this is just my thought—because relaxing lockdown is more complicated in a way than a lockdown. You have still seen this continued support reflected in the polls over the weekend about Christmas and lockdown, and continued support for restrictions if they are necessary over Christmas. Yes, it is quite remarkably one of the most popular policies.

Q140 Rachel Hopkins: A final one from me to all panel members. Does anyone know of any evidence to support the idea of lockdown fatigue, which we have seen referred to in some media?

Professor Richardson: I have not seen any evidence because it is a bit too early, but there is some data that could be looked at to try to track possible indicators of lockdown fatigue. One is the Google mobility data, which shows, for granular areas, where people are going. If you track that through the period of the lockdown, compare it to before or even refer to the first lockdown, even though clearly the measures were different, you would have a point of comparison. You could try to assess by tracking these measures as the lockdown goes on.

Another type of data could be surveys on people's attitudes. There is an ONS survey on opinions and lifestyle during Covid. There is also a YouGov survey that looks across many countries, in particular in the UK, at the attitude of people. Some of the questions, as in the ONS surveys, are asked weekly, so tracking how these questions change over the time of the lockdown and comparing can give some quantitative information about lockdown fatigue.

Q141 Mr David Jones: Professor Spiegelhalter, you have already touched on this but, on the basis of the data, which groups are most at risk and least at risk of contracting Covid and having a mortal experience as a consequence?



Professor Sir David Spiegelhalter: We have to be very careful when we talk about the risks of Covid because, essentially, there are two elements. There is the risk, as you said, of catching it and there is the vulnerability if you catch it. There are very different factors. There are some factors in common, but there are very different factors that apply for those two things, because the first one is determined by environment and behaviour and the second one is determined by your inherent vulnerability.

For the second one, your vulnerability, age is the massively dominant factor. There are other factors, but age goes in there all the time as enormously powerful. Your risk of dying if you get it doubles every six years older you are; every 20 years older you are, your risk goes up 10 times. It is quite massive, that age gradient. That is why, when it comes to choosing who is going to get the vaccine first, it is quite reasonable that age is the dominant factor, although other groups, healthcare workers and everything, are also quite rightly put near the top.

Other factors are important. I like to think of this Covid age idea, of factors that can increase your vulnerability by making you essentially older, so being a male increases your Covid age by about five years compared with a female. Ethnicity certainly affects your risk of catching it, because of the environment in which many ethnic minorities live, and also, to some extent, even if you catch it there is some effect there. But certainly the sorts of conditions that people have explored in terms of renal conditions, anything that messes up the immune system, obesity and so on, can all increase the risk. But age is the overwhelming factor.

Q142 **Mr David Jones:** Would you say that the Government are doing enough to explain risk to people relative to their own lives, and to explain what changes they might make to their lives?

Professor Sir David Spiegelhalter: Again, we need to think of the risk, what you have to do to reduce your risk of catching it, and that is well explained. That is the effort all the time. But also there is the risk of passing it on. There has been a certain amount of emphasis on, "Watch out for your granny" or, "Watch out for someone else's granny." I feel that has not been emphasised sufficiently, because it is the young passing it on to the older where the big health impacts will happen.

For the risks if you catch it, which you cannot do anything about, there has not been sufficient emphasis on age as a factor. The initial shielding list was invented quite reasonably at the time, back in February or March, before we knew that much about the disease. Since then I still feel there has not been sufficient attention to age as an independent factor that can overwhelm and be far more important than a particular condition that you have.

In other words, a younger person with a particular condition can be at far less risk if they catch it than an older person who is reasonably healthy. That does not mean that the younger person should not be warned about the risks they take because, compared with their peers, the healthy people



their age, yes, they are at considerably increased relative risk, but in terms of the absolute risk it is age that dominates. This is a tricky thing to communicate. I am supposed to be good at this stuff, but it is quite difficult to communicate. Groups are still wrestling with how best to do that to the public.

Q143 Chair: Professor Spiegelhalter, before you leave us, could I ask a very big question but a brief answer, if possible? How can the Government balance being open about uncertainties in the data with the need for absolute clarity in the response?

Professor Sir David Spiegelhalter: That is tricky. I again go back to Lord Krebs's idea that you can be unapologetic about the fact that we do not have perfect information, we do not know the effects of what might happen and so on. We certainly do not know what might happen, but we do not know the effects, for example, of all the interventions we might do.

By having the transparency that everyone this morning has been calling for about what evidence is behind any policies, advice, guidance, laws or rules that are passed, that demonstrates trustworthiness to the audience. One can make firm conclusions that this is the right thing to do at the moment in terms of whatever decisions are made about lockdown or tiering or anything like that, even though we cannot say exactly what the effects will be or what will happen in the future. We have that intrinsic uncertainty that is unavoidable, and yet we can be confident about the conclusions.

People are not stupid. We have heard that there is enormous support for the measures that have been taken. Nobody can expect Government or anybody else to have a crystal ball to say exactly what is going to happen or whatever, but that transparency, that honesty, that openness is what the public, purely as a duty, deserve to get. Also, pragmatically, the evidence suggests that will not lead to a negative response.

Chair: Thank you very much, Professor Spiegelhalter, and thank you for your time this morning.

Professor Sir David Spiegelhalter: I am sorry I have to go early, and thank you very much for the time.

Q144 Rachel Hopkins: Just building on uncertainties in the data around Covid-19, could the panel explain what some of those uncertainties are?

Professor Richardson: It is important to take a step back and try to distinguish different types of uncertainty. I am a statistician, and the first basic measure of uncertainty is connected with the random sample and the size of the random sample. Everybody understands that. This statistical uncertainty, but it relies on having a random sample in the first place, so it is applicable, for example, to design data collection, like the ONS, or a survey like the REACT. These surveys are solidly based on active surveillance and are well designed. They are doing their best to get a random sample so the uncertainty that they calculate is interpretable.



Different types of uncertainty come in when observational data are analysed and reported because of, for example, how data is collected. Test and trace is a passive system where people with symptoms decide voluntarily to contact the system or they are encouraged to do so, and so there is another type of uncertainty, which is connected to the process by which these data are collected. That can lead to selection bias and all sorts of things. It is important to communicate that this creates an additional level of uncertainty, and in particular that the representativity is not known. The representativity of the pillar 2 data is still not known. We do not really know if it corresponds to an increase in testing effort or a true increase in incidence, so it is hard to interpret such types of passive data.

Finally, as we were talking about with scenarios, there is a third level of uncertainty to consider, which is linked to the assumptions and the quantitative underpinning of some of the very useful epidemiological models. Here we are talking about models which have been used to predict or simply to look at scenarios for the future. All these models, when they are being run and presented, can be extremely useful, but they are each based on different sources of data and choice of model. The uncertainty related to how these models are built, and so on, is another level of uncertainty.

Those are three levels of uncertainty, and it is useful to distinguish them. Because we have surveys now, with designed surveys like REACT and ONS, and we have passive data, we can also try to combine and compare them to get a better picture.

Q145 Rachel Hopkins: Will, do you think the sorts of uncertainties we have heard here have been well communicated to the public?

Will Moy: Professor Spiegelhalter was right when he said that, by and large, this has not been a successful time for risk communication. It is important, because we focus a lot on health and health risks, to zoom out on the other kinds of risks that are in play: the economic risks, both to society as a whole and to people individually, and the even harder to calculate social risks. I do not know how you understand the risk of disrupting a child's education for a year, but it is significant and we know it has lifelong consequences. The risks attached to people not being able to socialise, all of these are part of a risk landscape and we have very different data on everyone's health, the economy and the broader social effects.

Possibly the best piece of risk communication the Government have done is, "Stay at Home, Protect the NHS, Save Lives." That is not communicating much risk. It is not giving people nuance. It is simply saying, "This is the instruction you need to know." It is important to recognise that sometimes the best way to communicate risk is to say, "There is a problem, there is lots we do not know about it, but this what you have to do." As Professor Spiegelhalter said, it is sometimes it is possible to justify clear action even on the basis of unclear evidence.



The problem comes when you then say, "Here is a slogan, take my word for it, do as you are told." We know that, over time, people will be less and less willing to take that kind of thing, and people are not that willing in the first place. What you need to do is build a chain of trust from the clear advice about what to do right back to a solid base of evidence people can interrogate for themselves, even though most people will choose not to. That comes with a risk that some people will look at that evidence, misunderstand it, distort it and deliberately mislead others. In an open society, misinformation is part of what we have and what we have to accept.

But creating an open and transparent, trusted basis for the clear, practical advice the Government are giving is the crucial need. By and large, the Government have not been very successful in doing that. For thousands of people who have come to us with questions asking, "What do these rules mean? What can I do? I have these circumstances, am I allowed to do this or that?" I suspect that MPs have been receiving similar postbags. They demonstrate the ineffectiveness of some of the communication of these rules.

On the other hand, that slogan came in and cut through at a point when even the mainstream media was still reporting things that were clearly untrue, that fundamentally misunderstood how the science works. That kind of thing, having that clear advice demonstrates how clear communication can cut through.

The overall answer is that we have not had a good job of communicating the risk, but it is important to remember that communicating risk is not just about explaining all of the complexities to all of the people all of the time. It is sometimes about just telling people, "Here is the clear simple answer."

Q146 John Stevenson: Dr Worthy, can you explain what you mean when you say "data merges with key events and narratives"?

Dr Worthy: We very rarely see a piece of data or a number in isolation if we think about our everyday lives. They often fit in with narratives, events and attitudes that we already have. They fit in with the story that is already present in our head. Again, I point to Will Jennings's work around Covid and trust that tells a story very effectively. This is often a key event, so it can build around key events such as prime ministerial announcements, but also big issues that the numbers you see fit into. A lot of the big narrative moments so far have been around PPE shortages, for example, and worry about whether the lockdown was timed right. The numbers and the things we see fit in with stories that are already flowing in our heads.

Q147 John Stevenson: How do you think that fits in with the public understanding of Covid-19?

Dr Worthy: It means that we must be aware of what these key events are and how these shape how everything else that comes after it happens. I



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would back up what Will said, by saying the public do have an understanding of the nuances around this subject, both around the nuances of the need to protect privacy, the need for secrecy and the need for speed in certain issues. They also have this sense, which is interesting in a number of surveys I have seen, that nobody knows what the truth is. They just want to know what the best thing to do is in this situation, based on the evidence we have. People do have quite a nuanced understanding, but it is often built around these key events, and sometimes these key political events and attitudes that we already have in our heads.

Q148 **John Stevenson:** Professor Richardson, what evidence have you seen of data being communicated that you would say is framed with political consideration or within political consideration?

Professor Richardson: We point to a number of instances in the RSS submission. One example was at the start of the crisis, where the Government set a target to carry out 100,000 Covid tests per day and then claimed to have met the target by posting 100,000 tests a day. This is against the code of practice. Big numbers are advertised and then the data are twisted basically to say that the target has been met where it is not the same data. This was highlighted by the RSS at the time and we wrote a statement on it to complain. Also the chair of UKSA, Sir David Norgrove, wrote to Matt Hancock to point out that, basically, the way the statistics about the test programme were presented was not adequate and that it gave these statistics limited value for this purpose.

Again, we see a fascination with big numbers, for example, when in September the first announcement of the Moonshot plan was leaked and presented. Big numbers—millions of tests—were quoted, but no objectives were clearly stated for their planned use. Announcing too early without clear objectives creates a problem for afterwards, trying to justify later on without having had time for careful considerations.

We could see, for example, international data. International comparisons were used quite early on in the briefings but, when they became less favourable for the UK, they were dropped. So reference to international comparators was used in some cases and not in others, even though it nearly always a useful measure.

Also the pressure on reporting, at the daily briefing, the number of deaths meant that number of deaths reported on a given day in a hospital setting were reported, which were always an underestimate, and a clear explanation about the reporting delays and the fact that this had to be taken into account, as well as other reporting issues, were not clearly highlighted.

Basically, it led us to the conclusion, which we have already discussed, that if briefings are required regularly, then the communication should be taken over by non-political communication of data by, for example, scientists, people involved with the ONS, the chief medical officer or other chief scientific officers so there is a clear distinction in the way evidence is



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communicated, away from the twist that can be given for political consideration.

There are many other examples, I think—Will Moy will have some of them—of finding data that say the target has been met, but it is not the same data. It has been done time and time again.

Q149 John Stevenson: Following on from that, Mr Moy, we have talked a lot about trust, but in reality how important do you think it is that the public have trust in politicians and the media during crises like this?

Will Moy: It is vital. This is one of those situations where everybody's individual choice matters and, by and large, in politics there are not too many of those. Our democracy is designed to make sure that the average citizen does not do too much, except every few years when they vote. In a pandemic, however, all of us and the choices we make about our own behaviours have an effect on the social, economic and individual health outcomes that everyone experiences. In order for us to make the right decisions, we have to have trusted information. When you violate that trust, there is a real risk of breakdown.

It is very important not to think of the public homogenously in this case. Different groups, different audiences, different areas of the country, different age groups, different communities, whatever it might be, may have different experiences of this. You could easily end up with a situation if trust breaks down, say among students and young people—as we clearly saw with Ofqual earlier this year and with the university experience—or in particular areas of the country, of people starting to reject official advice and becoming unwilling to rely on the advice or the rules that the Government are setting. You can very easily get to a point at which behaviour changes and things start to get worse. Trust is fundamental.

In this case, we need to recognise there is a very simple cure for some of the things that Professor Richardson pointed out, where the Government and the Opposition have been known to cherry-pick evidence, use it selectively, amplify it selectively, which is that when people say things in public they should be prepared to back them up in public. Too often Ministers have made statements based on management information that is available only to them and not to the public—something the Office for Statistics Regulation has called out—and it is already, in the case of official statistics, a breach of the code of principles not to give the public equal access to official statistics as Ministers because the statistics exist for all of us, not just for Ministers. That should apply also to management information when Ministers start relying on it in public.

Q150 John Stevenson: Would you agree that the media have an equal responsibility?

Will Moy: I think they have a different responsibility, but absolutely, yes, they have a responsibility. More and more now, it is not just the media but internet companies, which are hugely important gatekeepers of the



information people receive. They have to take responsibility for the information they amplify, for the information they choose to share and for the spread of misinformation as well.

Q151 **John Stevenson:** On that point of how we communicate, whether it be Ministers, the media or officials, how have you seen that affect public trust?

Will Moy: It is hard to tell at this stage. We are involved with two regular surveys. Ofcom has been doing some excellent work surveying public attitudes over time, with weekly or fortnightly surveys going out. I am on the advisory group for the regular surveys of the Reuters Institute for the Study of Journalism, which was mentioned earlier. I can go back to those sources and try to come up with what we know from the quantitative data, but I would not like to ad lib on a subject that important.

Q152 **Karin Smyth:** Mr Moy, again on media outlets, can I clarify something? We talked earlier about fragmentation, and you talked about the fragmentation of the media. One of our assumptions is that most people are still consuming information about Covid-19 through traditional media. Is that true?

Will Moy: Yes, it is true, but people are getting information from lots of different sources.

Q153 **Karin Smyth:** We are interested in how all media outlets have dealt with the complexity of the data. Lots of journalists and media people are generalists, much like politicians, although some of them do have specialisms. Can you give us any examples of media outlets that have used the data incorrectly in order to push certain arguments or narratives? You touched on that a moment ago, but do you have examples that would be helpful?

Will Moy: Yes. We can certainly provide the Committee with a comprehensive list of examples in writing, from the fact checking we have done.

Karin Smyth: That would be helpful, would it, Chair?

Chair: That would be extremely helpful, thank you.

Will Moy: We will do that summary. It is perhaps worth saying that there was a period before the Government got their message straight and first came up with "Stay at Home, Protect the NHS, Save Lives" when the media was slightly chaotic and this was being treated, in my reflection on it, as a bit of a political issue and everyone had their own take on it. Good scientists and bad scientists were running through the media on relatively equal terms, and certainly newspapers published things that were demonstrably false and that we had to ask them to correct.

The quality of Government communication, and the clarity of it, has had a significant impact on what the media reports. There have also been some very good examples of outstanding journalism from the media, including trying to get trustworthy information from Government. Although we



should call out the media when it does bad journalism, it is important to recognise just how important good journalism has been for people during the pandemic.

That said, I think the more the issues become politicised, the easier it is for the political bent of journalism to start affecting the reporting, whether it is, "Is the Government doing a good job on test and trace?" or the politicisation of whether we should be wearing masks or taking vaccines or that kind of thing, that is where you get real danger that there is selective amplification of science on one side or another. We need to be very careful about that.

We saw, similarly to Brexit, that generalist journalists were working very quickly, as journalists have to, and dealing with deeply technical and unfamiliar topics is a very risky combination. We are grateful to the Science Media Centre, among others, which has done a very good job of making genuine scientific expertise readily available to journalists. The Vaccine Confidence Project at Oxford University has played an important translational role. When we reflect on what the media has done this year, that link will be the ingredient that constantly gets overlooked, including by funders, of people who are serious, professional academics who really understand the evidence, but can speak a language that journalists can understand at the time of day when journalists need it and in 30 seconds. There are not many of them.

David Spiegelhalter is one. We are lucky to have him. Investing in things like the Vaccine Confidence Project, like the Science Media Centre, that is how you create the chain of trust, if you like, from proper scientific evidence through to journalism and, therefore, through to the public.

Q154 Karin Smyth: Thank you. Before I come to Professor Richardson, I want to pick you up, Mr Moy, on something else you said earlier, which is helpful for another of our inquiries on how the pandemic is managed. That is around the issue of fragmentation of messaging between health services, perhaps the police and other groups on the ground dealing with the pandemic. As the Committee has heard before, I was part of the emergency planning local resilience forums before coming here. We have previously looked at Cygnus and some of the lessons that should have been learned or understood. That issue of fragmented communication, both from fragmented organisations not perhaps being linked, local and national, as well as fragmented media, is an interesting point. Where is that being fed back into? Where should it be picked up?

Will Moy: That is a great question, and it is a question that applies in a lot of contexts. When we think about our emergency response to disinformation, say after an emergency announcement of a disaster or terrorist attack, something like that, we know there are protocols for who talks when and for making sure there is a single voice communicating when that is done well. We have seen that break down at times, particularly when the Government are seen to be politicising the evidence, which has been a fair charge at some times during the pandemic.



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I think this is a real problem because of the underlying fragmentation of knowledge about what is going on. We may come on to this later, but in 2017 the Office for Statistics Regulation said that health statistics in the UK should be much better, they should be more valuable, more coherent, in some cases more timely and more comparable. That remains true today. Although work has been done on it, fundamentally knowledge about our health system is fragmented into hundreds of different organisations and that presents a huge challenge in just understanding what is going on in health in England alone.

When you start trying to make comparisons between England, Scotland, Wales and Northern Ireland, let alone conclusions about what is happening to the UK as a whole, the fundamental barrier is that we do not have data that joins up, we have not invested in the data infrastructure that lets us know about this, so people in different parts of the country, people in different parts of the health service, let alone social care—where information is a mess—will have genuinely different understandings of what is going on and, in good faith, will try to communicate them. Then from the public's point of view, it looks like a mess, it is confusing and it breeds distrust. There is an underlying piece of work here about co-ordinating and making coherent the information we have in the first place.

Q155 Karin Smyth: This is a very helpful point, thank you. Professor Richardson, finally from me, we have seen comparisons of Covid-19 to other illnesses such as flu. Are these comparisons reasonable and accurate?

Professor Richardson: There are definitely some comparisons that can be made. If David Spiegelhalter was here, there is very helpful information from the Winton Centre, which presents a comparison between the number of deaths attributed to flu in previous years when there were high flu pandemics and what happened this year with Covid. For example, we can see that up to the beginning of July in terms of attributable causes of death for people over 20, roughly two and a half times as many were attributed to Covid compared with those which occurred in bad flu epidemic years. There are detailed tables, and definitely some comparisons can be made.

One thing I have seen less of is thinking in terms of excess deaths because, basically, it is hard to capture the overall effect of Covid and the overall effect of flu in a given year. Indeed, there is a direct effect—those deaths that are attributed—and there are indirect effects, where people could die from another cause because they have been made fragile. Comparing excess deaths from flu and Covid for a comparable period this year could also be interesting. We have not quite seen that done yet.

Q156 Tom Randall: Do you think the Government acted quickly enough on the early Covid data from China?

Professor Richardson: At the beginning of the pandemic, very early in February, the first reports from China came through showing high infectivity and some evidence of transmission. It meant that the pandemic preparedness group got going very quickly and started implementing their



first mechanistic models. The susceptible-exposed-infected-resistant model, which is a well-known and well-understood model for transmissible diseases, using as input likely values for the parameters coming from the early data, was used to actually inform policy.

There was evidence produced by these groups, in particular SPI-M, which met early, to show the consequences of these characteristics of the disease. The evidence for the fact that there could be pre-symptomatic transmission was one of the warning signs that this virus was going to be extremely challenging to deal with compared with other viruses that we had encountered before. As soon as that became evident, it was clear that this virus would be extremely challenging. Basically, epidemiological models were run regularly with improved input data as these were coming along, and the Government had that information to make decisions.

Q157 John Stevenson: Do you think the data models were used properly?

Professor Richardson: Yes, I think the data models were used properly. The good thing is that there is an ensemble of models, which were and are still now continually refined and updated. They started pretty rough—no age distribution, for example, very rudimentary mixing patterns, which is important—but as new information was coming in, they were constantly being updated.

As I mentioned before, there is uncertainty about the right models. It is not a straightforward question, so the fact we used an ensemble of models, which was the practice adopted before and has been very usefully adopted for this pandemic, robustifies the inference. Because you are basically averaging over the detailed model specification and the data sources that feed into these models, so it gives a more robust picture of the trends of these models. Such models are useful for informing trends, for estimating some characteristics of the transmission and for producing short-term forecasts.

Q158 Tom Randall: Did the predictions from these models turn out to be correct?

Professor Richardson: This is a question in itself. To say that, you could validate it internally and these models keep doing that. You could just validate the predictions of the models internally with respect to the data that is being observed, such as the number of deaths or the number of hospitalisations.

In terms of the underlying true quantity, which is the latent number of those infected, there is no gold standard measure. You cannot compare with data that do not exist. Quantities like R , it is a hidden parameter that characterises transmission, but you cannot measure it against outcomes. To investigate the behaviour of a model, you have to look at how it performs in terms of its own forecasting.

There is a recent document by SPI-M that tries to explain these issues. One thing to note is that, as it is a situation that constantly evolves, that



is why I was talking about short-term forecasting, because using these models is long-term predictions, this is scenario modelling. It is not model fitting, because people react, people mix differently and so on.

You consistently need to include new sources of data. All the models use Google mobility contact patterns, the best known evidence about the length of stay in hospital and so on, so these data are continually being fed in because they are about people and how they interact, ensuring continual adaptivity. That is why these short-term forecasts are useful. Now we also have direct data from these well-designed surveys, like the ONS survey and the REACT survey, so then you can compare the trends, what the surveys are capturing about the incidence and what these models are predicting. This is done regularly by SAGE and SPI-M.

Q159 **John Stevenson:** What do you say are the limits of these data-informed models? Are they something that we should be continuing to use?

Professor Richardson: Yes, I think they are a very useful tool. Of course, they are not replacing what needs to happen, which is the build-up of an effective real-time surveillance system in the UK. These models contribute to the epidemiological understanding of the disease, and they can be extremely useful, particularly for scenario building, but now I think it is time to invest in building a surveillance system that can capture different sources of information in real time.

Despite the pandemic being a high risk on the Government's agenda, the building of such a real-time surveillance system was not prepared for and has not happened. Part of it was acted upon as quickly as possible after the start of the pandemic, as the ONS and all the other surveys were set up, but the preparation for this system could have been done ahead of time. It just was not nimble enough to start, because there was a lack of preparation.

Q160 **Mr David Jones:** Professor Richardson, did the Government move sufficiently quickly from modelling the disease based upon the Chinese data to monitoring the spread within the UK?

Professor Richardson: If the design and readiness for implementing a real-time surveillance system had been done —if we knew the necessary statistical tools for that, if we had known you would need data feeds —if all that had already been planned, we could have moved faster. As it was, in April or a bit later, the ONS started these surveys. They were on a pilot phase first and were then amplified. I think there was little else they could have done because one of the issues was the lack of testing facilities. To set up a surveillance system you need the availability of a high number of tests. Until that was possible, you could not move to set up a proper surveillance system. The combination of not having an implementable, prepared plan for real time surveillance, and the fact that the testing took time to get going, meant we could not move faster in the circumstances.

Q161 **Mr David Jones:** Therefore, would you agree with evidence that we have



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had from the Greater London Authority, which has said plainly that surveillance was inadequate until it was too late?

Professor Richardson: Until testing was widely available, it was very difficult to do proper surveillance. I agree with that because to do surveillance you need to design an active surveillance system, and although the scale of the active surveillance has been amplified now and the ONS survey is expanding, the active participation rate is dropping, so there is an issue with scale. The scale of the surveillance is not yet sufficient to get a very granular picture of the situation, hence we need to combine that data with the pillar 2 data. But as I was saying before, the pillar 2 data have many biases. In general, for surveillance, you need a combination of indicators, all being imperfect, and you need to think about how to analyse those together. This is not an easy issue, but it could have been thought of in advance.

Q162 **Mr David Jones:** Would you say the data is now good enough for the Government to rely upon it to act quickly to prevent outbreaks across the country?

Professor Richardson: There are many sources of data, and the most nimble data are the pillar 2 data. Unfortunately, these data have biases because they are influenced by the testing rate and the effect of testing, on which we do not collect enough information. When people are being tested, tests are recorded, but it is not clear if they are in an area where there has been a special testing effort or not, so there is a lot of uncertainty on how to interpret the testing data. It is not reliable. The other sources of data, which are more reliable, like admissions to hospital, ICU admissions and deaths have a delay, so they are less nimble.

We need to focus on how to integrate. We need to combine these sources of data and design active surveillance. We also need to understand the denominators of the tests, such as positivity rates on a given date, i.e. the number of positive swab tests with respect to the number of swab tests done at a local level. This is not published, and I do not know if it is processed. We have been discussing this issue for some time. This would be a very important indicator. Currently we are reporting the number of positives tests per 100,000 people, but not with respect to the testing effort, which would be more interpretable, so there is still information that is missing. Then we would need to integrate them into the surveillance system. We are getting there, but we are not there yet.

Q163 **Mr David Jones:** That is rather worrying, given that we are now over nine months into the pandemic in this country.

Professor Richardson: What I am saying is that there is not an integrated system. What I am not saying is that we cannot monitor what is happening by using expert judgment, understanding all the pros and cons of the different health indicators and making a good expert judgment on the state of the epidemic. What I am saying is that we do not have this fully integrated real-time surveillance system yet, but we have a number of



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indicators. We understand the pros and cons, and groups of experts, as they are doing, are making very well-informed judgments on the state of the epidemic. I must say that the ONS and the REACT surveys have been very crucial in anchoring the evidence, and they need to be congratulated for having set up these surveys as fast as they could. Ramping them up is important.

Q164 Karin Smyth: Picking up on part of that, and alluding to the exchange I had with Will Moy earlier about health service data, it has been a source of great frustration to me in the system, knowing that there are situation reports that happen, twice daily in some cases, in cases of heightened emergency in the health service. That data is real time and very active for monitoring both the current and the future bed status essentially, and then putting alerts into the wider system. The fragmentation of the NHS and the way it has dealt with the protocol systems is problematic. Is that part of what you are alluding to? That could be much better, and we know the data is there.

Professor Richardson: This data are very important. For example, we have the number of patients in beds but we do not know clearly the fraction of free beds and the fraction of occupied beds per region. It seems like it increases one number, but knowing whether and where there are reserves of beds is also crucial. I have not seen this data available, but it must exist. Other countries are reporting that as one of their key indicators. I agree we could have very good data, but it has not been collated for that particular purpose.

Q165 Karin Smyth: It is collected to understand the local situation, and every chief executive and every bed manager in every hospital will understand that on an almost hourly basis.

Professor Richardson: We need to report the proportion of occupancy by Covid patients of ICU beds. In my opinion, that would be a very important indicator to guide how much pressure we can place on driving down infection. Yes, I totally agree with you.

Q166 David Mundell: Professor Richardson, I will begin with you, but other witnesses should feel free to chip in. What data do we have to judge the effectiveness of the lockdowns?

Professor Richardson: As I was saying, we have a number of indicators. Are we talking about controlling the infection, that is judging the effect of the lockdown in controlling and diminishing the overall number of infections? We have got the pillar 2 data with the caveat I have already discussed, we have hospitalisation numbers and trends, ICU hospitalisations, the number of deaths and we have all these per age class, which is very important. We have indirect indicators like R and its change over time.

Also we have indicators on people's behaviour, such as the surveys on attitudes, to see how effective the lockdown is. We can see the change in people's attitude and how they comply, because we know that the key to



control infection is stopping transmission and so how people are changing their behaviour. We have indicators on that, and there is also the Google mobility data. There is a range of health indicators, as well as attitudes and Google mobility data that we can look at for assessing how effective the lockdown is.

Q167 David Mundell: In relation to the current lockdown in England, what data do we already have to indicate that it is now appropriate to lift that lockdown on 2 December?

Professor Richardson: For me, one thing that is lacking is the purpose and a clear objective about what the lockdown wants to achieve. We know we are not after suppression. Some countries, such as New Zealand and China, have gone for for suppressing the disease, we know that European countries have gone for controlling the infection level while we wait for a vaccine to come along. In the UK, we are in a control situation. To judge whether we should come out of lockdown, we have to choose a target. We know from the epidemiological model that we are decreasing transmission, it will gradually build up again. We know very well these patterns, and these are expected patterns.

To judge whether we come out, we have to choose. We need to have a stated target, for example, in terms of the reported positive cases. Do we want to go back to 50 per 100,000, or 25 per 100,000 like we were in the summer? Do we want, for example, ICU to have enough reserves so we can treat everybody? These could be two key indicators - enough spare capacity in ICU and indicators of the number of positive cases below a certain level. This has not been clearly stated, so once the objectives are stated we can have the indicators and decide. I have stated the overall objective, the quantitative objective, is not up front. It is not a question that can have an answer.

Will Moy: Professor Richardson, as you would expect, has done a brilliant job summarising the health indicators. It is worth saying that there are many economic indicators that could be drawn on here as well, from GDP figures to redundancies, unemployment, business closures and so on and so forth. Those have sped up in recent years thanks to the Bean review of economic statistics and a significant investment in improving the speed, timeliness, coherence and usefulness of economic statistics.

The Royal Statistical Society's recommendations to this Committee include having something like a Bean review of health statistics. What Professor Richardson has shown is how necessary such a review is and the need to invest in this area.

I would also add a third set of indicators that we simply cannot have in this area, which is what is the effect on people's mental health? What is the impact of preventing 18-year-olds or 65-year-olds from socialising for a year? What does this do to a society? We do not know. You, as politicians, have to make those value judgments on behalf of all of us. We could know a lot more than we do, and we need to review how we collect data in order



to make sure we do. We cannot know what would have happened without the lockdown, and we cannot know if we come out of lockdown what would have happened if we stayed in lockdown. The uncertainty is real, and the value judgments are real, too.

Q168 David Mundell: In the context of those remarks, what data do you think the Government should be using to decide which tier a local area in England should move into after the England-wide lockdown is lifted?

Professor Richardson¹: There are a range of indicators that the Government can use to try to get a handle on the transmission. There is some data available in the test and trace system that are not used to try to quantify transmission. For example, the time delays between symptoms and getting a test, all that type of data could be usefully analysed to try to understand the local situation. At the moment it is not readily available.

There is international evidence about what measures have been effective, and I can elaborate on that, and about the relative efficiency of some of the NPIs and, with local knowledge of the areas and the sociodemographic context. This needs to be integrated by people who understand the local context with respect to broad guidelines about high context of transmission to make these tier decisions.

There are the usual suspects of the range of indicators, with their caveats, and they need to be as granular as possible, together with the best evidence about patterns of transmission and what can help to control it from the literature.

Q169 David Mundell: The same overall approach has been pursued throughout the UK, as you alluded to, in terms of how we have chosen to tackle the pandemic. The constituent parts of the United Kingdom, the devolved nations, have pursued a different emphasis, different approaches. For example, we have a different tier system in Scotland, although fundamentally it is very similar to what is happening in England. Do you think we are able to make pertinent and appropriate comparisons between how the pandemic has been handled in the constituent parts of the United Kingdom?

Professor Richardson: Definitely so. What I am not advocating is the interaction of indicators. Well-understood indicators in the local context are important in issuing guidelines, because this infectious disease relies on understanding how people make contact. There is a lot of local knowledge about how people make contact, which means a pure algorithmic approach needs to be interfaced with good local knowledge to be most effective.

You can learn by doing comparisons, and that is how we have most of the evidence about the effect of these general NPIs, school closures, restricting

¹ Professor Richardson's oral evidence was not consistently recorded from this point forward, due to a problem with the internet connection. Professor Richardson was invited to comment on a draft transcript and corrections were made so that this version reflects, as closely as possible, what she said.



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social contact, wearing masks and so on—the different range of non-pharmaceutical intervention. Internationally, different combinations of NPIs have been used at different times. Exploiting that variability has led to knowledge about the effectiveness of these different interventions on control of transmission. Clearly these studies have been done on an international level, such analysis could also be done with analysis at the level of the different nations of the United Kingdom, because there have been differences of policy.

Of course, there is high correlation between them and teasing out the finer details might be difficult, but the variability of timing and application of measures can be used to try to understand the effectiveness of these decisions and their timing.

Will Moy: I would suggest this is one of the wasted opportunities of devolution. The fact that we have different parts of the UK running healthcare systems similarly, very comparably, but differently, creates an opportunity to learn between the different parts of the UK. If you do not collect data in consistent ways, you cannot make those comparisons, you cannot do that learning and you cannot save lives. That is a terrible waste.

Respecting the necessity of different Governments and different healthcare systems being able to design their own management information systems and oversee their own statistics, I would think the Government, acting in the best interests of all the people in the UK, would ensure much more joined-up, much more coherent statistics between different parts of the UK so that we can learn and save lives.

Q170 **David Mundell:** Your conclusion, and I would be interested to hear from the other witnesses, is essentially that we have not been using the same data for all aspects of handling the pandemic in different parts of the UK. We are not using the same core data, if I can use that expression.

Will Moy: This is a much deeper underlying problem with official statistics throughout the UK. The UK Statistics Authority did a review of the coherence and comparability of statistics across the UK, I think around the time of the independence referendum in Scotland, and it is a mess. It is very difficult to make reliable comparisons between different parts of the UK in all kinds of fields, not just healthcare.

To give you one example from healthcare, the way death rates are calculated is different in different parts of the UK. This is something that shocked me a few years ago when I found that out. I thought death rates were about as simple as you could expect any statistic to be, but no, different parts of the UK calculate them differently. Therefore we are unable to reach conclusions about the comparative safety of different medical operations between different parts of the UK, conclusions that might help save lives. There is a very fundamental, baked-in divergence between different parts of the UK here and it is causing enormous damage.

David Mundell: That is why I am very concerned and disappointed that



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the census is not going ahead in Scotland next year, when it is going ahead in all other parts of the United Kingdom. Such a fundamental piece of data collection will render Scotland not directly comparable with the rest of the United Kingdom. I find that decision completely incomprehensible, but that is an aside. Thank you to the witnesses for their replies.

Chair: Thank you for your restraint, David Mundell.

Q171 **Karin Smyth:** Professor Richardson, we are interested in looking at Covid-secure measures. A lot of people come to us, as politicians, about their own interpretation and understanding of this. Looking at some of the evidence, what is Covid secure and does it reduce Covid transmissions? Dr Worthy, in your role looking at transparency and so on, you may have a view on this as well.

Professor Richardson: This is a very vast question on the effect of NPIs. I will only make a few points. Basically, the evidence on the effect of these non-pharmaceutical interventions has mostly been coming from an international perspective, as I was explaining before, where a different combination of measures has been applied at different times of the epidemic wave. Thanks to this variability, we can try to learn something about their effectiveness. For example, there was a recent review of NPI measures in 131 countries that looked at the influence on the decreasing R rate and showed a delayed impact of different combinations of measures. These are very useful sources of evidence.

One thing I would like to point out, which we have not discussed—and this is connected to context—is that it has been known for some time that there is evidence of superspreading events, and that the transmission is quite heterogeneous. Smaller groups of people can create large numbers of infections. It is not an average phenomenon with each person infecting on average a certain number of contacts. In fact, smaller groups of people, 5% to 20%, are creating up to 80% of the transmission. This has come up quite solidly in the modelling literature. It is interesting to try to understand and drill down on what these superspreading contexts are.

There is a recent detailed study from the first wave in Hong Kong, where they have investigated large clusters. They went backwards, using back tracing from the first wave, and found that bars, restaurants, weddings and religious events were often of the origin of these events which led to large number of new infections.

There is also a recent CDC study, a case control study, which tried to compare the social context of individual cases and found that cases were more likely to have dined in restaurants in the past two weeks. There is evidence now, which is very useful, about these kinds of social contexts where superspreading events can occur.

Q172 **Karin Smyth:** Dr Worthy, do you want to comment from the political perspective on some of that and how we utilise it to engender better policy?



Dr Worthy: I was going to make the point that there is a link between the levels of public understanding of these guidelines generally and how people behave. There has been some very interesting research around Covid. The less informed people are, the more likely they are to display things like vaccine hesitancy and not to obey Government guidance, and the reverse is also the case. This is also a general point for political knowledge. The more politically knowledgeable an individual is, or the more knowledgeable they are about a certain subject, the more likely they are to tie their behaviour and what they know together. All the things that we imagine make a good citizen, whether it is being involved or compliance understanding, are more likely if you understand more about what is happening and less likely if you understand less.

Karin Smyth: It is a shame if we have lost Professor Richardson. Given that we had the announcement yesterday and we are all waiting to find out what tier we are in with the various restrictions, that understanding of recent policies such as mask wearing, social distancing, Covid security and spreading events is crucial, as Dr Worthy said, to the compliance understanding of people.

Professor Richardson: Am I lost?

Karin Smyth: Just muffled, shall we say. We can check whether the Clerks have been able to transcribe some of that afterwards.

Q173 **Jackie Doyle-Price:** I have some questions for Mr Moy. Your submission to the Committee talks about inaccuracies you have identified in the data. Could you share with us why you think those data are inaccurate? Is it a skills issue? Is it an approach? Can you share your views?

Will Moy: You may be familiar with the Swiss cheese model of risk control that we have talked about a lot during the pandemic, which comes from accident prevention. That says that, to prevent something like a pandemic, you have many layers of defences and none of them works perfectly, but collectively they are enough to stop the problem. Alternatively, the problem of getting good information in a pandemic is almost the opposite, which is that you have many things that all have to work in a row for good information to be used by decision-makers and reach the public.

First, you have to be collecting the right data. I have already said that we do not collect the right data in healthcare, social care and more broadly in the UK. We do not have a function that looks forward for five years and says, "What data are we going to need over the next five years, and are we collecting it now?" We have a failure of data collection in anticipating the needs of future decision-makers.

Then we have a failure of analysis. There are 17,000 civil servants working in a Government analysis function, and yet it is clear that we are not always capable of doing high enough quality analysis fast enough. A lot of our delivery of Government data and analysis is stuck with very outdated systems of data collection, IT and so on. Instead of having what are called reproducible analytical pipelines where computer programmes take the



data, there is a lot of manual cleaning and managing of data. The Office for National Statistics has started to make progress on this and during the pandemic we have seen very good examples of rapid data collection, highly responsive and quickly analysed.

Then we have to communicate the data to decision-makers. It is not disputed by anyone at the highest levels of the civil service or Government that neither Government Ministers nor civil servants in general have very strong quantitative skills. If you are looking at a very numbers-based evidence base, you are talking a foreign language to many of the senior decision-makers. That requires investment in skilled translators who can make the evidence useful to people who are not well equipped to judge it for themselves. Then it requires skilled communicators who can communicate it to the public in a dispassionate and trusted way.

We know there are gaps at every stage in this chain, and there are also gaps in oversight at every stage of this chain. The Office for Statistics Regulation, which the Royal Statistical Society has rightly recommended needs to be beefed up, has some role in the middle of that, making sure we have the right analysis and that it is properly communicated. I think it is a 20-person office. It has the backing of your Committee, which is essential and for which we are very grateful, but data and statistics are fundamental for the future of effective Government and 20 people watching out for that is totally mismatched in scale. We should be thinking much more about the National Audit Office and its important role in public spending and the Office for Statistics Regulation and its equally important role in the use of data as well as statistics specifically by Government.

Then we have the failure of investment in translation, in getting quantitative skills in Government up and in providing the people who can translate data into useful evidence. One of the things I have been encouraged by in recent months is the creation of a data science team in No. 10, so there is work going on here. It is not going on anywhere near fast enough. We are talking about decades of missing the point of what the 21st century is actually going to look like that need to be reversed, and reversed urgently.

Then we have the communication problem. My last point is that there is no oversight of Government communication. One of the questions the Committee should be asking itself is whether it is now time for statutory oversight of the Government Communication Service and Government communications generally, in the same way as there is statutory oversight of the Government Statistical Service. It would be far better to have genuine cross-party, non-partisan oversight of that function now, while it has not become completely polarised and devoid of trust, than to wait until a time when it becomes polarised and devoid of trust and we realise that we have lost something very precious. That is important in these circumstances.

Q174 Jackie Doyle-Price: That is very interesting, thank you. You mentioned



that there are 17,000 civil servants. There is lots of information being collected. It seems to me that a lot of that information is collected with no understanding of the purpose behind it being collected. An absolute absence of effective interrogation is what you are saying to us, effectively.

Will Moy: No, sorry, that is too strong. There is not an absence of effective interrogation. There is a lot of good analysis that goes on throughout Government. There are a lot of great civil servants working in that area, and there are lots of great examples of ground-breaking work and of decades-long work that is valuable, but we are missing the scale of the opportunity. We are missing it partly because of the lack of data collection. If you build new systems, as Government will be doing a lot because of Brexit, you have a once-in-a-generation opportunity to bake in evidence by default. If you miss that opportunity, you are stuck with those systems for decades and you are stuck with the level of ignorance that you have created for yourself for decades.

There are two skills gaps. One is the quantitative skills, the ability to understand quantitative information and evidence. The other is the ability to join up the knowledge of the numbers with the knowledge of the real world. It is all too easy to imagine that somebody who knows nothing about how a particular system works can stare at the numbers on a spreadsheet and figure it all out. That is one of the worst conceits of people who are data evangelists. To use evidence effectively, you have to understand the field you are using the evidence about. If you want to use the rich data we could have about healthcare effectively, you need somebody who has worked in a hospital to tell you what it translates to in the real world. Joining up the quantitative skills and the real world domain expertise is where you get the best results.

Q175 **Jackie Doyle-Price:** You mentioned that you would like to see a more robust approach to Government communications. Is the purpose of that so that we can trust the brand, the integrity of the messaging that we get from Government?

Will Moy: It is partly about being able to trust the integrity. It is partly about providing assurance for civil servants working in what is necessarily one of the most political areas of the civil service that they can uphold the principles and standards of public life and that there is support for them to do that. Civil servants in the Government Statistical Service benefit greatly from knowing that the UK Statistics Authority offers independent statutory support for their integrity.

It is also about recognising that, because audiences are fragmenting, Government will communicate more, not less, in future years. Government communication will become more two-way. It will become harder to reach large sections of the public with the same audience. The census was mentioned. Getting everybody to fill in the census is harder now than it would have been a few decades ago, and those kinds of problems are only going to grow. The investment in communication will have to grow, and communications will become less easy to scrutinise because more of them



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will be targeted to specific audiences and so will not necessarily be visible to the people whose job it is to scrutinise them.

There is a clear case for reviewing the oversight of Government communications at this stage, making sure that we have the right oversight for the future, not simply saying that it is terrible now, but saying that things are changing and the oversight needs to be updated along with the changes to the way Government communications work.

Jackie Doyle-Price: That is very interesting. I think that is a whole new inquiry, Chairman. Thank you.

Chair: Indeed. Thank you very much.

Q176 **David Mundell:** I will come back to you, Professor Richardson, and I hope our link with you is a bit better. In my last questions we touched on the issue of joined-up data across the UK and within the UK Government. How well do you think that data is joined up?

Professor Richardson: There is definitely fragmentation, and we need to make a big effort to join up relevant data. Full Fact has highlighted this. The structural challenges that we highlighted in our report make organising the centralised collection and designing the surveillance system difficult. One recommendation we made, which Will alluded to, is having a comprehensive review. One aspect of that review is to try to consider the user's point of view. At the moment, we feel that ONS services are sometimes focused on producing evidence for Government Departments, but in this crisis we have seen a range of users wanting to access statistics, from academics to research groups and so on. The review ought to consider how responsive the collection of data has to be to the needs of users, and to try to have a dialogue with the users for that review.

We called for a review on centralised data collection, and we are also calling for strengthening the Office of Statistics Regulation and its resources, so that it can proactively identify issues in the production of statistics. We also call for reviewing its powers, seeing whether there is a case for strengthening the powers along the lines that we have indicated. Definitely trying to tackle the challenges of fragmentation is a key priority.

David Mundell: In your answer, you have pre-empted my question as to what reforms are required. I see Dr Worthy wants to say something on this topic and perhaps Mr Moy does as well.

Dr Worthy: It would be interesting if there was a review to also look at the safety net of things like freedom of information and the open data initiative. It is not just about the things that Government want to communicate, but also the things that people are interested in, which can sometimes, as we know, be a rather different thing. It is now 20 years since the Freedom of Information Act was passed, and it has been in place for 15 years. There is also a range of open data initiatives in all sorts of different areas. It would be interesting, as we focus on what is produced,



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to also look at the safety nets for people obtaining information and data in other ways.

Will Moy: On the safety net, it is necessary for building trust to recognise that mistakes happen and, when mistakes happen, they need to be corrected. One of the unfortunate things we have seen in the pandemic is that Ministers have not engaged in correction requests when necessary on several occasions. In fact, an MP we had to correct recently was happy to engage in sorting out a correction, but she had to go to see Mr Speaker to arrange a point of order and make the correction on her feet.

It strikes me that there should be a better system for making sure that Ministers and the Government correct the record when necessary, not as a criticism of them, but as part of a healthy society that recognises that mistakes happen. Just as Ministers have a corrections column in *Hansard*, why should Back-Bench MPs not be able to correct the record in a simple and straightforward manner, too? Dr Worthy is exactly right, there is a set of things that contribute to trusted and informed debate and we need to think about them in the round.

Chair: Thank you very much indeed. That is a very strong point to finish on. I thank all our panellists, Will Moy, Professor Richardson, Professor Spiegelhalter and Dr Ben Worthy, for their contributions to this invaluable session in our inquiry this morning. I am grateful to you all.