HOUSE OF COMMONS

Scottish Affairs Committee

Oral evidence: Coronavirus and Scotland, HC 314

Thursday 21 May 2020

Ordered by the House of Commons to be published on 21 May 2020.

Watch the meeting

Members present: Pete Wishart (Chair); Mhairi Black; Andrew Bowie; Deidre Brock; Wendy Chamberlain; Alberto Costa; Jon Cruddas; David Duguid; Sally-Ann Hart; John Lamont; Liz Twist.

Questions 60-116

Witnesses

I: Dr Gregor Smith, Interim Chief Medical Officer for Scotland, Professor Sheila Rowan, Chief Scientific Adviser for Scotland and Director of the Institute for Gravitational Research, University of Glasgow, and Professor Andrew Morris, Professor of Medicine at University of Edinburgh and Director of Health Data Research UK.

Examination of witnesses

Witnesses: Dr Gregor Smith, Professor Sheila Rowan and Professor Andrew Morris.

Q60 **Chair:** Welcome to the Scottish Affairs Committee's second evidence session on covid and Scotland. Today we have some very distinguished guests joining the Committee's proceedings. I am going to hand across to them so that they can introduce themselves and say who they represent and anything else by way of a short introductory statement. We will start with Dr Smith.

Dr Smith: Thank you, Chair. My name is Dr Gregor Smith, and since 2 April I have been the interim chief medical officer for Scotland. My role is to provide independent clinical and public health advice to Ministers and policy officials, which over the course of the last few weeks has helped to shape our response to covid-19.

Professor Rowan: I am Professor Sheila Rowan. I am the chief scientific adviser—seconded to that role three days a week—to the Scottish Government. In this context, one aspect of my role is to help officials and Ministers to access science advice, particularly on strategic issues, for which there was not a clear role. In that sense, it complements the role of the CMO, who would be the first port of call for advice on public health.

Professor Morris: Good afternoon. My name is Andrew Morris. I am a doctor, professor of medicine and vice-principal at the University of Edinburgh. I am also seconded as director of Health Data Research UK, which is the national institute of health data science.

On 25 March, I was invited by the Scottish Government to become the independent chair of the Scottish Government CMO covid-19 advisory group, and I have participated in SAGE since 29 March. The Scottish appointment is time-limited, and I do it entirely on a voluntary basis; I am not contracted by the Scottish Government.

Q61 **Chair:** We are grateful to you all. I know how busy you all are, especially today, with the announcement from the Scottish Government, which we may touch on in the course of these proceedings.

I will kick off with some general questions. We are particularly interested in the operation and efficacy of the four-nations approach that has been adopted across the United Kingdom. I will start by asking about some of the practical arrangements around that. What are the actual mechanics of how this was put together? How is it structured around the four health services? How are decisions come to in order to take this approach forward? We will start with Dr Smith.

Dr Smith: I will try to outline for Committee members how the clinical and public health advice is shaped on a four-nations basis. Since late January, when it first became clear that there was the potential for covid-19 to cause a clinical and public health problem for the United Kingdom,

the four UK CMOs—including, at that time, my predecessor, Dr Catherine Calderwood—have been meeting on a regular basis. That has continued since towards the end of January, with meetings between the four UK CMOs approximately three times per week. There have been more than 50 meetings so far.

In addition, we also have meetings of senior clinicians from across the UK nations twice a week. During those meetings, we particularly discuss new and emerging information in relation to clinical issues; where there needs to be a consensus formed on how we approach those clinical issues across the United Kingdom, those decisions tend to be made in those meetings so that we can then take the advice forward for Ministers to consider.

Q62 **Chair:** Does anybody else want to come in? Professor Rowan?

Professor Rowan: As CSA, I obviously have contact with the CSA network across the UK and the devolved Administrations. There are CSAs for pretty much every Government Department, and we meet on a regular basis, typically weekly—in normal times that would be in person, but currently it is remotely—and that forms one route by which the CSAs have regular contact and can share information, in addition to the things that Gregor has discussed.

Q63 **Chair:** I am interested in how the decision making is done. Obviously, you are getting together and discussing all these issues with your counterparts across the United Kingdom. When decisions about the way forward and the approaches have to be adopted, how is that done? Would it be with the agreement of all the four nations, for example, or is it based exclusively on advice and evidence that you have in front of you?

Professor Rowan: In terms of my role as a chief science adviser, I am the science adviser to the Scottish Government, so my role is to help the Scottish Government to access its science advice, which can come from a variety of different sources. Then, in terms of decisions, that feeds in to be taken into account by Ministers, who make those decisions. My role in that, in the current situation, is partly to sit—as we will talk about—on the covid-19 advisory group that helps to inform the CMO, and to help information to flow in that way.

Q64 **Chair:** We have observed in the past week a divergence in approaches between the UK and the other devolved nations across the United Kingdom. I am just wondering what input you would have into general UK policy and how much you are involved in some of the discussions, debates and decisions that happen at UK level, given that there does seem to be a divergence in places now about how we approach the issues to do with lockdown. Do you have a view on this, Professor Morris?

Professor Morris: Certainly, I can comment from my position as chair of the CMO advisory group. As we know, across the UK health is devolved and science is reserved, but actually science is global, so as we manage this pandemic, we have to look at the scientific evidence base wherever it emerges globally.

What works well is that, since my appointment on 25 March, I have participated in every SAGE meeting. We have a principle of reciprocity with SAGE, so we see all their papers and they see our minutes, and I have attended every SAGE meeting—except today, because of this Committee, I should say. That notion of reciprocity and trying to define the up-to-date scientific evidence, when there is so much uncertainty about this new disease, has worked very well.

Our specific role is to work in partnership with SAGE, but then to provide advice to Scottish Ministers through the CMO on the specific aspects of the science in relation to the context of Scotland.

Q65 **Chair:** Operational independence, even though we are part of this four-nations approach, is obviously a matter for the health service of Scotland, so that would be for you, Dr Smith. You are engaged with the proceedings of the four-nations approach, but then you—*[Inaudible]*—from that and advise the Scottish Government on the basis of how they should then take forward some of those issues. Would that roughly be a correct characterisation?

Dr Smith: Whether we are dealing with an emergency response such as we are with covid-19 or are in more normal times, one of the really important features of clinical practice is the consideration of emerging evidence.

We happen to have gone through a time just now when there has probably never been so much emerging evidence about one disease, so coming to a consensus on the interpretation of the evidence first and foremost is the important thing. As Professor Morris outlined, it is then about how you apply that evidence to the particular context in which you are operating—in this case, the NHS in Scotland. In the broader networks, whether they be on a UK level or a pan-global level, the ability to learn from that emerging evidence base is really important.

Equally important is how that is then interpreted and put into practice. These meetings have been incredibly important to come to a consensus view on what the evidence means, so that that can then be taken back to the Scottish context—I am able to provide advice, based on the evidence, as it has emerged, which can then be applied in the Scottish context.

Q66 **Chair:** We have just heard the First Minister make an announcement in Parliament in the last couple of hours about the incremental, phased route map. I presume that that is an example of the advice you would be giving, based on the evidence that you have secured in conversations and debates with colleagues across the United Kingdom. Could you tell us more about how you were involved in that announcement today and the decision making, as well as anything else you want to add to help us understand how it was decided?

Dr Smith: It is very important to clarify the roles in all this. I am not a policymaker. What I am here to do is to provide advice to Ministers and officials, to be able to shape that policy, so that they are equipped to make the decisions to take policy forward. My role in this process is to

identify the relevant evidence that can then be used to try to determine the best approaches.

If you take the example of Scotland's route map, which was published earlier on today, my role in that is to show which evidence is relevant and should be considered as part of that decision-making process, so that others can then apply their judgment to how that evidence is put into practice.

Q67 **Chair:** Would that roughly be the role that you would have, Professor Rowan, when it comes to giving that advice to Government?

Professor Rowan: As a science adviser, my role is to help the Government access the science and have routes to access the current state of science and the evidence, and help that to be available, which then feeds into the broader process, as Gregor said.

Q68 **Chair:** Lastly from me—I do not want to go into this in great depth—where are we in Scotland just now in terms of our response to covid-19? In your view, are we making good progress? Whereabouts on the curve are we? Are we doing the right things in our approach to issues to do with leaving lockdown? Give us a sense of what more we have to look forward to in tackling this. Let's hear from Professor Morris first.

Professor Morris: As I suggested, all countries in the world are managing this new disease in a time of—I use the term VUCA: volatility, uncertainty, complexity and ambiguity. Decision making by policymakers is hard, but my view is that the approach in Scotland has been practical and appropriate.

Q69 **Chair:** Dr Smith, do you have anything further to add to that?

Dr Smith: Yes. I think I am on record on a number of occasions saying that there are many encouraging signs of progress. It is right that we have taken a cautious approach to the easing or changing of some of the restrictions that we have all found placed upon us. The first thing I want to recognise is just how difficult those restrictions are for people. The caution that we have taken has not been done lightly, but it has been necessary.

As I say, the encouraging signs certainly seem to show that we have consistently, over a matter of weeks, been able to demonstrate a decline in the number of cases, a decline in the number of hospitalisations and, as the last figure, a decline in the number of deaths. That should give us more confidence, as we approach the next review date, that changing some of these restrictions may become more feasible.

As I say, caution is, I think, the right approach, because the margins here are very, very small. The R number in Scotland has tended to be at a relatively higher level than in some areas of the UK, and the margins are so small that easing some of those restrictions too early could have risked sending us into a period of exponential growth in numbers again. So, as I say, I think that caution has been the right approach for Scotland.

Chair: I am grateful. Thank you for that. We go across to John Lamont, and after that, Mhairi Black.

Q70 **John Lamont:** Thank you, Chairman. I reiterate my thanks to the witnesses for giving us time today during this very busy time. I am going to direct my questions to Dr Smith.

Dr Smith, if you think any of my questions would be better answered by one of your colleagues, please just direct it to them. My first question is a continuation of the discussion we were just having about the R number. What is the current R number in Scotland?

Dr Smith: The R number is the calculation that we use to try to assess the transmissibility of the virus. The current assessment is that it probably lies between 0.7 and 1. You can see that there is a large margin of uncertainty in relation to that number. That is because of the way the number is calculated. It certainly gives us cause for optimism that the situation has stabilised just now, but we are still fairly close to that level of 1.

If you think of the R number in simple terms, if it goes above 1, we are likely to see a rise in cases, but while it stays below 1, we are likely to see a reduction and a decline in cases, so it is really important that we keep that as low as possible. It is unlikely that we will get it down to zero. That is not feasible at this point in time, but we certainly want to see it as low as we can possibly get it.

Q71 **John Lamont:** My local health board, NHS Borders, has advised me what the R number is for the NHS Borders area. What is the variance between the different health boards? What is the highest R number and what is the lowest R number in Scotland?

Dr Smith: I would urge caution in interpreting numbers like that on such a granular level as the population associated with the health boards, particularly one of the smaller health boards. The reason is that the margins of uncertainty become much greater as you go down the population sizes. As you start to get into a much smaller regional calculation of R, it is likely that the margin of uncertainty is so great that it becomes less useful.

Q72 **John Lamont:** But it is true to say that there is a tendency for there to be a lower R number in rural areas, compared with higher R numbers in more urban, city environments. Is that fair to say?

Dr Smith: To understand that, I guess we need to understand what actually influences that R number as well. There will be lots of things at play. There are some things which are constant in influencing the R number, and those things are particular to the virus itself, such as how infectious the virus is, how easily it spreads, and how long people tend to be infectious. Those are all things that tend to be inherent in the virus itself.

But population characteristics can also influence the R number. How many people in an area have been exposed to the virus in the past and developed immunity? What are the age bands of that community? We know that certain age bands are more likely to be susceptible, and also how closely and densely populated some areas are.

So, depending on the factors, it is possible that we will see slight—and I emphasise very slight—variances in the R number across different populations in Scotland. Perhaps more important is to think about the incidence of new cases in any given area. That is likely to be different as well. These different considerations, these different measures, taken together will probably give us more useful information.

Q73 **John Lamont:** So what is the conclusion of that? Again thinking about the suggestion that some people have made about different parts of Scotland being unlocked at different rates, does that suggest that that type of policy would be appropriate or would work, given what you have just said?

Dr Smith: I don't think we can discount that type of policy—that is the first thing to say to you—but there would need to be some particularly close consideration of how we could increase our confidence about the measures that would allow us to make those decisions with a degree of certainty that they would not necessarily lead to that growth again in an area. We are not quite at the stage where we have the sophistication in our understanding of the R number in particular or the detailed accuracy for that number to be able to do that.

Q74 **John Lamont:** I want to ask you, again from a science perspective, about the impact of the different messages on either side of the border. I am speaking to you today from Coldstream, half a mile from the border. Clearly there are different lockdown restrictions today between the two communities on either side of the border. From a scientific perspective, how much impact will that in practice have in terms of controlling the spread of the virus?

Dr Smith: Is the question in relation to the behavioural messaging in relation to that?

Q75 **John Lamont:** Yes. The fact that people in Cornhill have been told to do one thing, as compared with people in Coldstream—will that in practice do anything to curtail the virus? From what you have seen over the past eight weeks in terms of how people have been reacting to the advice, do you think that the difference in messaging will actually have any practical impact?

Dr Smith: I don't think I am equipped necessarily to be able to comment specifically on that. A behavioural scientist might be able to give you a much better read-out of that. What I will say on the matter is that messaging is important. How people understand the message becomes an important consideration in terms of how you create confidence that people are going to respond and comply with the behaviours. That is something that has been a consideration throughout our scientific advisory structures. It is something that has a very clear feed-in to the SAGE advisory networks through the work of the SPI-B subgroup. Professor Morris might want to say a little more about the considerations for the Scottish advisory group. We have some behavioural scientists involved in that group's work as well, just to help to make sure that with any

messages we give, we have a sense of how they are likely to be perceived by the population.

Professor Morris: I am happy to comment. I think a key point here is that as we change any measures anywhere in the UK, careful monitoring of the epidemic will be vital because, as we change restrictions, that will in epidemiological terms put pressure on the R, and that is why we are looking at other systems to be put in place, such as test, trace, isolate, support, so that we can try and mitigate any pressure on the R when we change restrictions.

What we know in terms of non-pharmaceutical interventions is that physical distancing is very effective—that is the principal effect of lockdown—so that we reduce the number of people that an individual with covid can affect at a point in time. Just to echo Gregor's comments about the fine margins here, if we have an R of 1.1 and 1,000 people infected, over 60 days we would see an increase of 25,000 people. If we compare that with an R of 0.5 over 60 days, it is 2,500 people. I emphasise the margins for error and why, as we relax measures individually, it is so important to monitor and to allow sufficient time between changes to enable the impact to be assessed.

Q76 **John Lamont:** I have a very last quick question to Dr Smith. The message today in Scotland is to, "Stay at home, protect the NHS, save lives." Across the border, it is, "Stay alert". I may have missed this, so forgive me, but based on the First Minister's announcement earlier today, what is the message in Scotland when the new restrictions come into place?

Dr Smith: It remains, "Stay at home wherever possible."

John Lamont: So it is the same message.

Dr Smith: This is really important to get across. Although we are starting to change the way that these restrictions impact on people's lives, the message is still, "Stay at home when you can." There will be an easing of the circumstances wherein it is legitimate to leave your home, but we still have to be conscious that the more we physically distance, while starting to take that journey back to normality, the less likelihood there is of this disease resurging to any great extent in Scotland. It is still very much, "Stay at home as much as you can."

Q77 **Mhairi Black:** Hello to our witnesses. As with the previous question, if I ask your colleagues something that you think you would be better placed to answer, by all means jump in. To start, I wonder whether Dr Smith can tell us whether we know why the R number is higher in Scotland. Do we have a theory as to why that is the case?

Dr Smith: There are various things that influence the R number. The things that are constant are not likely to make a big difference between us and other countries, so that is the inherent characteristics of the virus, how it spreads, and the length of time that people are infectious for. That

is going to be the same whether in Scotland, England or indeed any other country across the world.

There will be unique characteristics of a country that perhaps influence that R number more markedly. One of the first things is how many people in the country are susceptible to the infection. The more people you have who are susceptible to the infection, the greater likelihood it has of spreading and therefore the greater the R number is likely to be. If you are at a slightly earlier stage in the progress of that infection, if you like, which Scotland has been, that is likely to lead to a slightly higher R number as well.

There are other characteristics as well that are likely to influence the R number. One of those is the demographics of the country. We know that people in an older demographic are more susceptible to the infection, so because Scotland has an older demographic, that is, again, going to influence our R number up the way compared with some of the other UK countries.

Another consideration is the degree of contact that people have within a population. Although you can mitigate some of that by the physical distancing measures that we have put in place, if you have very dense aggregations of people, as we have through central Scotland—the more densely aggregated your populations are, the more likely it is that the disease or illness will infect through them. Those are the kinds of considerations that all influence the R number, some of which are particularly relevant to Scotland.

Q78 **Mhairi Black:** That is really helpful. In layman's terms as best as possible—any of the witnesses is placed to answer this—what have we learned about the virus since the beginning of lockdown? Have we learned anything new about it? With that in mind, would we, on reflection, do anything slightly differently with that knowledge?

Dr Smith: That is a fabulous question. We are learning about the virus every single day. If you look at any of the science or medical journals just now, every week when they are published they are crammed full of new articles and new research that are telling us more and more about the virus.

It is hard to believe that the virus has been officially known about for only approximately five months. The level of understanding over that time has increased massively. We have learned a bit more about the way that the virus behaves, the way that it spreads, how long people are likely to be infectious for and the ways that it affects them. All those things are things that we are learning about on a constant basis.

We have also learned an awful lot about who is particularly susceptible to the virus and what characteristics people have that perhaps make them more at risk, or perhaps even, in some cases, give them a degree of protection against the virus. With all those things put together, I could probably sit here for the next two hours and tell you different things that

we have learned over the course of even the last couple of weeks about the virus, so great is the exponential growth in our knowledge of it.

Q79 **Mhairi Black:** For us as policy makers, the balance has got to be between society functioning and keeping people safe. I suppose what I am really trying to get at is whether as policy makers we should be looking at how we can best try to get things to survive throughout this period, or are we now getting to a stage where we can see the end in sight—a vaccine—and life can return to something like normal? Which one are we at?

Dr Smith: That is a great question. One of the central themes there, which is really important—excuse me if I haven't interpreted your question in the right way—is just the absolute critical need for people who are shaping policy and science to stay very closely linked over this period and to make sure that that learning is transferred into the decision making. That is a really critical part of the process just now.

To pick up on the second part of your point, I do think we have learned an awful lot more about the characteristics of this virus, which allows us a sense of where we go next. One of the things that is becoming increasingly obvious as we go through this—at this precise moment in time, we don't have a vaccine for this virus; we don't have any single treatment that we could say with confidence is going to be, if you like, the magic bullet that allows us a cure for this virus—is the constant need to make sure that we are continuing to use the science and the evidence and the research communities to shape our knowledge and to try to take us forward.

I am really optimistic and one of the reasons I am so optimistic is that, time after time, man has faced threats from communicable disease of one sort or another and has developed ways of combating that infectious disease, whether that be with the advent of antibiotics or, if you go back further than that, the advent of clean, sanitary water systems. Man has always been able to use science to be able to overcome those threats. I am confident in the same way just now that we will do exactly the same with this virus.

Q80 **Mhairi Black:** Right—but it is fair to say at this moment in time that it is more a case of trying to balance the two and trying to function, before we get to that end point.

Dr Smith: That is a good way of putting it.

Chair: I know that Professor Morris is keen to come in on this.

Professor Morris: It is an excellent question. At the moment, I have huge sympathy for policy makers because they are making such important critical judgments in the time of imperfect information. The science is improving every day, but there is a lot that we don't know about this virus. It is about making judgments around competing risks about the direct mortality associated with covid-19 and balancing that with the indirect cause of mortality, in terms of maintaining a functioning NHS.

What is clear is that there are indirect harms associated with covid. A lot of the new evidence is around the impact it is having in terms of other very important clinical conditions such as cancer, mental health, heart disease and so on. That is another harm. Then, of course, we have the economic harm. Making judgements when we have this portfolio of risk is very challenging indeed.

In terms of your first question, what we are learning about this disease is that it causes a widespread, almost like an inflammation of the blood vessels. What we are beginning to see is delayed harm associated with covid, so people coming into hospital with thrombotic conditions—that is when the blood vessels clog up. It will be very important not only to think through how we treat people who unfortunately develop covid in the short term, but how we follow them up to make sure that we monitor them and ensure that they don't run into long-term complications of this disease.

Q81 **Mhairi Black:** That is really helpful, thank you. My last question is a factual one. If we look at the latest statistics on the rate of covid infections and deaths, how do they compare to the figures that were predicted nationally? I don't know who is best placed to answer that.

Chair: Sheila, do you want to have a thrash at that one?

Professor Rowan: Gregor and Andrew may know those figures better. It is not information that I have immediately to hand. Do you know, Gregor?

Dr Smith: I am happy to come in here. The bottom line is that because we knew so little about this virus, we didn't have compelling predictions of what the impact of it was going to be. We have been learning about its infection rate and its mortality rate from the beginning, and we continue to learn about that.

To pick up on a point made by Professor Morris, we continue to learn about some of the late effects and the indirect effects of the virus. I think it will be many months before we have a full and exact picture of the broader impacts that covid-19 has had across the population, particularly with health. When we analyse the data we have had so far, we know that there has been a rise in excess deaths, the majority of which have been accounted for by covid-19 alone, but there is an excess in relation to that that we have not yet accounted for. That will need much closer analysis to see what lies at the bottom of that.

Chair: Thank you for that, and thank you Mhairi.

Q82 **David Duguid:** Thank you to all the panellists. As a recovering chemist myself, I could sit here all day and talk about the science, but I will try to resist. I am not going to talk about policy decisions either because you guys aren't the policy makers, as you have said.

I would like to go back to something said in response to Mr Lamont's questions earlier about the R number. Dr Smith, you mentioned that we should treat the numbers with caution. You said R across Scotland is 0.7 to 1, and that it is lower in England. Public Health England has been able

to specify the R rates in different parts of England, so, for example, it is 0.4 in London but going up to 0.8 in the north-east and north-west. Is it calculated differently in Scotland or there some other reason why we cannot be so granular in Scotland?

Dr Smith: The very simple reason why they have been able to calculate at a regional level is the volume of population that they have. If you take the population of London, they would be able to have a much greater degree of confidence in the data that they have because of the numbers of the population that they are calculating it for, which would be comparable to Scotland with a population of 5.5 million.

When you start to break down the populations to a much greater level, a greater level of uncertainty starts to creep in. The regional calculations that you see in England are used because they are based on higher population levels.

Q83 **David Duguid:** But are they calculated in a different way?

Dr Smith: They are calculated using the same models from UCL.

Q84 **David Duguid:** Thank you. Another question I was going to ask was about a report on the BBC last week. They said they were using Scottish Government figures, and they quoted the different NHS regions in Scotland in terms of how fast the virus was spreading. I took that to be related to the R number. Can you provide any explanation of why those reports suggested that NHS Grampian, in the north-east of Scotland, had a rate of infection that was rising higher than anywhere else in Scotland?

Dr Smith: As I have said, there are many factors at play when an infection like SARS-CoV-2 spreads. Some of those are population characteristics and some are characteristics in relation to the virus itself. I have not done, or seen, any in-depth analysis of why some regions of Scotland may show variation in points of time, in terms of the way that the infection rates might be higher or, indeed, lower. What I would observe is that at different points in time across Scotland there have been different areas of Scotland that have shown different levels of infection, and that is something that we would instinctively say is not a surprise in terms of the way that the infection behaves.

Once you get a concentration of the infection in one particular area, you might see that it is much more easily spread in that area because, by its very nature, there are more people who have the illness and are perhaps then able to spread it to other people. I am not really answering your question in any detail, I'm afraid, but there are lots of factors that are in play that could explain why one area of Scotland at any one point in time might have slightly higher rates of infection.

Professor Morris: I just want to comment on R, and try to appreciate its strengths and all its weaknesses. R is modelled, and a famous statistician called Box once said, "All models are wrong, but some are useful." I think that is important. We are trying to make the R useful. In terms of how it is derived, across the UK there are a whole host of modelling teams, for

example, at Imperial College, the London School of Hygiene and Tropical Medicine, Warwick and Manchester.

The way that R is defined is that these modellers get together in a committee called SPI-M, which feeds into SAGE, and they compare and contrast their models to try to come up with a best R estimate. That is how R is derived, and the important thing is that colleagues in Scotland and the Scottish Government have full access to those models, and the chief statistician in Scotland works in close partnership. As we get more data, as Dr Smith suggested earlier, we will be able to get a better, more granular view of R in Scotland.

Q85 **David Duguid:** Thanks for that. There have been a lot of questions on R. I will move on to another line of questions, if I may. I am going to have to leave soon, but hopefully we will get this question and answer in. On the subject of care homes, obviously there have been reports recently of patients being moved out of hospitals and into care homes before they have been tested. When was it known that this was an issue, what was done to address this at the time, and what did the modelling tell you at the start of the crisis about what the impact on care homes would be?

Dr Smith: First of all, what we are talking about is, I guess, the role of testing in relation to what degree of confidence we can have that testing tells us whether a person has the disease at that point in time or not. I have cautioned against putting too much emphasis on testing alone, and I think that is really important. Since the beginning of the response to covid-19, measures have been put in place through the guidance issued to all the care sector as to how we think we can best protect people in care homes. The emphasis there has been very much on making sure that we have rigorous infection prevention and control regimes in place.

It is no surprise that the spread of covid-19 has reduced since the lockdown measures were put in place in the community, because by doing that you limit, and you break, the chains of transmission that are there. That is analogous to the measures that were put in place in care homes right from the beginning. The use of social distancing and of isolation for any residents, and the cessation of communal activities, were recommended right from the start.

The problem with testing as a strategy in terms of giving confidence around whether a person has the disease or not is that it only tells you whether the person has covid-19 at the point in time when the test is taken. So, for instance—

Q86 **David Duguid:** Sorry, Dr Smith. Can I just interrupt you? I totally take on board your view about the importance of testing—it is just part of the overall scheme of measuring how effectively you are able to contain the virus—but the guidance did change from moving patients to care homes without testing them to testing them fully before they are moved to care homes. Can you comment on when and why that advice changed?

Dr Smith: That advice changed in mid-April, when we began to test any new residents who were coming into the care homes. At that point, there

was emerging evidence that we could learn more information that would enhance some of the approaches in care homes to infection prevention and control, and perhaps make sure that there was a much closer focus on isolation when it was necessary. This was really just about making sure that, as we learned more about the way that the virus behaved, our response was proportionate.

One of the things that we have to acknowledge is that we must have confidence that any test that we use will be useful, in terms of the decision making that is then applied in a clinical sense. By that stage, there was a clinical case for testing, and we could justify what is often quite an invasive, unpleasant test for people who were in an environment where it could perhaps be seen as being quite unpleasant.

Chair: Thank you for that. We will go across to Andrew Bowie, and then Deidre Brock will follow.

Q87 **Andrew Bowie:** I thank our three guests. The evidence that has been presented so far has been fascinating and very much appreciated. I would like to expand slightly on David Duguid's line of questioning on care homes. We have already spoken about the fact that Scotland has an older demographic. We have known from the off that the over-70s and the vulnerable are more susceptible to this disease. We are certainly not outliers in terms of the impact that this disease is having on deaths in care homes. We have seen across Europe—indeed, across the world—that where it has got into care homes, it has had a hugely damaging effect. In Scotland, roughly 45% of covid-19 deaths have occurred in care homes, and that is not much different from the rest of the world. This is to Dr Smith, but everyone else should feel free to jump in. Is there anybody on SAGE or the covid-19 advisory group for the Scottish Government who deals specifically with and looks specifically at the threat to the elderly and vulnerable in care homes?

Dr Smith: First of all, our science advice comes from a variety of different sources. There are the scientific advisory structures that we have. We receive advice on evidence from the SAGE structures and the Scottish advisory group. Within that, there are specific advisers with a specialism in infection prevention and control, who sit in the Scottish group in particular. They lead sub-groups both for SAGE and the Scottish advisory group on how we can strengthen our approaches to infection prevention and control. That has been a really critical part of our increasing understanding and our learning about the way that this virus approaches.

We also draw advice from other sources. We have clinical advisers with specialisms in caring for the elderly, who provide that advice and shape the clinical approach and guidance to how we manage people in care homes. That has been a feature of both our clinical advisory structure and our clinical guidance cell from the beginning of the response. I think that we have been very well equipped in being able to receive advice from people with the expertise necessary to understand some of the particular vulnerabilities of this age group, and that also allows us to help to respond to the emerging evidence as it becomes known to us.

Professor Morris: It is a good point, Mr Bowie. Just to say that, yes, there are advisory groups reporting to SAGE specifically on this absolutely vital issue. Bearing in mind that 80% of the risk or the morbidity associated with covid falls within 20% of the population, age is the major risk factor.

On the size of the challenge, I think, from memory, that we have 38 hospitals in Scotland, we have 1,000 care homes and I think there are about 41,000 residents, so key issues here include understanding that, because the variability across those institutions is huge. Getting reliable data at that scale, so that we can understand the impact of covid, has to be a major priority. Part of it is: how do we configure interventions which are practical in those environments?

I think it is increasingly recognised that it is not only care homes, but also care at home that is important, so I think that is another area where a lot of emphasis needs to be put.

Q88 **Andrew Bowie:** I do not know whether Professor Rowan wants to come in? No.

I want to jump in on the back of something you said there, Professor Morris, about data and information, and about learning from the care home situations. Does that not actually lend weight to the argument that mandatory testing should have been introduced a lot sooner into the care home setting, so that we could actually track the disease and be able to take decisions earlier based on how it was affecting the elderly population in care homes? Do you think we were too slow to introduce mandatory testing to care homes?

Professor Morris: That is a policy decision.

Andrew Bowie: It was more asking your opinion: advisers advise and obviously politicians take decisions, but do you think we were a little bit slow in getting mandatory testing into care homes? If you do not want to answer, that is absolutely fine.

Chair: I don't think there's going to be an answer.

Q89 **Andrew Bowie:** I don't think so.

Why has it been difficult to track the death rate of coronavirus in care home situations? I could ask Dr Smith, Professor Morris or Professor Rowan to come in on that one. Why has it been so difficult, from the beginning, to track the death rate of coronavirus in care home situations?

Dr Smith: I am not sure that it has been difficult. We have been getting data that relates to the care homes from a very early stage, particularly on the unfortunate number of deaths that we have had in care homes. Each week, we get the statistics, which include not only the confirmed deaths in care homes, but also the suspected deaths in care homes. I think both of those things are equally important. Doing it this way and giving us the data through the National Records of Scotland data gives us, I think, a much more complete sense of exactly what has happened within

the care homes. Had we been tracking solely those cases that were confirmed, we might feel as though there was a rather less complete picture of those death rates that we have, unfortunately, become far too familiar with.

Very early on, we recognised there was a need to make sure that we were capturing all that data from the death certificates that doctors were providing in those circumstances. We reached an agreement as to how to use the definitions within a death certificate to make sure that, as any doctor was making the decision to record covid-19 or SARS-CoV-2 as potentially contributory towards a death, they recorded whether that was a direct cause or whether that was a contributory cause. If that was recorded on the death certificate, National Records of Scotland would make sure that they took it into their statistics at that stage. That gives us confidence that we have a robust way of recording all the deaths in Scottish care homes.

Andrew Bowie: Thank you, Dr Smith.

Q90 **Chair:** Why has this emerged as the key issue and debate around covid-19? Surely it must have been anticipated by the whole scientific community that there would be particular issues with communities of elderly people congregated together in specific settings. This must have been identified as a priority at the outset. I know we are talking about Scotland—in the UK it is a source of Prime Minister's questions, with all the politicians asking about care homes—but what was the scientific community saying in the early days about the risks to care homes?

Dr Smith: I don't think we are dealing with something that has been unknown or is not the experience of other countries in the world. I guess we have to look at the characteristics of the virus again to try to understand that a bit more. We know that every season, when seasonal flu comes to visit us, it has a disproportionate effect—particularly influenza A— on the elderly population and on people who are vulnerable because of other medical conditions. It is the same pattern that we see year in, year out with influenza.

That is the case whether people are at home, in care homes or wherever. One of the unfortunate truths about SARS-CoV-2, the virus that causes covid-19, is that not only is it more infectious than the flu that we see every year, but it is associated with a higher death rate and a disproportionate impact on the older age groups. As Professor Morris has already said, it is those older age groups that unfortunately count for the majority of deaths that we see with covid-19—not just in Scotland or the UK, but right across the world. It has had a disproportionate impact on the older ages. We can understand why that is the case, partly because of the frailty and vulnerability of some these people because of other medical conditions. Their bodies are perhaps unable to mount the same level of immune response that allows them to be able to fight off the virus. It perhaps also exacerbates some of the pre-existing illnesses that such people have. Some of the very few supportive treatments that we have had to try to combat covid-19 and to allow people the support to recover—

again, the very unfortunate clinical truth is that they do not work for this type of age group.

Chair: Thank you.

Q91 **Deidre Brock:** At the risk of sounding like a pirate, the R number is going to be on everyone's mind and on the tips of our tongues, so I would really appreciate the opportunity to get an even better understanding of it. Clearly it is a very difficult thing to pin down, but is it right to say that it is more of a theoretical number than an actual number? Perhaps you could just run through in layman's terms exactly how it is calculated and how much confidence we can have in its accuracy.

Chair: Does one of the professors want to pick this up?

Professor Rowan: In terms of the R number, I probably won't add much more to the detail that you have already heard. There are a number of factors that go into the models, so that we understand the number of cases that come to hospital and death rates. Those are all giving us information about how the virus is spreading and moving through a population. Essentially, what the models do is take that kind of information and, from that, produce an estimate—the R number—of how many people on average one infectious person will give the virus to. It is an average number, and you can imagine that there is a timing question, about when the input data has been collected—what period of time that is reflecting. All of that translates into the fact that we end up with an estimate of the R number for a particular geography and a particular period of time. It gives us a range of how infectious a population is at any time and it obviously changes over time as the inputs change. I don't know if my colleagues might want to add anything to that.

Dr Smith: I am happy to say a bit more about this. R is fascinating. It has taken on almost an over-significance. I think it is very important to understand R, because it does help to shape our response, but again, its importance is in how it interacts with a number of other measures which are really important as well. It is calculated with mathematical modelling. It takes a number of assumptions and bases those assumptions on a model that is run through a supercomputer in Scotland. My understanding is that it takes about 56 hours to do its calculations using that model and then it churns out a range at the end of that, with confidence intervals as to where R may actually sit, so it is not a straightforward process.

The types of things that influence those calculations, apart from the base model that is taken from the Imperial College model in the UK, are things like the infection fatality rate, so there is an adjustment for Scotland because we have a higher older demographic. We have some adjustments that we need to make in that model to allow for that. We take on board some of the data that has been produced on the deaths in the preceding periods, and we use that and build it into the Imperial College model in order that it then churns out the number at the end.

As I say, R is important, but it is important alongside a range of other measures that allow us to understand exactly how the disease is

progressing across Scottish society—whether it is a phase of rising numbers or declining numbers, or stability. It is all this taken together that allows us to provide advice for people to make judgments on.

Q92 **Deidre Brock:** Fascinating, thank you. Professor Morris, did you have something to add?

Professor Morris: We should arrange a seminar on R, I think.

Deidre Brock: You probably should.

Professor Morris: The thing about lag indicators and lead indicators is that we often calculate R on deaths, but of course, the sad deaths that are occurring today represent infections that happened three, four or even five weeks ago. As we move into this next stage, we need to be much better at what we call active surveillance of lead indicators, because ideally, we would calculate R knowing everyone who is being infected today, because that would give us an up-to-date, real-time measure.

Just to get a sense of this, the R is often calculated using hospital admissions or death, but actually, there is a lag phase, so that is another important part of the interpretation of R. I think what we will see is an increasing emphasis on active surveillance so that we can detect perhaps local outbreaks of coronavirus moving forward, and that is why active surveillance to get us close to near real-time information is going to be very important.

Q93 **Deidre Brock:** Dr Smith, when you were talking to Mr Lamont, you said that it was difficult to regionalise R numbers across Scotland at present, but it seemed as if the day was coming when it might be more possible, once we had more data collected about the population. Would we then see the day, once that active surveillance has been in place for a longer period of time, when even, say, specific care homes might be given R numbers, or certainly regions such as Edinburgh, and urban areas as against rural areas? And even specific sectors of population—would that be something that we might be heading towards?

Dr Smith: I think that is an assumption that is fair. As we understand more through that surveillance process, we will be able to break it down with more confidence, not only what the daily or weekly incidence figures might be for any given area but that might allow us to make a more confident calculation of what R is in any one given area. This is the type of information that can then allow us to perhaps nuance our approach in the future, in terms of how restrictions are changed or altered, should there be a need to do that.

I do not think that we are quite there yet, but we are certainly moving towards that. What it will also allow us to do is to get a much better understanding as to how the infection affects different age groups and different characteristics as well, once we have that in place.

Q94 **Deidre Brock:** Just keeping on with R for one more question, how does this virus compare against others in R number terms, if, assuming there

were no lockdowns or vaccines there, that is possible? Is this a particularly infectious disease?

Dr Smith: So what do we know about it? Well, the first thing we know about it is that we have never seen this virus before; humans have not been exposed to this. Therefore, we do not have any kind of immune response that we are able to mount, so that immediately makes it quite an infectious disease.

If you compare it to other infectious diseases, at the moment it appears to be more infectious than flu, for instance, but less easily spread than some of the really virulent viruses, such as measles for instance, which is often cited as one of the diseases that has a particularly high R number.

I guess that one of the issues that we have with this particular virus, particularly because we do not have exposure to it in the past, is that because it has a relatively high R number but also a higher case fatality rate as well, that is doubly compounding the problems that we face with it.

Chair: That was your last question.

Deidre Brock: Was it? I have got one more; it is a bit leftfield.

Chair: Go on, then.

Q95 **Deidre Brock:** Very quickly, I was just wondering about the legislation that went through Westminster addressing the covid virus. I was wondering if there were any powers—this is addressed to all of you, I guess—that you think might have been taken in that and could have helped, but were not. So, might it have been useful, for example, for private healthcare facilities to be commandeered, or for industrial premises that could be pressed into use, making PPE and other supplies, to be commandeered? Might it have been useful for those to be brought under temporary Government control? Would that have made a difference, do you think?

Dr Smith: From my perspective, I am here to try to comment and provide advice on the science and the evidence, rather than commenting on any particular policies or legislation that has been passed.

Deidre Brock: Okay. Thanks.

Q96 **Liz Twist:** This question is for Professors Rowan and Morris, initially. I want to ask about the joint biosecurity centre. The Secretary of State told us that all four nations are inputting into a new joint biosecurity centre, which is advising the UK Government. Who from Scotland is responsible for providing advice to the biosecurity centre on behalf of Scotland?

Professor Rowan: Again, in terms of my role as a science adviser, it would be around underpinning science. In terms of how Scotland is going to contribute, again that is really an operational matter and that is not one that I would be able to answer to. I do not know if Professor Morris has anything that he wants to add from a data point of view.

Professor Morris: The scientific community is of the view—it has provided this advice to Government—that being able to create a reliable, scalable and sustainable system for active surveillance that would allow early detection of potential disease outbreaks at a locality level is absolutely essential, so the JBC, as it is called, is to be welcomed. It is clear that the UK Government is continuing to source scientific advice on how such a centre should be established, and which data sets would provide actionable insights at an early stage that would allow us to make key decisions at the locality, regional and policy levels. Who precisely the Scottish Government select to represent us is something that you will have to ask the policy makers.

Q97 **Liz Twist:** Okay, so that is a policy decision rather than one for the scientific community to decide on.

Professor Morris: Yes. What is important is that the scientific community is invited to comment on the intelligent design and the functionality—the security—of such a centre.

Q98 **Liz Twist:** Thank you. How is the research and advice produced by the centre being used in Government decision making, or how will it be used? Do you know that yet?

Professor Morris: I understand this is a work in progress. It is anticipated, I think, that the centre will go live within weeks.

Q99 **Liz Twist:** Is there likely to be a central base, and how accessible will it be to Scottish advisers? Will it have a base in Scotland, for example?

Professor Morris: I am not close enough to the design. I do know, however, that it is proposed to be a four-nation endeavour.

Dr Smith: I wonder whether these questions would be better answered by someone who is taking the policy decisions about how Scotland interacts with the JBC. As I say, just to be clear, our role is to be able to provide advice about the science and the evidence and how that may contribute to the centre, but a lot of this seems to be focused on areas that are perhaps more closely aligned to the policy of how we interact with it.

Liz Twist: I understand the distinction, but you will be aware that there has been a lot of commentary about who takes part in SAGE, for example, and other things. I think there is a real concern that it truly is science-led as well as policy-led, so that is the reason for my questions.

Q100 **Chair:** There is also the issue of what we have heard about the JBC. We have not heard all that much, but the Government have said that "we can expect that the new centre will have a more active role in advising ministers than SAGE." Surely as scientists, given your close working relationship and association with SAGE, you must have a view on how you feel about a new body coming along that will have a much more active role.

Dr Smith: Is that for anyone in particular, Chair?

Q101 **Chair:** If you could help us with that, Dr Smith, I think we are just trying to understand a little more about the thinking behind the JBC. I know it is a policy decision, but what sort of role and capacity do you see it working in, given it is going to have a more active role in advising Ministers?

Dr Smith: The role that interests me most closely is the way that it develops and uses data sources across the UK. That is a really interesting development. For instance, on a number of occasions, Professors Rowan, Morris and myself have explored the types of data sets that would be particularly useful in Scotland. When there is an opportunity to work on those data sets with colleagues in the other nations across the UK, then certainly it is very attractive to us as clinicians and scientists to be able to make sure that we are part of that evidence-gathering process. At this stage in time, it is still to be determined exactly how science and the JBC will wholly interact. Until that is fully decided, I do not think that we are in a position to be able to comment in any detail as to what the scientists' roles will be in that and how the JCB will interact with other advisory mechanisms as well. Certainly, the concept of that development of data that allows more informed decision-making is one that we would all support from a science and clinical basis.

Q102 **Liz Twist:** Last week, the Secretary of State for Scotland told us that the Prime Minister's new five-tier covid alert system for measuring the threat of the virus can be applied nationally and regionally. Are Scottish scientific advisers also using this alert system in preparing advice for the Scottish Government?

Dr Smith: As I have explained in previous questions, it is still to be determined exactly how the output from the JBC will be used across the four nations. In some parts, that is a policy decision rather than a science decision. In Scotland today, we have published Scotland's route map through and out of the crisis. We have spoken about the phases and the types of data that we will be looking at to inform our approach so that, as we move through those phases, from lockdown as phase zero and to the next stage, phase 1, the types of considerations that we will be making of the data will help to guide our progress.

Q103 **Liz Twist:** The Prime Minister said recently that the UK as a whole is at level 4. Do you assess Scotland to be at that level, too? And is it a useful tool?

Dr Smith: As I have just explained, at the moment we have not adopted that measurement framework. That would be a policy decision to adopt that framework, so I am not able to comment.

Professor Morris: Can I comment? I think the science advice is that careful monitoring of the epidemic will be vital—that is the first comment. Secondly, as we consider changes to restrictions, it is difficult to see things in isolation. It is often the interaction with other measures that must be considered. The impact of multiple relaxation measures on transmission will need to be monitored in a pragmatic way.

Q104 **Sally-Ann Hart:** Thank you to all the panellists for coming to speak to us.

I think my question might be more geared towards Professor Rowan as a scientific adviser on policy issues. This virus is a health pandemic, a health crisis, and priority has been given to public health, but it is also having a devastating effect on our economy, so it is an economic crisis as well. I wondered to what extent does economics inform the scientific evidence base on which policy decisions are made? Do we have economic experts sitting on your advisory groups?

Professor Rowan: The advisory groups that Professor Morris chairs are formed from experts in clinical science, in epidemiology, in virology and in behavioural science. Economic advice would be taken in the Scottish Government through economic advisers, so our job as science advisers is to advise on the underlying science and evidence base around the virus itself—that is quite a specific role—and to work with the CMO's office on that. I do not know whether one of my other colleagues wants to comment.

Dr Smith: Can I come in here just to explain a little, because it is a really important question. I think we heard Professor Morris say earlier on in the hearing that it was important to recognise that there are harms that happen as a result of this crisis beyond the direct harms which we know come from covid-19. One of the ways we have tried to think our way through this in Scotland is to think about this as four broad harms. We think about the direct covid-19 harms, the indirect health harms caused by covid-19, which come about for a variety of reasons, but then also both the harms to society and communities and the harms to the economy.

One of the things that has been a feature of our response across Government has been the close co-operation between the different chief advisers. For instance, if I am honest with you, I have had more conversations with my colleague the chief economic adviser Gary Gillespie over the last two or three months than in the last two or three years. We remain in close contact, just to try to understand from each other's perspective the impact that this is having on our areas of expertise. In the responses we have published—the last of which, Scotland's route map through and out of the crisis, was published today—one of the features you will see is the acknowledgment that although we have to concentrate and focus, quite rightly, on ensuring that we limit the direct and indirect health harms, these other harms are a really strong consideration that we need to factor into our thinking and planning as well.

Q105 **Sally-Ann Hart:** That is really interesting, thank you. Given that the lockdown measures were primarily to limit the spread of the virus and to safeguard and increase the capacity of the NHS and our care systems, one could arguably say that both of these have been achieved, to some extent. I know we are talking about the R number, but they have been achieved. Bearing in mind your acknowledgment of the cautionary approach taken towards health, is there a case to be made for a more risk-based approach in lifting the lockdown, to avert an economic crisis?

Dr Smith: I think the risk-based approach you describe is the one we have taken right from the beginning. In the assessment of our progress

through the crisis, one of the features we have tried to use very strongly is an assessment of risk against those four potential harms that I outlined: not only the direct covid-19 harms but the indirect effect on health, its impact on society and the impact on the economy. Whenever we are considering a change in restrictions, the chief advisers have been able to come together, along with the modelling groups we have, to try to assess, on a risk-based basis, the impact that would have against those four parameters.

Q106 **Wendy Chamberlain:** Thank you to all the witnesses for your time. I would like to talk a little about transparency. This is for Professor Morris in the first instance, although Professor Rowan may want to come in as well. The Science and Technology Committee has heard that the covid-19 advisory group in Scotland is fully publishing its membership details and minutes, but what other steps are being taken to ensure that the scientific advice given at both SAGE and the covid-19 advisory group is open and transparent?

Professor Morris: That is a good question, because transparency is a very important principle. When I was invited to assume this temporary role, Government and I agreed that the membership and the minutes should be published, and it has been. I think we have had 17 meetings so far in eight weeks.

The issue of the transparency of SAGE should be asked of the chief scientific adviser, Patrick Vallance, and the UK CMO, Chris Whitty. I understand that discussions are ongoing. If there was any change in SAGE's position, we would be in step with them, because transparency—earning the public trust and having clarity on the certainty and uncertainty—is absolutely vital in these times.

Q107 **Wendy Chamberlain:** Professor Rowan, is there anything you would like to add?

Professor Rowan: No, I think Andrew has summarised that well. The Scottish Government have a commitment to open government, and having the membership and, as Andrew noted, the minutes published from the beginning is a good step towards that.

Q108 **Wendy Chamberlain:** I absolutely agree. I suppose so much of what we are doing here is asking the public to make sacrifices and relying on them to continue to do so as we move forward, so transparency is very much critical to that.

On the test, trace, isolate, support system, I think this relates to some of the answers that you, Dr Smith, gave to Deidre Brock earlier on how we could potentially look at different populations. My question is on testing and reporting. Although infections and deaths are being reported on a health-board basis, the number of tests is not, currently. I understand that the reasons for that are partly related to confidentiality. What is your view, Dr Smith, on whether testing breakdowns might better support that test, trace and isolate strategy, whether on a health-board basis or on a setting basis? I am thinking of the approach that Cyprus is taking, and

care homes have come up a lot today as well.

Dr Smith: Sorry—I am not clear about what the specific question is. Is it whether testing should be reported?

Wendy Chamberlain: I am asking whether testing breakdowns would be helpful from a transparency perspective.

Dr Smith: There are a number of different datasets that we could look at in terms of how we can provide more nuanced information for people to assess the current state in their local areas. How we present that to people is really important. We have to be very careful about the whole issue of confidentiality, which is where we risk getting ourselves into some issues, particularly when there are low numbers of positive tests in any one area. It is feasible that at some point in the future, when we have suppressed the spread of the virus to such an extent that there will be very low levels of positive results, that could reveal individuals. So although I would not discount it, I am cautious about how we would present that information in a way that was fair to everybody and did not lead to some sort of deductive disclosure of people's identity, which would perhaps erode confidence in the process rather than improve it.

Q109 **Wendy Chamberlain:** I think part of it is because testing has been a real issue and the number of tests has been an issue of controversy as well. Thank you, Dr Smith.

This is probably a question for Professor Morris in the first instance. From an international perspective, I mentioned Cyprus; what communications are we having with other experts outside the UK, particularly from those countries where they seem to have more successfully managed some aspects of the pandemic?

Professor Morris: That is a good question. To echo what I said at the outset, science is global, so we have to be outward-looking. Having said that, I think the UK science base is outstanding, and we have some of the world experts. We are very privileged to work in partnership with many of the individuals who are involved in the UK advisory structures. We are also fortunate that on the Scottish group we have several individuals who are world leaders in global public health—we almost get a weekly update on what is happening internationally. We have also reached out specifically to colleagues in Singapore and Germany, just to compare and contrast, as everyone navigates their way through this very complex challenge. There are learnings from across the world on what might be scientifically advisable in terms of so-called country exit strategies, so we are very outward-looking, as we need to be.

Q110 **Wendy Chamberlain:** That is really encouraging to hear, Professor Morris; thank you very much.

I have just one last question, if I may, Chair. Contact tracing is another topic that really has come to the fore, and part of that relates to the contact tracing app, whether that is NHSX or, indeed, some of the other apps that are being discussed. I see that Northern Ireland is considering going down the route of a decentralised app that is more aligned with the

Republic of Ireland. The Scottish Government's initial activities are focused more on personal contact tracing, so—perhaps this is for Professor Rowan in the first instance—how important do we feel an app is to the trace, isolate and support strategy?

Professor Rowan: My colleagues on the medical side can comment in more detail, but there is a long-established set of experience within the NHS about contact tracing for other communicable diseases, so the Scottish Government are quite well placed in terms of their experience in that area. There is obviously interest in understanding the spectrum of possibilities, of which of course the various apps are one, but again, Gregor might want to comment in more detail about the choices that are there and the specific approach going forward on a clinical basis.

Dr Smith: I am happy to come in here if that is helpful. Again, this is a really good area to explore, because technology does offer us some opportunities for the future in terms of how we respond to this. We have to be very careful, though, that we do not assume that technology is going to give us all the answers. That is one of the salutary lessons through all of this. My own view is that we have tried and tested personal contact tracing processes. We have been using them in clinical and public health circles for decades, and we know that they work well. There is something about building trust and rapport with people to be able to get the right information from them.

I do not discount the use of the proximity apps, in particular, that are appearing for the future. I rather suspect—this is my own view—that they are useful as an adjunct rather than as a central way of trying to go about the contact tracing process. But I do think that we need to learn how to use technology better during that process, so some of the other apps that we are using—for instance, the digital platform that we are piloting this week in three of our boards in Scotland—are designed to try to facilitate the process of personal contact tracing more effectively and to make sure that we are capturing as much detail in that process as possible. As I say, I think all these things can work together; we just need to better understand how we blend them to the best effect. For me, that human touch is a really important element of contact tracing.

Q111 **Wendy Chamberlain:** So it is very much part of a toolkit. I can see that Professor Morris wants to come in too.

Professor Morris: I was going to try to weave it back to your previous question about international best practice. If you look internationally at Taiwan, Germany, Hong Kong, Sweden and Singapore, all but one of those used a locality-based, telephone-based service primarily. Only Taiwan used big data analytics at scale. Just to echo Dr Smith's comment, this would be terrific as an adjunct, but it is not going to be the solution. Of course, uptake is the major issue. In Singapore, TraceTogether had 20% uptake; in Taiwan I understand it was 1 million people out of 50 million people. So seize technology, but it will not replace tried and tested; it will add value.

Wendy Chamberlain: It is not a panacea; it is part of a toolkit. Thank you very much.

Chair: Two more Members have questions. I know you guys are all keen to get away, so perhaps I could ask the last two Members to be concise, and you to be concise in your responses too, and then we will let you guys get off for your very important other business. We have Jon Cruddas and then Alberto Costa.

Q112 **Jon Cruddas:** Thank you very much, Chair, and thank you all very much for your responses this afternoon. I think this question is directed to Dr Smith. I have just a couple of quick questions about the scientific and medical advice around future hotspots or outbreaks. In the case of a localised outbreak in England, what advice would you give the UK and Scottish Governments to prevent the outbreak from affecting Scotland?

Dr Smith: On future outbreaks, one of the critical things that has been a feature of outbreak management at any point, whether we are talking about covid-19 or tuberculosis—or any infectious disease—has been to assess the outbreak in a way that allows you to take the appropriate actions to prevent and try to limit spread. One of the ways that we do that is by forming what we call incident management teams, which tend to be groups of highly specialised and experienced health protection clinicians who come together, assess the outbreak and give advice on contact tracing.

Sometimes contract tracing is done is at a local level but sometimes, because of the type of outbreak, it is done at an international level and involves co-operation between different agencies. For instance, there are well tested and trodden paths of co-operation between the different public health agencies that exist across the four nations of the UK, which link together when an outbreak of that kind of broader significance happens. Indeed, that links into wider European networks as well. The short answer to your question is there are tried and tested means by which we would manage those outbreaks to try to limit spread beyond borders.

Q113 **Jon Cruddas:** Just briefly to follow that up, given what we know now—and this knowledge base is evolving—could there be a scientific or medical basis for enforcing travel restrictions within Scotland, or indeed between England and Scotland, in a future outbreak, wherever it would be located?

Dr Smith: In the future, we don't yet know what restrictions will be necessary as we start to ease, and what I would say is that we need to judge each situation as it arises and make sure that we deploy a proportionate response to the circumstances. As I say, I think we will only find ourselves making those decisions once we are faced with the evidence that surrounds those.

Jon Cruddas: Okay. I don't want to stray into the policy issues either, but we will just take it from there. Thank you very much.

Chair: Alberto Costa.

Q114 **Alberto Costa:** This is really just following on from that last question from Jon Cruddas. Could Dr Smith, or indeed any other member of the panel, envisage any restrictions at the border between Scotland and England? I am the MP for South Leicestershire and, as I mentioned at last week's Committee meeting, I have got one of the largest logistics parks in the whole of Europe—Magna Park. It is vital that the trade that takes place between Magna Park and consumers in Scotland continues unimpeded. I was given that reassurance by the Secretary of State for Scotland only last week.

You have just said, in answer to Mr Cruddas's question, that you don't yet know and you judge each matter proportionately. I need to be absolutely reassured that you can't envisage—you can't reasonably foresee under the current health crisis that there would be any restrictions on HGV movements between Scotland and England. Because if there were to be restrictions, that would put Scottish consumers in quite a difficult position, given, understandably, that many of the goods that they buy come from places like Magna Park. Can I just get the panel's reassurance that it would be a pretty extreme measure to put in restrictions, for example on HGVs between Scotland and England?

Dr Smith: I am very happy to come in here. It is difficult to imagine a scenario where there would be such a difference between the rates of infection in different parts of the UK that it would bring about an issue like that. One of the features of the pandemic so far across the UK is that, although there have been some subtle differences between the different nations in terms of place on that epidemic response curve, the differences across the UK as a whole have not been huge. For travel restrictions to be really useful there needs to be quite a gradient of difference between different places, to prevent fresh importations of infection. So I think, in answer to your question, it is difficult to imagine a scenario where that would take place, at this point in time.

Alberto Costa: I think that is reassuring. I think, "difficult to imagine"—it is pretty clear what you are saying. It would have to be a pretty extreme scenario. So I think you have given me the reassurance in addition to what the Secretary of State for Scotland said last week. Thank you.

Q115 **Chair:** Thank you, Alberto. Can I just finish with a question about the scientific advice? Do SAGE and the Scottish advisory group on covid-19 ultimately offer the same type of advice to their respective Governments? I am thinking about the use of face masks. The Scottish Government recommended their use a couple of weeks before the UK Government did. Does that mean that the two Governments were drawing different conclusions from the same scientific evidence, or were they presented with different scientific evidence?

Dr Smith: The scientific advice that came from SAGE was presented to our Ministers and policy officials. It is for them to make a judgment on what to do with that advice in the area they have responsibility for. I would not want to comment on how other countries have approached this at all. The scientific advice from SAGE was presented in Scotland as an

open discussion of what the evidence told us about face coverings—where it was useful to wear them and where it was not.

The importance of that advice was its place in terms of other approaches to reducing the spread of the virus. It was not that face coverings alone would provide a replacement or answer to something we were already doing, but it was there as an adjunct. It was important to continue with other measures, especially hand hygiene, respiratory hygiene and ensuring that we were taking the appropriate physical distancing.

Q116 **Chair:** I know we are at the end of the session, but I am keen to get to this point. Was the same evidence presented to the UK and Scottish Governments at that point for policy makers to decide what to do with, or was different evidence presented to the two different Governments?

Dr Smith: As a clinical and scientific adviser, my role is to present the evidence to our politicians, Ministers and policy officials, to allow them to make the judgments. The evidence that I used in those discussions was the evidence that came to us from groups such as SAGE.

Chair: I think that is it from me. Usually at the end of these sessions we say that there are lots of points you can get back to us on, but you have covered them all comprehensively. I cannot think of any outstanding answers that we require from you. I don't think I have ever had a session like that before, so I am grateful for the way that you have responded to our many varied questions.

We are grateful, because we know how busy you all are just now. On behalf of the whole Committee, I express our gratitude for the work you are all doing—you can see lots of nodding heads in support of all your endeavours. There might be a lifting in the course of this inquiry, which we might want to get back to you about. Hopefully, we will be able to utilise your skill and expertise in the future. For now, thank you all so much for contributing so fascinatingly to this evidence session.