Joint Committee on the National Security Strategy

Oral evidence: Biosecurity and national security

Monday 19 October 2020

4 pm

Watch the meeting

Members present: Margaret Beckett (The Chair); Lord Brennan; Mr Tobias Ellwood; Richard Graham; Lord Harris of Haringey; Baroness Healy of Primrose Hill; Baroness Hodgson of Abinger; Darren Jones; Lord King of Bridgwater; Baroness Lane-Fox of Soho; Sir Edward Leigh; Angus Brendan MacNeil; Baroness Neville-Jones; Lord Powell of Bayswater; Bob Stewart.

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Witnesses

I: Sir Patrick Vallance, Government Chief Scientific Adviser, Government Office for Science; Professor John Simpson, Medical Director in Emergency Preparedness, Resilience and Response, Public Health England; Clara Swinson, Director-General, Global Health, Department of Health and Social Care.

Examination of witnesses

Sir Patrick Vallance, Professor John Simpson and Clara Swinson.

Q33 **The Chair:** Sir Patrick, Ms Swinson and Professor Simpson, we are even more than usually grateful to you for coming to give evidence to the Committee today, because we recognise that you have quite a lot of other things on your plate at the present time, and because the approach and the concerns of this Committee are perhaps a little different from some of those that you deal with day to day.

Our interest as custodians—that is perhaps a little grand—is that we scrutinise the national security strategy, the work of the National Security Council and what surrounds that. We decided that since a pandemic was a tier 1 risk in the national risk assessment, we ought to make a study of what light the handling of the pandemic casts on the approach we take to handling tier 1 risks when they actually materialise, particularly risks perhaps that, like the risk of a pandemic, were thought to be low in

likelihood but very high in impact should they occur, which is certainly a judgment that has been justified by recent events.

I will start by asking all three of you, beginning with Sir Patrick, what you see as the major biological risks which the UK will face over the coming decades—so we are not talking about in the immediate future but about the forward horizon.

Sir Patrick Vallance: Thank you very much, Chair. This is obviously a very important area to be covering. If I divide the risks into malicious and non-malicious in the biological space, the highest risk by far, I am sorry to say, remains infectious disease pandemics. Pandemic flu is still a very high risk for human health, as are other infectious diseases, as we have seen. Antimicrobial resistance remains a very significant risk.

In animal health, of course, there is a whole raft of infectious diseases, which perhaps is outside the scope of what we are talking about today; I do not know. There, also, of course, is a wide range of infections that could come in and cause significant disruption.

On the malicious side, the ease with which it is now possible to manipulate genomes means that the prospect of malicious biological threat is very much greater than it has been in the past. Despite that, I would still put that below natural pandemic.

The Chair: Interesting. Ms Swinson?

Clara Swinson: Good afternoon, Chair and Committee. Similar to Sir Patrick, I think the risks for us biologically remain the ones that are on the National Risk Register of Civil Emergencies. Clearly, on both the likelihood and impact, we need to keep those under review. We know that over the last century there have been at least three pandemics of flu and new viruses that come to humans from animals.

AMR is definitely still a major risk. It is not in the same category as something that would happen acutely overnight or over a month, but it is a much slower burn risk. Clearly, not just new infections but the way healthcare has worked for the last few decades means that if antibiotics cease working, even very routine healthcare is at risk. That is definitely the case.

Of course, on the malicious side, the Committee will have looked at and considered many times the risks from state or non-state actors and the type of attacks, either on purpose or even from unintentional releases. I will leave the malicious to one side and say that the major biological risks are pandemic flu, infectious disease from animal origin, and AMR.

Professor John Simpson: I agree with both speakers. On naturally occurring threats, pandemic influenza is still the number one threat, as it happened three times in the previous century. AMR—antimicrobial resistance—is extremely important. Transfer of diseases from animals across to humans, and animal disease, is a particular threat at the moment.

The Chair: Thank you. Could I probe slightly more but not at length on one issue, Sir Patrick? I noticed that all of you drew together infectious disease pandemic, but in I think 2017, the risks of pandemic influenza and of emerging infectious diseases were considered separately, and the infectious disease threat was thought to be perhaps less strong. Does that reflect a slight change in approach or understanding of recent years?

Sir Patrick Vallance: I would have it the way I expressed it, because pandemic flu remains the highest risk, because the flu virus mutates so readily and can make the species jump. Therefore, we know from history that that is a big risk.

We have now seen, of course, that coronavirus can also make that leap in quite a dramatic way, so you would have to say that a coronavirus outbreak with a mutation is possible, although this virus mutates much less easily and much less quickly than flu. Other jumps from animals to humans and other infectious diseases could come, so as a group you might say that there is a possibility there that could be as high as pandemic flu, but for each individual one I suspect it is much less.

One of the problems is that it is very difficult to predict. If you look at the history of the last 20 years or more, it has not been easy at all to predict the next infectious disease.

Q34 **The Chair:** No, absolutely. That brings me back to the question of the national security risk assessment. That process is led at present by the Civil Contingencies Secretariat. Could each of you in turn say how you would characterise your organisation's involvement in that risk assessment process?

Sir Patrick Vallance: As you say, this is led by the Civil Contingencies Secretariat. The role of the Government Chief Scientific Adviser and the Government Office for Science is to comment on, help and probe methodology—to look at the way in which it is done and to see whether there are ways in which there could be new science that could help that.

The chief scientific advisers across departments will look at the risks that are coming up through departments and try to be part of commenting, challenging and making sure that they have the right external input. Then the aggregate of the group of chief scientific advisers and the Government Office for Science will look across and see whether we think we have consistency and whether there are some things that we think may be missing or misplaced. Our role is one of advice and challenge, with the process being owned by the Civil Contingencies Secretariat and by individual departments.

Clara Swinson: The Cabinet Office leads the cross-government process. My department, the DHSC, leads on our respective and relevant risks, which as you know are pandemic flu, emerging infectious disease and AMR, and input on the cybersecurity risk and provider failure, particularly in adult social care.

It is our responsibility to update the risk assessments on the likelihood and impact, which we commission from PHE, which I am sure Professor Simpson will go on to talk about. Then we submit those to the Cabinet Office and take any further questions or challenge from it. It clearly looks at the relative positioning of the risks that come across government.

Once that process is complete in any given cycle, we are responsible for the planning and responsiveness against those risks and the readiness of government.

Professor John Simpson: Our role is to protect and improve the nation's health. Among other things in this field, we track and monitor potential threats around the world. We develop new technologies to detect potential threats, both naturally occurring and due to deliberate release, and we conduct exercises to test and improve the protocols.

As has previously been said, we develop risk assessments, a process that includes our veterinary colleagues to have a one-health approach to the threats. We support the cross-government biosecurity work. We input into the implementation of the strategy and we have various mechanisms where we assist in delivery of response.

Q35 **The Chair:** One more question to you, Sir Patrick, and then I will move on. In all this process of risk assessment, planning and so on, we keep hearing the phrase "reasonable worst-case scenario". What does that mean to you? Do you think it has been helpful in dealing with the present pandemic?

Sir Patrick Vallance: The reasonable worst-case scenario is a process owned centrally by the Civil Contingencies Secretariat, and we input—in this case from SAGE—some of the modelling to go behind that. It is an assessment of something that could happen; it is not likely to happen, but it is the worst case that you think could reasonably appear.

Therefore, there is an element of subjectiveness in it, because inevitably it relies on certain assumptions. It relies on certain boundaries of what you think is reasonable and what you think is not reasonable. It is not the absolutely worst thing that could ever happen, and it is not the most likely thing that you think will happen. It is somewhere between those two, bounded by an assessment of what seems reasonable. That is where the subjectiveness comes in.

It has a utility for planning purposes, but of course it has very wide uncertainty around it, and one has to take that into account when thinking about planning.

Q36 **Baroness Lane-Fox of Soho:** I will ask some questions about planning as well. The first is to Ms Swinson.

You have specific responsibility, as you have already said, for the public health risks and supporting the response to the public health risks. In the 2018 biological security strategy, you were already doing some work with the existing way you were organised. I have two questions: what is the

work that you do beyond strategic—what is the response that you undertake—and has it changed since the 2018 strategic review?

Clara Swinson: The biological security strategy brought together the different biological risks facing the Government. The DHSC and other relevant departments retain responsibility for the elements that are our lead—pandemic flu and global health security.

At that point, governance was put in place for the things right across government that have a Home Office lead, with an overall governance board and a working group that has met, I think, 12 times since the report was published. We take expert input in all the areas we have just talked about.

The Department of Health and Social Care is the leader of the health and care system. We are directly responsible, for example, for preparing the legislation that was part of the pandemic flu work and was helpful in preparing for the Coronavirus Act. We also come together with our arm's-length bodies, whether that is PHE or NHS England, to work on surge plans, for example.

The operations for that are in NHS England and, for example, in local resilience fora. We are not operational as a department, if that was your question, but we work with colleagues in NHS England, local government, Public Health England and others on what the plans should put in place.

Baroness Lane-Fox of Soho: Did much change after the 2018 strategy?

Clara Swinson: As with each review of the national security risk assessment, the assessment was on the basis of those reasonable worst-case scenarios, and there was no major change in 2018.

As Sir Patrick said, in terms of the reasonable worst-case scenario for the infection and mortality rates and now for an actual pandemic, taking what we have seen from pandemic flu and the SARS and MERS outbreaks together, clearly since our planning and the SAGE and Cabinet Office work on a reasonable worst-case scenario for this pandemic there has been a much greater reasonable worst-case scenario for the coronavirus than in the 2018 national risk assessment.

Baroness Lane-Fox of Soho: Professor Simpson, could you talk a bit about PHE's role in the same way, moving from strategy to planning and how you respond?

Professor John Simpson: PHE works with NHS England and the Department of Health and Social Care to do the plans for particularly high-consequence infectious disease. An example is the two-year project that we did with NHS England after the Ebola outbreak in west Africa, looking at how we could best improve the treatment facilities for people with high-consequence infectious diseases. That has been used in various outbreaks, such as the monkeypox outbreak, and for the building of respiratory treatment facilities for the early cases of Covid-19.

We work with our colleagues on the plans for biological threats, both malicious and naturally occurring, and we design and deliver exercises for the Department of Health and Social Care to test the systems and to learn lessons based on the exercises.

Baroness Lane-Fox of Soho: Sir Patrick, could you answer the same point about how the Government Office for Science moves from strategy to planning for the biological threats? I am also interested in the international natural hazard forward look. Even though I consider myself fairly good at Google, I found it very hard to find any information about this and the process. Could you talk a little bit about that group and what it does?

Sir Patrick Vallance: The Government Office for Science provides advice. We are not part of the planning process for this at all, and our input is part of what leads to any sort of strategy consideration. We do not get involved in the operational side of this. It is a relatively small office, so the operational side—the department and the agencies, such as Public Health England—steps in.

The international natural hazard forward look is a way of bringing together the assessments that take place in a number of agencies, such as the Animal and Plant Health Agency, Public Health England, the British Geological Survey and others. It brings them together in a format to be able to look globally at the trends and risks. That then gets circulated to various parts of Whitehall in order to be able to get a map of the world and see what changes are taking place. That is brought together by the Government Office for Science.

Baroness Lane-Fox of Soho: Does that work?

Sir Patrick Vallance: It works in the sense that it is an aggregate of all the detailed scans undertaken by the component agencies, and it has been pretty good at spotting where things are happening. Is it the perfect mechanism to bring it all together? I do not know. It relies very heavily on the detailed work that takes place in each of those agencies, which have all the scientific muscle and clout behind them to do the scans. That is the key input to that. The aggregation of that into a single map is, in a sense, a rather easier part of the process.

Q37 **Lord Harris of Haringey:** Could I follow up on that? The first question is to Clara Swinson. We have been thinking about the biological security strategy, which envisages a cross-departmental governance board that would oversee the shared commitments under that strategy. How exactly does that board work and what is the department's role in this? Could you tell us how frequently the board has met and what the main outcomes of its work have been so far?

Clara Swinson: The governance board brings together the Home Office, Defra and the DHSC as the three departments for HMG that published that strategy, together with PHE, MoD, BEIS and a range of other government departments. I think it has met twice at that high-level

senior civil servant level since the publication of the strategy. There is also a working group that has met much more frequently. That work reports into the Security Minister as the Home Office lead, and from there into the Cabinet Office as required.

That looks at the biological strategy overall. As that document sets out, much of the work is within the department's existing governance mechanisms. That is the case for example on the Pandemic Flu Preparedness Board and the work on the national risk assessment with the Cabinet Office and other government departments, which we have just been talking about.

Lord Harris of Haringey: You describe a fairly top-heavy governance board. My experience of those is that they do not always work very well and attendance is poor. You said that it has met twice. Was it reasonably well attended?

Clara Swinson: You would have to check with the Home Office on the range of departments that are required at that board and have membership, but I believe so. I believe that the working group is bringing together a progress update. Of course, all those departments are now working very hard on the response to the pandemic. We will need to look at that strategy, its governance and the progress made on it when we are out of the acute phase of the pandemic.

Q38 **Lord Harris of Haringey:** Sir Patrick, the biological security strategy specifically envisages that the Government Chief Scientific Adviser will maintain oversight of the strategy's outcomes. Somebody told me—and I have no idea whether this is accurate—that this was not something that you were consulted about before it appeared in the strategy. Could you tell us how you have fulfilled that role?

Sir Patrick Vallance: The strategy was written before I joined and published after I joined, so I was not certainly consulted about it and would not have expected to be. That strategy was put together from the Home Office, I believe, as the way to produce it. We then clarified that the role expected of the Government Chief Scientific Adviser is to look at the annual update report against progress and for us to comment on that. That is what I am expecting to happen as part of that.

Lord Harris of Haringey: Your oversight function is a fairly hands-off role.

Sir Patrick Vallance: As currently constructed, that is the role that has been described: the annual review takes place and a report is provided which comes to me for comment and review.

Q39 **Lord Harris of Haringey:** This is a more general question to all the witnesses, although I suppose primarily to Clara Swinson and Professor Simpson. With the experience of Covid, how could the biological security strategy be changed to improve the cross-government approach, particularly the central to local government approach, to biosecurity risks?

Clara Swinson: It is very much as you have said: it is the central governance coming together. On the central to local government approach, the reasonable worst-case scenarios that we talked about are provided to local resilience fora. It is the responsibility of each government department, working with the Ministry of Housing, Communities and Local Government, to make sure that it is provided with the reasonable worst-case scenarios to plan against.

With the experience of coronavirus, looking at the scope and extent of the biological threats that the UK faces would involve looking at the priorities for each department and whether they need to be broader, the horizon-scanning function, and the types of things that need to be done—you have already pointed to this—between national, regional and local levels according to those risks.

For any strategy or risk assessment and reasonable worst-case scenario, none of those things is a prediction, so in responding to something you take the plans that you have. They will always need amending. Once we learn from this—we might come back to this—it is a problem for all kinds of crises that you end up preparing for the next one as if it was going to be the same as the current one. We can prepare as far as possible for future threats, but we know that the next one will not be exactly like this one, so you need an element of flexibility in that.

Lord Harris of Haringey: Yes, I understand that. We will move on to the local resilience forums in more detail, but I can envisage a circumstance where this area of work generates a reasonable worst-case scenario, and so do all the other high risks. These all arrive simultaneously or over the working year at a local resilience forum. Does anybody say, "These are the ones you ought to be taking more seriously"? Was any particular priority given to these?

Clara Swinson: You make a very good point. The role of the Cabinet Office is to look at all the risks from departments, put them into the risk assessment, and decide which of them go into tiers 1, 2 and 3. It is then responsible for putting those out to local resilience fora with any guidance about which ones to focus on.

As I am sure we will come on to, in any given timeframe in exercising a programme—for example, Exercise Cygnus on pandemic flu—the Cabinet Office has decided, according to priority, to work on other major risks such as a national blackout or flooding, so they get a particular focus in that given year.

Professor John Simpson: From Public Health England's standpoint, we have local health protection teams that deal with the actual hands-on control of infectious disease. An important part of our work nationally is to get the Cabinet Office's and the CCS's priorities to the local teams, to produce plans and to exercise on those priorities, which may be biological but may well be non-biological threats such as cyberthreats or power outages. That is the way we work. From Covid-19, this is a part of our activity that will need to be strengthened.

Sir Patrick Vallance: When we think about the assessment of likelihood and impact, the methodology of how to get that right becomes very important in the prioritisation of these things. That is particularly difficult when you are trying to compare chronic risks with episodic risks. We are looking at that quite carefully to see how we could get it to be meaningful as we translate it into priorities.

Q40 **Lord King of Bridgwater:** Sir Patrick, who do you report to as you are doing your oversight of the outcomes of this strategy?

Sir Patrick Vallance: The job of commenting on this goes into the Civil Contingencies Secretariat, and the document is finally signed off by the National Security Council.

Lord King of Bridgwater: But who do you actually report to?

Sir Patrick Vallance: I report to the Cabinet Secretary.

Lord King of Bridgwater: Cabinet Secretaries have not had the same turnover. Who is he reporting to? Does he report to the Prime Minister?

Sir Patrick Vallance: The Prime Minister.

Lord King of Bridgwater: One of the problems is who is actually taking responsibility at senior level and ministerial level. With the number of changes there have been, it seems to me that having people with some understanding of their area of responsibilities is a major problem at the present time. Do you agree?

Sir Patrick Vallance: In any organisation, turnover can be an issue for institutional memory and other expertise.

Lord King of Bridgwater: You found that the Cabinet Office understood the strategy, knew where it had come from and knew what its objectives were.

Sir Patrick Vallance: The Civil Contingencies Secretariat has had very strong, consistent leadership and it responds.

Lord King of Bridgwater: Who is the leader of the Civil Contingencies Secretariat?

Sir Patrick Vallance: Katharine Hammond was leading it until very recently. She has moved on now, but for the entire time I have been in post she was the person who was leading this.

Q41 **Baroness Hodgson of Abinger:** My questions revolve around scientific expertise during emergencies and the SAGE system.

Sir Patrick, the SAGE mechanism is vital for ensuring that scientific expertise underpins decision-making during emergencies. How do the SAGE activations work? In your view, what are the strengths and weaknesses of this model for getting scientific input when monitoring and dealing with significant public health risks? In particular, what happens when there are diverse viewpoints, as we read in the papers has

happened over this pandemic? How do you reconcile the views of different scientists to come forward with solid, clear recommendations for policymakers?

Sir Patrick Vallance: There are a lot of questions there and I will do my best to answer them all.

The process of activating SAGE is that it is called by COBRA. When COBRA is called, it can call SAGE for an issue that is complex, cross-government and requires scientific advice. Separately, there is something called a precautionary SAGE, which I can trigger if I wish to, to try to get ahead of things and to try to anticipate that SAGE would be called. But formally it is a COBRA decision to call SAGE. The Government Office for Science then assembles the experts we need for any particular emergency. In the two and a half years I have been here, that has included Novichok, Toddbrook Reservoir, a precautionary SAGE on Ebola, and, of course, a lot on Covid.

The office will go out to government departments where there are experts on scientific advisory committees. They are usually external people from government who are known to be on scientific advisory committees. We will ask the learned academies for experts. We have our own expert lists and we will ask specialist bodies. We will bring together a range of experts for the problem we have in front of us. That does not mean that those individuals would be on SAGE for the entire duration of whatever the problem is that we are trying to address.

You asked a specific question about public health. In matters of public health, SAGE is co-chaired between the Government Chief Scientific Adviser and the Chief Medical Officer, as it has been during this outbreak, for very obvious reasons. The CMO has ultimate accountability for public health matters. That then brings in a whole raft of other experts who can be part of this.

Inevitably, and this is exactly what you would expect and hope for when you brought together a group of diverse scientists, it would be very surprising if everybody thought exactly the same. We have subgroups that feed into SAGE, and on this particular emergency we have many subgroups that feed into SAGE; we have at least 100 people who are working on this, nearly all outside academics but also the chief scientific advisers from departments, who are outside academics who have come into government for a short period. Those bodies also feed in information, and they have their own consensus process to try to come up with consensus input into SAGE.

SAGE is a process of then trying to come up with a view with the uncertainties expressed. It is very clear that science is very seldom a complete and utter fact that is immutable and something that will never change. Normally, science is the best representation of what you can know today but which you expect to change as more evidence accumulates. It is a question of trying to plan with the uncertainties about the evidence that you have today. That is the way SAGE works.

I will say one final thing and then ask you whether I have answered your question. We also work a lot with international bodies and other science advisers in other countries, many of which have been across to look at the SAGE mechanism. It is unusual. It does not take place in all other countries. Some have a model that is a bit like it, but not many. Over the past 18 months or so, we have done mock exercises with Canada and the US where they have been to look at the SAGE model. We have done mock exercises where we have had a similar problem that they have tackled through their process and we have tackled through our process, and we try to learn from each other.

Q42 **Baroness Hodgson of Abinger:** I think you have covered most of the question. I will ask one other thing. How would SAGE cope if there were multiple emergencies at once?

Sir Patrick Vallance: I may answer that in two ways. The first thing to ask is how SAGE copes with an emergency that has gone on for 62 meetings, which is where we are at the moment. That itself brings a challenge, because it was not designed to work for that length of period. It puts strain on the academics and others who contribute to this, and we have taken a lot of trouble to try to make sure that they are as protected as possible in their own institutions to be able to contribute. I would like to say on the record here how brilliantly they have performed and how much they have given up of almost all their other life—professional and often personal—to work on the problems that we have been tackling during this Covid crisis. Resilience of long-term application to SAGE is a big issue that I think we need to formalise going forward and, indeed, for the team looking after them in the Government Office for Science.

One of the things that we have done over the summer is exactly what you are getting at, which is concurrent emergencies. We now have a separate team set up in the Government Office for Science looking at concurrent emergencies. I have been receiving briefings on some of the updates on other areas that we would be concerned about in emergencies, and we are set up to run a parallel process should that be required. It will not be easy, though.

Q43 **Baroness Neville-Jones:** Sir Patrick, you rather presciently got on to the subject that I wanted to ask you about. You said in answer to Baroness Hodgson right at the beginning that COBRA calls SAGE into action when cross-government activity is required and it requires scientific advice.

COBRA is a short-term emergency body; it is not really designed to mastermind a long-term activity of the kind that Covid has clearly become. You have talked about the effect on SAGE itself. What is your view about the actual machinery of government in relation to the advice that SAGE is giving? What one does not hear is any mention of the National Security Council itself.

What has been your experience as you have gone on? To whom and in which bodies do you find yourself reporting? Are you asked, for example, to attend the National Security Council? What relationship do you have

with decision-making bodies?

Sir Patrick Vallance: Yes, I have attended the National Security Council on this and other matters. There have obviously been several sessions that have discussed Covid. The Cabinet Office has established a structure for dealing with Covid with a central team based in the Cabinet Office and ministerial committees that take accountability—plus, of course, there are lead departments, the most central of which is the DHSC.

The output from SAGE goes to all departments. It goes to the Cabinet Office Covid task force and will feed into the ministerial committees. It will also go obviously to the DHSC. It is worth saying that there are other forms of scientific advice that feed in through departments, and each of the chief scientific advisers in the departments will listen to SAGE and take their own information back to departments. Many of them will have their own advisory boards feeding into specific questions in departments—they are much more operational than SAGE would be. The DHSC has its own forms of scientific advice to feed in, as well.

That is the route. Rather than what would happen in a shorter-term emergency where our output would be SAGE to Civil Contingencies Secretariat and COBRA, it is a slightly more complicated picture now, but our key recipients would be the Cabinet Office Covid task force.

Q44 **Baroness Neville-Jones:** That is very interesting, thank you. It seems to me—I do not know what view you take—that some of the emergencies that we will face in the future will be of longer duration and will require extensive follow-up to the initial event. Do you think that what you have just described is something of a model that will be replicated, possibly involving different departments, and is of a kind that we will now need to go for when we are dealing with longer-term situations where society has to live with whatever is afflicting it for a period of time?

Sir Patrick Vallance: The model of requiring central co-ordination and a team to run it, where it runs across departments, obviously makes sense from an operational perspective. As things become more chronic problems, it is rather important that departments pick up the running of that. The DHSC has done a lot, which is part of why organisations like the Joint Biosecurity Centre have come into play: because there needs to be a longer-term, more stable system with internal government science providing advice into it, plus getting its own external input, rather than thinking that you can run this from SAGE for the whole time. SAGE is an advisory body built up largely from external academics. It is not part of the government operational machinery and certainly cannot run for very long periods.

Baroness Neville-Jones: Government departments have to take it as part of their normal operations, in effect. In the end, your role will come to an end at some point, other than offering advice from time to time.

Sir Patrick Vallance: Yes. Again, in a short-term emergency, that is exactly what happens: COBRA calls SAGE, SAGE meets for the duration

of the emergency, COBRA stands down, SAGE stands down. In a way, something similar will happen here at some point.

Q45 **Lord Powell of Bayswater:** Sir Patrick, continuing on with the questions about SAGE, some of our earlier witnesses have suggested that it is not a diverse enough body. I am quite simple minded; I would expect a scientific advisory committee to be full of scientists, but apparently they think that other sorts of skills should be represented there—more operational skills, people who know about supply chains and that sort of thing. Do you think there is any validity in that criticism, or are you happy to see non-scientific issues left entirely to non-scientific bodies?

Sir Patrick Vallance: I am quite a believer in getting experts to run what they know about, and SAGE gives science advice for government emergencies. It is not the advice on how to operationalise things, it is not the advice on economics, it is not the advice on all sorts of policy matters, and I think it is rather important that it is not.

Our role is to provide, to the best of our ability, scientific input into decision-making and advice. That needs to be integrated by Ministers and others taking into account many other forms of evidence and advice. I really think it would be a mistake to try to integrate all that into a single body, not least because the output then becomes something that sounds like a ministerial decision, which, in my opinion, SAGE simply cannot and should not do.

Lord Powell of Bayswater: I think that is absolutely right. On the other hand, there is an impression that SAGE has been asked questions that are not strictly within its ambit for advice on wider issues. Do you think it has been misused at all in that sense? Perhaps slightly more impertinently, do you think politicians have taken to hiding behind SAGE in order to thrust SAGE forward as being apparently responsible for the decisions that they do not themselves want to take or be associated with?

Sir Patrick Vallance: If we get questions, which may come from departments or centrally, that we do not think are science questions, we tell people that they are not science questions and we stick to giving the scientific advice. The scientific advice, of course, can be interpreted as a policy position, which it is not. It can be turned into a policy position, but that is for somebody else to do. We stick with giving advice.

One of the things that has been important in this pandemic is that the SAGE advice has been very visible and open. We publish all our papers and our minutes, and they are there for everyone to see. Therefore, our advice attracts a lot of attention as being somehow "the" advice. It is not "the" advice, it is simply the science advice, and the science advice needs to be incorporated with all the other advice that Ministers rightly will need in order to make decisions. Some of that is obviously less visible than SAGE.

I think that SAGE has been so prominent in the way people think about this partly because of the visibility of the advice that we give in comparison perhaps with where other advice comes from.

Lord Powell of Bayswater: You do not think that SAGE has been misused by Ministers in any way, not in a malicious sense but simply as an excuse sometimes.

Sir Patrick Vallance: You are straying way outside my area of expertise on how politicians might behave in this circumstance.

Lord Powell of Bayswater: I am a great believer in straying outside those limits.

Lord Harris of Haringey: I suspect that Sir Patrick will think that I am straying too far as well, but it has sometimes been said to me that you and the Chief Medical Officer have appeared like a human shield around Ministers. Is that something you recognise or have ever felt?

Sir Patrick Vallance: I am sorry. I did not mean to accuse Lord Powell of straying. I meant that I was in danger of straying beyond my expertise.

I will ask the question in a slightly different way. Have I felt uncomfortable at times during this? Of course I have. It has been a position of visibility that I would not seek and it is a position of visibility that I do not enjoy from that side, but I do not think that we have done anything other than try to present the science as we see it in the fairest way, with the uncertainty clear. How others choose to interpret and use that is a different matter. I do not feel that we have been used in any way as shields. I do not think that is the tenor of the discussions that I have had inside government.

Q46 **Angus Brendan MacNeil:** My question is basically about the groupthink idea that could be in SAGE. How much are you learning from colleagues across Europe? It is obviously a difficult question, but there is one place in particular that stands out and that has banished Covid three times: the Faroe Islands. How much have you learned from places like that about the level of testing as well as searching for asymptomatics? Given that it has banished Covid from its territory three times, is there anything that you can transfer over?

Sir Patrick Vallance: We—and when I say we, I mean me and the Chief Medical Officer—speak a lot to our colleagues not just in Europe but around the world. I have regular calls with Canada, New Zealand, Singapore, South Korea, Japan and many European countries. We are all learning from each other. I have not spoken to the Faroe Islands, but we have spoken to a lot of different places. It is perhaps not surprising, although it is always somewhat amazing when you hear it, that we are all struggling with exactly the same issues, of course, and we are all keen to make sure that we do not go down one particular path blindly. Chris Whitty is also very linked into the WHO, so he also gets a lot of input from there.

The groupthink issue is really important. We have a range of different members on SAGE. We refresh the participation from time to time, and a few months ago we appointed somebody experienced to observe us and to make sure that we do not get into groupthink or, if we do, he can point it out to us. We do our best to do it, and with over 100 people in different subgroups, each of which have groups behind them in institutions around the UK, we certainly pull from a very wide range of science. We were very keen, and very pleased, when the Royal Society set up bodies to do some of the same things, so we get a sort of independent view on this. I think that stands against groupthink, but it is one of those things that you do not know until afterwards, in a way.

Angus Brendan MacNeil: Of course. It has been found that 80% of those who are positive are asymptomatic and the Faroe Islands keep searching out the asymptomatics. The problem, certainly in Scotland and the wider UK, is not wanting to test anybody unless they are showing symptoms, which leaves 80% of the carriers unbothered by the entire process. Their levels of testing of population are also over 200%. Having banished Covid three times from the territory, I would suggest that the search for asymptomatics and that level of testing has probably done it for them.

Is our problem that we do not have the capacity to test at that level, so we are stuck searching out only the people who say they have symptoms?

Sir Patrick Vallance: As a tangential but important point, the notion of eliminating Covid from anywhere, as you have just described, is not right, because it will come back.

Angus Brendan MacNeil: Yes, it has come from other territories that have not tested.

Sir Patrick Vallance: People talk about elimination strategies and so on. That is very unlikely.

Angus Brendan MacNeil: Although if every territory was doing the same thing, you would imagine that everybody could banish it, but if one territory is doing it and the other 199 are not doing it, you have a difficulty.

Sir Patrick Vallance: It is worth reflecting that only one human disease has been truly eradicated, smallpox, and that is with a highly effective vaccine. It is a very difficult thing to do.

You are absolutely right that there is a high proportion of asymptomatics. It is a little unclear still exactly what that proportion is. It may be around 60% or so overall, but there is quite wide uncertainty around estimates of exactly how many people really are asymptomatic.

Would I like to be able to test far more, or do I think the UK would be in a better position if it could test far more? Yes, because we know that the only way you pick up a lot of people is through testing. The testing needs

to be linked to action on isolation. It is no good just doing a test; you need to do something about isolation at the end of it. The more you can get out there and test across asymptomatics as well, particularly in care homes, hospital settings and so on, the better, and this is the strategy that the DHSC has laid out for testing. Clara can speak to this more than I can, but at the moment the testing capacity is such that the UK is testing more than any other country in Europe, but it is nowhere near enough to do what you have just described yet.

Angus Brendan MacNeil: On a final small point, the tests will work just as well on people who are symptomatic and asymptomatic, because the test looks for the virus, so it does not matter whether the patient is showing symptoms or not. Is that right or wrong?

Sir Patrick Vallance: You are absolutely right that the test picks up the virus, so anyone who is shedding the virus will test positive. The only area where it might be a bit more difficult is that, if you are asymptomatic, you may get a less good swab because you may have less material. Occasionally, you will find people who are asymptomatic for whom there may be a slightly lower sensitivity, but the test will pick up both asymptomatic and symptomatic.

Darren Jones: I have a quick supplementary question for Sir Patrick. Then my questions are primarily about Public Health England, so I will come to Professor Simpson after that.

Sir Patrick, you just said that the only example of something that has been eradicated is smallpox, with a highly effective vaccine. To push a little further on that, does that mean that in our deliberations in this inquiry we need to envisage that, even with a vaccine, we do not yet know how successful it will be for Covid, and that we will need to manage this year in, year out, in the same way as influenza, for example?

Sir Patrick Vallance: I think that is quite likely. Of course, we cannot be certain, but I think it is unlikely that we will end up with a truly sterilising vaccine—in other words, something that completely stops infection. It is likely that this disease will circulate and be endemic, in my best assessment. I think it is the view of many people on SAGE that that is a likely outcome.

Clearly, as management becomes better, as you get vaccinations that decrease the chance of infection and the severity of disease or whatever the profile of the vaccines are, this will start to look more like annual flu than anything else, and that may be the direction we end up going in.

Q47 **Darren Jones:** Professor Simpson, in that context, we are all conscious that the Health Secretary was very critical of Public Health England and has since decided to instigate the National Institute for Health Protection as its successor body. One of the criticisms from the Health Secretary was that PHE did not have a permanent standing capacity to respond to these issues or to scale up quickly enough to respond to these issues.

Given that we have heard that similar but non-Covid-related threats are

still the highest priority threat for us in the context that we are discussing today, could you help us understand whether PHE had that mandate in the past to provide a standing capacity to respond and, if it did, whether, in your view, it was given sufficient resources to do so?

Professor John Simpson: There is quite a lot to be said for the principle of bringing together Test and Trace, the Joint Biosecurity Centre and PHE's health protection functions under one roof, and we are already beginning to collaborate very closely on this. Public Health England's mandate was to protect the health of the public, and one part of that was to develop technologies such as testing to novel pathogens. It was not an explicit part of the mandate that Public Health England could massively increase the ability to do that on a very large scale. That is one of the lessons learned from the Covid-19 situation that can be dealt with as part of the new organisation and its remit. My colleague Clara Swinson may wish to come in from the DHSC perspective.

Darren Jones: Clara, please feel free to do so. If PHE's job was to consider the risks and build a model for responding, but then it could not scale up in order to respond when it actually happened, was it the department's role to respond? Whose role was it?

Clara Swinson: Going back to where we started on the reasonable worst-case scenario and what each agency was planning to do—whether that agency was a central government department or not—the scale of what has happened with coronavirus, the asymptomatic spread, and the differences between it and an influenza pandemic meant that when this started there was no test. It was a new virus, and a test had to be developed and then scaled up.

Getting to that scale now—300,000 tests a day—we have the technical expertise to create those tests. Germany, for example, had a very large private diagnostics sector that could be put to doing that. We did not have that. We have had to increase the volume of testing, and Ministers decided to set that up under NHS Test and Trace. That uses a lot of PHE capability.

As the Secretary of State set out in August, our aim for this winter is to focus on responding to the next wave of coronavirus. Ministers decided that an agency with a single focus on health protection that was designed to look at all biosecurity and other threats to health was a change that they wanted to make. Final decisions on the design of that will need be taken but will not be part of the same agency that is looking at the direct health threats. I am happy to pick up any of your questions that I have not answered.

Darren Jones: Thank you. Prior to the institution of the National Institute for Health Protection idea, was it the department's responsibility to be able to scale up to meet these problems, not PHE's? Have I understood that right?

Clara Swinson: The department and the agency are the same thing in statutory terms. They both report to the Secretary of State for Health as an agency, and look at the capability in the public health system and the NHS to see what tests could be done in public health laboratories and what testing could be scaled up elsewhere. We worked on that together. The Prime Minister decided to set up NHS Test and Trace in order to do that from, I think, May this year.

Darren Jones: I am trying to understand why the Secretary of State for Health was critical specifically of Public Health England. Based on Professor Simpson's answer just now, if Public Health England never had the capacity to scale up to meet this type of problem, which had already been anticipated in previous national security strategies, is it not unfair to have blamed PHE for this if it did not have the capacity to scale up in the first place?

Clara Swinson: Going back to what the Secretary of State for Health said in August, when he announced the creation of the national institute there were various things that he praised Public Health England for. Given the scale of the pandemic and testing, that is one of the reasons why he decided to set up health protection on its own. Going back over time, I do not think there was any agency that had the scale and the capacity to do 500,000 tests a day and that could have that capacity turned on.

Clearly, in the design of that new agency—others will be doing it around the world—given what we have faced, the issue is the amount that a country is happy to pay for to have spare capacity at some point, as well as what you can turn on and off or how you can turn capacity into doing. This will have to be a part of what we have learned. Decisions will then need to be taken about how much capacity you have ready to go at any time and how much you switch on.

Q48 **Darren Jones:** Thank you for that. Some countries appeared to be better prepared to respond quickly. Certainly that was the view of the Science and Technology Committee, which looked at this issue fairly early on in the pandemic.

My last question is to Professor Simpson. The Government often refer to the Robert Koch Institute in Germany as the model they want to adopt for the National Institute for Health Protection, but that institute in Germany relies on a very decentralised system, where regional and local authorities have the budgets, the people and the capacity to deal with these issues.

Do you have any concerns about taking that approach if we are not giving local authorities sufficient support or capacity—presumably, in our circumstances—to do this work as opposed to a national system?

Professor John Simpson: As you say, the German health system is different from the health system we have in the UK. I do not agree with you; I think that the policy the Government are following to be able to increase rapidly the ability to respond to these sorts of threats seems to be correct. As you say, the German system is very different from the

UK's, and it is very difficult internationally to transfer one model, which is based on one set of arrangements, to another. A robust system whereby the responses can be escalated is definitely a lesson that has been learned from this situation.

Darren Jones: To push you very briefly, and then I will hand back to the Chair, are you therefore suggesting that it is the right approach to invest in a centralised system to deal with this, or is your view that capacity in a decentralised model is the best approach?

Professor John Simpson: What I am probably saying is that it is best to invest in whatever the appropriate system is for the way a jurisdiction is organised.

Darren Jones: I am asking you, Professor Simpson, in your expert view, which you have a preference for. Is it centralised or decentralised, or do you not have a view?

Professor John Simpson: I do not have a view on that.

Darren Jones: You do not have a view. I will hand back to the Chair, thank you.

Q49 **Baroness Neville-Jones:** There is obviously a big difference between systems that are centralised and systems that are decentralised. It seems to me that this is now quite a big issue in the management of Covid going forward. If you do not personally have a view, could you characterise the nature of the debate in the department about the extent to which the system should be decentralised? I do not know which of our witnesses might like to take that. Perhaps Ms Swinson.

Clara Swinson: Yes, I am happy to. The question about centralised or localised is a question of balance. Any system will need a balance between the two. Certain things work when you have big economies of scale, whether that is call centres or some of the contact tracing. On the other hand, some things work much better with, and require, local knowledge. Contact tracing requires that. NHS Test and Trace is working with local authorities and testing teams in local authorities, and I think that the number of local authorities that have those teams is now up in the 90s. People will debate and have different views on that, but we are aiming at getting the right balance so that we can do things nationally and locally.

Clearly, as a number of people have mentioned already in the debate, people have different views on public health, but it also has to fit into the system of government. Some other countries that we look at have a very different state or federal system. We have one that needs to work through our local authorities. The debate about the right balance has to take account of that, or indeed review the situation and change that balance, but we have to start with the system that we have between central and local government.

Baroness Neville-Jones: The hospital system in this country is fairly decentralised, with the different trusts. It is not entirely a centralised

system. Do you foresee the local element getting bigger and greater responsibility being taken locally for things like test and trace in the future?

Clara Swinson: You are quite right. I did not mean to imply that our system was a centralised one, just that the balance between local government, the NHS and other bits of public services differs. The scale of testing has already multiplied many times and may continue to do so, and it will need to be localised to a certain extent because of capacity. There are also the central labs that PHE runs, labs in hospitals and the private sector. The system will not need to be centralised but will need to be one that already takes advantage of laboratory capacity and contact tracing, wherever it currently sits.

Baroness Neville-Jones: Thank you. You are quite right that the laboratory capacity has to be able to respond to greater localisation.

Q50 **Baroness Healy of Primrose Hill:** Ms Swinson, you talk about capabilities and the need to be flexible, but you have a terribly difficult task when making proposals to the Treasury in advance of the spending review. How does the department balance resources for its ongoing responsibilities with the resources it requires for contingency planning capabilities? What lessons will you have to learn, needing so much greater resource than could ever have been envisaged before this pandemic hit the country?

Clara Swinson: You are quite right about the costs of the pandemic in a huge number of ways, and the amount of resources that we as a country put into our testing system and into our health systems, including the surge capacity and Nightingale hospitals in the NHS, which we have not yet mentioned.

However, the balance relates not just to the spare testing capacity that we mentioned but to a range of things. Ultimately, these are political decisions that need to be made. As civil servants, we will advise our Ministers about the extent of the capability that can be increased at scale, and we will advise on the health consequences. Ultimately, Ministers, the Cabinet, the Chancellor and the Prime Minister will need to take decisions on the economic and social ones, of course.

Baroness Healy of Primrose Hill: Do you fear that other elements of the health service are suffering too much without getting the resources they need? I hear surgeons saying that they do not have the resources they want to do the backlog of operations that have built up.

Clara Swinson: The Chief Medical Officer has talked right from the beginning about the direct consequences of Covid in health, and there are indirect health consequences in other things maybe not getting the same resources. Then, of course, there are the health consequences from economic, social and other factors.

Definitely one of the things to come out of the first wave, going into this autumn, is that the NHS is seeking to keep non-Covid health services

running as far as possible. A number of services had to be paused in order to be ready in the spring. I think the NHS has learned a lot about that, so hopefully more of those services can be kept on.

We also know that, sadly, even when many services were kept on, the public did not always seek them, so a very strong message that you will have heard from Simon Stevens, politicians and others is that the NHS is open for business across all its health services. There are mutual-aid plans for coronavirus capacity across the areas currently under greater strain—in the north-west, for example—but keeping other services running is also a really important operational issue for NHS England to be on top of in other parts of the UK, for precisely the reasons you point to.

Q51 **Baroness Hodgson of Abinger:** I want to go back to the point about testing. We have had a lot of attention on testing and tracing. Why have we abandoned testing on antibodies? It seems that there is no public testing of antibodies and, therefore, we have no information on how many people have had Covid. It would be good for people to know that they have had Covid, have antibodies, and perhaps are not so much at risk.

There is also the mental health aspect. For people living on their own, the only publicity they see is gloom and doom and death, and many people are suffering acute anxiety. It would be hugely helpful to have more information on recovery rates from Covid rather than just the very negative press that is being shown right now. I think it would help many people if they realised that not everybody ended up on ventilators and in intensive care.

Clara Swinson: That is certainly the case with regard to the numbers of cases and the numbers that translate into hospital admissions and intensive care.

On antibodies, I may have to ask Sir Patrick for the proper scientific view, but, as I understand it, it is much harder to be confident about the sensitivity of those tests compared to the tests for whether you currently have the virus. That means that we need to make sure that the tests that are available are effective and that when someone gets the result there is something that they can do with it. There are lots of unknowns in the science on antibodies, immunity, how long it lasts and so on, so that is a big area of scientific investigation and debate, not just in the UK but globally.

There are various sample studies from the ONS and others and internationally that I think also speak to your point about how many people have had the virus, the number of cases that translated into, and how many people in the population have had it in either an asymptomatic or a mild version.

Sir Patrick Vallance: We now see that the vast majority of people who catch Covid, asymptomatically or symptomatically, get an antibody, so we know the antibody response occurs in most people. We know that some of those antibodies are what are called neutralising antibodies; they

are antibodies that will bind the virus and prevent it being able to enter cells. It looks like those neutralising antibodies, as you would expect, confer some degree of protection. All that is good news.

Not everybody gets the same antibody profile, so people get slightly different antibody profiles. We also know that antibodies can wane after a few months, so we see antibody levels decreasing in some people, and we also know that some people can get reinfected. There is a lot going on with antibody studies, particularly to find out on a survey level how many people have had the infection and where those people are located. We know, for example, that in London in the first wave probably something like 17% of the population were infected, whereas in most other parts of the country it was quite a lot less than that. Overall in the country, from antibody studies, about 6% of the population got infected.

It is much less predictive for you as an individual as to whether you are now protected against it and for how long. We do not know for how long and we do not know the degree of protection. Antibody tests are clinically a bit less useful at the moment, but they are very important in trying to understand numbers of infections and, increasingly, whether this confers protection and if so for how long, but I do not think we have absolute answers on those things yet.

Baroness Hodgson of Abinger: But is work being done on them?

Sir Patrick Vallance: Yes. Antibodies and other forms of immunity are a very active area of research in trying to understand the degree of protection and how long it may last for.

Q52 **Mr Tobias Ellwood:** I want to move on to questions about vaccines, but in that context there is also the question of organisation. I begin with a very short request: do you agree that we should stop overpromising and need to manage the message far better if we are to keep the national resolve in what will be six very difficult months ahead of us?

Sir Patrick Vallance: You might be able to tell from the way I have spoken very often that I do think that we should not overpromise. It is very important that we give a realistic picture of where things are.

On vaccines, if you think about their previous history, the average time of making a vaccine from scratch is over 10 years, and it has never been done before in under about five years at the very quickest. We are now in an extraordinary situation where there are at least eight vaccines that are in quite large clinical studies around the world, some of which will start to read out from the late stage—the end stage—of clinical studies over the next few months, so we will know over the next few months whether we have any vaccines that protect and how long they protect for.

We know that there are a number of vaccines that create an immune response, so that is good news. They make people get antibodies and at least some of those antibodies are neutralising. That is all good news, but that is a necessary step on vaccine production; it is not the answer. The answer comes from the phase 3 clinical trials, when you find out whether

these things actually stop you from getting infected and, if so, how effective they are. We will know that over the next few months.

At that point, we will also have a clearer idea on the safety profile of these vaccines and from there can start looking at what a sensible vaccination strategy could be across the population. I have been clear right from January that I thought it unlikely that we would have a vaccine for any sort of widespread use in the community before at least spring next year. We may get a few doses before that, but we will see.

Mr Tobias Ellwood: That is very clear indeed. I think that is what we need to hear, because each week, each day almost, we are seeing different messaging in the newspapers and different commentators. You are making it very clear that we have a number of difficult months ahead in this harsh winter and we should not expect anything by the spring. It is that clarity of message that is so important if we are to keep the national resolve together. I would encourage more No. 10 briefings for that exact reason.

The rollout of a vaccine, whatever that might be—and you have gone through some of the difficulties—will be an enormous challenge, along the lines of what we saw during the war for munitions or weapons systems as well. The organisation needs to start soonest. I am aware that the Health Secretary has suggested the use of the armed forces. None of the very senior military, as far as I am aware, has been given any formal request to start planning now to organise how the spoke-and-hub system might work, how the refrigerated systems might work, the database that might be required, how you provide local deliveries, how it ties in with current NHS systems and structures.

This is a mammoth task, as I am sure you understand, and it needs organising with a lead point—one individual who is a logistical expert rather than necessarily being a health expert, because that is what is required here. Would you agree?

Sir Patrick Vallance: Yes. Clara Swinson from the DHSC may want to talk about this, because clearly the DHSC will be responsible for a vaccination strategy, but this is a big logistical challenge. There is no question about that.

Clara Swinson: I agree with Sir Patrick on the first point. I know that the CMO would say the same and has on many occasions: this is a marathon not a sprint. We need to progress work on all kinds of areas here. There is no single solution. Testing is not a single solution, and nor are vaccines.

To come to your main point, we need to plan, and are planning now, for the deployment of a vaccine, if and when one is available and if and when it passes the many hurdles which the CSA has talked about. You are quite correct that it is a huge logistical challenge. The Health Secretary has asked NHS England to run that deployment plan, and we need to work with colleagues right across the whole of the UK. There are a number of

things that can be planned for, but the uncertainty about the vaccine and its characteristics mean that there are a number of things we cannot plan for until we know which vaccines are being deployed.

The scale of the task is large. There are discussions with the MoD. If they have not gone to a senior enough level, I will pick up on that. That would probably be to do with the spec of what we require and the uncertainties surrounding the deployment programme, but the supply things that we need—the logistics, the data systems and so on—are all being worked on. There is a flu vaccine every year in tens of millions of doses, so something on this kind of scale is done each year, but of course the timeframe, the importance, the timeliness and the interest in this will be at a scale that we have not seen before. We will need to work with all kinds of bits of the public sector and the military to be able to do that.

Mr Tobias Ellwood: It is good to hear that, but I strongly urge that you lean on the expertise of the military. The MoD is the one department that horizon plans. It trains for emergency response, and it has the strategic thinkers and the logistic capability to do this. I underline the fact that we need to start considering this now. We need mass vaccination centres, mobile sites, roaming teams and so on, and even legislation to allow individuals who are not currently legislated to give vaccines to do so. That needs to go through. There is lots to be thought about. I think I have made the point.

I would like to go back to the wider issue that connect with this: we have policy design, and then we have operational delivery. I do not believe that we have done enough to distinguish between the two. We have not moved to a proper war footing. This is the Government not understanding that it is not like a flooding or a terrorist attack where COBRA is called or the National Security Council is reviewed on what is going on, and you illustrate some answers.

This is ongoing and enduring, and it requires faster, simpler decision-making and fewer people at the top. Once the policy is decided and the strategies are agreed, it is slid across to a task force running a situation centre that can implement this. Instead, we have Ministers who have no experience in emergency planning, let alone operational delivery, phoning up and chasing PPE, for example, which we saw at the beginning. Like I said, we have six more months of this, and I still do not see a distinction between operational delivery and the policy planning at the very top.

The Chair: That is very interesting. There are many people who may share your view. It is probably not quite fair to ask any of our witnesses to comment on it, though. It remains clearly on the record.

Q53 **Richard Graham:** Sir Patrick, looking at your CV, you have had a huge amount of experience of R&D on new medicines and so on. The chart that we were shown on the National Risk Register of Civil Emergencies shows the response to such threats and indicates the detection of antivirals, vaccines, and personal protection equipment. Under vaccines, it says, "Vaccines will be developed as soon as possible once new flu strains are

identified. This will take at least four to six months".

The time between when we first identified this pandemic, which I am assuming is broadly late December last year/early January of this year, and the timing of a vaccine that you are suggesting—the spring of next year—is significantly longer. Does that mean that in our strategy we have underestimated the length of time that it takes to provide vaccines for pandemics?

Sir Patrick Vallance: No. There is a fundamental difference between a flu vaccine, which we already have, and adapting it, as we do every year for a new strain. That process is obviously built into the manufacturing and everything is in place. It is about making sure that you have the right strain versus inventing a totally new vaccine.

Richard Graham: On the strategic approach to vaccines for a totally new strain, what sort of timespan should we bear in mind when planning strategy?

Sir Patrick Vallance: Prior to what has been achieved with this, I would have said five years minimum.

Richard Graham: Gosh.

Sir Patrick Vallance: I will caveat one thing. There has been a remarkable change in vaccine technology in the past few years, and I think this means that going forward this could look quite different. There have been essentially one or two ways of making vaccines for the past 30 years or more, but in the last five years or so there have been techniques that allow you to go from the genetic sequence of the virus to an experimental vaccine in just a few weeks. Then you have to get all the testing and manufacturing, but there is now a way. The first wave of vaccines—so-called messenger RNA vaccines are one of them—will be first out of the block for Covid, I think. We will see then whether they work. If they do, that could radically change how one thinks about vaccinology and could accelerate that period, but up until now that has not been possible.

Richard Graham: That is very helpful. You are effectively saying that strategically the current planning time would be five years to develop a vaccine. That is now coming down quite sharply, but it is still looking like around 18 months.

Sir Patrick Vallance: It could. If these messenger RNA vaccines work—I am just picking on them as an example—it could even be faster than that in the event of an outbreak of a new disease. They provide remarkable speed, potentially.

Q54 **Richard Graham:** Right. Ms Swinson, bearing in mind Sir Patrick's comments on that, it looks to a lot of us as if the way the Government have to respond to a pandemic challenge like this is to bear in mind above all our capacity for dealing with it if we have people who need to go to hospital and need to go on to ventilators. That seems to be the

driving force in the containment strategy.

Do you think that strategically we should be trying to analyse how long it will realistically take to provide a vaccine solution for a new strain in the way that Sir Patrick is suggesting? That enables you to plan effectively for how long you need to "protect the NHS" and how long you will need additional bed capacity, more ventilators and so on.

Clara Swinson: On vaccines, we talked the worst-case scenario earlier. This is one area where Ministers have asked us to prepare for the reasonable best-case scenario. There are many challenges on the timeframe and the history, as Sir Patrick has set out, but that is why, led through BEIS and the UK Vaccine Taskforce, we are looking at how we can be ready as soon as that comes on.

On the last part of the question, I do not think that a single vaccine will bring this pandemic to an end, and I think the CMO and the CSA have said similar things in the past. It is about work across vaccines, improvement in treatment, novel treatments, prevention and testing, and it is also probably keeping some of the measures, not on the extreme side but in the way we have changed everything with hygiene, Covid-secure premises and so on. We will need a balance.

Richard Graham: I understand your point. The point I was gently trying to get at was strategy and planning for any future events. Is this not the crucial bit of information that we need? Once you know roughly how long it will take to develop a vaccine solution, you can then say, "Right, this is the period of time that we need to plan in order to have the beds, the ventilators and the NHS people in place until we have that mass solution". Is that not one of the most crucial questions that we need to know in advance?

Clara Swinson: Yes. On the flu vaccine, we had an idea about how long that would be. On this vaccine and the different technologies that Sir Patrick talked about, there are many more uncertainties.

Q55 **Baroness Neville-Jones:** Could we move on to the question of testing and the lessons that we have learned from that?

The lay public hears about Exercise Cygnus that took place. I would be interested to know how the department and PHE subsequently took on board the results of that exercise. Do you think that you took on board all the elements that should have been the case? As a result, how has behaviour and what you have done changed as a result of that exercise? This question is probably primarily for Ms Swinson, but others may wish to comment, too.

Clara Swinson: Yes, there is an extensive exercising and testing programme. Of course, there have been lots of incidents, whether terrorism, severe infectious diseases that were contained, a small number of cases and so on, that we learned from. It is a very good baseline to have. We have learned from each of the exercises that we have done. PHE or I can talk a bit more about that. How effective that baseline is, the extent of the exercising, how far the lessons were learned and put

into place, and how ready we are to go will obviously be a matter for further reflection at a later point after we are through this pandemic.

Baroness Neville-Jones: One of the things that worries me about that exercise is that it dealt only with a couple of the stages of a pandemic. It did not deal with some of the ones that have proved most testing. In addition, the report made a series of recommendations, which, as far as I can tell, were not implemented.

One asks the question: what is the value? Are we kidding ourselves in holding an exercise of that kind when it does not deal with all the stages that you need to go through and that are identified and, secondly, the outcomes and the recommendations are not followed through? It seems to me that it is not a model that is working effectively at the moment.

Clara Swinson: As you say, Cygnus ran as an exercise. You are quite right: you have to choose between elements for an exercise. There were table-top exercises and a range of other things, but there is a balance to be struck with regard to the extent to which everything is tested and in the choice between preparing for biological risks, preparing for terrorism attacks and so on. Many of the ways in which agencies have to work together are similar, whatever the incident is, but others are specific, so there is a balance to be struck there.

I am not sure what Cygnus report you refer to and the recommendations that you think have not been implemented.

Baroness Neville-Jones: There were recommendations about procurement and things like PPE. A whole series of practical things were recommended, which as far as I can tell were not followed through. I understand all the difficulties. I hope you are not telling us that you regard that outcome as a successful model of how testing should give you a good basis for following through on the recommendations and being of real value. It seems to me that, on the whole, it gave false comfort. There are a lot of things that should have been done that were not followed up.

Clara Swinson: I am not saying that the whole exercising programme is a perfect programme. I am just saying that you need to choose which elements you test.

Baroness Neville-Jones: Yes, I accept that.

Clara Swinson: PHE design a range of tests that John might want to talk more about.

Professor John Simpson: As Clara Swinson is saying, PHE and predecessor organisations have for many years run and designed exercises primarily for the health sector, but for some exercises, such as pandemic flu exercises, for a much wider set of stakeholders. As has been said, these are based on the national risk assessments and what NHS England, the DHSC and we regard as the highest and most pertinent threats at the time. This is reviewed yearly.

With the pandemic influenza exercise—I believe the report is being published this week—one has to look at the parameters and which you were going to test. We tested a great number of parameters. One thing that is particularly difficult in general with exercises is long-term stress testing, because you cannot take people out of their jobs for a month to be part of an exercise, so there will always be an element of artificiality about that.

However, we, and exercise designers worldwide, try to take this in. Some 950 people took part in the exercise, so it was a large-scale exercise, looking at how a pandemic influenza—I stress "pandemic"—might play out, particularly for the health sector.

Baroness Neville-Jones: Based on the outcomes of that exercise, would you judge it as successful and fulfilling its purpose?

Professor John Simpson: The purpose of the exercise, as we were approached to run it, was to run a pandemic influenza scenario that had input from many stakeholders across government. The exercise was run, the report was written and the recommendations were made. There had been previous exercises about pandemic influenza. Yes, I think it was successful as an exercise.

Baroness Neville-Jones: Based on the fact that the recommendations were not followed up, you think that it was successful but not your responsibility, or it did not matter.

Professor John Simpson: I think it is a bit strong to say that they were not followed up. When the report is published, that will be apparent. Some of the recommendations were for PHE, and some were for other agencies. It is for all the agencies and departments involved to take away their recommendations for their activity and to look at how they might address those in the future.

The Chair: I do not want to take the parallel too far, but I am reminded of the observation that the operation was successful but the patient died.

Q56 **Lord Harris of Haringey:** I am tempted to say that it was obviously so successful that it has been four years or whatever it is for the report to be published.

I will move back briefly to local resilience forums. We were told earlier that they had received a reasonable worst-case scenario on a pandemic flu. I would like to focus on the working with local resilience forums, the risk assessments and the preparations in advance of Covid-19 but, perhaps even more important, during the pandemic itself. How well did that work?

Clara Swinson: Local resilience fora bring together all the agencies in a local area. They are varied, but with regard to the response in local areas and the work with the NHS and social care, which is obviously the responsibility from our department, I think the resilience of those two sectors often differs. There is a range of other things that the Cabinet Office and MHCLG and other departments require local authorities to do.

Obviously, they are under a lot of pressure. It comes back to the point we discussed earlier about the balance between national and local.

Lord Harris of Haringey: Okay. But more generally, do you think, having gone through the Covid process, or going through it, this shows any need for particular changes to local resilience forums or to the system as a whole? Are there lessons that you can already draw from the way things have worked? I would be interested in your comments, Clara Swinson, but also from the other two witnesses.

Clara Swinson: There is definitely the question of the scale of contact tracing and testing, as we have talked about. The role of the local director of public health is incredibly important; they have statutory responsibilities and they need to be supported with the resources to do their job in a local area.

Going back to the previous conversation, certain things are tested. We are undoubtedly in a better position. I believe that we have worked on all the recommendations from the Cygnus report, whether national or local. But clearly people have reasonable questions about how effective it is beyond that and whether other things should have been tested, including at a local level.

Professor John Simpson: I made a point earlier about local resources and being able to increase the amount of activity and resources at local levels to do test and trace in particular and to do contact tracing in future, and how that can be expanded.

Sir Patrick Vallance: I will make one comment that is not about local resilience forums, which is not my area. Data—data ownership, data flows and analytics—are relevant not only to this emergency but to other things on the national risk register. It is crucial to be very clear about where all those things lie in any risk. It is key to get that right across all the risks.

Q57 **Lord Harris of Haringey:** That could take us off on sorts of interesting byways, which I will resist.

I will ask one final question. Do you think there are any lessons from how the different devolved Administrations have handled the crisis?

Sir Patrick Vallance: From a science and medical point of view, we have been very joined up, and that has worked really well. I know the Chief Medical Officer would echo my saying that he meets the devolved CMOs very frequently. They have been completely joined up, and we have had all the devolved Administrations on SAGE. Although they have their own science advice mechanisms as well, it all feeds in from what is going on across the science world. I think it has been pretty joined up from that perspective. I will not comment on the operation policy aspects. Others may wish to.

Clara Swinson: In my role, I am responsible for things that are either UK-wide or devolved, but I will take your question.

Clearly there are areas where the four nations have taken different paths, and we will be able to compare and contrast those choices. One of the lessons I would definitely take from that is that politicians take different decisions on the balance between them. We know, and I know that some of your previous witnesses talked about this, it is very hard for people who are living near a border, particularly when the guidance is different. Of course, that is the consequence of the devolved system that we have, but we know that the communications in each Administration are definitely difficult for people because of those differences.

Professor John Simpson: On the public health response, us folks have a very close working relationship with our colleagues in public health departments and agencies in the devolved Administrations. We have had meetings every day throughout the pandemic, starting in January, where we have discussed things jointly. We will be learning lessons and looking to increase our ability to co-ordinate our activity in the future.

Lord Powell of Bayswater: Let me bring it together into one question about lessons that could be learned both from home and abroad. The three of you have been living with this for nine months or more now, and you have done heroically. When you look back over it, are there one or two points from your own personal experience where you think, "If we'd done it this way, it might have worked out better"? When you look at one or two other countries, are there points where you might say that they did better than we did?

I am not asking for criticism of the Government or anything like that. Government is quite hard enough without vicarious criticism. However, are there one or two points that you would draw to our attention on how, objectively, things could have been done differently and we might have had a better result if we had followed the example of other countries, or derived lessons ourselves?

Sir Patrick Vallance: Yes. I have mentioned one, which is understanding what data we required. We were flying blind for quite a long time, because we did not have data and you cannot make decisions in the absence of data.

My second observation is that in all these public health areas you need significant spare capacity, surge capacity. You cannot run at a minimum.

Thirdly, we do not have a significant private-sector testing capacity in this country, and that capacity was quite important, certainly in some countries like Germany.

The general lesson that has become clear is that when you see a disease like this moving, you have to move fast and go in quite hard with the measures you take, and you probably have to go a bit broader in the geography.

Clara Swinson: I agree with those points. I will widen the point that Sir Patrick has just made, which is that a pandemic like this shows up where

our strengths and our weaknesses are. In terms of our manufacturing capacity, there was no UK manufacturing for diagnostics and PPE. Also, there was no industry for domestic ventilators.

Then there is the communication and the behavioural aspects of these things. You can plan really well, you can get great policies, you can even get great operations, but knowing why people act as they do, the best messages for increasing compliance, and the balance between enforcement and support are hard things to get right. I would draw lessons from that.

Professor John Simpson: One is the ability to increase and have spare or trained capacity for expert and operational roles, and the ability to increase numbers. The second is that this was a new virus that came from quite an unexpected source. One thing for the future is increasingly to look to the unexpected. There is the military adage about trying to fight the last battle. That will be important. We need to look at where things may come from and we need systems that can respond to them.

Lord Powell of Bayswater: Those are very clear and useful answers, thank you.

The Chair: Yes, they were. I will make one observation, which is that it seems to me that you are telling us that we have been running on far too tight a margin in too many areas for far too long. When it comes to our basic remit, that will be a concern for us when we look at other issues that are in the risk register as tier 1 risks. That may be something for us to think about more widely.

I thank all of you very much indeed, particularly, as I said at the outset, for coming at a time when you are under so much pressure elsewhere. We really appreciate it and thank you very much indeed. I will draw the Committee to a close.