HOUSE OF LORDS

Select Committee on Science and Technology

Corrected oral evidence: Life Sciences and the Industrial Strategy

Tuesday 21 November 2017

12.10 pm

Watch the meeting

Members present: Lord Patel (The Chairman); Lord Borwick; Lord Fox; Lord Griffiths of Fforestfach; Lord Hunt of Chesterton; Lord Kakkar; Lord Mair; Lord Maxton; Baroness Neville-Jones; Lord Renfrew of Kaimsthorn; Lord Vallance of Tummel.

Evidence Session No. 19 Heard in Public Questions 160 - 167

Witnesses

Professor Chris Whitty, Chief Scientific Adviser, Department of Health, Interim Government Chief Scientific Adviser and Interim Head of Government Science and Engineering Profession; Professor Dame Sally Davies, Chief Medical Officer for England, Department of Health.

USE OF THE TRANSCRIPT

This is a corrected transcript of evidence taken in public and webcast on www.parliamentlive.tv.

Examination of Witnesses

Professor Chris Whitty and Professor Dame Sally Davies.

Q160 **The Chairman:** Can I welcome you both, Dame Sally and Professor Chris Whitty? Thank you for coming today to help us with our inquiry. The key task of our inquiry is to focus on Sir John Bell's *Life Sciences: Industrial Strategy* and all aspects of it. As you know, a key component of it is the involvement of the NHS. We have heard evidence that said the weakest link in the whole strategy is the NHS and its ability to deliver what we will require—to convert the science and innovation to commercialisation. To start with, it would be helpful to get on record who you are, although of course I know you both very well. If you want to make an opening statement, please do so.

Professor Dame Sally Davies: I am Sally Davies. I am the Chief Medical Officer for England, and the senior medical adviser to the UK Government, in which role I do mainly public health and global health. I sit on the WHO executive board and things like that. I first came into the department in 2004 on secondment as director for research. From 2004, I was director-general of research, and I established the NIHR in 2006, which was based on the House of Lords report from 1991, I think, giving a body to your vision at that time. Chris Whitty has now taken over the research role.

Professor Whitty: I am Chris Whitty. I am chief scientific adviser at the Department of Health and head of the National Institute for Health Research. I am currently interim Government Chief Scientific Adviser. It is probably relevant to the Lord Chairman's first question that I am also a jobbing consultant physician at UCLH.

Q161 **The Chairman:** Thank you very much indeed. If I might start with an easy question, what do you think about the life sciences industrial strategy? The main reason for this strategy is to improve the health of people, not citizens, not just in our country, but globally. In that respect, it does not address, for instance, any aspects of public health or prevention. Do you think that is a pity, or do you think that is a separate agenda? What do you think of the whole document and the strategy itself? What is missing, and is that relevant?

Professor Dame Sally Davies: My expression of the day is going to be "exciting". The way that Sir John Bell engaged with industry is exciting. We have engaged before. I sat on the biotechnology innovation and growth team, chaired by Sir David Cooksey. I was part of the medical devices one, where we had input. John Bell has done vastly more than that. He has got them signed up to what we are strong in and should build on, which would bring industry investment. That is an exciting way of doing it, and the end result was worth all the effort. I am delighted with what we are going to focus on.

Of course, I could say employment is the best marker of health and therefore, as long as we are booming with our industry strategy, we have played a big role in public health. Prevention matters but, while it is not

the focus here, a lot of the things will contribute to that. If we do the HARP effectively, digitalise pathology and imaging and then apply artificial intelligence, we will be able to use that for screening much better. As you will know from my report, *Generation Genome*, published in July, if we get the genomics right we will at some point move into screening. We are at an earlier stage. The public health issues abut, and will be helped by, this agenda but it does not address them in a classic public health manner.

The Chairman: Professor Whitty, what do you think about the whole strategy, and then epidemiology and prevention, which is your expertise?

Professor Whitty: On the first question on the strategy, I was part of the board that helped draft this. The Office for Life Sciences, which I am partially responsible for, was part of the secretariat. It would probably be inappropriate for me to say anything other than that it is excellent.

The Chairman: Does that include the bits that you did not draft?

Professor Whitty: Yes. From our point of view, the key thing is that it was welcomed by three groups that are critical to delivering this. It was welcomed by industry. It was an industry report and I think the welcome from industry was universal. You would try hard to find someone who did not agree with it. It was welcomed by academia but, as importantly, it was welcomed by the NHS. If that had not happened, this report would have died very quickly. All three of those needed to be bought in, and they were.

On your second question, other people have addressed this in other areas. For example, they have said, "Why did they not look at animal health?" You could go on to other areas. The thing with all these reports is if you draw the boundaries too narrowly you miss out very large sections of the industry. If you draw them too widely, almost inevitably, unless you write a 400-page tome, you end up with something where you cannot make specific-enough recommendations to be useful. Boundaries were put around it. You could always say, "Why not do this bit? Why not add in that bit?" I am not convinced that would necessarily have improved the report.

The boundaries have been set where they are. You could argue about whether you could increase it in one area or another, but they are where they are. It does not mean there are not other areas that would need to go alongside that to deliver it, and it does not mean that there are not other important aspects of life sciences in, for example, agriculture.

Baroness Neville-Jones: Could I ask you a tiny question, based on what you have just said? Who set those boundaries? Given where they were set, would some flanking strategies in, say, animal and plant health be useful for the realisation of the strategy across the board?

Professor Whitty: I cannot say strongly enough that this was an industry document. Government will respond to it bit by bit, but it is an industry document. The industries that we were aiming at with this were what I could broadly define as the biopharmaceutical human industry broadly defined including medical devices and digital, although that has a

lot of overlap with animal health. There are other elements, but those industries were the prime voices in this. Because it was derived from the industries that were involved, that tended to set the boundaries of the report. Had we, for example, brought in the food industry we would have ended up with a very different report. This was a reasonable degree of focus and therefore it achieved a reasonable degree of unanimity.

Baroness Neville-Jones: The scope of the report was set essentially by a decision on the parts of the industries that you particularly wanted to see involved, be participants and lead the outcome.

Professor Whitty: Indeed. The other thing comes back to a question that has been asked in different ways repeatedly by this Committee, and I have been very interested in the answers. The principal customer in government is one department, the Department of Health, so for most of the industries the Department of Health is the principal customer and owns much of the system. There are other customers—for example, for animal health Defra would be the lead one—for other bits of the life sciences industry. For the DH and BEIS overlap, this is core business.

Baroness Neville-Jones: Would flanking strategies be useful, or should we just get on with what we have now?

Professor Whitty: They will have to be there. There are quite a number of scientific areas where, for example, human health and animal health overlap to a very large degree. Human health and the food industry overlap in public health terms. The CMO deals with this the whole time. To see these in isolation scientifically would make no sense, but you have to have a boundary somewhere or a strategy becomes impossible. I totally agree with the point you are making.

Q162 **Lord Renfrew of Kaimsthorn:** Sir John Bell was not very specific in his report about the way his conclusions should be implemented. I wonder if you could say a little more about your thinking on that. It seems clear that the responsibilities in a general sense may lie with the Department of Health, but who should be implementing it and to whom should they be accountable?

Professor Whitty: There is a governance answer and then a delivery answer to that. Both are important. There are multiple strands to the governance answer, which are not all in the hands of the Department of Health. Many of them are in other areas. Fiscal issues, for example, are nothing to do with the Department of Health. To integrate these multiple strands, this governance has to be held at a Cabinet Minister level. We anticipate that there will be a Cabinet Minister-led committee. There is currently a ministerial industry strategy group, or MISG. We anticipate it will evolve to take responsibility for this. It will obviously still retain some elements of the Department of Health, but also some interest from other government departments, particularly BEIS.

Below that, there are quite a large number of deliverables. For some of them it is extremely obvious what the right answer is. I own a number of them as head of the NIHR. For others, it is going to be shared between two or three different groups. For most of these, the delivery end is

relatively clear. If you took them one by one, I could indicate either one person or one group of organisations that would have some degree of responsibility. Because the whole is going to cut across a lot of areas, it has to go to quite a senior level to be signed off on fully.

Professor Dame Sally Davies: I absolutely agree. The majority of the extra funding, as the Prime Minister made clear yesterday, will be going to UK Research and Innovation.

The Chairman: Could you expand on that, because we have not heard the Budget?

Professor Dame Sally Davies: No, I have not heard the Budget either; I know that it is not worth guessing before it has gone to the printers. There is the £4.7 billion uplift that was announced at the 2016 Autumn Statement, and an additional £2.3 billion she announced yesterday, which will fund the industry strategy. A large part of that will be the industry challenge fund. UKRI is expecting that and working out how best to deliver it. In fact, I know it already has phase one in progress because I left its board early to come and engage in this conversation with you.

The Chairman: The money is already spent that has not been given yet.

Professor Dame Sally Davies: I can look up how much it was, but in the Autumn Statement there was a certain amount promised.

The Chairman: Okay, we are going back a bit.

Professor Dame Sally Davies: Yes. A certain amount was promised in the Autumn Statement. It is spending that.

Professor Whitty: There is still headroom.

Professor Dame Sally Davies: Yes, it is significant.

Lord Renfrew of Kaimsthorn: I do not know the role of the Office for Life Sciences in the implementation and how the National Health Service's part in it is likely to be structured. As I say, these matters are not very clear in Sir John Bell's report. It is something we have been hearing different opinions about. We would be interested to hear your further opinions.

Professor Dame Sally Davies: I do not know that it is even an opinion. You would not expect John Bell to discuss in this sort of document how to deliver it. Clearly, the NHS has a role to play. NHS England engaged in and supported this, and will continue to play a role. Chris will address the Office for Life Sciences' role because it reports to him, but we are all used to working together.

Professor Whitty: The current dispensation in the Office for Life Sciences is that it is a split department between two different government departments: the Department of Health and BEIS. You can argue, theoretically, what the right answer is. There are disadvantages to being fully in either of those departments. In the Department of Health, there is a really serious tension with the very significant issues around trying to safeguard money for the NHS. That provides quite a significant tension. BEIS, on the other hand, does not have to face the economic

realities of the NHS and can make lots and lots of decisions that do not come home to roost in the same department. People making decisions without budgetary responsibility inevitably leads to serious problems.

The decision was taken that, to keep these two in reasonable tension at this point in time—you could argue it either way—it was better to have something that was across two different government departments and fed up through two different ministerial pathways. I do not think anyone would claim that is the only way you could do it. The logic for why that has been chosen at this point in time is perfectly reasonable. More importantly, it seems to work pretty well. If you look at the responses of your witnesses from industry when asked whether the OLS works for them, almost all of them are positive. I could read them out, but I am sure you have them all recorded.

The Chairman: What role will the Secretary of State for Health have in this life sciences industrial strategy?

Professor Whitty: Health is a different industry from many others because so many of the levers are in the hands of government, specifically the Department of Health. That includes a large amount of the science base, which is split between the Department of Health and BEIS, depending on which part: the NIHR is in the Department of Health; the MRC, for example, is BEIS. It includes all training and the employment of almost all the people who are going to prescribe. It includes the only major customer.

As you have almost the whole of the system within one department, the role of the Secretary of State in this is going to be absolutely essential. That does not mean they are the only person who will have a role, but if you excluded them from having a major role in this the chances of success would be very low, in my view.

Lord Renfrew of Kaimsthorn: You said something in your first response about a Cabinet-level committee. Can you say a word or two more about that?

Professor Whitty: What I said was not a Cabinet-level committee but a committee that is likely to be chaired by a Cabinet Minister. The details of this have not been worked out, but we already have a Cabinet Minister-led ministerial industry strategy group. The expectation is for that to evolve and probably acquire some additional responsibilities to have responsibility for this wider pathway.

Q163 **Lord Vallance of Tummel:** The implementation of this strategy will be a joint effort by the public and private sectors. What, if any, role do you think the private sector should have in monitoring the implementation, and in what sort of vehicle?

Professor Dame Sally Davies: I go back to the ministerial industry strategy group, which has existed for some years. It is co-chaired by a Cabinet Minister—the Secretary of State—and a very senior member of industry. It has more members from industry than the public sector. They are used to discussing, working together, keeping an oversight of a

number of things and trying to work out some of the very difficult issues around digital. If that ends up as the model, which we are hearing is quite likely, there is experience of reporting into that committee and making sure things happen.

Lord Vallance of Tummel: Do you think that would be by sector—in other words, not just life sciences but the other sectors?

Professor Dame Sally Davies: Life sciences will need to report in that way, but it will all have to come together. That is still open. UKRI is keeping an eye on where the money is going on behalf of BEIS and will report through its systems all the extra money that it has to spend on our shared behalf.

Professor Whitty: One difficulty here is that, if you ask the question "Who speaks for the pharmaceutical industry?", at least in terms of big pharma, it is much easier to have an answer than if, for example, you say, "Who speaks for the medical devices industry?" Although there are trade associations, and they are very good and genuinely represent their members, it is not the same as having a chief executive of a very large company who will sit at a table with a Minister.

We have tried to build in ways in which these other sectors have a voice. We always have to try to make sure that the voices of the non-pharma bits are heard as well as the other ones. Looking around the UK, whereas, for example, the biopharmaceutical industry is very heavily concentrated in the golden triangle, Manchester and a few other places, the medical devices industry and the digital industry are much more widely scattered across the UK. It is therefore essential that we maintain these industries and keep them engaged, as well as just pharma, although pharma is extraordinarily important to us.

Q164 **Lord Griffiths of Fforestfach:** This is our 19th evidence session. We have had, on average, two, three or four people giving evidence in each session. Hence more than 50 people have given evidence to us, and all of them have had some interest in the NHS. I would say all of them have had a view of the NHS, and two things have come out very clearly. On the one hand, they see tremendous potential for the NHS stimulating innovation, and for themselves and the NHS adopting innovation. On the other hand, while being polite, they are frankly very critical of the NHS in this area.

If I can give you some evidence, GSK said we are a long way from realising the full potential of the NHS. AstraZeneca wants to see an increased use by the NHS of resulting innovations. There is a poor record of adopting innovations. NHS Innovations South East says there is a legacy of half-hearted initiatives from the NHS. There is a lack of leadership. There have been no processes to incentivise staff. Indeed, previous financial incentives have been gamed by NHS organisations, resulting in little or no effect on adoption.

I am sure that is not what you want. I realise firefighting in the NHS is difficult, and it is on the front pages of newspapers and in the media

every day. Why do people have such a poor view of the NHS? That is the first question. Secondly, what do you propose to do about it?

Professor Dame Sally Davies: If you look at it from a patient perspective, as many of you are my age, you will be using the NHS, and we do extraordinarily well. The public satisfaction is pretty high. That is one side of it. The demand is going up across all ages, particularly with the demographic changes with the elderly and the increased number of complex diseases, but the general public satisfaction is good.

If you look at it from an industry perspective, we set up industry to make a profit, and it is most interested in generating a profit and selling its products. I get that it also cares about unmet need. I know many people in devices and pharma who really are driven by improving patient outcomes, but that is not what their shareholders are driven by. Of course they find it difficult when the NHS does not spread and buy their products. We have to find that balance. Are we taking the innovations that will make a difference to patients and are cost effective—hence the role of NICE, which I support; it does an extraordinarily good job—and are we spreading those innovations effectively? We are said to be slow adopters, but the last time I saw evidence on it on average we were not slow adopters. We increasingly have new treatments coming that are extraordinarily expensive, and as a society we did not set up the NHS to fund interventions, while they may be wonderful, that are not cost effective.

It is a difficult environment for industry. It is aggravated because it likes to see the NHS as a single body. If only it was. It is not. It is a federated system of trusts, which makes it very difficult to scale innovation if you have something good. We have a very good story to tell from the NIHR, which I will leave Chris to talk to, and how we have incentivised people to join in not just research, because we have supported them and funded their time for that, but working with industry to help pull innovations in.

The private sector evidence is that, if you have a research-active organisation, it is more absorptive of new innovations from elsewhere. This is what I used with the department and the Treasury to establish the NIHR. That was how I argued for over £1 billion a year of research funding for the NIHR, which Chris is in charge of. Because we have a research-active NHS, we are better at absorbing than we would be without it. From industry's perspective, it would like not to have the cost-effectiveness barrier of NICE. It would like us to be able to scale better, and so would I.

Lord Griffiths of Fforestfach: You said that, as you looked at them, recent innovations in the NHS were greater than the sort of evidence we have.

Professor Dame Sally Davies: I did not quite frame it that way. I said that they are asking for more than we can give and there are innovations going on. Of course there are.

Lord Griffiths of Fforestfach: I may be wrong, because it certainly hit me between the eyes. We have made an assumption about adoptions,

and you said that there were recent adoptions that were more rapid than would be suggested by the quotations I read out before you.

Professor Dame Sally Davies: I referred to a piece of fairly old evidence looking at adoption rates and I said it was the last I have seen. For all we have some that are slow—that is what industry complains about—the average was similar to other countries. It was work done for the MISG a few years ago.

Professor Whitty: I would divide the answer into three sections. There are lots of ways you could cut it, and they give very different answers. We should look at the bits that are going well, as well as the bits that are going badly. It is important to keep a balance between those two.

The first section is the NHS as a vehicle for clinical research. To answer that honestly, the NHS is the strongest vehicle for clinical research in the world currently, by any objective measure. I will give a few bits of data to back that up. The first is an objective study of all the publications in the top six clinical journals: the NIHR and MRC combined figure, with the majority being from the NIHR, was the same as the NIH. The NIH has a budget of around $25 billion a year. The NIHR and the MRC have a combined budget of roughly $2 billion a year. Without too much maths, you can see that we are doing incredibly well.

The dominance of UK clinical research is because clinical research in the UK is very strong, and I will give you a few numbers on that. Last year, over 660,000 people were recruited into clinical studies. Every trust bar one is currently research active. Almost half of GP practices are research active. The NHS is phenomenally good at clinical research. I do not want the difficulties in other areas to hide that strength, because it is a real strength.

The second section is the one that Sally touched on in her last answer, which is on uptake. This is a game in two halves. If you are talking about uptake for patient benefit, the NHS is world-leading in some areas, okay in some areas and not so good in others. If you look at the uptake that has the big impacts on patient outcomes, the NHS is not massively out of line with much of the rest of the OECD. For example, since 2001 for people aged 75 to 79 there has been around a 35% drop in the mortality rate. For people aged 80 to 84, there has been a roughly 30% drop in mortality, and even for those over 90 there is a 10% drop in mortality. That is all science-driven. That is not for any other reason. It is because the NHS, with the public health service, takes up things that are cost effective and will improve on patient benefits.

There is another side to it. Industry complains, not entirely unfairly, that the NHS system is relatively slow compared with other systems at taking up new innovations as they roll off the presses. That is true, not in every area, but in some. That is for good reasons and bad. The bad reasons, from the point of view of the physician, are that this is a cash-constrained system, as other systems are constrained. We have put in a mechanism, particularly through NICE, that means you do not have the situation where the paper is published on the Monday and the physician starts to prescribe on the following Monday. There is a process.

On the other hand, the NICE system is very highly regarded across the world. One of the reasons why industry likes the UK, for all its grumbling, is that if something has a NICE approval it is a huge benefit to it in selling the drugs widely. The uptake is more complicated and it would not be efficient for us to try to encourage the life sciences by paying over the odds for drugs and taking them up before the price is at the right point.

The area where the glass is half empty or lower—

Lord Griffiths of Fforestfach: Is this section number three?

Professor Whitty: It is—on data, on which there is no doubt that we are very good in small areas. There is an issue we have not yet cracked. Although the NHS is, as Sally said, a federated system at one level, it is nowhere near as federated as the systems in Germany, the US or other countries. Only Nordic countries, which are much smaller, have the same degree of unanimity. We should be able to combine data across the country. At the moment, we are not. That is an area where we undoubtedly could get more out of the NHS. It is a game in three parts.

Q165 **Lord Kakkar:** To pick up on those interesting observations, how do you think the NHS could take what you have just described and turn it into a credible narrative to engage with industry, investors and others in promoting the life sciences strategy?

Professor Whitty: I will have the first go, but Sally will have a better second go. For clinical trials and things, we are getting into a much better place than we were certainly 10 years ago. The evidence on this is objective. If you look at the number of industry clinical trials going through the research networks, in 2010, there were about 500. Last year, there were about 3,500 industry studies.

Industry used to find the HRA system really clunky in getting ethics and other approvals. The timescales for that have gone down dramatically even over the last 18 months. Time from approval to first patient has gone down from 176 days to 53 days. Time to actual approval has gone down to about a week. Those things mean that, on the clinical side, industry is increasingly seeing us as a destination of choice.

Lord Kakkar: Would that suggest that the principal deliverable of the life sciences strategy in the short to medium term is going to be the NHS saying, "We provide a remarkable environment for research, development, clinical trials, but we're not in a position at this stage to describe how we can deliver or facilitate the broader life sciences strategy, in terms of more widespread adoption that will result in more of that industry domiciling itself in the UK and driving economic growth here"?

Professor Whitty: One thing that is interesting is, if you talk to the marketing director in the UK, they will make a very tight link between whether the NHS buys a product and whether they will site their life sciences here in the UK. If you talk to the international science director, the clinical medical director or, indeed, the CEO—I have had the privilege of talking with the CEOs of many of the major pharmaceutical companies

in Europe and the USA—they say that is no part of their drive to base themselves in the UK at all.

The reason they come to the UK, or not, is a combination of very strong science and the fiscal and workforce situations that every industry has. They see the UK as a small market and the margins on one drug in a small market as a relatively small part of their decision. The reasons for wanting to have increased uptake in the NHS are primarily to improve patient outcomes, not to primarily anchor in the UK. Naturally, we want to be business-friendly, and uptake is part of being business-friendly. The Accelerated Access Review, which is a good, steady step forward in this area, is one way of trying to improve that. But it is not the central thing that industry is asking from us. What it wants from us is very strong science and a permissive attitude, clinically and in regulatory terms.

Q166 **Lord Hunt of Chesterton:** Sir Paul Nurse told us that the NHS should be a research engine. We have been discussing this. However, previous witnesses have told us that clinicians working in the NHS often struggle to find time to collaborate with academics and industry on important research. What can be done to address this?

May I just make a point? I was very intrigued today to hear about the clever use of intelligence and analysis of data that gives pictures that are cleverer than those done by humans. I was reminded that, having been head of the Met Office, it was just the same with the Met Office. When you used computers to look at patterns more successfully, forecasts got better, but that was 60 years ago or something. Anyway, the human management of the medics in the NHS is an important aspect to achieve this, and I wonder if you have any comments.

Professor Dame Sally Davies: When we set up the NIHR, it was very difficult to do clinical research. A lot of the clinical research was, frankly, not good enough, and should not have been supported by the NHS, because it was underpowered. Often the answer was already there, if a systematic review had been done. We steadily changed that through the NIHR to end up with the data, as Chris has told you.

If people are working with industry, and the trials have MHRA permission and ethics committee permission, we support them to participate. If they are working with the MRC, the other research council, or the NIHR funding systems, we give them the support. We do not support is what used to be called "own account", where they made it up and want to do it without going and getting a grant. The peer review is very important.

One of the examples you have probably been hearing about from Sir John Chisholm this morning, Genomics England and the 100,000 genomes, is changing how we do this. A lot of people think it is a research project, but we would argue that it is both generating research evidence and a transformation of the NHS. We are getting new diagnoses, repurposing of drugs and all sorts of things in the rare part of that. We have had to re-engineer how cancer tumour samples are taken because the normal pickled ones in formalin will not give you whole genomes. You have to do

a fresh frozen one, and that means liquid nitrogen in the operating theatre.

The NHS has pretty well done that and we are now getting the samples coming through. What we are doing with the 100,000 genomes is making the NHS a research engine. Meanwhile, the data is all going into the database, which is behind the NHS firewall, so it is protected, but it is being structured as the NHS genomics database. All the rest of the genomics will go into it and it is linked, because it is consented, to the rest of the patient's data in NHS Digital. That is a platform that is working in the NHS, which we will be able to build on.

Professor Whitty: I view this both sitting in this chair and as a clinician on the wards. What is really striking about this is that it is so patchy, depending on which discipline you belong to in medicine. For example, if you belong to infectious diseases, neurology or cardiology, the chances of being able to get research time are very high. On the other hand, if you belong to geriatrics—a very hard-working group of doctors—it is very difficult to do. That is not because the actual work is different, but the traditions in different bits of the system are different.

As a physician, what is interesting to me is the fact that the surgeons, who we always used to say never did any research at all, in the UK have now come to the point where they are doing huge amounts of research. In fact, today I was reading some very good stuff. This is all the way through the system. They have changed the way they do stuff. A lot of the concerns about this are craft-based. That suggests to me this is a problem for the profession—I speak as a doctor—to sort out, as much as it is a problem for the Government to sort out.

That said, there are probably two areas where the Government have complete responsibility and one where they have partial responsibility. First, the complete responsibility is in training. The training of clinical academics is quite a lot better than it was, thanks to Sally's work on the NIHR in particular. Sir Mark Walport's report and various other things have fed into that. The area where there has been some backward movement is in people employed as clinical academics. If you look back 10 years, it was relatively easy to get a clinical academic job in many areas, but quite difficult to get the training to get to there. Now in many areas I am afraid that ratio has reversed. We need to think that through.

The second area where the Government have to make things easier is to make life simpler. If half the time that someone does clinical research they are fighting the system, that half is not well spent. I have worked with a lot of people in NHS England, as have many of my colleagues, to try to make things simpler, makes forms shorter, make timelines shorter. Ian Dodge, when he was here, was talking about excess treatment costs, about all the problems with multicentre studies. In my view, if you can chip away at the bureaucracy, although the absolute amount of time may be the same, the proportion spent on useful clinical research will go up. Attacking it from both ends of the system is important.

Q167 **Lord Kakkar:** I want to return to the question of the Accelerated Access

Review and the subsequent government response to it. I think I heard correctly that Professor Whitty sees the principal benefit of it as improving clinical outcomes for patients. Do you see particular challenges in the implementation as currently suggested? In particular, in terms of the context of the life sciences strategy, do you think that five innovations per year without extra cost to the NHS will have the required impact in terms of improving clinical outcomes? There is lot of innovation that, if adopted at scale, would potentially have a remarkable impact quite quickly. Secondly, what kind of message do you think it sends to those who are looking at the life sciences strategy and its broader potential benefits, when they see the Government's response to the Accelerated Access Review?

Professor Whitty: There are several things to say about this. First, Sir John Bell, on behalf of industry, laid down a challenge to the Government. The response to the Accelerated Access Review was the first down payment on that. I would anticipate that the White Paper on industrial strategy we will see next Monday will give a next major tranche of our response to industry as a result of that challenge. I anticipate further ones beyond that. It is part of a process.

Within it, nobody would argue that any single component of the Accelerated Access Review will itself solve the problem. That is just like saying, when I talked about those mortality figures earlier, the reason why cardiovascular mortality has gone down is 100 things, each of which have an attributable fraction of 1% or 2%. We are trying to provide things that fix particular problems in the system so that the whole system, collectively, is much more business-friendly.

On its own, the accelerated pathway mechanism is not going to transform industry, but it is something that industry wanted and bits of industry will find useful. The Accelerated Access Review has many other components. From memory, it has 18 proposals. That is one bit of it, and it is an important bit of it. It should be seen in the context of a much wider strategy. These are things that industry wanted from us. This is something that we, as a society and as government, ought to do our best to respond to, within the framework of an NHS that is cash-constrained and all the things that we know from reading the newspapers. It is trying to get a balance between something that is as supportive to industry as possible, and something the NHS does not feel places big constraints on its activities in other areas.

Lord Kakkar: You describe a remarkable array of different initiatives and strategies: the National Institute for Health Research, the Accelerated Access Review and many other components. Together, they tell a story about a journey for the NHS and the delivery of healthcare, which will eventually lead to many of the things that the life sciences strategy would like to achieve. How should the entirety of that story be held to account? How can progress on that be told, rather than on all these different elements that very frequently cannot be seen as a whole and therefore their benefit cannot be assessed?

Professor Whitty: Would the Chief Medical Officer, as someone who is very good at holding people to account, like to answer?

Professor Dame Sally Davies: No, you answer. I was going to say something different.

Professor Whitty: Anybody who looks at the current dispensation in the health service is aware of the fact that there are many different elements to it. Other than the Secretary of State, finding one person to hold to account for all elements of it is quite difficult. That is making an obvious point, but it is one that has to be made on this. There is ultimately an accountability for people at Secretary of State level.

On the individual components, I go back to an answer I gave earlier. If you look at the individual components, it is pretty clear for almost all of them which person, small group or group of groups is responsible for the delivery of those particular elements. They are now explicit, and it is perfectly reasonable for industry, journalists or Parliament in particular to hold to account different elements for the different bits of delivery that we have promised. They are reasonably explicit. They are all achievable or we would not have agreed to them. Not all of them are easy. In particular, the tension is always going to be between the resource constraints of the NHS and the wish to push the science forward. We have a reasonable balance at the moment, but at any point you will want to adjust between those two tensions.

Professor Dame Sally Davies: I absolutely agree. The thing I was musing on, which is not quite the same but is one of our problems, is that clinicians in the NHS still quite often think it is dirty to work with the profit-making sector. That includes industry. We are only going to get this right if we change that culture. You can help us in this. We need people to feel proud of working with industry. We need a revolving door where academics and NHS people go into industry and bring the learning back. It is not happening as much as it should. We have started to change it.

The Chairman: Do you think that is true of the younger clinicians? Forget the older ones.

Professor Dame Sally Davies: We have started to change it. The younger ones are more entrepreneurial and doing little start-ups in digital and things. For work on clinical pharmacology, medical devices and the bigger things, we still have a problem.

The Chairman: We have run out of questions for you, surprisingly. You have been very interesting and, as I expected you would be, quite challenging. Thank you very much. We appreciate it very much.