HOUSE OF LORDS

Select Committee on Science and Technology

Corrected oral evidence: Life Sciences and the Industrial Strategy

Tuesday 10 October 2017

10.10 am

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 Morgan of Huyton; Baroness Neville-Jones; Lord Oxburgh; Lord Vallance of Tummel.

Evidence Session No. 1 Heard in Public Questions 1 - 8

Witnesses

Dr Annette Bramley, Head of Healthcare Technologies, Engineering and Physical Sciences Research Council (EPSRC); Sir John Savill, Chief Executive, Medical Research Council (MRC); Louise Wren, Policy Manager, Wellcome Trust; Sir Harpal Kumar, Chief Executive Officer, Cancer Research UK.

Examination of Witnesses

Dr Annette Bramley, Sir John Savill, Louise Wren, Sir Harpal Kumar.

Q1 **The Chairman:** Good morning. Sir John Savill is held up on a plane and will join us whenever he arrives. Thank you for coming today and thank you for helping us with the inquiry. Would you like to introduce yourselves from my left and your right? If you wish to make any opening statement, please feel free to do so before we start the session itself.

Dr Annette Bramley: My name is Annette Bramley. I am head of healthcare technologies at the Engineering and Physical Sciences Research Council. I would like to thank the Committee for inviting me today and for recognising the importance of research and training outside of the biomedical sciences for the life sciences sector.

Sir Harpal Kumar: I am Harpal Kumar, chief executive of Cancer Research UK.

Louise Wren: I am Louise Wren. I am a policy manager at the Wellcome Trust. I lead our work on Brexit and the UK research and innovation system. Thank you so much for the invitation to speak to you all this morning.

The Chairman: You are probably the author of most of the document that has been released. Do any of you want to make a statement or say anything in introduction?

Sir Harpal Kumar: I would make a couple of comments. First—and I am sure we will get on to the specifics—we view the life sciences industrial strategy as being extremely important. There are a number of recommendations in there that we think are paramount to the future of the life sciences sector in the UK. I would particularly pick out three things that I think are important to stress up front. One is—and again I am sure we will talk about this—the importance of the HARP initiatives: the idea that we want to think about where life sciences industries could be in the future and create opportunities to deliver on those.

Secondly, particularly from a charity research funder's perspective, there is a specific section in the recommendations on the importance of what is called the Charity Research Support Fund in facilitating charity-funded research across the UK. Given the importance of the charity sector to life sciences in the UK, I think that is an incredibly important piece to take forward. Thirdly, and rather obviously, there are the issues around Brexit as they interface with life sciences in the context of the strategy.

I would particularly draw out two issues. The first is the importance of people mobility in its broadest sense and, secondly, in the context of the life sciences industries, the importance of regulatory alignment wherever possible, particularly in clinical research, where a huge proportion of trials these days are across Europe and it is important that they remain so. I would draw out those points, but I am sure there will be many others that we will talk about this morning.

The Chairman: Thank you very much. Welcome, Sir John. Would you

introduce yourself—I know who you are—for the record? If you want to make an opening statement, please feel free to do so.

Sir John Savill: I am a breathless John Savill, currently CEO of MRC. I claim I was on time, Chair. I have some opening comments about the life sciences industrial strategy. This has been developed by Sir John Bell who is also chair of the Board of the Office for Strategic Coordination of Health Research, which regularly brings together the four NHS R&D funders in the UK and the two funders sponsored by Business, Energy and Industrial Strategy—the MRC and Innovate UK—together with senior officials. We were well sighted on the evolution of this strategy, which I believe has been well received by industry. I just heard Sir Harpal summarise his key points. For me, the key points are science, data and skills, and, again, I would be happy to cover those in more detail.

Q2 **The Chairman:** Thank you very much. I would remind my Lords that you must declare your interests when you speak. Each Member will declare their interests for the record and this is the only time they will do so, so bear with us. I do not have many interests that are relevant. I am a fellow of the Academy of Medical Sciences and the Royal Society of Edinburgh. As I am no longer involved with the university in any position, I do not have to declare that.

I am assuming that you were all involved in developing the strategy in Sir John Bell's document so I will not ask you about that. The important question therefore for me is, is it deliverable? If so, why and, if you do not think it is deliverable, why not, knowing that currently we do not rank that highly in the world in being able to transfer our science to innovation and, more importantly, to commercialisation? Who would like to start off?

Dr Annette Bramley: The EPSRC welcomes the publication of this strategy. We feel that it is ambitious and that it takes one view of the sector. In reality, there are other views. For successful delivery of the strategy, we believe that the government is going to have to take a whole-systems approach. There are inputs to and impacts on the life sciences from sectors outside the life sciences. The NHS also needs to be in a position to adopt innovation. We believe that the sector deal which follows needs to be able to pick up this cross-sectoral connectivity to deliver the Government's aims. There are some areas where we would suggest the strategy could be strengthened and I am happy to discuss those with you.

Sir John Savill: From the point of view of the Medical Research Council, this is an ambitious strategy, and I hope the ambition will be rewarded with economic growth and improved health in this country. It is going to require very careful co-ordination of a number of agencies and it is critically dependent on one over which I have no influence: the National Health Service—and of course that is four services across the UK—but particularly NHS England, and you can appreciate that when you read the strategy.

Is it deliverable? With determination and funding, it is. As a nation I think we did very well with the 2011 life sciences strategy. Again, it took a

while to bring things together, for example, as the biomedical catalyst, but we received excellent support from government and I think much of that strategy was delivered. It is ambitious but far sighted.

Louise Wren: If I can build on that, I agree that the strategy is ambitious and wide ranging, but for it to be delivered it is going to require concerted effort and investment across government departments, the NHS, industry and funders, including charities. Wellcome is committed to working with partners to make sure that it is implemented and delivered. It will require action over a number of years. It is not just a single moment in time when a strategy is published or a sector deal is agreed. It is going to require significant effort from all of those parties. It is important to view the strategy as a package of recommendations and a package of actions. You cannot just deliver on a subset because the whole delivers much more than the sum of its parts.

Sir Harpal Kumar: Echoing some of the other points that have been raised, it is deliverable with three conditions, and John has mentioned a couple of those, which are funding and will. The third is clear accountability, given the wide-ranging nature of the recommendations. I would absolutely echo what Louise has just said about the importance of it being a package of recommendations, not a set of discrete, rather fragmented initiatives. Clarity regarding where the ownership is going to sit and who is going to be accountable for delivering it is very important. As John touched on earlier, it embraces not just those of us in the R&D sector but industry more broadly and the NHS and, as such, it has some degree of complexity associated with it. The ambition in it is worth going for in my view, and what it needs now is a clear plan for delivery. We have a set of very well thought through recommendations. Now we need a response from the Government saying, "Okay, this is how we are going to deliver it". Is it deliverable? Yes, I think it is deliverable, but the next steps are needed in order for it to be so.

The Chairman: When you talk about funding, are you talking about extra funding to what already is invested in research?

Sir Harpal Kumar: Obviously, there is a very substantial amount invested in research and we were very welcoming of the Chancellor's additional funding for research announced in the Autumn Statement a year or so ago. That is very significant and very welcome. This is a strategy about economic growth through the life sciences industries. Life sciences growth is a combination of both the growth of companies in the UK and inward investment. I think the research base will support both of those. While we have some very clear mechanisms, such as the research councils, for delivering on the research part of the agenda, we need to figure out where the funding is going to come from to support some of the platforms for industry to operate.

The Chairman: If I could go to Lord Kakkar.

Q3 **Lord Kakkar:** I declare my interests as professor of surgery, University College London, as being active in biomedical research, chairman of UCL Partners, director of the Thrombosis Research Institute and business

ambassador for healthcare and life sciences. I would like to build on the Chairman's question with regard to the process that was adopted for seeking input into the life sciences strategy. Did OSCHR formally participate in informing the life sciences strategy and in commenting on it as it was developed?

Sir John Savill: I am not sure that OSCHR ever does anything formally, but it certainly did. I think Sir John Bell should be complimented on the breadth and depth of the consultation that he undertook. The Medical Research Council was represented on his board as well, which had very wide membership. One can see from the document the degree of consultation, so we were very well sighted on it.

The Chairman: I think we need to define what OSCHR is.

Sir John Savill: The Office for Strategic Coordination of Health Research. It was created following Sir David Cooksey's report in 2006 and its function is to co-ordinate health research funding across the UK, bringing together R&D in the four health departments with MRC, Innovate UK, and I should have said what will become Research England and is currently HEFCE.

Q4 **Lord Kakkar:** You have rightly identified that the report is ambitious and far reaching. Are there elements or features of the report that might have been handled differently? Are there gaps in it or are you entirely content that it has covered the whole landscape?

Sir John Savill: It is not possible to keep all the people happy all the time, but I think the reaction since publication has encouraged me to think that there are not many gaps. It is a broad sweep. Inevitably there may be nooks and crannies left unexplored, but I think it hits the right high notes.

Sir Harpal Kumar: I think there is one section missing from it but it is very deliberately missing: on patient capital and the availability of capital for the growth of companies. As I say, that was very deliberate because it was handled in a publication from the Treasury and Sir Damon Buffini's review, and it was agreed that, although there were a number of areas of discussion in the context of capital availability, those should be handled through Sir Damon's review. That section was missing from this particular report, but very deliberately so.

Dr Annette Bramley: Can I take a perhaps slightly tangential view, coming as I do from the engineering and physical sciences? In order to do its job, the task force that Sir John Bell worked with took one view of the sector. There are some really sensible recommendations in there, but we feel there are opportunities to strengthen that still further. We would like to see more recognition of the role of research and innovation and business beyond the biomedical sciences for the life sciences sector. We would like to see incentives for adoption of innovations into the NHS. We would like to see an increased capacity for the regulatory bodies to deal with the flow of innovations coming through. Also, there is a real opportunity to put the UK at the leading edge in some of the fast-moving

areas, for example data and genomics, especially in a global environment.

Finally, one thing that is really not there is prevention research and keeping people out of hospitals, as stated is needed for the NHS five-year forward view. We think there are huge business opportunities in preventing ill health and in rehabilitation for mental and physical trauma, and we would have liked to have seen a bit more exploration of those areas so that a broader range of businesses can contribute to the development of the sector in the UK.

Lord Kakkar: To come back on an earlier point about interaction with the NHS, which is an important element, has the report done enough in that area? How should that interaction be addressed subsequent to the report having been published and it being warmly received, broadly?

Sir John Savill: May I answer by explaining a little more about the funding that might be necessary to deliver this? Sir Harpal has already pointed to the fact that it deliberately does not expound at great length on private sector capital investment in small companies. I might respectfully disagree with the Lord Chairman when he said that we are bad at commercialisation. What the UK is bad at is growing small companies into medium and large-sized companies, so this is an important area.

The other area of funding I am particularly concerned to see secured is, of course, service funding within the NHS for two purposes. Many of the criticisms that Dr Bramley has raised will come out in the wash as we address the recommendations for the HARP programmes, which will be interdisciplinary and focused on adoption, but, clearly, central to the report is the understanding that the Accelerated Access Review will be implemented in England. This is of paramount importance to industries large and small so that they know that their technologies will be adopted, and of course, to adopt them, there will need to be the funding available. Similarly, the data recommendations, at least in England, require investment in the service in the shape of expertise and facilities for data. It requires strong support from the Department of Health, not just the NHS R&D system.

Q5 **Lord Fox:** I have to declare my interests. I am the Lib Dem Lords spokesperson on business and industrial strategy. I have some financial interests in GKN and the Smiths Group and I do some consultancy work for Telos Partners.

Sir John, you said it was a broad sweep and that people were broadly happy. Is that a weakness of the strategy, in the sense that too many people are happy and perhaps we can interpret it that, by ticking so many boxes, it is not in fact strategic enough or sharp enough to deal with the future?

Sir John Savill: This is a complex area. As you know, healthcare and medical research are very complex and I think it would be difficult to come up with an impactful, focused, apparently strategic report. I go back to what I said: I think this hits the right high notes.

Q6 **Baroness Neville-Jones:** I declare an interest as a member of the Engineering and Physical Sciences Research Council and of Lancaster University Council. I am also connected with a couple of medical charities, the Cyclotron Trust and Unique, which is a charity that deals with people with faulty chromosome patterns.

Sir John has mentioned already the word funding, and I would like to pursue that aspect. Bearing in mind the need for a strategic approach, how would your organisations approach the funding of this strategy and how would you reckon to be able to work together? It seems to me that the co-ordination of the funding activities of various organisations is going to be quite an important contribution to enabling the strategy to be properly funded and to avoid the problem of either overlaps or gaps. I would be interested to know what your approach is. Also, do you foresee that Brexit might change the scene radically?

Sir John Savill: I seem to be cast in the role of explaining acronyms. As you know, from April 2018 the seven research councils, Innovate UK and Research England will come together as United Kingdom Research and Innovation—UKRI. That already has a distinguished CEO, Sir Mark Walport, and we are working as a shadow UKRI to address the £4.7 billion uplift to the budget over four years that the Government have provided.

Baroness Neville-Jones: Being on the EPSRC, I am aware of that. The question is how?

Sir John Savill: In discussing the use of that, we are working together very closely, for example on possible challenges in the Industrial Strategy Challenge Fund. Indeed, I have been stewarding a particular programme of research where I have had detailed conversations with CRUK and the Wellcome Trust because we have common interests in these areas. The ability to work within the research community is certainly sufficiently strong to begin to seek the funding and its implementation that will deliver much of this strategy.

Baroness Neville-Jones: You mentioned CRUK and Wellcome; what about the other research councils?

Sir John Savill: The seven research councils, Innovate UK and Research England have been meeting regularly under Sir Mark's chairmanship as a nascent executive committee and we have had detailed discussions about the potential use by government of the R&D uplift.

Dr Annette Bramley: Perhaps it would be good point for me to follow on from Sir John about working across research councils and the EPSRC's response. As you know, a prosperous and healthy nation is an important part of the EPSRC's priorities and we are therefore broadly aligned with the strategy. As an example of working with other research councils, I would particularly highlight the UK Regenerative Medicine Platform, which is a 10-year, long-term £42 million partnership with the MRC and the BBSRC. It supports basic science and translational research and the emerging stem cell industry in the UK. It really laid the foundations, for example, for the Cell and Gene Therapy Catapult and more recently for

the advanced therapy treatment centres which were announced in the first wave of the Industrial Strategy Challenge Fund funding. We also have strategic partnerships with Cancer Research UK and the Wellcome Trust and have worked with all of our other research council partners in, for example, the AMR initiative. I am quite happy to provide any more examples that I can to support the Committee in its work.

Baroness Neville-Jones: Are funding strategies changing as a result of the advent of this strategy?

Dr Annette Bramley: The strategy provides an input. It is quite early—it has only just been published. It will provide an input to our challenge-led funding streams. There will always be a role for curiosity-driven research, especially far from the clinic in the space where EPSRC is, where unexpected and transformative disruptive breakthroughs can emerge. Yes, but it is early days.

Sir Harpal Kumar: As others have touched on, we all work together all the time in bilateral or multilateral areas. In terms of our own funding strategy, from a Cancer Research UK perspective, we will support those areas which are consistent with our agenda as an organisation. Could I take one particular example? We feel very strongly about one of the proposed HARP initiatives, and that is the potential for earlier diagnosis of disease and the integration of the engineering and physical sciences technologies with the biomedical and clinical disciplines to spawn a whole new bunch of industries and companies in that space. We think the UK could be uniquely positioned here because of some of the skills and assets that we have available. We will absolutely contribute to that, but it will require us to come together to do so. As Dr Bramley has just said, the strategy has only just been published and we need to figure out the mechanisms by which we will do so.

Louise Wren: I would add a perspective from Wellcome as a private charitable foundation. Where our priorities align with other funders or with strategies, we are absolutely committed to funding in partnership. I was reflecting on the panel today. We have a new surgical centre with the Engineering and Physical Sciences Research Council, we fund the Francis Crick Institute with Cancer Research UK and the Medical Research Council. We've funded UK Biobank for many, many years with the Medical Research Council and other funders. Absolutely, when priorities align, we are committed to those conversations.

Baroness Neville-Jones: It sounds to me, if I might say so, that what you are saying is that you will fund those parts of the strategy that align with your existing priorities, rather than that there will be an attempt across the spectrum to form a funding strategy that meets the life sciences bill.

Sir John Savill: Can I clarify that? I think the life sciences strategy is very well aligned with the Government's intentions through this extra funding, broadly the National Productivity Investment Fund, about half of which will be Industrial Strategy Challenge funds. They are pretty closely aligned. In thinking about the application of the Industrial Strategy Challenge Fund, which is a completely new departure for research

councils and Innovate UK, we worked very closely with Sir John Bell, and all four organisations at this table have worked closely together. That is a new funding environment in which we are working, which is very well attuned to the report.

Lord Mair: I should declare my interests, Chairman. I am a fellow of the Royal Academy of Engineering, a fellow of the Royal Society and a professor of civil engineering at Cambridge University.

Could you say a little more about HARP, and the recommendations in Sir John Bell's report that this will be a DARPA-like system for more speculative research? Is that how I should understand it? Sir Harpal, you mentioned early detection research; would that come under the HARP banner?

Sir Harpal Kumar: Yes, it is one of the examples quoted in the report as being within the HARP initiative. Perhaps I can go back a step and explain where this came from and why I think it is important. It has come from two different directions, if you like. In the very early days of thinking about this strategy, we were thinking about what needed to happen in regulation, funding and skills and so on, and a few of us around the table said, "In addition to all of those vertical elements, we need to think about what the life sciences sector might look like in 20 or 30 years from now and which will be the new industries that need to be thought about, developed and constructed, where the UK might have a particular competitive advantage".

If I come back to the specific example, I am very clearly and strongly of the view that diagnostics in its broadest sense is going to be of paramount importance for the delivery of healthcare in the future. We are rather embryonic in thinking about what diagnostics will look like. It looks like it will cover everything from how we think about risk assessment, to how we prevent disease, to how we think about healthy living, all the way through to the early diagnosis of disease and then figuring out which treatments to use for any individual patient. There is a huge opportunity to think about what it is going to take to create a broad-based diagnostics industry and where the UK has specific skills and assets that it could bring to bear on that problem. Hence was born this idea of the HARP initiative. Let us think about cross-cutting areas that will require a number of different factors to come together in order to be able to deliver them.

The other output resulted from looking at the DARPA initiative and at what has been achieved in the United States very successfully in the spawning of not just new technologies but whole new industries based on those technologies, and the recognition that sometimes you have to be willing to make an investment in something which is, to some extent, speculative in order to be able to spawn those new initiatives. It was the coming together of those two conceptual thoughts that led to the ideas in the report.

Q7 **Lord Fox:** Should someone take responsibility for the overall co-ordination of the delivery of this? If they should, who?

Sir John Savill: Good question. As I have said, to be delivered, this spans at least two large government departments and, although I was not able to get to the launch, I understand the Secretaries of State for Business and for Health were at the launch of the strategy and signalled strong support. I think the sweet spot lies between those two departments. It becomes an interesting discussion about how to ensure delivery across two departments.

Baroness Morgan of Huyton: Can I add to that? We used to have a Life Sciences Minister. Was that a good thing or not? Did that isolate it from the other business of the department? Specifically, if you look at the Ministers who jointly have responsibility for life sciences, how realistic is it that somebody who is the Lords spokesman on health for the Government, who is therefore in here all the time answering questions on everything, is going to be the Minister driving this strategy forward from the point of view of health? What suggestions do you have on how the machinery of government should work in this? Between you, you have raised a whole series of issues. If we take skills and the shortage of technicians, who in government is grasping that as an issue and who should be? What would your recommendations be on the machinery of government?

Dr Annette Bramley: Clearly, as has been stated before, it is a really complicated, complex environment and, to be successful, the strategy needs to be picked up and delivered by somebody with a breadth of vision. For us, the Office of Life Sciences potentially is the foundation upon which one could build such a co-ordinating body. It reports to the right senior Ministers. It has a cross-sectoral view from the position of BEIS. It could draw in technologies from other sectors and it could take a regional perspective, as well as taking a view on the pull-through to health. As it is currently operating, I am not sure it would be able to do that, but definitely has the foundation for being able to pick it up and run with it.

Lord Kakkar: Do you think there was good co-ordination between the Department of Health and the Department for Business, Innovation and Skills on the 2011 life sciences strategy?

The Chairman: Yes or no? That silence means no.

Sir John Savill: I am trying to think of examples that would support the view that there was co-ordination. One of the best examples is probably Genomics England because the strategy in 2011 was strong on genetics and genomics, just as the current strategy is. Genomics England is much more than a research project; it is actually a service transformation project to bring the benefits of genomic medicine to the population of England. That is a good example of where the Department of Health stepped up to the plate and supported the strategy.

Lord Vallance of Tummel: Doing the strategy is the easy bit; the implementation is the difficult bit, which is, in a way, what you have been saying. I was taken by the fact that a lot of the prerequisites for getting this life sciences strategy into being and working are actually supra-sectoral. There is patient capital, people mobility, data, skills,

regulation—which you mentioned—reliability; the lot. You are not going to get it done unless these supra-sectoral things are done. Again, the question is, how would you handle that, and, indeed, should government handle it? Is there an argument which says that government should be responsible for strategy, and that is fine, but it should be non-departmental and separate in the implementation, particularly as the implementation is almost certainly going to take longer than the span of a Government, let alone a Secretary of State?

Sir Harpal Kumar: I think you raise extremely good and very pointed questions. Clearly, there are some aspects of what we are discussing which are, as you say, supra-sectoral and need to be thought about and need to be delivered as such. Equally, there are some aspects that are sectoral and, even if not exclusively so, they are predominantly sectoral, so it is absolutely right that we think about those in the context of what can be delivered through some constructs that join health and business together. It is the job of government both to develop the strategy and to put in the enablers that ensure that the strategy is delivered. There are in any number of examples market failures that will stop us developing the industries of the future unless we provide some sort of platform on which those industries can be built. It is the job of government to ensure that that happens. It is not the job of government to do industry's job for it. It is not the job of government to create individual companies, but it is the job of government to ensure that those companies have the best possible chance of success in the context of what the UK can deliver. It is about finding those sweet spots and saying this is a set of recommendations we can take forward within the context of the life sciences. It is precisely why the patient capital piece was taken out of this report and is being thought about more broadly.

Sir John Savill: You make very important points and I would like to emphasise two things. The first is that the four bodies that you see represented at this table are all outside government. The research councils are arm's-length bodies and United Kingdom Research and Innovation will be an arm's-length body, so we are already outside government. We are sponsored but not controlled by government. One of the benefits of that arm's-length relationship is that over the last few years the Medical Research Council has changed its game completely in terms of industry collaboration and has formed consortia with various industries, universities and funders. We are now much more familiar with the capacity to deliver this outside government using industry public-private consortia. The EPSRC has had a longer and more successful history of industry collaboration—it goes with the turf, I think—but I reassure you by saying that I see much of this being delivered outside government.

Dr Annette Bramley: Can I build on Sir John's comments? From our perspective, the important thing is that we take a stable long-term approach whoever is responsible, whether it is us as organisations, UKRI or the Government, and we focus on the outcomes that we want for the benefit of the UK. For that we need highly skilled people and access to the huge global market. It is not just about the UK NHS, which is only 3%

of the potential global market for these kinds of businesses. A flow of innovation and ideas from a research base which is highly productive is needed in order that these businesses can keep at the leading edge.

Louise Wren: I have one final comment. There are examples of when government departments, funders and industry representatives have come together successfully in the past. Sir John mentioned the Office for Strategic Coordination of Health Research. We also have a new SCOR[1] Board that will coordinate overseas development aid research funding. There are examples where this is working already and we can look to those perhaps for learnings.

Lord Hunt of Chesterton: I declare my interests as a fellow of the Royal Society, the director of a small company and a consultant. I used to be head of the Met Office.

In a sense, the point about meteorology is that it is a very international subject, with international goals and methodologies. The goals are not set by the British Government at all; they are set by the World Meteorological Organization. Here at one level you have World Health Organization input and at the bottom, presumably, you have individual scientists, and government talking about money and administration in between. Nobody ever talks about the international framework. Is that a guiding force in how you are proceeding?

Sir John Savill: It has to be in the life sciences area because, as you know, the contribution to business R&D from the pharmaceutical industry is very considerable. It is over £4 billion and over 20% of the total. Of course, these are multinational companies with multinational interests. We have seen during my tenure at the MRC the retreat from the UK of Pfizer. A great strength of the report is that it is focusing on issues which interest international bodies, including multinational pharmaceutical bodies. All the research councils have an inherent interest in the international scenery. I meet heads of medical research funders from across the world every six months. The MRC spends roughly 10% of its grant in aid on international research overseas, so we are very international in our perspective. It is not writ large because it is probably an implicit feature of the sector that we take for granted, almost.

Lord Hunt of Chesterton: An international example is the issue of air in hospitals. The WHO has been very strong on having much more natural ventilation of hospitals and this is strongly resisted by the American air-conditioning industry. Questions I put down in Parliament suggest that the airless hospital—or the non-open window approach—is developing progressively in hospitals in Britain. There are some areas where the international financial world is putting pressure on the practice of good health. Do you think that is a fair comment?

Dr Annette Bramley: The regulatory bodies across the US and Europe are a major factor affecting UK businesses and business growth. If you have FDA market approvals you are able to access markets. We feel that for the UK going forward, we need to maximise the competitive

[1] Strategic Coherence of ODA-funded Research Board

advantage that is our research base. For example, we are among the fastest in the world to first-in-human trials. We are as fast as the US but where we stumble is around the regulatory barriers and innovation uptake in the NHS. We feel that by bringing businesses and researchers together with the NHS and developing a rapid approvals process, that is the kind of environment that will lead to sticky growth for the UK.

Lord Fox: Just winding back to the question I asked, Sir John, you agreed that co-ordination is necessary, I think, and then said it fell between two stools. Dr Bramley, you came up with the Office for Life Sciences. Is that the settled view of the four of you or are there alternatives as to where the role of co-ordination and chasing should be within government?

Sir John Savill: Whatever means government chooses to deliver this should be as small and efficient as possible. As I understand it, there are consequences for the size of the department if it has a Minister. I think the Office for Life Sciences is an important innovation in government. It is only a decade or so old. I think it is well placed to be government's interface with the sponsoring bodies that need to deliver this. Whether or not there should be a Minister in that department is not for me to speculate; that is for government.

The Chairman: Suppose we were to recommend strongly that there should be a Minister who is accountable to take this forward; what would be your response?

Sir John Savill: I think there would be pros and cons.

The Chairman: Which would be more important: the pros or the cons?

Sir John Savill: I am not saying the cons are more important but they come to mind more easily, having experienced this, because when there was a Minister for Life Sciences, it was a source of frustration to that Minister that the ministerial sponsorship of research council funding was elsewhere. Now that the research councils are all part of UKRI, it would be difficult for a Minister for Life Sciences to be interacting with UKRI when the sponsorship goes to the Minister for Universities and Science. If I can capture this, Lord Chairman: for some time I felt like a servant with two masters, in that I was having conversations with my sponsor, the Minister for Universities and Science, and with the Minister for Life Sciences, and this was difficult for the civil service sponsors to regulate.

Q8 **Baroness Morgan of Huyton:** I should have declared my interests before. I am chair of the Royal Brompton and Harefield NHS Foundation Trust and vice chair of Council, King's College, University of London.

I have been struck listening to you that you are at great pains to stress—and I am sure it is true—that you already work very well together in partnership. What I really want to ask is, what is going to change as a result of this strategy? I am not sure that you have convinced, certainly me, yet, that very much is really going to move forward, other than that we have a very good description of what is there and probably what is needed. I am not sure you have described what you think is going to

happen—if you think anything is going to happen.

Sir John Savill: I think there will be a profound change as a result of this strategy and the aligned Industrial Strategy Challenge Fund, and that is that industry will be setting priorities. That is a very big change.

The Chairman: Would Wellcome and CRUK feel happy about industry setting the priorities?

Sir Harpal Kumar: First, to pick up on what Sir John just said, there are things happening already. He mentioned earlier the initiative he is leading as part of the Industrial Strategy Challenge Fund, which picks up on some of the recommendations in the strategy, and it is involving several of us. There are some things that are happening already. However, I would come back to what I said at the beginning, which picks up on a couple of the other points: to deliver the totality of it is going to require some clear accountability. It comes back to the question that was posed. There are some things we can move forward without that, but there are some things that will require a degree of co-ordination coupled with accountability to make them happen. We have three options in my view. All three of them have been mentioned. The first is a Life Sciences Minister, the second is a revamped Office for Life Sciences and the third is a revamped Office for Strategic Coordination of Health Research. I would not create a fourth option as I think it is somewhere between those three, but in each case they would need to be revamped in some way, shape or form.

To pick up on an earlier question, certainly for parts of it, NHS England needs to be at the table in addition to the bodies that are currently at the table. I do not think that has been the case in some of those areas up until now, although Sir Malcolm Grant was part of Sir John Bell's advisory board.

Dr Annette Bramley: I would like to pick up on the working together bit and what will be different. When you look at a landscape such as this, it is really important to recognise what works, as well as what does not work, and to build on the strengths. I can quote Sir Harpal's executive director of research and innovation because he has gone on record talking about working with us. He says that the EPSRC as an organisation is incredibly open, we are bureaucratically light, and have similar values to Cancer Research UK. We need to build further on those principles and strengths to successfully deliver the strategy.

The Chairman: Lord Oxburgh has a quick question. Could you declare your interests?

Lord Oxburgh: I do not believe I have any relevant interests. I am still struggling to decide whether the structure is entirely novel or whether people have done it before and, if they have, which parts work.

Dr Annette Bramley: I can give you a really good example of something that works and it is based in Sir John's home university, the University of Edinburgh, where we have an interdisciplinary research collaboration which looks at imaging inside the human lung. That has been going for about three years. It is already at first-in-human trial and it co-locates in

the medical centre the clinicians, the engineers, the chemists and the people who develop the optical fibres you need to develop the devices, with the clinical and regulatory approvals people and the business people from the university. In three years—I forget the numbers and if you want them I can give you them—they have patents and they have spun out. They have won prizes for public engagement with science, which is also a really important part in taking the general public along with the scientists. That model of colocation and investing for the long term is really important. They have had a five-year programme of funding and we have just extended that for a further five years. That long-term investment stability and stability for people is really important.

Lord Oxburgh: Can you see colocation working in this new regime? That would be crucial from what you have said.

Louise Wren: Can I pick up on that point and answer the previous question on what might change? You make a number of points about the importance of collaboration and interdisciplinary collaboration. I thought there were some great recommendations in the strategy on working across disciplines, and on collaboration across industry, academia and the NHS. This is incredibly important because solving complex problems, from the growing burden of dementia to climate change, really will depend on collaboration. A great recent example is Richard Henderson's Nobel Prize in Chemistry which depended on advances in biology, chemistry, physics and computer science over many years, and this is yet another Nobel Prize for the MRC's Laboratory of Molecular Biology. Clearly, collaboration is critically important and colocation can often facilitate that as we see in Cambridge, Oxford and elsewhere around the UK.

The Chairman: Lord Vallance, and please would you declare your interests.

Lord Vallance of Tummel: I have no interests, which shows my ignorance of the subject, but never mind. I think what you are saying—and correct me if I am wrong—is that collaboration is key, otherwise it does not get done. You need accountability at a sectoral level—your life sciences strategy—but you also need accountability at supra-sectoral level because of all those prerequisites we mentioned earlier on, which go across the two. The issue then is who should be accountable for which and who holds them to account. We have a model with the Office for Budget Responsibility which is set to one side of government but can hold government to account over a long period, perhaps even beyond a particular Government. It may be that a model of that kind—something separate to look at both the supra-sectoral and sectoral levels—might work.

Sir Harpal Kumar: That may well be right. It is worth remembering that the idea is that there will be a number of sectoral strategies. The life sciences is the first one to have been published. As you have rightly pointed out, there will be areas of overlap—skills and capital would be two great examples—that sit across all of those strategies. I do not know what the timetable is for delivering the other strategies, but making the

assumption—possibly incorrectly—that they are coming some time soon, we will have, in a relatively short period of time, some clarity around where the sectoral priorities and the supra-sectoral priorities are. At that point, it will be slightly easier to determine what the best constructs are for taking those forward. We know in the life sciences sector some of the things that need to be done now.

Lord Griffiths of Fforestfach: First, to declare my interests: I am a director of Goldman Sachs International, which is a broker dealer, and a director of Goldman Sachs International Bank, which is a bank taking deposits and making loans. Although I have those interests, like Lord Vallance I have to say it does not in in way reflect my knowledge of the life sciences, which is extremely low.

The Chairman: But for industrial strategy it is significant.

Lord Griffiths of Fforestfach: The only insight I have is from five and a half years in No. 10 as the head of the Prime Minister's Policy Unit, like Baroness Morgan, Lord Fox and Lord Vallance. What interests me, to continue with this question, which I think is fundamental, is implementation. It seems to me, as I listened this morning, this is such a broad and, frankly, unwieldy issue. It is so complex because it covers science in schools, regulation, public funding, private funding, immigration and capital-raising, and it requires data from the NHS on a massive scale. The question is, how do you try to co-ordinate this? I can see that if you are research councils talking to each other, that is an element of it, but I am very suspicious about the potential for an arm's-length solution. Following on from the experience of Lady Morgan, having government behind it in a major way is absolutely critical. To do that, it seems to me you need something such as a Cabinet committee devoted to the life sciences because you need the Prime Minister behind this. You need a vision which goes right to the top because you have to bring together various Secretaries of State who have powerful empires of their own. I cannot see this working, if you are looking at the co-ordination aspect, without something which goes to the very heart of government, the Cabinet Office and No. 10 itself. Having said that, I still believe the private sector has a key role to play, particularly in start-ups, capital funding and all that. I would be very interested in your response to someone with very little knowledge, listening to what you say this morning.

Sir John Savill: I have very little knowledge of government, but what you have described sounds eminently sensible to me. Indeed, Sir Paul Nurse recommended something similar in his report: a supra-departmental committee perhaps chaired by a very senior Minister, the Chancellor even, which led ultimately to the formation of UKRI as part of the Higher Education and Research Bill. The ideas you describe have certainly been rehearsed before and they sound sensible to me. One of the successes of the 2011 strategy was that it was seen internationally as belonging to the then Prime Minister, who took a personal interest in aspects of this. That had enormous traction with international businesses. I remember meeting the new CEO of AstraZeneca who had come to the UK for the first time in his career and he said, "I didn't realise that this

Government were so interested in science and research". It was because the Prime Minister had launched that report. Your suggestions sound very sensible to me as a novice in government.

Sir Harpal Kumar: I too am a novice in government and I know nothing about the formation of Cabinet committees, but I would agree with what John has just said—it sounds eminently sensible for all the reasons that you have articulated. It would certainly have my support in principle. What I would say, though, is that, to the extent possible, it needs to be cross party, for precisely the reason that was raised earlier: the implementation of a strategy such as this is relatively long term and will certainly span two Parliaments, if not three or four. In an industry based on R&D with a long-term life cycle associated with it, we cannot have it swinging backwards and forwards as Governments change. Because of this, I would slightly disagree with John that it should be a senior Minister chairing it. Perhaps it should be a very senior civil servant chairing it, to the extent that we could make that work. It still needs to have the weight of government behind it, of course, but if it is going to swing as Governments change I think we would have an issue. I do not know how these things are formed, so I speak out of some ignorance on this.

The Chairman: That is a good point to stop this session. Thank you very much indeed. You have been most helpful. It is our first evidence session and it has started off well. Thank you very much indeed for coming today; we appreciate it very much.