HOUSE OF LORDS

Select Committee on Science and Technology

Corrected oral evidence: Ageing: science, technology and healthy living

Tuesday 3 March 2020

10.25 am

Watch the meeting

Members present: Lord Patel (The Chair); Lord Borwick; Lord Browne of Ladyton; Baroness Hilton of Eggardon; Lord Hollick; Lord Mair; Baroness Manningham-Buller; Baroness Penn; Viscount Ridley; Baroness Rock; Baroness Sheehan; Baroness Walmsley; Baroness Young of Old Scone.

Evidence Session No. 17 Heard in Public Questions 147 - 158

Witnesses

George MacGinnis, Challenge Director, Healthy Ageing, UK Research and Innovation; Professor Judith Phillips OBE, Industrial Strategy Challenge Fund Research Director, Healthy Ageing Challenge, UK Research and Innovation, and Professor of Gerontology and Deputy Principal (Research), University of Stirling; Rosamond Roughton, Director for Care and Transformation, Department of Health and Social Care.

Examination of witnesses

George MacGinnis, Professor Judith Phillips OBE and Rosamond Roughton.

Q147 **The Chair:** Good morning, ladies and gentlemen. Thank you for coming to help us with the inquiry. Of course the three of you are very crucial to this inquiry, but before we start may I say two things? The first is we are live on the BBC Parliament channel. We are also live on the internet, so any chat might get recorded. Also, I have noticed from previously that the cameras do not always focus on the person who is speaking and sometimes wander a bit, so be careful. Whether they pick up your private conversations or not, I cannot be sure.

Secondly, would our witnesses introduce themselves from my left so we get who you are on the record? If you want to say anything by way of an opening statement, please feel free to do so. There is a lot of material to get through with you. I am going to try to control you in your answers if you get too lengthy because we want to hear from you on quite a lot of issues.

Rosamond Roughton: I am the director of adult social care at the Department of Health and Social Care, with responsibility there for the Ageing Society Grand Challenge.

Professor Judith Phillips: I am professor of gerontology at the University of Stirling. My research interests are in the social and environmental aspects of ageing, and I have a practice background in social work. I am also the UKRI research director for the Healthy Ageing Challenge, leading the social, behavioural and design programme of research and co-ordinating the research across the challenge portfolio. Although expressed as a challenge, ageing is an opportunity for business, society and government. Through the programme, by addressing social, behavioural and design issues together with business, government and communities, I believe that we really can enable people to live better-quality lives and have good well-being, leading to the five years of extra healthy life, and reach the poorest communities.

George MacGinnis: I am the challenge director for the Healthy Ageing Challenge at UK Research and Innovation. I have been in that role since January last year. Prior to that, I was a soldier for 20 years in the Royal Engineers and then a management consultant for 18 years, where I specialised in health and care innovation.

Q148 **The Chair:** Could one of you tell us in one sentence: what is the Grand Challenge? Secondly, what budget is allocated and what particular part of that budget are you responsible for? Overall, who is responsible and has the accountability for the whole of the Grand Challenge? Is the work being done across government departments? Who leads on it and which Minister is responsible?

Rosamond Roughton: The Ageing Society Grand Challenge is about leading on economic opportunities that are presented by us having an ageing society. The idea is to stimulate businesses to produce products

and services that will help meet the needs of our ageing society and be exportable abroad.

The Chair: You mean the Grand Challenge has nothing to do with extending healthy life.

Rosamond Roughton: That is the Grand Challenge. We have a guiding mission, which is intended to galvanise work around it, but goes beyond the narrow part of the Grand Challenge around adding life to years. That is the responsibility of the Department of Health and Social Care and the responsibility of the Secretary of State for Health and Social Care.

George MacGinnis: I should add that within the Industrial Strategy Challenge Fund there are four investments so far aligned to the interests of the Grand Challenge. They total up to £568 million across those four investments. I am responsible for the Healthy Ageing Challenge, which is a £98 million investment. It is the challenge with the most tangible association with the Grand Challenge mission of five extra healthy years of independent living. As a result, we feel we need to be thinking in terms of influencing the lives of millions of people within a decade through that investment and through catalysing with follow-on funding as well. That is the budget situation with the Industrial Strategy Challenge Fund.

Professor Judith Phillips: My part of the Healthy Ageing Challenge is leading the research programme. This is an £8 million programme which will run over the next four years.

The Chair: I think you said the Secretary of State for Health is the Minister who has overall responsibility and accountability, but who leads within the Civil Service or which department?

Rosamond Roughton: I lead on it within the Department of Health and Social Care. The underpinning mission guides all the work across the Department of Health and Social Care, because it goes beyond just looking at ageing. If you want to tackle the mission, which is about increasing healthy disability-free life expectancy, you need to tackle things earlier in life. It is not just about the older part of someone's life. It covers a much wider portfolio than just the economic and innovation stimulation of the Grand Challenge.

The Chair: Which other government departments are involved?

Rosamond Roughton: We work with the Ministry of Housing, Communities and Local Government. For example, yesterday we announced jointly the Home of 2030 competition, which is about designing low-carbon age-friendly houses of the future. We work with the Department for Work and Pensions around older people at work and how we support older people to remain in work. We work with the Department for Business, Energy and Industrial Strategy—BEIS—around supporting local industrial strategies, to take account and think about the potential of an ageing society. We work closely with the Foreign and Commonwealth Office and with the Department for International Trade on how we use this as part of the UK Abroad agenda. Those are some examples of the departments we are working with.

The Chair: So the buck really stops with you.

Rosamond Roughton: Yes.

Q149 **Baroness Manningham-Buller:** I am interested in how we got here. Other questions later on in the session are about what progress we are making and whether we are going to get there. I want to ask: how did the Government light on these targets? What work was done before this challenge was chosen? I do not know if any of were involved, but the Committee would like to understand why they chose this.

Rosamond Roughton: I was not involved but I will give you my understanding. The concept around missions, which was worked up elsewhere, was around thinking about the mega trends that are happening in society, where the economic opportunities are, and how you frame this in a way that is inspiring and galvanising so that people will act on it beyond it being a compliance model, and be inspired to do something about it. Using that process, the four Grand Challenges which the Government set out on ageing society, clean growth, mobility, AI and data were seen as big global trends which, harnessed properly, might offer economic benefit to the country. I think how that turned into the targets, or the mission, is there were discussions with some groups such as the Centre for Ageing Better, the Government Office for Science and our own chief scientific adviser. They tried to focus not on extending life expectancy, which has tended to be the cultural norm in health and care, but on how we improve the quality of life, and people's future lives having better quality and better health through life, rather than just extending life.

Baroness Manningham-Buller: Do you know what consultation there was and how broad it was the before the Government chose those four challenges?

Rosamond Roughton: I do not think there was wide consultation.

George MacGinnis: I should probably come in there. A key part of developing this area was the Government Office for Science Foresight report *Future of an Ageing Population* which was published in 2016. Stemming from that, the Council for Science and Technology wrote to the Prime Minister recommending some early actions, which included developing a healthy ageing challenge, which is where we are. This was about getting early momentum while the broader policy piece was put in place. Both of those pieces will have had broad engagement.

The Chair: How long have each of you been in post?

Rosamond Roughton: I have been in post for about a year.

Professor Judith Phillips: I have been in post for two months.

George MacGinnis: Fourteen months.

Q150 **Baroness Young of Old Scone:** You described two elements of this. One is developing the business opportunities and the other is this guiding mission of healthy years. Is there an action plan or road map? If so, which of those objectives is it focused on tackling? Does it have a

steering group or are there arrangements for ensuring that it is happening? Is it happening and will it achieve both of the objectives?

Rosamond Roughton: If I start with the challenge—

Baroness Young of Old Scone: You say you start with the challenge, but what is the difference between the challenge and anything else?

Rosamond Roughton: I would see the challenge as being about how we harness the economic opportunities of an ageing society and what we are doing to develop that. I see the mission as being a lot broader, because that is about improving disability-free life expectancy. In terms of the mission, the key plank has been the prevention Green Paper which the Government published last summer. In that we identified the science that there is. It is disputed slightly, but there are four areas that affect healthy and disability-free life expectancy. Those are about the services we choose, the choices we make, the environment we live in and our genetic make-up.

At the moment, we are looking at all the responses we have from that to see what things the Government need to take action on. Some of it sits within the Department of Health and Social Care's remit. We have asked every part of the health system, working with partners, to set out their plans for narrowing health inequalities because part of the mission is about narrowing the existing gap. It is also about things such as the clean air strategy, the Cycling Infrastructure Fund, and about encouraging physical activity. There are quite a lot of things that are beyond the NHS, or even the broadest definition of social care, which will have impact on that mission. Not all of those will deliver a concrete economic benefit to the country. That is why the Grand Challenge side of looking at the business end of it is also an important element. However, just doing the business end will not deliver the mission and just doing the mission will not necessarily deliver the economic objectives of the Grand Challenge. I think of them as two very closely overlapping, but not identical, goals.

Baroness Young of Old Scone: Do you have an action plan for both together or separately, or either of those things?

Rosamond Roughton: On the economic side we have a plan of the actions we are taking through the year. On the mission side I think the next step for us in government is going to be the response to the prevention Green Paper, because that is what brings together not just the health and care elements but the wider determinants around a higher-quality life.

Baroness Young of Old Scone: Is there a steering group overseeing this rather broad project?

Rosamond Roughton: On the prevention side, in the run-up to publication we did some cross-government work. Those conversations have continued, particularly as we come to publishing the outcome. At that point we would want to take stock about how we run this at official level across government. We have some reasonably well-established processes which we can turn to at that point.

Baroness Young of Old Scone: How will you know if you are on track to achieve the five added years?

Rosamond Roughton: We are not on track to achieve them at the moment, and, in fact, we have gone backwards. The ONS publishes annual data and in the data before Christmas things have got worse. That has given a lot of food for thought. Last week Sir Michael Marmot published his 10 years on report in a similar space to this. The Government's stated ambition is around levelling up, which is similar to some of these issues around health inequalities. Coupled together, these are all things we are going to have to look at really carefully. The data that was published last October shows that we are not on track to deliver this, and, in fact, we have gone backwards.

Viscount Ridley: You said it has got worse. May I press you on how you think it has got worse? Is it because the age at which people become unwell is coming down or just that the age at which people die is going up? In other words, would it be a failure if people were living slightly longer healthier but they were living even longer unhealthily?

Rosamond Roughton: In answer to that, if people were living longer healthier, even if they were still living more years unhealthily, that would still show up in our statistics as being positive. When this was set, 62.3 years was the averaged-out figure of disability-free life expectancy for women. If that went up, even if the number of years with disability also went up, that would still be better. People might dispute that, but that would be the way that we would interpret those figures, yes.

George MacGinnis: I want to make a supplementary point there. Regardless of the global trends and the wider influences on the Grand Challenge mission, the objective of influencing those five extra years of healthy living remains a worthwhile goal, even if the actual five years looks less deliverable than it did when first devised.

Coming back to your question, we take a view that we are serving both an industrial and a health objective in what we are doing in the Healthy Ageing Challenge. We have a logic model so we know an awful lot about the causes of poor health. We know rather less about the interventions that will make a difference. In that context we have a logic model. We have a view of a range of things that need to be done. We will initiate a portfolio of work which will explore the relative benefits of different approaches. Within that we are also very conscious that it is not just about individual actions in health. There is an awful lot that we will learn from science. We can already learn from good work done, for instance, in Manchester on environmental factors that will make communities more liveable and enable people as they age to be more active and independent.

The Chair: You are already falling behind. You do not think you are going to achieve your target. You are going to revise your target and you are going to learn a lot for £580 million.

George MacGinnis: If we take it back, I think there is a population caught somewhere between where Marmot would suggest early years

intervention, and where the NHS and social care services are dealing with people who are already unwell and dependent, and a population that is getting older, or about to get older, which will arrive at about 2035, where there is an opportunity to make a difference. The investments we have talked about will address a range of things. They are not all specifically targeted on five extra years of healthy independent living. For instance, quite a lot of that money is going towards data for early diagnosis and precision medicine, to help our health services better target and better deliver the care that they are doing, and to look at how we influence people before they become dependent on statutory services.

The Chair: Is this not a normal job of departments?

George MacGinnis: We know particularly in the case of early intervention that there is much more that business can do to provide services for people who would not be entitled to statutory health, and particularly statutory social care, to look after themselves. We know there is a long history of investment in products and development of early-stage technologies and services that have not scaled. We think one of the key reasons, and this was part of the recommendations from the Council for Science and Technology, is that not enough has been done on a place-based basis to encourage the development of those services and products and interventions, for instance, in design and home improvements that would enable people to live longer and more independently.

Baroness Walmsley: From what you have said, Ms Roughton, it strikes me that it is all about the economy rather than about people being healthier and happier in older life. Would you consider it a failure if people lived healthier longer but were not economically active during those extra five years? I realise of course if they are healthier there might be less strain on the NHS—although as health gets more complicated it gets more expensive so that may not be the case—but if they lived longer and healthier and just enjoyed themselves and were not economically active, would this be seen as a failure?

Rosamond Roughton: No, it would not be seen as a failure. That was the wider purpose and underpinning of what the Department of Health and Social Care is about. Within the next five years, we will probably have about 1 million people in this country living with dementia. What we can do to ensure that for everybody with dementia every day is well lived is not about medical interventions. It is about the quality of their lives and what is around them. I do not think that would be seen as a failure. It is core to what we are trying to do in health and social care. The Ageing Society Grand Challenge is one element of thinking about this as an economic opportunity. Globally, many other countries are facing this and it is about asking whether we are making the most of that. I do not think that has been the mind-set of our department up until now.

Lord Hollick: The economic opportunity that you have described has not so far in your remarks included the considerable saving to the NHS and to social care costs of people having a longer healthier life, which I would have thought was a very significant number. Has that been calculated?

The second question I would ask comes back to the question of a road map. You have a very complex number of inputs with different departments, from cycling to this, that and the other, so you are wrestling with an octopus. It would seem to me that you need a very clear road map to guide you as to who is doing what, when they are supposed to deliver it and what they are supposed to deliver. I appreciate that some of the issues are unknown, but if I pitched up at a department and said, "Could I have a road map and what am I supposed to deliver?", it seems there is no such document.

Rosamond Roughton: On the first one about calculating the costs of people being healthier for longer—

Lord Hollick: The savings.

Rosamond Roughton: Savings, sorry. There is quite a lot of work around the end of life bit because everybody dies and an awful lot of the costs in health and social care are at the end of life. We have some of the costs around things such as diabetes, which is probably the most obvious one, where we have costed up the lifelong costs of what is, for certain types of diabetes, a preventable disease. We have not costed it up fully in the way that you have described and I think that sounds like a good idea, because that would definitely show the kind of economic benefit that you have talked about.

In terms of the octopus, in the past year we have found that we get more traction by working with individual departments. We have got further in getting them to think about how what they were thinking about doing could be repurposed or focused more around the ageing society. I take your point that there are other ways of ordering this work to be effective, but last year that felt the most effective way for us.

Lord Browne of Ladyton: The purpose of this question is to find out if I have understood what you have told us. We have this industrial challenge, which is to put our industries at the forefront of the world. We have four Grand Challenges inside this industrial strategy, one of which is the Ageing Society Grand Challenge. Would you see that as an opportunity to put us at the forefront of the industries of the future? It seems that everybody in the world shares this challenge. My understanding from the written evidence from the Government and from what you have told me is that the mission of that challenge is to ensure that people can enjoy at least five extra healthy independent years. We are told in expanded evidence that the target of the challenge will be defined by that. You are telling us that that mission is shared by the delivery of other public policies across government, but it is the mission of the challenge according to the written evidence we have had. Am I right in my understanding of that?

Rosamond Roughton: Yes, that is right.

Q151 **Baroness Rock:** You have mentioned ONS data and early intervention data as well. If I could talk about the mission particularly, what data is used to measure progress towards the targets that we have been talking about? Who collects that data? Importantly, how is it analysed, who

analyses it and what progress could you publish at regular intervals to show how that data is being effective?

Rosamond Roughton: The data we use is the data from the Annual Population Survey. It comes from the responses to some specific questions in that survey. The Office for National Statistics collects and analyses that data and publishes it at the level of local authorities in the constituent countries of the UK. October is the annual publication date. Public Health England has a tool that means you can instantly access the profile for any area in the country. That is a key part of the data and you can compare yourself to similar places. That also means we can look at some of the other measures that people in this field like to look at, such as healthy life expectancy and disability-free life expectancy.

Baroness Rock: To press you, how is the department using the data to good effect rather than you as an individual?

Rosamond Roughton: We are using data in two ways. At a big level looking at the England figures, the figures we got just before Christmas, when we are looking at what to do on the prevention Green Paper, they will clearly inform whether we are doing enough—or not, because things have gone backwards. The second way we use it is at a local level. In assessing all the plans developed by local systems across the country this is the data that people use to say, "Are you being ambitious enough?", or, "Do you need to be more ambitious?" That is one of the things that people need to do and is associated with the funding made available for the NHS under the long-term plan.

Professor Judith Phillips: If I may come in on the data, the research project programme will be collecting quite a lot of data. One thing that is really important within this, because it will be very much focused around social sciences, is to look at what social science data there is to supplement this. Each of the projects in the programme will have to collect data and report. I would expect that we would have a lot of qualitative data. Going back to the issue of people, it would be looking at how people are experiencing things and their lived experience, so not just quantitative data but a lot of qualitative data.

Baroness Rock: Does UKRI share that with the departments?

Professor Judith Phillips: Yes, it is all available.

Rosamond Roughton: We are part of all the arrangements for managing that programme. We sit on their programme boards. The thing I am feeling I have not mentioned that might help is there is a cross-government programme board for all the Grand Challenges on which I sit. That is where all the departments come together and we look at all the Grand Challenges and the industrial strategy overall. It is not the same point as I think you were alluding to about having an ageing society-specific one but the industrial strategy as a whole.

Q152 **Baroness Walmsley:** My question is about who is responsible and, to some extent, that has been answered by your answer to the Lord Chair's first question. I am clear that it is the Secretary of State for Health. Could

you tell me if there are other teams that bear parts of the responsibility? Could you also say how that responsibility is being delivered? For example, is the Cabinet holding the Secretary of State for Health responsible? Are there going to be regular reports to Parliament about what progress is being made in achieving the Grand Challenge over the period of 15 years? Presumably, whoever is in the seat in 2035 is going to be finally responsible, but of course responsibility lies all the way along. How is it going to be delivered in terms of accountability and transparency?

Rosamond Roughton: At the moment there are no plans for doing the kind of thing that you have suggested. I am sure it will be interesting to see what the consequence of this inquiry is on that.

Lord Browne of Ladyton: Does that mean that the Secretary of State for Health is responsible for the emergence of these industries to deliver this challenge and therefore the economic benefit to the country in the future? Am I understanding that correctly? Is that what you are telling us?

Rosamond Roughton: I am saying the Secretary of State is responsible for the Ageing Society Grand Challenge and we are working closely with UKRI and BEIS to help deliver that. Yes, that is right.

George MacGinnis: Specifically regarding the industrial strategy investment, that is covered by the annual report of UK Research and Innovation which is laid before Parliament.

Baroness Penn: To follow up on this point and the tension perhaps between the Grand Challenge and the mission, the Secretary of State is responsible for both the Grand Challenge and the mission. Ros, you are the SRO for the Grand Challenge. Are you also the SRO for the mission? You have said that is about prevention and the prevention Green Paper, which I cannot imagine sits under the director for social care in the department.

Rosamond Roughton: The Secretary of State has asked all of us in the department to take some responsibility for the mission. There is not a single person who is just doing the mission. The mission is so big I do not know how you could give it to one person. It requires action across such a wide number of things that it is not a single responsibility. That goes back to the mission being about trying to galvanise and change the mind-set in part about the way we approach what we are doing in health and care. I have other colleagues, other directors in the department, who could equally be sitting here today and telling you stuff about what they are doing and what they are responsible for. You are right.

Lord Hollick: Are any of the officials who set these targets still working on the project?

Rosamond Roughton: I do not think so, in the department, no.[1] I cannot speak for BEIS, which created the industrial strategy.

[1] The witness would like to clarify that Professor Chris Whitty helped to define the mission as Chief Scientific Advisor, and the mission still informs his current work as Chief

Baroness Young of Old Scone: If the mission was not happening, who would know and who would have the responsibility for getting it back on track?

Rosamond Roughton: The Secretary of State set out the mission in the prevention Green Paper. That was one of the ambitions of the prevention Green Paper. When we respond to that and the consultation on that, people will be able to see whether the Government are taking enough action to deliver it.

Baroness Young of Old Scone: Whose responsibility will it be if the Government are not taking enough action to deliver it?

Rosamond Roughton: It will be the Secretary of State's and the Government's.

Baroness Young of Old Scone: But he will not have anybody to help him. There is no gofer that he is going to rely on to get this to happen.

Rosamond Roughton: He has a team of civil servants to support him in delivering his aims and ambitions.

George MacGinnis: It is also worth saying from the industrial strategy point of view that the Industrial Strategy Council has recently published its annual report for 2020 and has made the point that the Grand Challenges are just that and they will require sustained investment over a length of time. There are bodies looking at what we are doing, both at a more micro level regarding the Industrial Strategy Challenge Fund, and, eventually, at a cross-departmental level.

Q153 **Viscount Ridley:** The focus of the challenge is to harness the power of innovation to meet the needs of an ageing society. I want to focus on that word "innovation" in this question. At one extreme, one could imagine meeting this challenge by rolling out existing practices and technologies: getting people to exercise more, or wear more wearables, or putting more money into social care. At the other extreme, one could say the only way we are going to meet this challenge is by blue-sky research into the ageing process that might produce new drugs or something like that. Somewhere between those two is where I think the word "innovation" fits. Is that the way you see it? Do you expect researchers and companies to come up with new ideas and technologies that are not completely blue sky at the one extreme and are not existing practices at the other?

George MacGinnis: UK Research and Innovation funds a broad portfolio of research and innovation. Specifically associated with the Grand Challenge, the investment is mainly near to market. That is guided by the Council for Science and Technology's recommendations. Originally, they were recommendations for innovations that support care and independence in later life and would have the biggest impact in the short term. You are going to hear next week from colleagues of mine who will talk more about the biological innovations at the deep science end of the

---

Medical Officer.

portfolio which we fund. We have taken a view, particularly for the Grand Challenge mission, that it is those things that are nearer to market. Last year we also commissioned some research by Oxford University into lessons from previous initiatives. That research pointed us to quite near-to-market innovation. There was not really a problem in early-stage technology innovation and there is a long track record of backing that, but very little of that had ever gone to scale. When we looked at the numbers in some of the big initiatives over the last 10 to 15 years, they had managed to get to hundreds and thousands, but generally not much more than that, and not generally spread.

We are very interested in spreading innovation and the Oxford University report pointed us to look at three key things. We should be looking at proposals with the ability to scale per se, involving businesses with the capability to spread those innovations, and which are focused on sustainable revenue streams. In that context, there are things that NHS and social care are doing with integrated care. Again, waiting for them to rewire the way that they reimburse services and gain share across organisations is not a good way to encourage businesses to grow. We are focused on an early stage where they can find smarter ways of delivering existing services and open up new revenue streams, particularly for people with need who would not otherwise be entitled to care. We think that is an important group to be going for.

Professor Judith Phillips: Businesses have been really slow to come into this ageing market for many years and there has been a huge gap. Researchers have not been working with business, particularly on the social sciences side. This gives us a real opportunity to work alongside and to look at innovation across the piece, and not just technological innovation but social innovation as well. Looking at everyday things and how people can live their everyday lives with new innovation is going to be really important. You may have heard of initiatives such as Men's Sheds, and these kinds of innovations which businesses can get involved in are really important. It is not just looking at the quick wins from technology but other innovation well.

Viscount Ridley: It is partly about the old British problem that we are good at discovering and inventing things but we are not good at rolling them out, commercialising them and scaling them up. Is that part of what you are trying to address at the UKRI end of things?

George MacGinnis: That is certainly part of why we address it. Reflecting on why our research emphasis is on social and behavioural aspects and on design, we have for a long time postulated need, but we do not have enough insight on what people want, and why they would want those things. We need to bring that insight to bear and help business create the services and products which address that need and which are, in the words of some of our advice, attractive, affordable and accessible, and known by the people who will advise people at the right sort of time. If we can create that market, that should have a positive impact on the Grand Challenge mission.

Baroness Young of Old Scone: I noticed in bits of the evidence that

was provided to us that the phrase you have just used—"attractive, affordable and accessible"—has been used in several places. Are we envisaging a model where the vast majority of this stuff is going to be on a self-pay basis by clients?

George MacGinnis: The affordability piece speaks to not just the self-pay market but where people are entitled to support from statutory services. It is important that we look at the way the technology has emerged. If I had been here 10 years ago, you would probably have been asking me, "Are smartphones just for an isolated few?" but now some of that technology is much more pervasive. Smart speakers, for instance, are already being used in interesting environments, not just addressing the affordability aspect but some aspects of digital inclusion for older people. Affordability is clearly a major part of that. I do not think we can sit and wait for a classic private investment paradigm to take over, as happened with the smartphone, where new things will come in as expensive, but, as volumes grow, prices will drop and they will become more pervasive.

We think there is the potential for a bottom-up approach. This is partly why the emphasis is on design, and particularly inclusive design, which builds on ideas of frugal innovation. Designing for more complex and challenging environments, including on price, can produce solutions that are more universally applicable to broader markets and will have an impact. We think that the emphasis on design research and on social and behavioural science will be an important part of enabling businesses to do that.

Q154 **Baroness Hilton of Eggardon:** We have heard a lot about improvements in technology and various environmental factors. Is there any part of the Grand Challenge devoted to pure science, the development of new drugs to deal with Alzheimer's and so on, or is it entirely about industry, technology and so on?

Professor Judith Phillips: May I start by answering that? Ageing is an ecosystem so it needs research on every part that affects people as they age. It is important that we have research on all aspects, including drug development. However, the Grand Challenge is not addressing that. The big gap, as I mentioned earlier, is getting business involved in looking at the social sciences, and the arts and humanities, and the contribution of those disciplines and the potential that we have through social change and social innovation. Concentrating research around some of the social, design and technology issues is absolutely critical to moving us forward in this area. Seeing older people and people as they age as an opportunity rather than as a burden is changing the narrative with business just as much as it is about particular areas of research.

Baroness Hilton of Eggardon: So the answer is no.

George MacGinnis: Allow me to come in. You will hear from colleagues of mine next week on the biological side. The broader UK Research and Innovation portfolio includes early-stage biological research, medical research and other research which will take much longer to come in and

have a population-level impact. Where some of those other investments within the industrial strategy will have an impact is particularly around data and data science, enabling the generation of real-world evidence. We think that this will be particularly important for older populations. Many therapies are researched and brought to market based on trials conducted on younger people. We think that by having a better understanding of what is going on, we will be able to help the NHS administer existing therapies better, understand the impacts of polypharmacy and the like and contribute to the 2035 goal. Clearly, the other stuff I am talking about will contribute to a much longer-term goal as well.

Rosamond Roughton: Through the National Institute for Health Research we have quite a number of programmes on ageing. Previously it has not been organised in that way. One thing we have done is to take a look at that programme and see how much of that is being spent on deep science around ageing. That is an example of the kind of thing that we look at to see if this has been pointed to sufficiently. I think next week you will be hearing from the Office for Life Sciences and I know my colleague there will talk more about that.

Q155 **Lord Mair:** Viscount Ridley raised the whole question of innovation and what that really means. May I ask you a bit more about the types and sizes of businesses and the innovations? How are they going to be prioritised? I think we understood that £40 million-worth of funding has already been allocated to what are called trailblazer projects. Can you give us some idea as to what the trailblazer projects are and what kind of businesses have been involved in this?

George MacGinnis: It is probably helpful if I outline this a little bit. I should say that the trailblazer competition is under way, so there are elements of what is coming through which I cannot talk about. Our ambition for the trailblazers was to invest in innovations with the ability to achieve a local population-level impact and be able to scale. They are place based principally and focused on near-to-market innovations. The sorts of innovations that we are expecting are not early-stage technology but more the integration of technology, the development of supply chains and the development of innovative business models that will allow those innovations to come to market and be sustained. That market can be both self-pay and private. It may also involve third sector organisations.

When the challenge was first launched, the idea was that all the investment would go into three large demonstrators. Over the course of a year of developing plans we found that there was not the level of industry buy-in to what we were proposing. The trailblazers are, first, a revision of that plan, on an understanding from industry that, if we gave them a bit more choice within a framework of what bits it thinks it can influence, we can align our interests with its business interests better and secure better co-investment. That is what the trailblazers are doing.

On the way, we did two bits of research. One was an open survey of the market and the other was some research conducted jointly by the Centre for Ageing Better and Big Society Capital on the innovation investment

landscape. Both of those pieces of research told us that it would be wrong to ignore early-stage innovation, so we carved out a much larger space in the £98 million for early-stage investment to be directed at micro and small enterprises with that early-stage innovation. We would not expect within the three-year timeframe for that to have any significant population impact, but we would expect those innovations to be coming to market. We have also formed a community of practice so that there could be some joining up of the large-scale place-based implementations with new innovation coming through. It is not going to be a forced marriage but, if there are opportunities for that, it would be good for those businesses in getting some traction downstream in delivering their products and services.

Lord Mair: I appreciate that the competition is under way and you perhaps cannot be all that specific, but are you able to give us some examples? You talked about three demonstrator projects and trailblazer projects. These are great words. Can you give some specific examples? What were the three demonstrator projects, for example?

George MacGinnis: The three demonstrator projects never were. They were a proposal for going to market and asking someone to lead something that would cover all the bases of healthy ageing in a place-based ecosystem. That required businesses to collaborate with potential competitors and would have required them to take on more risk than they were willing to. We have taken that concept and said if we had a larger number of smaller projects in which the businesses and their local partners could choose what aspect of healthy ageing they would focus on, that would meet our objectives and meet their business objectives to grow.

What sorts of things are we talking about? We are talking about perhaps at one end a company with a new service. It could be an extension of telecare that we have seen in the market, which may have a much broader appeal and may not just be about safety and security but other aspects. Can that business pull together the supply chain and offer that in a successful way? It is a problem I hear all the time: people who have real problems with families and relatives, and when they come to need help, they can find products and services but they cannot get a whole solution together. It is about getting that whole solution. That would be one example of the sort of thing we would expect to see.

Professor Judith Phillips: In terms of both trailblazers and the research programme we are looking at seven particular themes including designing age-friendly homes, creating healthy places and supporting social connections. All the initiatives address one or other of these particular themes. That will run through the whole of the Healthy Ageing Challenge. That has the opportunity to bring in quite a lot of SMEs and larger businesses across housing, retail and the care environment, whereas traditionally efforts have focused on the care environment and care industries. This broadens it out into whole new areas of business.

Lord Mair: May I ask one further question? We have heard it said in previous evidence that it is more difficult for smaller companies to

become involved in these kinds of initiatives. Is that a fair comment?

George MacGinnis: I do not think that is fair, but I can understand why it is said. In launching initiatives and trying to get momentum the first major initiative is the trailblazer. We are just about to finish contracting with private investment partners and will be going out with what we call an investment accelerator, targeted at supporting smaller businesses going forward. That will create opportunities for them. It is more a question of timing and trying to get some momentum into delivering the Healthy Ageing Challenge.

Lord Hollick: Lord Mair used a very important word, "priorities". How do you set the priorities? If you are going out offering money to innovators, is it not best to say, "These are the three unmet needs that we need to focus on"?

George MacGinnis: It is a very good question. To understand what those themes were, we commissioned work from the Centre for Ageing Better, which produced the Healthy Ageing Challenge framework. That is published on our website and it sets out seven themes. Its advice, and we agree with it, is that these were where there were the greatest opportunities for tackling market failures and having an impact on healthy ageing. All our investments are guided by those themes.

Q156 **Lord Browne of Ladyton:** That is about innovation but what about existing technologies? We have heard from people with existing technologies that there are barriers to their uptake. Is any of this Healthy Ageing Challenge Fund going to be spent on encouraging the uptake of existing technologies that we know work?

George MacGinnis: In a short word, yes. Our emphasis, particularly in the trailblazers, is largely on existing technology but where the services around that technology are not yet properly formed and the business models for delivering it are not there. I will give you an example of how our thinking was guided. For several years now, Hampshire County Council has been winning public sector prizes and awards for its telecare service. The core of that service is a 20 year-old technology. What has been really innovative is that it has formed a partnership with an outcomes-based contract. This incentivises the service provider to engage with referrers and end users, and to understand what their wants and concerns are, and to deliver a better result by building in continuous innovation. It has moved on enormously in terms of the number of people who are supported through that technology and in its impact on people being able to remain independent at home rather than moving into residential care environments. The idea of a business model innovation to be done to make these services more accessible, which drives continuous innovation and improvement in delivery, is an important part of what we would see the overall challenge achieving.

Lord Browne of Ladyton: That is a very good example. Have you assisted that from this fund?

George MacGinnis: We have not committed any money yet through this fund. We are in a competition to release the first fundings from this fund.

I cite that as an example of evidence from the market of what has worked and to ask whether we can get that idea applied in other environments.

Rosamond Roughton: That is why the link back to the Department of Health and Social Care is so important. We are well placed through our mainstream programmes to make the most of what comes out of that. For example, one of the budgets that my team is responsible for is the £0.5 billion Disabled Facilities Grant. This is money which goes to help people make adaptations to their homes. The evidence base on that is that this leads to people potentially staying about four years longer, on average, independently at home. At the moment it is a question of what that money should be being spent on. It may be there are some better things coming along that we can, because we are part of the same programme, start publicising as available through the Disabled Facilities Grant so that we can mainstream some of the innovation. That is part of the thinking.

Lord Browne of Ladyton: In a generic sense, this is all really interesting, but in a specific sense, because we are here to talk about the Healthy Ageing Grand Challenge, it is about the distribution of the significant funding that has been allocated to advance that. We have now established that at least those out there who have these technologies, and who can see the barriers, are welcome to bid, but I am specifically asking whether you are having conversations with any of those people, some of whom have given us evidence and said that they have not felt welcome in this environment? Are you having any conversations with anyone or are you directing people to that fund as a possible source of support to overcome those barriers for existing technologies? That is the specific question I am asking. I like good examples and evidence of other funds that are being used for it, but I am specifically asking about this fund in the context of this challenge.

George MacGinnis: If I interpret your question correctly, it is: what have we done to engage with industry with existing technologies to see what they can do?

Lord Browne of Ladyton: That is not my question, but it is a good enough one.

George MacGinnis: First, I would make the point that our money is research and innovation money covered by state aid or the subsequent legislation around what we are able to fund and what we are not able to fund in the market. Our particular money is about researching and developing new technologies and services that will have an impact.

In terms of understanding what the market wants, last year on arrival I put in a three-month programme of visiting the three devolved nations, and regions up and down the country, meeting businesses and understanding that. We supplemented that with a survey to get some really interesting insight into what industry was interested in doing and what it would want to do. We have continued that effort to engage with industry and to align what we are able to do, with the tools available and the legal restrictions within which we work, to encourage businesses to

come forward. It is not UK Research and Innovation's role to fund mainstream service delivery. That will be down to the councils. It is our role to deliver innovations that are purchasable by commissioners and health and social care boards up and down the country as well as by private citizens.

It is at an early stage. In the response we have had to the competition we have seen huge interest from industry coming forward. We are learning from that. We have learned that the number of businesses which are ready to move to the scale that we were envisaging is rather smaller than the number of people who are applying. We are now trying to understand how we continue to tap into that interest and enthusiasm and channel the other funds we have such that we can maximise the huge interest that having a Grand Challenge supported by a Healthy Ageing Challenge has generated.

Q157 **Baroness Sheehan:** What are the major challenges to the innovation approach alone being able to deliver the five years of additional healthy life? If you do not think that is the sole approach to success, to what extent will achieving the five-year target rely on investment in biomedical and pharmaceutical research and drug development? It is those two issues at the moment. We have heard already that there are issues around the development of products and services which could deliver the five-year healthy living more easily.

Rosamond Roughton: In answer to your first question, I do not think that innovation alone will deliver it. There are some basic things we know about, such as air pollution and how easy it is to walk around your community, which will impact on people's health. They are not innovation in the more traditional sense. Particularly around physical activity, if we look at what are the biggest determinants of ill-health, obesity, smoking and alcohol remain our three biggest issues in terms of contribution to differences in healthy life expectancy. On obesity we have a way to go to understand the behavioural interventions that could make a difference. That starts with children and probably starts with prenatal care. We certainly would not be thinking that it is just innovation that will deliver the challenge.

The second part of your question was about the biomedical research element. Again, I do not think we could rely on that and it would not necessarily be the right thing to rely on because we do not know how long these things will take. When my colleague comes next week to give evidence from the Office for Life Sciences she will be able to talk more fully about that.

Professor Judith Phillips: We can make some very quick wins if we look at social innovation as well. The impact of changing the high street and making it more accessible for people, and bringing people into areas by providing public toilets, all those kinds of issues, are part of the whole ecosystem here. It is not just technological innovation but the whole fabric around ageing in the context of how we age.

Baroness Sheehan: May I follow up on that very briefly, Chair? We

have heard from Professor Chris Whitty that it is "easy to get transfixed by the high science that might fix it in 20 years … when a bunch of problems are solvable here in the next five". Do you think that the Government's mission is achievable if we look at what we know already works within communities and that the Grand Challenge, if you like the economic aspect, is getting in the way of delivering on mission?

Rosamond Roughton: The mission is very difficult and will not be easy to do. Given the last lot of data, we are taking stock and looking at whether what we are doing is sufficient. We are not at all complacent about delivering this. This is really difficult.

Baroness Sheehan: Would it be easier if you could focus on what you know works?

George MacGinnis: I think this speaks to what Ros was saying earlier. Across UK Research and Innovation there is a portfolio of research. When Chris Whitty talks about high science, I would include not just early-stage biological research on the biology of ageing but emerging technologies—robotics, AI and things like that—which may have a part to play in an ageing society. I was reminded when you talk about high science that autonomous vehicles may be a step-change improvement in the lives of older people who lose their driving licence, if they can get in and out of them, but that technology is being developed elsewhere through other funding streams.

There was a clear view from the Council for Science and Technology that early-stage innovation is important. The reason we have social, behaviour and design research associated with our programme is because it is those human aspects of trying to pick up on what we already know and already have and to make that work that is most important for a shorter-term impact that 2035 would imply.

Professor Judith Phillips: We need to look at cultural issues as well. We can have innovation, but it may not be culturally acceptable to particular people or societies. A good example is if we develop bathrooms for people living with dementia, colour contrast is very important, particularly around toilet seats, and that is not an easily exportable model to places such as Japan where that is not acceptable. Vice versa, its social robots, for example, cannot just be transferred to the UK. We do not understand these cultural issues and there is a lot of information and data we need on all that.

Viscount Ridley: May I come back to a point that was made much earlier by Rosamond Roughton that we are going backwards and exactly what is meant by that? While we have been speaking, the ONS has come out with provisional data for 2019 showing that life expectancy in the UK has increased by 0.3 years for men and 0.4 years for women. Life expectancy is not coming down. Were you saying that the healthy lifespan is coming down or just that the gap is getting bigger?

Rosamond Roughton: I am talking about disability-free life expectancy, which is measured by how people answer survey data. It is self-reported and people are asked: does your condition or illness restrict your ability

to carry out day-to-day activities? On that basis, the age at which people are now reporting that they are restricted has gone down in the last dataset.

Viscount Ridley: Thank you, I was not quite clear.

Q158 **Baroness Penn:** I wanted to focus on the second part of the mission which is to "narrow the gap between the experiences of the richest and poorest" when it comes to disability-free life expectancy. How will the Challenge Fund and the other initiatives that you are responsible for as part of this mission contribute specifically to narrowing that gap? Is there a risk that some of the work around new technologies or services could actually increase that gap rather than narrow it?

George MacGinnis: First, I would say that risk is real and we are very aware and alert to it. Indeed, I feel we would not be successful if our investments only served to support the better off and to accentuate that risk. In our larger place-based trailblazers, which we mentioned earlier, we expect bidders to come forward with proposals to work in areas of greater deprivation, and that would include coverage in both urban and rural settings. The places where we work are going to be an important contribution to understanding whether we can have an impact, and, indeed, demonstrating that.

More broadly, I talked earlier about economic models. In terms of investment, if all our investment went into a classic approach of, "What is the best technology? How do you back it? Who do you market it to?", it would reinforce that. That is why I was emphasising that an impact approach and our emphasis on design and co-production is a really important part of addressing that second part of the mission. I think we are there. To further guard against that, we have established an advisory group to advise on the Healthy Ageing Challenge. That includes a membership of people with a clear interest in addressing inequalities, including those related to digital inclusion. They are there to guide me and hold me to account to ensure that we are serving both ends of the spectrum of need.

Professor Judith Phillips: Social science would be at the heart of that particular part of the mission. We need to understand the lives of people in those communities which have been left behind. It is not just current experiences but their life course. We need to understand that and I do not think we do, to be honest. There are other groups within those communities, black and ethnic minority groups for example, and we need to look at their life course, because place matters to people and people have identity through place. It is really important that we look at those poorer communities and co-produce local solutions with business and with local people. Part of the research agenda is to ensure that we are doing the research in the right kinds of places.

We can see a good example of this in Manchester. There has been a lot of work on age-friendly cities and Manchester has been leading the way in the UK on this. There are some great examples of how to make accessibility and usability of different innovations in Manchester. That is

really important. UKRI is also funding a variety of other programmes outside the Healthy Ageing Challenge. At the moment it has a Connecting Generations Centre call out. Inclusive Ageing is another stream of funding which would address specifically the long-term consequences of inequality, looking at early-life intervention as well as later-life inequality.

Baroness Penn: I do not know whether Ros had anything to add on translating it from a commissioning point of view and whether the inequality point is at the heart of that as well.

Rosamond Roughton: We have asked all the local systems to produce plans which show how they will narrow the gap in their area. That is set against some of these ONS measures which we have at that local level. Some of the big programmes of work that we are doing in the department, because they tackle some of the wider determinants of those gaps which impact more strongly on different social groups, have a big contribution to make. What we do on mental health, on health and work and helping people back to work, and what we do on children's health and childhood obesity all contribute to delivering the mission, particularly the inequalities part of the mission. We know that the three biggest contributions to the inequalities in the mission are obesity, smoking and alcohol. We know that is not just about services but about society, and that is where in the department we think there needs to be focus.

Baroness Penn: I had one specific follow-up and it might not fall under your bit of UKRI. In the Accelerating the Detection of Disease project, which from my understanding is recruiting 5 million people, is there attention being paid to recruiting people from a diverse set of socioeconomic backgrounds? My understanding is that with previous datasets such as the UK Biobank there was not a diverse set of participants, and to tackle some of those inequalities and get access to some of the cutting-edge research there needs to be a more diverse set of participants.

George MacGinnis: You are right that it is not my area. We would like to take that away and give you a follow-up briefing on that.

Professor Judith Phillips: Part of the problem in looking at some of these areas is sample size. People will be conscious of that, but we can certainly follow up with written evidence.

The Chair: Please send us that information you have just spoken about. Could we have a quick question from Baroness Sheehan, and a quick answer, because we have overrun on time?

Baroness Sheehan: Could you comment on this sentence from UKRI's written evidence submitted to the Committee? It says, "Raising the health and well-being of less affluent sectors would help to achieve the Government's aims without any other changes".

Professor Judith Phillips: If we look at the Marmot report, we find that it is in the poorest communities where the issues are, particularly for women in the poorest communities, where healthy life expectancy really has fallen. Having a target is really important.

Baroness Sheehan: Do you agree with the sentence?

Professor Judith Phillips: Yes, but—

George MacGinnis: Again, I will come back with some supplementary evidence. I believe that if you look at where the greatest opportunity for impact is, and that is people with the biggest gap in healthy life expectancy, that is likely to be the population that will deliver the greatest benefit, but I will come back on that.

The Chair: That will be important if you could. Viscount Ridley has a last question.

Viscount Ridley: If the healthy lifespan of poorer people were to increase but the healthy lifespan of richer people were to increase even more, would that be a success or a failure?

Rosamond Roughton: I think that would still be a success.[2]

The Chair: Thank you very much indeed for coming today to help us. I am sorry we overran on time, but it was the enthusiasm of people wanting to ask you questions.

[2] The witness would like to clarify that having more people stay healthy for longer is an objectively good thing, but we need to narrow the gap between the experience of the richest and poorest to succeed in our mission.