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THE SELECT COMMITTEE ON SCIENCE AND TECHNOLOGY
SETTING SCIENCE AND TECHNOLOGY RESEARCH FUNDING PRIORITIES

THURSDAY 5 NOVEMBER 2009

PROFESSOR SALLY DAVIES DBE, PROFESSOR TOM WALLEY
DR ANDREW STEER and DR GAIL MARZETTI

Evidence heard in Public

Questions 105 - 141

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THURSDAY 5 NOVEMBER 2009

Present

Sutherland of Houndwood, L (Chairman)
Broers, L
Colwyn, L
Cunningham of Felling, L
Haskel, L
May of Oxford, L
Methuen, L
Neuberger, B
Warner, L

**Memoranda submitted by Department of Health and
Department for International Development**

Examination of Witnesses

Witnesses: **Professor Sally Davies DBE**, Director General, Research and Development, and Chief Scientific Adviser, Department of Health, **Professor Tom Walley**, Director of our Health Technology Assessment Programme, Department of Health, **Dr Andrew Steer**, Director General, Policy and Research, Department for International Development, and **Dr Gail Marzetti**, Deputy Head, DfID Research, Department for International Development, examined.

Q105 Chairman: May I welcome our witnesses. I think some of you are old hands at this game, talking to this Committee, and it is nice to see you back. We will enjoy cross-examining on a different topic. I should also say that we do appreciate that the witnesses from DfID are actually substituting for Chris Whitty who is out of the country at the moment. That does not mean we will be terribly gentle but we will understand that there may have been some questions he would have been more in line to answer than perhaps you are. I remind you that this session is recorded and will be part of the published evidence when we report. You will see a transcript and have an opportunity to comment on that. That being

said, we have about an hour and we will be fairly prompt at this end. Could I start by asking you each to say who you are for the record and what your specific responsibilities are?

Professor Davies: I am Sally Davies and I am both the Chief Scientific Adviser to the Department of Health and also the Director General for Research.

Professor Walley: I am Tom Walley; I am a consultant physician and clinical pharmacologist by background, and I am the Director of the Health Technology Assessment Programme on behalf of the NIHR and also some other research programmes.

Dr Marzetti: I am Gail Marzetti and I am the Deputy Head of Research in DfID working as deputy to Chris Whitty.

Dr Steer: I am Andrew Steer; I am the Director General for Policy and Research in DfID and the Chief Scientific Adviser reports to me.

Q106 Chairman: May I start with a fairly blunt question, why should there be departmental budgets for research when the government already spends very large sums of money through other groups for research, down through the research councils, commissioning research from private sectors, from universities and so on. Is there a specific need for each department, not least your Departments, to have an identified research budget?

Professor Davies: If you look at the purpose of the Department of Health it is to improve the health and wellbeing of people in England and so the purpose of our research is to support that. We have two main routes of support for that. We have the National Institute for Health Research which aims predominantly to develop the evidence to support decision making by NHS clinicians, the service managers and patients and to improve the quality of healthcare and its effectiveness and increasingly the social care interface, but we also have the policy research programme whose role is to provide evidence to support decision making about health and social care by the government policy makers to ensure that the policies of our Department are informed by relevant, reliable research evidence and we also play a role in

evaluating the roll out of policies and the learning of the roll out of policies as it goes forwards.

Q107 Chairman: To follow up on that, is that best done in-house or could you contract it out equally effectively?

Professor Davies: We have a quite interesting model in government where, for the policy research programme - it has been recognised as an excellent model across government - we have liaison officers who all have postgraduate degrees and work with policy makers as they are developing their ideas in order to ensure the evidence is there and the evaluations are done. When they commission research to support that they do it through a contracted out back office function. We have commissioned the NIHR (National Institute for Health Research) to commission the research for us. We have overall strategic leadership of that but within the programmes they themselves play out what is needed. Perhaps I could ask Professor Walley to address the programmes he is in charge of.

Professor Walley: My main role as the Director of Health Technology Assessment Programme which was created arising out of the House of Lords vote 1988 suggesting that the NHS needed a source to actually identify priorities for research in the NHS and then to deliver that research. So the aim of that programme is specifically to identify the research needs of the NHS, to prioritise those needs – because there are many with different priorities - and then to commission research in those areas. We have been doing that since 1993. We publish our results as monographs like these and also peer review articles. We have just published our 500th this year. The aim of the research is to influence clinicians, managers and of course patients as well to improve healthcare.

Q108 Chairman: Do you do an impact study, as it were?

Professor Walley: There are various ways in which we can measure impact. Academic impact is very strong both in the research assessment exercise and in publications. The monograph series has an impact factor of 5.09.

Q109 Chairman: I was thinking more of the clinicians, in other words what your intention is.

Professor Walley: We can look at specific case studies to do that. An example might be a study which examined the role of endovascular repair of aortic aneurisms. Aortic aneurisms are a swelling of the main blood vessel in the abdomen which can occur, particularly in older patients, and can rupture and if it does rupture your chances of survival are very small unless you get promptly into theatre. Traditionally the repair of this has been by open surgery but in recent years there has been a development of a device; an endovascular device is inserted through a small blood vessel in the leg typically and expanded in place to repair the aneurism. That endovascular repair was not commonly done in the NHS and we undertook a study comparing it to the standard treatment, the open surgery. This had several advantages. First of all, for the first time it linked up surgeons who did the operation of course and radiologists who put the device in.

Q110 Chairman: For the first time?

Professor Walley: Yes, so they were forced to collaborate in this research because the devices were put in by different people. The result has been a reduction in the number of centres undertaking this kind of work so the expertise is now concentrated. It has a definition of which patients should have this type of endovascular repair which is very expensive rather than allowing it to diffuse willy-nilly all over the place. I think that is a clear example where the HTA programme has changed practice substantially. There are several others as well.

Professor Davies: At a broader level there are studies, for instance one was funded by the Wellcome Trust with our support working around Europe with the Health Economics Research Group that we fund and the Office of Health Economics looking at return on investments and funding. What they found was that for one pound of public funding invested that there was a return in perpetuity – so every year - in cardiovascular disease of 39 pence per year and in mental health research 37 pence per year. So we do look at a number of ways of evaluating our programmes. There have been nearly 3.5 million downloads of those monographs in the last year. If you look at the latest data from BIS on world papers and citations you can see that the clinical health and medically related papers are going up by eight per cent and 28 per cent respectively and, even better, the citation impact has gone up dramatically over the last year so the quality is good. We have a prospective programme looking in a lot of different ways at the payback and the impact of our work. What we recognise is that it is not just us funding in this area. We work very closely with the Medical Research Council in particular and I could give you some stories about how research moves between us before it finally makes its impact.

Q111 Chairman: Thank you. DfID?

Dr Steer: We are currently doubling our spend on research simply because there is overwhelming evidence that it is the best way of spending our money. We will be up to £1 billion over the next five years.

Q112 Chairman: Is that over five years?

Dr Steer: Yes, over five years, so £200 million a year. When we decided to double that we did consider creating a non-departmental public body. We did a lot of analysis on that and the conclusion we came to which ministers strongly supported was that actually that would be more expensive and less effective. We have 55 offices around the world; we have 650

professional technical staff with scientific training and not to use them in terms of identifying the right questions would be quite foolish and also not to use them to disseminate through their vast network within the developing countries. What is really important is that the research is done outside DfID by professionals; it is peer reviewed and the choice of who does the research and the endorsement of the quality of the analysis that will be done and then is done afterwards has to be peer reviewed by independent people. Our decision is to try and have the best of both worlds and we have, over the last year and a half, been trying to deepen our own scientific capacity and so our new Chief Scientist has also been made Director of Research so we have put the research budget under him which Sir Gordon Conway did not have and already we are starting to find that that is having a pay off. In addition to that we have brought in so far 15 what we call senior research fellows who are with their universities but they spend between one and four days a week inside DfID just to make sure we have that objective scientific position just as we also want practical on the ground expertise that DfID provides naturally. We have done a lot of independent assessments of rates of return. Our work, for example, through the consultative group on international agricultural research has returns of over 40 per cent. Our work with what we call PDPs - Product Development Partnerships - is developing new drugs we find that actually the rates of return on that are as good in terms of DALY (Disability Adjusted Life Years) saved as some of the very, very best investments such as using insecticide impregnated bed nets. It is a very exciting time for us as we are just figuring out how to generate the knowledge and get the knowledge into use.

Dr Marzetti: All of our research is accessible widely and freely on open access so it is not just for DfID, it is for a wider global view.

Q113 Lord Broers: What principles or criteria does your Department use in making decisions about funding different types of research? What processes are used, for example peer review or external or expert consultation? I would like to ask you to what extent do you

think your research and your decisions are linked to the science and engineering base in this country in general? How flexible are you in gaining your advice? Do you have good turnover? Are you up to date?

Professor Davies: If I may start from the health perspective, we have two overarching criteria we use for all decisions about research funding: relevance and quality. We would not fund anything that did not have high quality. We fund applied health research, the MRC does the basic and translational which are both very important so for us relevance is also important. We make sure that it is relevant to the policy or practice in the short to medium term because you could describe our role as a market failure role. We are trying to produce the evidence for public services that no-one else would fund. All of our funding decisions are based on external peer review, expert advice and so the research supported by NIHR is highly practical, focussed on the needs of patients with public and health service managers involved at every stage of the prioritisation and the process in a way that leads the way nationally and internationally for health research funding. The research priorities for individual programmes are identified through very clear published processes and I will ask Professor Walley to address some of those. One of the things we have been doing with our government strategy published in January 2006 *Best Research for Best Health* is to move from a system where NHS R&D money was locked into the NHS and might have been funding good quality, highly relevant work, but might not have been to a system now where all the money is delivered transparently following peer review and is monitored very closely. So it is a fully transparent system with rigorous decision making processes. For the policy research programme similarly we use ministerial priority and relevance to goals, aims and objectives of the Department to define the programme and look at the size and importance of the problem, but we would not be commissioning anything that was not peer reviewed both at the start of the process and at the end of the process and we insist on publication and peer review

journals. We evolve, for the policy of research programme, our policy with the Departmental Policy Committee which has director generals and directors on it and if I take a recent example we have been through a year's process discussing the units we fund to support policy makers in the department – the Policy Research Units – and they are all embedded in universities so they are refreshed regularly through the university appointment system and we have reviewed within the Department what are the needs and we are re-tendering and we have scientists on the panels that will award those contracts. We are expecting to fund about ten areas with £40 million over five years. We use scientists for peer review; we use them to help prioritise; they are the basis of our boards that award the money and of course there is the peer review both at the end of the projects and at the publication end. Let me just ask Professor Walley to give you a bit of in-depth information.

Professor Walley: The HTA Programme operates in two manners. The first is where we identify the problems that face the NHS and then commission research; the second is a research stream that I will come back to. In the commissioning programme we seek people to identify for us what are the difficulties they face and typically we review something like 1500 to 2000 suggestions for research a year. These suggestions then go to a panel of mainly NHS experts to consider which are the most important. I say mainly NHS experts, I mean clinicians both medical and non-medical, healthcare managers and of course patients. On a typical panel of around 15 or 16 experts there will be three or four patient experts to advise us of the many things they look at which are the most important. When they take those suggestions they decide are important the next stage is to develop what we call a vignette which is a short three or four page document around what are the particular issues here and that is at the point where we involve particular subject experts. Subject experts get to feed in that prioritisation process which then comes back to our NHS panel to decide whether it is truly an area worthy of funding or not. If they decide that it is worthy of funding it then goes

up the line into our Commission Boards which are panels of methodological experts for the most part. So the first part of the process is around whether this is an important question for the NHS; the second part is whether the science is up to scratch here.

Q114 Lord May of Oxford: Do you think you can draw that response to a close if we are going to get through the questions.

Professor Walley: I beg your pardon. So splitting prioritisation from science – but both are extremely important – we have experts involved at both stages, particularly NHS experts around prioritisation and scientific experts around peer review and commissioning of the actual detailed research.

Q115 Chairman: DfID? Something sharp, short and concise?

Dr Steer: We have just prepared a new strategy. We took a year to consult with consultations in seven countries, a thousand experts were consulted, we had a lot of discussions here as well. We came out with six major themes then the next question is how do we actually choose which research questions? I mentioned that before and essentially we use our research fellows, we use our front line and we use the academic community. Then there is the sort of independent review, the peer review takes on from there. You asked to what extent is it linked to UK science, our research funding is non tied of course but it turns out that the UK is a leader – if not *the* leader – in the kinds of things that we are interested in. We do insist that every major research programme has developing country academics very firmly engaged in it but I would say the majority would be partnerships between British universities, British institutes and developing country ones, then there are centres of excellence here (such as the Hadley Centre and we are just going into a special relationship with them) to bring climate change science to Africa. Finally there is the UK collaborative on development sciences

which is about two years old now which basically brings together the UK expertise on that and we are a key member of that of course.

Q116 Lord Cunningham of Felling: You are spending about a billion pounds a year in the Department of Health, in round numbers, with these two organisations, the National Institute and the PRP. How do you ensure that the major part of that billion pounds a year is actually going to the most important priorities?

Professor Davies: There are a number of mechanisms for prioritising and you have to think first about what level of prioritising we are talking about. The strategic level – the high level direction – was set following public consultation in the government’s strategy *Best Research for Best Health*. That describes the architecture of the system.

Q117 Lord Cunningham of Felling: When was that done?

Professor Davies: It was published in January 2006 so the consultation was in 2005. We went through the Domestic Affairs Sub-Committee.

Q118 Lord Cunningham of Felling: Will that be reviewed soon?

Professor Davies: We said it was a strategy for five years so I would expect a refreshed strategy after five years which should build on that. That defined the architecture and what we have not discussed is that that billion pounds funds not only research funding but it supports the infrastructure in the NHS for carrying out clinical research and we support the research that is funded by our partners, the MRC, the Wellcome Trust, Cancer Research UK or they would not be able to do theirs. It funds the supporting systems for clinical research and it also funds the training and development of the career scientists that we need which may be clinician scientists but also methodologists and other sorts.

Q119 Lord Cunningham of Felling: It sounds pretty robust on the face of it. Does this mean that clinicians, royal colleges, Age Concern, Help the Aged and everyone else is fully supportive of the allocations of resources as it is currently?

Professor Davies: I think you will find the royal colleges, now the system has moved from transition when we took £550 million away from hospitals and it is all now transparently given back, are all very supportive as are the universities and medical schools. When you go to individual speciality charities they would always argue - so would I if I were them - that they would like more money in their field but we fund high quality applications and as yet many of these areas are not submitting high enough level quality applications so we are having to look at this by developing people who will be able to.

Q120 Lord Cunningham of Felling: So to take elderly people, they would get more allocation of resources if the quality of the proposals were better, would they?

Professor Davies: They would not get more allocation, they would win more money -----

Q121 Lord Cunningham of Felling: That is the same thing, is it not?

Professor Davies: An allocation is a strategic issue; some of this is responsive. For instance, to promote this we fund for about £6 million pounds a year the Dementia and Neurodegenerative Diseases Network to support clinical trials and research in that area and they have special studies groups which bring scientists together – clinicians and other scientists - to try to design studies. We have one in stroke, if you are interested in old age, and the number of stroke trials has gone up dramatically, not only public sector ones but also industry bringing their new -----

Q122 Lord Cunningham of Felling: Let me put the question another way, if I may.

Professor Davies: Sorry. Have I misunderstood?

Q123 Lord Cunningham of Felling: No, you have not understood at all. I am just trying to get another point. Are there any weaknesses at all in this approach? How do you try to identify weaknesses?

Professor Davies: It is difficult for me as the architect of the system to see the weaknesses.

Q124 Lord Cunningham of Felling: That is quite a dangerous thing to say.

Professor Davies: I think we have built a very robust system but we have advisory panels and people who are looking at it. We have changed some things as we have gone along in order to improve the system. Let me give you one example. We funded biomedical research centres – international and peer review - and the best universities won them. The other universities said that they do have people who are really good and we had not given them anything so we created another scheme, biomedical research units, which allowed them to bid in. So we are continually listening and improving organisation and I go, for instance, every year to the Medical Schools Council to hear their views and we take feedback all round as well as from our advisory panel, discussions with the MRC and other people.

Q125 Chairman: Does DfID want to add anything on this?

Dr Steer: Our funding is allocated competitively so a portion of what we would channel would go through ESRC, NERC, MRC, BBSRC and so on and so that process provides for the small grants with a very high degree of accountability. For some of our larger grants we would have an independent process. How do we determine that it is absolutely the best use of the money? Independent reviews of impact and some of the most recent best findings that we have had actually are those that are to some extent failed and saved a lot of money so, for example, we just discovered that the treatment of vitamin A actually was not having the impact in West Africa on maternal mortality that had been expected. As a result of that Ghana is now saving £20 million a year and is using that for something that will have a bigger

impact. We actually have examples of failure which are leading to success as a result. This is work in process. Are there weaknesses? Yes, there are weaknesses. We continually seek to ramp up our effectiveness. We are always looking at the tension between academic independence and relevance on the ground. Development is a messy business and that tension has to be balanced very firmly. It is very important that our policy and front line people do not pull the research too far in their direction but similarly not all the academics that are working on a subject are most relevant to know what the questions are. That tension is one that we have to balance all the time. Another tension we are balancing is the fact that that we are all, rightly, under pressure to improve our effectiveness and that includes our research spend and the administration costs that we put into research. We have increased our staff by 70 per cent in research management over the last 18 months but nonetheless we are going to be having to manage our admin spend quite carefully. That again is a tension that we face. I could not identify one specific weakness but I can assure you that week by week we are identifying things that we would like to improve.

Q126 Lord May of Oxford: You identified your priorities as deriving from the Millennium Development Goals and of course the Millennium Development Goals bizarrely never mentioned population. I realise that is a sensitive issue but it is of course embraced under the heading of education and health. Just recently there is an interesting paper showing broadly girls that finish primary education have one and a half fewer children; those who finish secondary education have another one fewer. Most of your discussion has already entered the more physical biological science things you can be doing, but to what extent do you see it as part of your mission to engage not just in education but in the more vexed and controversial question of education and empowerment of women and making available - often in the teeth of religious opposition from the coalition of the unwilling that removed any mention of

population – to educated women or women with a bit more control over their lives, the ability to control fertility?

Dr Steer: Your question is music to our ears. I want to be crystal clear that when we put money into developing new drugs or developing new agricultural seeds, the chemistry, the physics and the biology is only part of the story. The behavioural aspects associated with those are often more important. In our work, for example, on microbicides for HIV/AIDS quite frankly it is behavioural issues that you had better understand well in order to know whether or not this will be effective.

Q127 Lord May of Oxford: They are also more politically controversial and I wondered how you handle that.

Dr Steer: I would say that we, more than any other funder of development research, have been opening the door to pretty controversial political aspects. We would, I hope, aim at the bull's-eye of your question and the work we are doing now, as you know, on maternal mortality and maternal health is the most failing of all the Millennium Development Goals; it is a massive effort at the moment. In New York two months ago we convened 22 heads of state and 70 ministers with our prime minister to basically confront some of these tough political issues. Part of it is technical but truthfully the politics and the culture of this are as important as the money. I really want to agree with you. Even on religious issues now, on issues of conflict, on issues of gender, we are, I believe, aiming at the heart of the issue and so far I think we are making some progress.

Dr Marzetti: Can I just add to that that one of the things that was very clear when we did the consultation for our research strategy was the need to get research into use and have research uptake so 30 per cent of our money is about getting the research actually into use through a variety of means. That will not just be through peer review journals, although that is part of the main communication strategies that most of our funding have; it is also through a lot of

social science research, research to reach women and girls and other poor communities. For example, there is a very good programme called *Makutano Junction* which is a television programme in Kenya and Uganda which has episodes about issues of sexual violence, HIV/AIDS and maternal mortality and we finance a follow-up with texts. If people want to get more information on that topic we will then send them out more information and often that is done in a sort of pictorial rather than literal form. So we have a lot of different ways and are really putting a lot of effort into making sure this research is actually making a difference to poor people's lives, and particularly poor women.

Q128 Lord May of Oxford: What assessment retrospectively and prospectively do you make of the research that you are undertaking and in particular its impact? May I say to the Department of Health there have been several recent select committee studies dealing with different aspects where the research itself is unquestionably brilliant and well managed in my opinion and the opinion of many people, but its impact on the delivery of health is another question altogether that does not have to do so much with the research as the structures in which it is embedded, for example £400 million was committed a few years ago sexual health which was going to see a 25 per cent reduction in sexually transmitted diseases over five years; it has in fact seen an almost trebling of the incidents of HIV and gonorrhoea going back up to almost WWII levels. Of the money that was given for sexual health, was given to the primary trusts, only one per cent was given to voluntary bodies and the primary trust of 191 only 31 spent any of the money on sexual health and that was all on treatment. Do you worry about the implementation of things? Again on stroke our report recommended that we should be doing much more and it does not seem that much more has happened. Does that not worry you, that you are doing excellent work and then it is falling into a system that does not deliver it?

Professor Davies: I think it worries all of us,

Q129 Lord May of Oxford: What would you like to see done about it?

Professor Davies: It is a cultural issue. If you look at the uptake of medicines as an example -

Q130 Lord May of Oxford: Excuse me, to put it another way, what do you think is wrong with the system that it does not work properly, translating the research into effective applications?

Professor Davies: I do think it is a cultural issue about the education of our doctors and the system that we work in. I think NICE has played a big role in providing advice and in fact a lot of our programmes feed directly into the NICE guidelines and the NICE appraisals, but it is very difficult to change people's behaviour. We have an experiment running that looks very interesting called the Centres for Leadership in Applied Health Research and Care. What we commissioned was health economies so primary care, acute care and their local academics coming together and we said that if you have a track record of research in chronic diseases across the whole patient journey, we will give you up to £2 million a year to do that if you put in matching money to get that research into practice. We have funded nine of these, two interestingly in mental health. They really are breaking new ground. To add to that we have given a contract to Professor Hugh Davis of Aberdeen, who is expert on this area of knowledge transfer, to work with them to help them increase their knowledge transfer and to learn the generalisable lessons that we can take into other areas in the NHS. We are not sitting back saying that we are just generating work and here you are; we do everything we can through NICE, through the monographs, through all sorts of routes, but also this experiment to see what we can learn about the cultural and organisational issues that could be generalisable and help others.

Q131 Lord Warner: Could I just pursue this a bit more, Sally? There is a conflict between your description of the way the Department of Health prepares for the take-up of the research and what DfID is saying. In DfID they seem much more to have integrated preparation for the reception of the research into the host communities. You have, give or take, 60,000 consultants and GPs – we will just stick with the doctors for the moment – who are potential audiences for your research. Is there not something systemically wrong that you do not prepare them in advance for some of these particular areas of research? What you are describing is a model in which you wait for the research to appear before you go through the way of disseminating it. Let us just stick with stroke, for example, if you have chosen a high quality piece of research – and you have a very good system now for making sure that it is good, high quality research - there is a better than even chance that it is going to come up with something which is really rather significant, so why is the community of people working on research not being prepared for that along the way? It seems to me that you have a systemic problem which has not been tackled in the same way as, for example, with DfID.

Professor Davies: Let me go back to how we prioritise work. There is a lot of social science showing that if you deliver the evidence that people felt they wanted or needed they will act on it which is why we have managers, clinicians and patients involved in prioritisation. Then you move to the processes of research and do we involve people? There is quite a lot of social science showing that people who are involved in the research process also give better care to other patients who are not involved. For that reason we have established, as part of our infrastructure, research networks across the whole country to try to encourage more activity in research to get the quality gains in the slipstream as well as the evidence. One of the sad things that happened in the past was a separation of NHS and university and we all know that the clinical academics are often the more flexible and they are the early uptakers. For a lot of what our work has been doing through the biomedical research centres, the

networks and everything else we have totally re-engineered the system in the major parts of the country, bringing back the integration that Lord Broers will have heard in Cambridge, the impact that our funding has made in bringing people back together again. That will change the culture. We also use the levers that are available – national guidelines and things like that - to try to get things into practice. Could we do more to make sure that the NHS is a more fertile ground to pick things up? There are people whose role it is and that is around the education we give as undergraduates, postgraduates continuing medical education have a key role - I am not responsible for that – and, as you will know from history, we were given the research money but not the development money and that other money to try to develop that. So I think using the levers we have got we are making significant progress. That is not say that I would not like there to be faster and better progress and we could not potentially do more.

Lord Warner: We could carry on but I am not terribly convinced by the answer I have to say.

Chairman: I think Baroness Neuberger wants to carry on with this.

Q132 Baroness Neuberger: I am just going to press on one particular issue which Lord May also raised which is the question about the involvement of the voluntary sector. It seems to me that that is particularly important when you are looking at large patient groups. You have cited two of your big mental health programmes where there has been a change of behaviour. Certainly from my past experience at the King's Fund we found that a collaboration with the Department of Health and a major mental health charity plus us at the King's Fund was actually rather impressive at changing behaviour because you had different players pulling different levers so you had patients asking for different things. I just wonder the extent to which you are really thinking about that. I take the point completely about the research, the

Department of Health and the universities but I think there is a voluntary sector/patients and users bit that is not fitting into the equation that I think could make a huge difference.

Professor Davies: I would accept that it can and it does and there is more to be done there. We work quite closely with some of the third sector particularly in the cancer field and we have shown the success, we do joint funding; we do a lot of things jointly. We work through shared funders fora with many of the others so there is an ageing funders forum, a cardiovascular funders forum and others like that to try to bring the different voices to the table and each of us play to our strengths so that they can educate patients. I think patient power is one of the ways we will get the change in the clinicians actually; the third sector will play a big role.

Q133 Baroness Neuberger: I agree but the contrast between what you are saying and what we are hearing from DfID is that in some of the ways that DfID is working, particularly with the women, a lot of the agenda is focussed on getting a change of behaviour which is the bit I am not hearing.

Professor Davies: We also fund a programme which costs £1 million a year called Involve which is about patient and public participation and involvement in the research process at every level and they run programmes training people and helping people across the country so we are putting our money where our mouth is and trying very hard to work for this.

Q134 Lord Haskel: You have told us about the processes that you go through at DfID and at the Department of Health to allocate funds. Both seem to be robust and both seem to work well but they are different. How well then does this compare with the recommend practice outlined in *Science and Engineering in Government*?

Dr Steer: There is no blue print. We appreciate the guidance from that document but essentially the line of argument, certainly that we take from it, is to start with what are the

questions and the questions have to be relevant to our task. We have only one task which is reducing global poverty. You cannot do that if you do not start in a village in Africa or in South Asia. That has to be your starting point and we have to be there or, quite frankly, the best researchers in the world will not be able to get to what we need to do. That has to be our starting point but it may be quite different in other departments but for us that is where we start. Then the guidelines lay out processes of interdependence so, if you like, it is a journey and at every stage you need independence and you need relevance but the further you go along you must have that gap between the policies, people and the researchers; it must grow and then it has to come back together again, it has then got to be transmitted. As Gail was saying, that is why 30 per cent of our entire research budget is now getting it out there. We did a review of a very large ten year programme on agriculture and rural development. We spent £100 million or something on that and we found that it had led to fantastic breakthroughs but none of them were being used. I think there were something like 285 really good discoveries that it had come up with and apart from where we actually did the research were generally it was taken up, they were not being mainstreamed. So we started another programme which we put £40 million into called Research into Use and it said, “Look, before we start generating a whole lot of new findings we are going to get the existing ones into use”. I tell you, it is eye opening quiet frankly. That is how we come at it.

Professor Davies: Our processes do meet the standards, of course they do. We try very hard to make sure the investments strategically work with a wide range of other research funders and stakeholders. We work with other government departments and I know you have heard from my colleague Robert Watson this morning about some of that but I, for instance, led the work cross-government involving all the CSAs and research councils on preparing the first every cross-government research strategy which was on research and surveillance for obesity that we are now taking forward. Our policy research programme with its liaison officers is

accepted as a model in government. Let me use pandemic flu as a current example of how we work. We have a Scientific Advisory Group - a SAGE – which is co-chaired by Professor Beddington and an external chair, Sir Gordon Duff, and I sit on those as CSA. It has a number of sub groups, for instance modelling behavioural and clinical and it was clear in the early summer that we did not have all the evidence we needed for the epidemic this autumn, whether severe or mild. Each of those groups teased out what did they think were their evidence needs in order to drive policy, not just department but management policy. This was then sieved through the main SAGE and prioritised. We then, through Tom's leadership, commissioned £2.3 million worth of research to answer these policy needs. That was in June. In July the funding had been given. I can tell you that we admitted in a three week period 960 patients into the children's vaccine trial in September. We have the answers coming through very, very fast. So we used a scientific advisory system to generate the priorities. Our standard systems were speeded up to commission and we have used our research networks to deliver this work and it is happening very fast.

Q135 Lord May of Oxford: That is in many ways a good story but at the same time you are probably aware of the almost 12 month long running discussion between the Select Committee and the Health Protection Agency who mistook antivirals for antibiotics and were firmly fixed on a policy that they were only going to give them to people who had come into the surgery, been diagnosed, and then given to them by which time they would be of little use, as distinct from informed expert opinion which said that the best use is to give them insofar as possible a kind of local prophylaxis and that translation from the research frontier to the practice was achieved in an interesting discussion with the sorts of questions in the House of Lords actually when Lord Desai was able to say that we had done just what the Select Committee had been recommending. That was a really quite startling example of a lack of contact between the Health Protection Agency and expert opinion.

Professor Davies: I was not aware of that but our present system of the SAGE works that through.

Q136 Lord May of Oxford: It is in good shape now.

Professor Davies: Yes.

Q137 Baroness Neuberger: You have covered some of my question about who coordinates your Departments' research and development priorities. I think we have heard most than that. I have a particular interest in policy areas that are not the responsibility of any particular department and in a sense, Sally, you have already talked about the work that you have been doing on obesity which is clearly cross-departmental and nobody's responsibility in particular. Can you tell us something about how you get the R&D priorities coordinated in a cross-governmental way? I have a particular question for DfID in a moment, but from your obesity experience can you tell us something about that?

Professor Davies: I know that Robert Watson has told you about this. We have a regular meeting of all chief scientific advisors with John Beddington and that has allowed us to form a network; we all know each other now which historically we did not particularly well so most of us have work going on with a few departments. If you take counter-terrorism we have Home Office funding for people in our department to commission research with a joint pot of money. We have work on drugs and addiction between them; we have work with what used to be the Department of Education but is now Children; we have shared work with them. Sometimes we do this with joint pots of money; sometimes we do it with an agreement about what is needed and one department leads. So there is quite a lot of that work. We work closely with the Medical Research Council and the CSA's and Research Councils chief executives are coming more and more together as a group.

Q138 Baroness Neuberger: Indeed Robert Watson did tell us about that. We would particularly like to hear your own experience on obesity and whether there were difficulties in coordinating the research cross departmentally and how do you deal with the money? Whose money gets spent on what?

Professor Davies: It was an experiment so it was not smooth running. Everyone was keen to be part of it but the difficulty was thinking what were they bringing to the party. Actually, because we were interested in the health aspects, we were prepared to take quite a lot of the money to the party and once people understood that and where we were going everyone was always helpful. What we have – and it comes under Tom’s jurisdiction – is a programme which looks at public health interventions and I was encouraging my colleagues to look at what natural experiments they were setting up with their policies like pavements or walking to work or whatever that might have an impact on health – particularly obesity - that could be explored through our public health programme. It came back very well. Let me give you another example. The National Prevention Research Initiative – there are five funders in that - is all about trying to reduce heart disease and cancer and doing research where one pot of money has been given by all of us to the MRC to manage on all our behalves into smoking, exercise and a number of things. We do have experience and everyone is keen to do it. It can be difficult if your own departmental research budget is already tied up, but we all have to take those difficult decisions and we would not want to be left out of working with other departments.

Professor Walley: Obesity is an area we were particularly interest in and have what we call a Themed Call which has now been advertised and will take place in the New Year looking for bids across the whole spectrum of obesity research, everything from the very biomedical straight through, as Sally said, to pavements, cycle paths and so forth and education at the

other extreme. We are pursuing that through the HTA Programme and through public health research programmes.

Q139 Baroness Neuberger: That is in conjunction with other departments; you have been talking across government on that.

Professor Davies: They are inputting, yes. The other thing is that we increasingly, from our money, are funding social sciences as well because it will not just be the clinical trials approach that will get us the right answer; social sciences are becoming increasingly important.

Q140 Baroness Neuberger: Particularly for DfID, we would be very interested to know what your relationship is and how you coordinate with other funders in your area - the village in Africa or wherever it may be – and how do you tie it all together? That might be with research councils, it might be with voluntary sector funders. How does that work?

Dr Steer: Different ways in different settings. An example would be drug development for neglected tropical diseases. Ninety per cent of drug research is for rich people's diseases. What do you do about the fact that we simply do not have any? So the Gates Foundation, Rockefeller and with our engagement from very early on really established this system of product development partnerships whereby private sector is not willing to invest, we cannot invest on our own so let us see if we can somehow tweak the incentive structure of the private sector faces and as of today there are 65 drugs being prepared for neglected tropical diseases of which three quarters of them are financed by these PDPs. We could not have done it without Gates and Gates I think would now say – we would have to check with them – that they would really insist that we are part of the programme too. So there would be a lot of examples by that. We expect six new drugs by 2015 which would change millions of lives. Interestingly we now also work on animal diseases. If we take the East Coast fever; a cow in

Africa dies every 30 seconds. That is a livelihood; it is like losing a house. There are no vaccines for that. We started together with others and other partners, including NGOs, vets services and so on a PDP for animal diseases. There is now, as of today, massive production of a vaccine for East Coast fever for the first time in history and it will change millions of lives. We could not do business without the kinds of partnerships you are talking about. We also do a lot of social research – economics, governance, politics, sociology, anthropology and so on - and with that it is a much more open process using NGOs, using institutes in developing countries. Even, for example, on climate change we have a £23 million project to look at adaptation in Africa; 40 sites around Africa, 20 countries. That is all financing local institutions, sometimes voluntary institutions, doing very practical on the ground research on malaria belts and all kinds of things like that, but supervised and quality enhanced by northern institutions. We could not do business if we did not do it the way you are suggesting.

Q141 Lord Broers: Do you feel in DfID that you have a good overall feeling about the efficiency of your spend? I have heard criticism that some of these charities, such as Gates, are magnificent but they are spending money on high tech drugs where they could get ten times the bang out of the buck by simple water pumps, better water purification, solar cookers and bed nets and things. Do you think you understand that overall financial benefit situation?

Dr Steer: I think that we help each other. They have been very good for us and our focus on cost effectiveness is good for us both. I should say that the Gates Foundation has always been very serious about input/output relationships: is what goes in a good cost rate return? As we look at what we are doing together with them and others we can estimate rates of return. I am not saying that every single one is a brilliant success, but it is possible in health, it is certainly possible in agriculture and it is possible in a much wider range of areas to identify cost effectiveness. Could I say every single thing we invest in has a terrific rate of return? No and clearly that is the nature of science, but overall could I truly say I think our money is well

spent, given that we are aiming at poverty reduction and the alternative is to use this money to build schools or to provide vaccinations, I would say yes.

Dr Marzetti: Could I just add onto that our teams, when they are looking at the next thing to invest in, actually do take value for money decisions and look at the opportunity cost of that money. Everything we invest in is reviewed annually for its impact and against a series of criteria to make sure we get the best value.

Chairman: Thank you very much. I fear we must draw to a close. People have commitments and the room has other uses. We thank you all very much for coming and giving us oral evidence today and for your written evidence. On any of the topics we have indicated we might want to ask about, if you do have views do please let us have something in writing. You will see the transcript very shortly. Thank you very much.