



Science Review

Department of Health



**GO-Science Review
of the
Department of Health**

Foreword

by Professor John Beddington,
Government Chief Scientific Adviser



As the Government's Chief Scientific Adviser, I have responsibility for maintaining the quality and vigour of science across Government. Accordingly, since 2003, a Government Office for Science team has been taking forward a rolling programme to review Government-funded science, including social science, with the broad aims of developing a corpus of information across Whitehall and to provide an external driver for improvement in the way departments obtain and use science.

This review of the management, quality and use of science in the Department of Health is the sixth in the series.¹

Given, the Department's overall aim is to improve the health and well-being of the people of England, it inevitably means that many of the areas covered in its role as a Department of State receive much press and public attention. Our report contains examples of good practice for others to adopt as well as areas for improvement. Many of our findings and recommendations have a wider relevance and I urge other Government Departments to consider them in the light of their own circumstances.

I am most grateful for the advice of the expert Steering Panel members (see page 81) who have been instrumental in focusing the work of the review on the key issues and in advising us, in particular during the detailed case studies and peer reviews on which much of the review is based. On behalf of the review team, I would also like to thank all our interviewees and correspondents, including Department of Health staff, for their help, openness and patience in providing us with the detailed evidence for the review.

This is the first Science Review to be completed during my tenure as Government Chief Scientific Adviser.

A handwritten signature in black ink, appearing to read 'John Beddington'.

Professor John Beddington

¹ Previous 'Science Reviews' include: the Department of Culture, Media and Sport (DCMS), Department of Environment, Food and Rural Affairs (Defra), the Health and Safety Executive (HSE), Communities and Local Government (CLG, formerly ODPM) and the Home Office/Ministry of Justice.

**“A healthy mind in
a healthy body.²”**

² Juvenal (55 AD – 127 AD)

Contents

Foreword	i	The report and annexed material will be available at:
Contents	iii	http://www.dius.gov.uk/policy/science.html : click on "View Science Reviews"
Summary	1	
Introduction	17	Annex 1 Interview and Workshop Summary
Background and Rationale for the GO-Science Reviews	17	Annex 2 Summary of Written Evidence
Strategic Aims of DH and the Role of Science	21	Annex 3 Scientific Advisory Committees
Findings, Conclusions and Recommendations	27	Annex 4 18 Weeks Patient Pathway Programme
1. Science strategy	28	Annex 5 Healthcare Associated Infections
2. Horizon scanning	34	Annex 6 Targeted Funding for Pharmacogenetics
3. Harnessing existing science and identifying gaps	37	Annex 7 Building the Evidence Base for Adult Social Care
4. Commissioning and managing new science	42	Annex 8 Peer Reviews
5. Ensuring quality and relevance of science	46	Annex 9 Methodology for the Science Review
6. Use of science and scientific advice	50	Annex 10 Information on the Steering Panel
7. Publishing results and debating their implications	55	Annex 11 Department of Health Science Memorandum
8. Sharing and managing knowledge	59	
9. Scientific analysis in policy making and Scientific Advisory Committees	65	
10. Use, maintenance and development of scientific expertise	72	
Steering Panel Members	81	
List of Responses to the Written Consultation	83	
Case Study Summaries	87	
Acronyms	101	
Glossary	105	

Summary

1. The Government Office for Science (GO-Science) carried out a Science Review of the Department of Health (DH) in the period July 2007 to June 2008; to support the Government Chief Scientific Adviser (GCSA)'s role to inform the Prime Minister on the quality, management and use of science in Government. A broad definition of 'science' was used, which includes natural and social sciences, and activities such as research, data collection and analysis.

2. Science and innovation are essential to deliver modern health and social care services, and for the effective promotion of health and well-being. DH is one of several bodies that is involved in supporting the generation, translation and application of science across the English health and social care system. Clearly, the use of science and evidence is an integral part of policy-making across the Department from emergency preparedness to planning for health and social care services.

3. Within the wide range of scientific work of the Department of Health, the focus of the GO-Science Review was on the Department's management and use of science in policy development and implementation on healthcare, adult social care and public health. The use of science or innovation in the healthcare or social care services was not covered by the review. It was of course not possible to consider all key policy areas, and given the evidence was collected over a period of time, there were also some new and important initiatives recently announced by the Department which the GO-Science Review was unable to consider in detail (such as the Obesity Strategy which has been

widely praised for its evidence based approach, the Cancer Reform strategy, the considerable amount of work that has underpinned the NHS Next Stage Review, and the work on the forthcoming Green Paper looking at funding for social care³).

4. Various initiatives were used to collect evidence during the review, including a written consultation with external stakeholders (August 2007 to April 2008), interviews with DH staff and stakeholders (July 2007 to June 2008), desk research, peer reviews of a selection of fifteen projects and five case studies.⁴ Analysis of the information across these different evidence streams has informed the findings about the consistency of the Department's management and use of science.

5. The main part of this report (pp 27-80) sets out the key findings, conclusions and recommendations from the review against the ten attributes that underpin good practice in the use of science by Government Departments (p 17).

6. The Department of Health demonstrates good practice in the way it commissions, manages and uses science, which Other Government Departments could usefully copy or adapt for their own purposes. These include:

- structure and concept of the new Horizon Scanning Unit;
- 'Best Research for Best Health' in setting strategic direction for NHS research and development;
- role of Research Liaison Officers in the Policy Research Programme to support evidence based policy;

³ Note: Some of the evidence for the forthcoming Green Paper on social care was considered in the Case Study on 'Building the Evidence Base for Adult Social Care' (see Annex 7).

⁴ For details on the methodology for the Science Review see Annex 9.

- some examples of the modelling work and science based policy;
- role of the NHS Chair in pharmacogenetics to address an area of market failure; and
- role of Scientific Advisory Committees in providing advice.

7. The GO-Science Review found that Department is taking action and making progress to ensure that its science and evidence base is able holistically to inform strategic departmental decisions, as well as those in individual policy areas. The Review found that the Department prioritises across the wide range of its business and there are many examples of good use of science in high priority areas. Key to further improving capability is the planned refresh of the Department's strategic direction of the use of science across the Department and the agencies it sponsors. To achieve this, attention should focus on continuing to: map out the role of science and evidence in achieving the corporate goals; horizon scan to prepare for challenges and opportunities in the future; understand the root causes of problems; commission short and long term research to fill the gaps; and use the full evidence base effectively in determining strategy. Decisions on the appropriate balance of science effort among clinical care, public health and social care sectors – taking into account consequential impact on other Departmental priorities – will be critical.

8. The areas of good practice and recommendations made in the main report are collated in the two tables at the end of this summary (pp 9-16). There are many good practice examples in the use of science and evidence to inform policy in the Department and there would be value in sharing these more widely across the Department. This would help to ensure more

consistency in the use of science and evidence in policy development. Other Government Departments may also benefit from learning about these examples of good practice. In the table of recommendations, GO-Science suggests key actions that could contribute to implementation of the recommendations as a way forward, but there may be other ways of achieving the desired outcomes that the Department may wish to consider (pp 11-16). References to numbered Recommendations and paragraphs are to the Findings, Conclusions and Recommendations chapter of this report (pp 27-80).

9. The main themes to have emerged (as described in more detail below) are as follows:

- setting strategic direction for science across the Department;
- consistency in effective management of science;
- enhancing joint working (both across disciplines and with stakeholder groups);
- overcoming potential obstacles to the use of science;
- developing mechanisms to share and manage knowledge effectively;
- facilitating use of external scientific advice and expertise; and
- retaining an intelligent customer function.

Setting Strategic Direction for Science across the Department

10. The GO-Science Review recommends that DH sets overarching/high level strategic direction for science across the Department and the agencies it sponsors, and clarifies a strategic approach to identifying the need for new science at a sufficiently

early stage (including areas that cut across sectoral boundaries). The updated Science Strategy, which DH is planning, should be fully integrated with the Department's business plan. The Science Strategy needs to make clear how sectoral strategies/action plans/business plans/national service frameworks and activities are informed by and contribute to the delivery of the overall science strategy (Recommendation 1). This will help inform decisions on the appropriate balance of science effort among clinical care, public health and social care sectors. Building on existing initiatives through the Policy Research Programme (PRP) and the National Institute for Health Research (NIHR), DH needs to ensure that appropriate funding support for public health and social care research is available to support development of a robust evidence base which is co-ordinated with the research programmes of other organisations (Recommendation 5).

11. In addition, the Department should establish an independent Advisory Council to advise on the strategic direction of science sponsored by the Department (Recommendation 18). There should also be a more prominent advisory and challenge role for the Chief Scientific Adviser (CSA) and the Chief Analyst across the whole Department (Recommendation 17).

12. Horizon scanning is an integral part of some of the more science-based areas of policy development and also part of the role of the Scientific Advisory Committees (SACS). A challenge for the newly established Horizon Scanning Unit and Network is to promote a shared understanding of horizon scanning and improve capability and engagement across the organisation and with stakeholders (Recommendation 3). This will allow more transparency of the process for horizon

scanning and better communication with stakeholders to harness horizon scanning initiatives in other organisations.

13. Building on the good practice of some areas of DH's work (e.g. social care strategy), the GO-Science Review suggests that DH considers further how best to use systematic reviews consistently in its work. The Department employs a number of approaches to systematic analysis of the current and future needs, and the evidence base, needed to guide policy and set priorities for research; but the relevant stakeholders are not always involved as appropriate. DH should build on its existing work with DH stakeholders and Other Government Departments (OGDs) in pulling together evidence streams and science audits (Recommendation 4). This should be an intrinsic and continuous part of maintaining the evidence base. Internal and external stakeholders identified potential knowledge gaps in public health, social care and social science (paras 3.11-3.14).

14. External stakeholders welcome recent initiatives such as the Best Research for Best Health, the National Institute for Health Research, and the Health Innovation Council, with aspirations for their effectiveness over time. However, the GO-Science Review argues that DH could give even more attention to how research is prioritised around strategic priorities, and to the infrastructure needed to deliver policy in two, five and ten years time (Recommendation 2). There were also requests from stakeholders for greater transparency on how strategic decisions are made on research priorities.

Consistency in Effective Management of Science

Management

15. The GO-Science Review found the Policy Research Programme to be a model of good practice in concept and operation worth sharing with Other Government Departments. The programme provides research evidence for better policy-making to DH policy groups who are developing and formulating policy for the NHS, public health and adult social care (para 0.29). The eight Research Liaison Officers are well respected and valued by both internal and external stakeholders in providing an effective bridge between their policy colleagues and the external science providers in commissioning research, monitoring project implementation and delivery, and disseminating research outcomes. The GO-Science Review concluded that although the eight Research Liaison Officers cover the full science remit of the Department (para 4.7), they are overstretched. Whilst recognising that there are funding constraints, the GO-Science Review strongly recommends that the Department should consider expanding the role and remit of the Policy Research Programme (PRP) across the Department, addressing how it can best be resourced (in terms of both staff and funding) (Recommendation 6).

Quality and Relevance

16. Clearly, research commissioned or undertaken by the Department must be of high quality and fit for purpose, whether to advance knowledge in human health, public health and social care issues, or to inform policy making. The systems that the DH Policy Research Programme has in place for commissioning and funding research are, generally speaking, rigorous and well managed. There are

well-established mechanisms to ensure the quality of commissioned science through peer review of project proposals and outputs (para 4.9). Peer review is also the norm for research that is to be published (para 5.6). However, in a few specific cases, the GO-Science Review found there was a need for more transparency of the research procurement process and project management documentation for science commissioned directly by other Directorates of the Department. For some large scale research initiatives funded by the Policy Research Programme it is common for an academic Scientific Adviser to provide expert advice and input at all stages of the initiative, including planning, monitoring and evaluation. This model has worked successfully in several projects peer reviewed by the GO-Science Review (para 4.12).

17. The use of secondees in the Department and consultation with stakeholders, to inform major policy initiatives, is a good means of improving the quality, relevance and use of science (para 5.7). Staff across the Department may also be brought together through relevant project boards and advisory groups. The regular stock take meetings on specific theme areas (e.g. CJD, pandemic influenza, tuberculosis and healthcare associated infections) with representatives from Directorates across the Department are key in sharing information on policy, research, analysis, internal and external advice (para 8.3). The GO-Science Review recommends that policy leads consider this good practice in other areas where appropriate. This would bring together cross-disciplinary expertise to work out the root cause of problems and identify potential solutions, and to routinely learn from successes and failures in developing policies and commissioning research (Recommendation 7).

18. The Department prioritises policy areas where significant planning on research implementation and re-evaluation is needed. For example, DH routinely re-evaluates the science behind certain policies, like the weighted capitation formula for resource allocation, 'Payment by Results', and the national health inequalities strategy (para 5.12). Stakeholder involvement helps to identify and manage risks. Stakeholders are normally, but not consistently, engaged in planning implementation of research. There is also mixed feedback from stakeholders on how effectively the Department deploys and learns from pilots before policies are rolled out. To address these issues DH should consider introducing the use of the ROAMEF (Rationale, Objectives, Appraisal, Monitoring, Evaluation and Feedback) approach (as set out in the Treasury Green Book⁵ and adopted by various OGDs), across all strategies, programmes, policies and projects (Recommendation 8).

Enhancing Joint Working

19. There are many examples of good practice in cross-disciplinary working within DH and with DH stakeholders and OGDs, but there is scope for greater consistency (para 15). Examples of good practice include Foresight (para 2.4), working with OGDs (para 8.10 - 8.11) and Research Councils (para 8.12 - 8.13) and the National Service Frameworks (para 8.16). Further collaboration with the Research Councils to build on existing successful initiatives is encouraged (para 8.12). Stakeholders wanted more engagement at all levels and stages of strategy, policy-making, implementation and evaluation to ensure relevance, and effectiveness (Recommendation 14). Although DH does not have exclusive responsibility for research in social care, the GO-Science Review

suggests DH should consider leading a co-ordinated approach to research in social care, working closely with OGDs and other major participants, with a view to increasing the overall investment in research (Recommendation 23).

Overcoming Potential Obstacles to the Use of Science

20. Scientific knowledge and evidence are important in helping ensure policies are effective. DH has increasingly put efforts into applying good practice in promoting evidence-based policy-making (e.g. Pandemic Flu) and implementation (e.g. 18 weeks patient pathway programme and tackling NHS deficits). There is a need to ensure not only that science is used in developing the policy and overseeing the implementation, but also in the evaluation of implementation to identify if there are any unintended consequences. This has been undertaken in several large scale policy initiatives, for example the Health Reform evaluation and Payment by Results. Recommendations 9 and 10 address some of the issues identified. Some examples of good practice by the Department in addressing potential obstacles to the use of science are also highlighted (para 6.11); and these should be shared more widely across the Department (including in the training courses for evidence based policy being implemented throughout the Department) (para 6.4). The GO-Science Review suggests that the Department would benefit from having a designated person or mechanism within each Directorate to help ensure that all relevant science and scientific advice is considered in policy; and provide input into the development and ongoing monitoring of the Department's Science Strategy (paras 1.9 and 6.12).

⁵ Treasury Green Book <http://greenbook.treasury.gov.uk/chapter02.htm>

Developing Mechanisms to Share and Manage Knowledge Effectively

21. Stakeholders value the policy strategies, reports and other publications produced by the Department. The GO-Science Review found that more could be done to ensure that stakeholders are aware of the evidence base and its role in policy decision-making (Recommendation 11). This should include extending the practice of setting out and referencing the relevant evidence in all published policy documents (para 7.7). In addition, DH should put in place a mechanism to ensure it consistently analyses and publishes the outcomes of public consultations across the Department (para 3.7); as in some cases stakeholders would have welcomed more detailed analysis of comments. The GO-Science Review commends the DH's approach to publication of reports that are accessible and openly debated, for example in social care (para 7.12); but this good practice could be adopted more widely in other areas of the Department.

22. There are examples of good stakeholder management across the Department e.g. the Chief Scientific Officer Annual Conference for healthcare scientists (para 8.14), the National Service Frameworks (NSF) (para 8.16), the 18 weeks patient pathway programme communication strategy (para 8.14) and participation in EU, WHO and other International conferences/events to share knowledge. However, there is more to be done to further improve relations with stakeholders by creating appropriate partnerships with a range of stakeholders, and at all levels and stages of strategy, policy-making, implementation and evaluation (Recommendations 13 and 14).

23. The GO-Science Review found a need for better internal knowledge management systems and evidence logs maintained in policy areas to audit, manage and share the evidence. Staff considered that the existing systems, for example the MEDS (electronic filing) and the library of policy briefs available internally (CHIP), were not used consistently. Suggestions are made on how to address this including the establishment of succinct policy briefs signposting new relevant research and initiatives, and the provision of access to data collections (para 8.5). Also, mapping the internal knowledge management systems for specific policy priorities (Recommendation 12).

Facilitating Use of External Scientific Advice and Expertise

24. At an operational level, DH accesses external expertise in many sectors through Scientific Advisory Committees (SACs), Expert Panels (paras 9.7 and 9.16) and with OGDs (paras 8.10 - 8.11). The members of the SACs are appointed by open competition through the Appointments Commission and identified on the SAC websites. For the Expert Panels, members are appointed directly by the Department and not all Expert Panels are identified on the DH website. There was concern by stakeholders that these relied on networks and might not always use the best and most appropriate expertise. The use of expert groups should be transparent, so that any gaps in expertise can be challenged. The GO-Science Review argues the case for a central co-ordinated database of experts (similar to that used by the Medicines and Healthcare products Regulatory Agency (MHRA)) in sourcing evidence/advice; and for selecting and tracking members of the Expert Panels (para 9.16; and Recommendation 16).

25. The formal SACs (paras 9.7 - 9.15) sponsored by the DH are a valuable resource for specific key themes – providing access to independent expert advice to help with horizon scanning, input to policy, peer reviews, regulation, certification and sharing knowledge. Nevertheless, these could play a still greater role, for example in strategic direction of research where appropriate. DH should continue to regularly monitor the portfolio of SACs that it sponsors to ensure that the role and remit of each SAC is appropriate, and gaps in needs for SACs are identified (para 9.9 and Recommendation 15).

26. In some areas, the Department has a role in supporting the maintenance of relevant external scientific expertise in delivery bodies, academia and the private sector to help it deliver its Departmental goals. It is important that DH works with OGDs and other interested parties to secure the supply of scientific expertise that is needed both now and in future, for example in the infectious diseases, histopathology, and environmental hazards research areas (paras 10.4 and 10.12) (Recommendation 20). The strategic approach used by DH to support pharmacogenetics is a model that might be considered for other areas of new or under-resourced science. The GO-Science Review recommends that DH should ensure that systems in place to encourage more effective NHS research and involvement of clinicians and academics do provide the incentives needed (Recommendation 21). In addition, DH should continue to work on ensuring that the UK maintains competitiveness for clinical trials by the pharmaceutical industry and experimental medicine in the face of international competition (paras 10.16-10.18). This will be achieved by working more closely with the private sector to better understand the issues and support needed (Recommendation 22).

27. The current and widespread use of secondees including clinicians, doctors, dentists, pharmacists, nurses, allied professionals, and public health experts at all levels within DH, is supported (para 5.7). Secondments have historically been widely (and successfully) used in the healthcare sector, and to a slightly lesser extent in the public health and social care sectors. The GO-Science Review suggests that more opportunities of secondments for social care practitioners within the Department could be beneficial for social care policy development (para 10.8). However, DH needs to continue to be conscious of any wider impacts, for example, the morale of permanent civil servants and the potential loss of corporate memory when the secondees move back out of DH. There are also benefits in DH's use of outward secondments/loans to capitalise on wider experience that the secondees can bring back into the Department. Continuing this practice is to be encouraged.

Retaining an Intelligent Customer Function

28. DH has a strong, committed and skilled professional workforce, some of whom have joined the Department following successful careers in academia, medicine or industry. There is a cadre of excellent scientists (natural, social and analytical) with the expertise needed to either carry out work in-house or act as intelligent customers for externally commissioned work. There are also many individuals who have had some scientific training at some stage of their career. However, the GO-Science Review found that an issue for both staff and stakeholders was the perceived impact on the intelligent customer function of shifts in the way the Department has chosen to access scientific expertise, for example the transfer of scientists to arms length bodies (para 10.4). In the context of

the need to devolve responsibility, DH should monitor its intelligent customer function for science, to ensure that it retains sufficient levels of experienced scientists, clinicians and analysts who are able to communicate and commission the science required and to understand and interpret issues at the science policy interface (Recommendation 19).

Table 1. Examples of Good Practice

Good Practice		Report Ref.
1. Develop a clear, overall science strategy		
1.	The strategy for NHS research and development, Best Research for Best Health (BRfBH), in setting the direction for conducting and using NHS research, and tackling the challenges identified with stakeholders.	1.12
2.	The Genetics White Paper in setting strategy and funding for incorporating advancing scientific knowledge into NHS practice.	1.16
3.	The Social Care Strategy Unit's approach to develop strategy in identifying the gaps in the existing evidence base; prioritising these in line with policy objectives; developing a strategy to fill the gaps, beginning with the highest priorities; and establishing the research governance structures.	1.18
2. Horizon scan to identify future science-related issues		
4.	The structure and concept of the Horizon Scanning Unit and Network involving the collaboration of officials and experts across the Department to scope futures and produce scenarios and vignettes of possible, plausible and preferred futures.	2.3
5.	DH participation in Foresight projects, providing the opportunity to gather intelligence from Other Government Departments and other organisations.	2.4
3. Review and harness existing science and identify gaps and opportunities for future research		
6.	The National Institute for Health and Clinical Excellence (NICE) in improving quality in the NHS by independently reviewing available evidence and providing guidance on the clinical and cost-effectiveness of different health interventions.	3.4
7.	The 360 degree scan run by the Social Care Strategy Unit (SCSU) to provide a full view of the evidence base for social care policies, by analysis on a series of topics.	3.6
4. Commission and manage new science		
8.	The approach by the Policy Research Programme to the commissioning and use of research evidence for better policy-making. In particular, the effectiveness of the Research Liaison Officer role in ensuring the science meets the policy needs.	4.14
5. Ensure the quality and relevance of the science they carry out and sponsor		
9.	The consistent use by the Policy Research Programme (PRP) of independent external peer review to assess the quality of its research proposals and outputs.	5.6
10.	The use of secondees in DH and consultation with stakeholders to inform major policy initiatives, in improving the quality, relevance and use of science.	5.7
6. Use of science and scientific advice		
11.	The use of various initiatives (guidance, events, policy master classes and training programmes) for policy makers and specialists to encourage better policy making.	6.5
12.	The development of a solid scientific evidence base for pandemic influenza planning with support from the Scientific Pandemic Influenza Advisory Group.	6.7
15.	Clinical trials of a gene therapy for inherited eye disease, thus enabling the transfer of advances in gene therapy from the bench to the bedside.	6.7
16.	The introduction of a vaccination programme for teenage girls to prevent cervical cancer.	6.7
17.	The use of complex analysis techniques to strengthen DH planning and resource management capabilities to tackle NHS deficits.	6.14

Good Practice		Report Ref.
7. Publish results and debate their findings and implications openly		
18.	Encouraging in-house scientists to publish their work in refereed journals and other publications.	7.4
19.	The use of communication strategies to increase the accessibility and use of social care policy research with the inclusion of dissemination activities and opportunities for open and frank debate of the findings by stakeholders.	7.12
8. Share, transfer and manage knowledge		
20.	“Stock take” meetings to allow stakeholders across the different DH directorates to share information in certain key areas e.g. CJD, pandemic influenza, blood, tuberculosis and healthcare associated infection.	8.3
21.	Monthly meetings with analysts and the Scientific Network in providing a forum for the Department’s scientists to discuss their work, network and develop presentational skills.	8.4
22.	The range of formats for information on pandemic influenza that allow stakeholders differing levels of detail depending on their interest.	8.9
23.	National Directors (experts) who oversee the development and implementation of a National Service Framework (NSF), working with policy and delivery teams, external networks and the NHS management community to encourage sharing of knowledge, and achieve joined up action.	8.14
9. Implement GCSA Guidelines on Scientific Analysis in Policy making and the Code of Practice for Scientific Advisory Committees		
24.	The use of Scientific Advisory Committees as a valuable resource for access to independent expert advice in helping with strategic direction, horizon scanning, input to policy, peer reviews, regulation, certification and sharing knowledge.	9.7
25.	Regular light-touch monitoring and evaluation of impact to inform the direction and work plan of Scientific Advisory Committees.	9.9
10. Use, maintain and develop scientific expertise (including both capacity and capability building)		
26.	Career support to analysts through continuous professional development and managed moves.	10.6
27.	The appointment of the Chair in pharmacogenetics to support basic research and build capability in new or under-resourced research areas.	10.12
28.	Longer-term programmes funded by the Policy Research Programme in Research Units and Centres of Universities in allowing academic researchers to develop an understanding of the policy process and become national and international experts in their respective fields.	10.20

Table 2. Recommendations

Delivery Challenge	No.	Priority ⁶	Recommendation	Key Actions	Report Ref.
1. Develop a clear, overall science strategy	1	1°	The next version of the DH Science Strategy should show how sectoral strategies and other activities are informed by and contribute to delivery of the overall science strategy and achieving the corporate goals; with precise objectives and deliverables against a realistic timeframe.	<ul style="list-style-type: none"> • Fully integrate the Science Strategy with the Department's business plan. • Ensure horizon scanning is part of the intelligence that informs strategy development. • Identify links with strategies of OGDs with common science interests (such as DWP, DCFS, DFID etc.). • Involve and consult key internal and external stakeholders from an early stage and throughout the development. 	1.5 1.4 1.5 1.11 1.10
					1.14 1.13
2. Horizon scan to identify future science related issues	2	1°	DH should give more attention to how research is prioritised to align with strategic priorities, and to the research infrastructure needed to deliver policy in two, five and ten years time.	<ul style="list-style-type: none"> • Inform stakeholders on how strategic decisions are made on research priorities. • Balance the support for short-term policy priorities with more longer-term strategic and multi-disciplinary research needs. 	1.14 1.13
					2.7 2.5 2.5 2.5 2.5 2.7
3. Review and harness existing science and identify gaps and opportunities for future research	3	2°	The Horizon Scanning Unit and Network should promote a shared understanding of horizon scanning within the Department and improve capability and engagement across the organisation and with stakeholders.	<ul style="list-style-type: none"> • Explore and share good practice with stakeholders in using horizon scanning to inform strategy and policy. • Share relevant findings from horizon scanning in OGDs, Select Committees etc. and Foresight with staff and stakeholders (including SACs). • Promote the use of a wider spectrum of scientific and industry expertise in horizon scanning. • Work with industry on scenario planning. • Commit funds to act on the outcomes of horizon scanning as appropriate. 	2.7 2.5 2.5 2.5 2.7
					3.5
3. Review and harness existing science and identify gaps and opportunities for future research	4	1°	DH should take a more systematic approach to analysis of its current and future science needs and the evidence base needed to guide policy and set research priorities.	<ul style="list-style-type: none"> • Make evidence scanning/ systematic reviews an integral part of the policy development and implementation process. • Work with stakeholders and OGDs to pull together evidence streams and science audits. 	3.5

⁶ 1° – primary; and 2° – secondary

Delivery Challenge	No.	Priority⁷	Recommendation	Key Actions	Report Ref.
	5	1°	Given the need for an integrated approach to health and social care, DH should work with relevant organisations to ensure that its strategic approach to building a robust evidence base for social care and public health is well resourced and commensurate with the needs of the sector.	<ul style="list-style-type: none"> Working with other organisations, continue to develop a robust evidence base for social care and public health, by analysis of the existing evidence base, and commissioning research to address the gaps. DH should continue to ensure research is well co-ordinated with the research programmes of other organisations. 	3.13 3.12
4. Commission and manage new science	6	1°	DH should consider expanding the role and remit of the Policy Research Programme, addressing how it can best be resourced (staff and funds).	<ul style="list-style-type: none"> Ensure adequate number of Research Liaison Officers for the breadth of DH's work. Assess the programme budget needed to deliver the role and function. Promote the outcomes of the Programme through a formal published Annual Report. 	4.15 4.7 4.15 4.13
5. Ensure the quality and relevance of the science they carry out and sponsor	7	1°	When commissioning science, DH should consistently use cross-disciplinary expertise to work out the root causes of problems and identify potential solutions, and to routinely learn from successes and failures.	<ul style="list-style-type: none"> Build on the approach taken for Pandemic Flu, TB, vCJD and HCAI through networks and stock take meetings across Directorates. Involve a wide-range of stakeholders in identifying research and policy needs. 	5.5 8.3 5.5
	8	1°	DH should consider introducing the use of the ROAMEF (Rationale, Objectives, Appraisal, Monitoring, Evaluation and Feedback) approach to the management of programmes and projects.	<ul style="list-style-type: none"> Ensure the appropriate methodology is in place for the research commissioned, including the use of Randomised Control Trials (RCTs) as appropriate. Ensure the methodology and resources for evaluation and feedback are built into programmes and projects from the outset. Ensure more consistency in the use of pilots and their evaluation before roll-out of policies. Measure the effectiveness of best practice guidance and guidelines. 	5.12 5.8 5.10

⁷ 1° – primary; and 2° – secondary

Delivery Challenge	No.	Priority⁸	Recommendation	Key Actions	Report Ref.
6. Use of science and scientific advice	9	2°	DH should consider the wider use of 'policy' training courses using actual case studies so that policy and scientific participants can work together to develop a shared understanding of each others' needs; and provide scientists with training on communication of technical/ analytical information.	<ul style="list-style-type: none"> • Disseminate condensed top tips for best practice policy. • Provide training to scientists on communicating the relevance and implications of technical/ analytical information for non-specialists. 	6.6 6.5
	10	1°	DH should continue to encourage more pro-active use of science and scientific evidence to inform policy development, implementation, and evaluation; and stronger links between research and policy stakeholders across the Department.	<ul style="list-style-type: none"> • Appoint a designated person as a focal point on the use of science and scientific advice in each policy area. • Actively engage policy and delivery customers in analytical work to ensure relevance. • Involve the wider scientific community in policy development through external reference groups and Scientific Advisory Committees. 	6.12 6.10 6.11
7. Publish results and debate their findings and implications openly	11	1°	DH should maintain and extend its transparency of research findings and the underpinning evidence to inform policy making in the public domain.	<ul style="list-style-type: none"> • When research results are published include a brief statement of the implications of the results. • Set out and reference the relevant evidence in all published policy documents. • Put in place a robust mechanism to analyse and publish outcomes of public consultations. 	7.7 3.7
8. Share, transfer and manage knowledge	12	1°	DH should consider the effectiveness of its internal knowledge management systems, and the maintenance of and access to evidence across the Department, ensuring that the evidence base is maintained with continual access to historical data.	<ul style="list-style-type: none"> • Map the internal knowledge management systems for specific policy priorities. • For each policy area, identify evidence needs and information sources, and the mechanisms to distribute the evidence within DH. • Establish succinct policy briefs signposting new, relevant research and initiatives, and access to data collections. 	8.5

⁸ 1° – primary; and 2° – secondary

Delivery Challenge	No.	Priority⁹	Recommendation	Key Actions	Report Ref.
	13	1°	DH should continue to develop a communications framework to map, communicate and raise awareness of the many science activities and initiatives undertaken by and for the Department.	<ul style="list-style-type: none"> • Examine, with main stakeholders, the options for a) improving the awareness, integration and (especially external) availability of scientific knowledge/data; and b) develop and maintain science/knowledge information system(s) that enable cross-sectoral and multi-disciplinary awareness of existing knowledge. 	8.7
	14	1°	DH should build on good practice in stakeholder engagement, at all levels and stages of strategy and policy development, implementation and evaluation.	<ul style="list-style-type: none"> • DH should ensure it is aware of, draws on, and pools the best possible sources of advice and expertise from its NDPBs, academia, industry and internationally. 	8.14 8.15
9. Implement GCSA Guidelines on Scientific Analysis in Policy making and the Code of Practice for Scientific Advisory Committees	15	1°	DH should monitor its portfolio of Scientific Advisory Committees to identify needs, gaps and overlaps, and ensure that their role and remit is appropriate and directed where they have most impact and value.	<ul style="list-style-type: none"> • Identify needs, gaps and overlaps in the portfolio of Scientific Advisory Committees. • Ensure that monitoring and evaluation is undertaken at an appropriate level and frequency for each SAC. 	9.9
	16	2°	DH should set up a central co-ordinated database of 'experts' for use across the different Directorates in sourcing evidence/advice; and selecting and tracking members of Expert Panels.	<ul style="list-style-type: none"> • Consider the model used by MHRA. • Use objective criteria and cover a wide range of areas. • Regularly update the list of Expert Panels and their members on the DH website. 	9.17 9.16 9.17
	17	1°	Given the importance of science in DH strategy, the role of the Chief Scientific Adviser (CSA) in challenging science across the Department should be made more explicit, with her responsibilities as CSA clearly described, and recognised, within and outside the Department.	<ul style="list-style-type: none"> • Ensure that evidence is made available and effectively taken into account in strategic decision making and high level policy development, and any risks clearly recognised where evidence is limited or there are gaps. 	9.23 9.22

⁹ 1° – primary; and 2° – secondary

Delivery Challenge	No.	Priority¹⁰	Recommendation	Key Actions	Report Ref.
	18	1°	DH should establish a Scientific Advisory Council to provide an independent challenge function and advice to support the Chief Scientific Adviser, with oversight on the strategic direction of science sponsored by the Department.	<ul style="list-style-type: none"> • Establish a Scientific Advisory Council with appropriate expertise and representatives from Scientific Advisory Committees. • The Scientific Advisory Council should: a) set its own agenda for meetings and respond to issues from the CSA, in order to advise the CSA and Department; b) hold regular meetings and use working groups (for specific areas or topical interests); c) make use of individual members' expertise, and networks; and d) identify needs, gaps and overlaps in SACs that DH should sponsor. 	<p>9.23 9.22</p> <p>9.9</p>
10. Use, maintain and develop scientific expertise (including both capacity and capability building)	19	1°	DH should monitor its intelligent customer function for science, to ensure it retains sufficient levels of experienced scientists, clinicians and analysts who are able to communicate and commission the science required and to understand and interpret issues at the science – policy interface.	<ul style="list-style-type: none"> • Implement a consistent approach to tracking staff deployment and expertise. • Provide opportunities for secondments into and out of DH (including NHS and Agencies). • Encourage key experienced staff to stay in post longer. • Ensure better provision for succession planning. 	<p>10.4 10.5 10.6 10.7</p>
	20	1°	DH should work with other funders of health research to maintain the health of the research community.	<ul style="list-style-type: none"> • Ensure that there is a systematic approach in place to monitor the health of the research community – particularly in un-fashionable research areas. 	10.11
	21	1°	DH should continue efforts to encourage more NHS research and involvement of clinicians and academics.	<ul style="list-style-type: none"> • Monitor and evaluate the effectiveness of BRfBH in attracting, developing and retaining the best research professionals in the NHS. 	10.15
	22	1°	DH should address how the UK maintains competitiveness for clinical trials by the private sector in the face of international competition.	<ul style="list-style-type: none"> • Examine with the private sector the issues and support needed to sustain clinical trials and an internationally competitive biotechnology community in the UK. 	<p>10.18 10.16 10.17</p>

¹⁰ 1° – primary; and 2° – secondary

Delivery Challenge	No.	Priority¹¹	Recommendation	Key Actions	Report Ref.
	23	1°	DH should appoint a full-time senior level person (Head of Profession) for social care science to help ensure that the nature and importance of social care research and evidence are well understood both within DH and OGDs.	<ul style="list-style-type: none"> • Play a leadership role in advocating for more integrated research on social care issues across Government and other major funders. • Ensure that a strategic approach to building a robust evidence base for social care is well supported and co-ordinated with the research programmes of other organisations. 	10.19

¹¹ 1° – primary; and 2° – secondary

Introduction

Background and Rationale for the GO-Science Reviews

0.1 The Government Office for Science (GO-Science) runs a rolling programme of Science Reviews to assure the quality, management and use of science by Government Departments, and disseminate examples of good practice.¹² For the purposes of the GO-Science Reviews a broad definition of 'science' is used, which includes natural and social sciences, and activities such as research, data collection and analysis.

0.2 The GO-Science Review of the Department of Health was the sixth of these Science Reviews, and was carried out in the period July 2007 to June 2008. The GO-Science Review was overseen by an independent Steering Panel of academics and others with expertise in the areas under review. The findings, conclusions and recommendations of the GO-Science Review have been discussed and agreed by the Steering Panel and checked for factual accuracy by the Department of Health.

Methodology and Scope

0.3 GO-Science Reviews focus on ten attributes that underpin good practice in assuring the quality, management and use of science by Government Departments, as identified by the Cross-Cutting Review.¹³ The rationale behind each of the attributes is set out in the introduction to the findings against each attribute in the main section of the report. Departments that effectively manage and use science and research:

- develop a clear, overall science or research strategy;
- horizon scan to identify future science-related issues;
- review and harness existing science and identify gaps and future opportunities;
- commission and manage new science;
- ensure the quality and relevance of the work they carry out and sponsor;
- use science and scientific advice;
- publish results and debate their findings and implications openly;
- share, transfer and manage knowledge;
- implement GCSA Guidelines¹⁴ on scientific analysis in policy making and the Code of Practice for Scientific Advisory Committees;¹⁵ and
- use, maintain and develop scientific expertise (including both capacity and capability building).

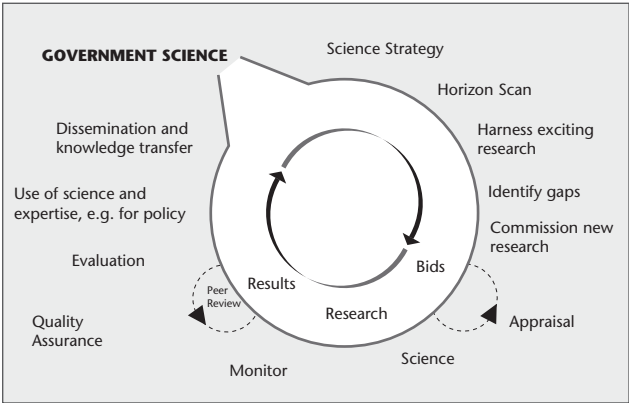
¹² Reviews build on the Government's published strategy for science, engineering and technology, Investing in Innovation, July 2002. http://www.hm-treasury.gov.uk/spending_review/spend_sr02/spend_sr02_science.cfm and the Cross Cutting Review of Science and Research, March 2002. http://www.hm-treasury.gov.uk/media/E/7/science_crosscutter.pdf

¹³ Cross Cutting Review of Science and Research, March 2002 http://www.hm-treasury.gov.uk/media/E/7/science_crosscutter.pdf

¹⁴ Government Office for Science. Guidelines 2005: Scientific Analysis in Policy Making, October 2005. <http://www.berr.gov.uk/files/file9767.pdf>

¹⁵ Government Office for Science. Code of Practice for Scientific Advisory Committees, December 2007. <http://www.dius.gov.uk/publications/file42780.pdf>

0.4 The following diagram illustrates how departments should apply these attributes.



0.5 Within the wide range of scientific work of the Department of Health, the GO-Science Review focused on its management and use of science in policy development and implementation on healthcare, adult social care and public health. In addition, the GO-Science Review set out to assess how DH works with other Government Departments and the Arm’s Length Bodies (ALBs) that it sponsors, to access and use evidence streams for policymaking. The GO-Science Review did not cover the use of science or innovation in the healthcare or social care services. Likewise, it was not possible to cover all policy initiatives, and there were also some new and important initiatives recently announced by the Department that the GO-Science Review was unable to address in detail (such as the Obesity Strategy which has been widely praised for its evidence approach, the Cancer Reform Strategy, the considerable amount of work underpinning the NHS Next Stage Review, and the work on the forthcoming green paper looking at funding for social care¹⁶).

0.6 Within this remit, the DH identified the following areas where they felt the GO-Science Review could help their work: mapping and linking across the breadth of their work; developing a science and innovation strategy for DH; systematically using science to inform policy-making; engaging with policy leads around commissioning science; and managing the Scientific Advisory Committees.

0.7 The independent Steering Panel was keen for the GO-Science Review to help with: improving external understanding of DH’s management and use of science; improving access to information between DH and stakeholders; ensuring the science used is fit for purpose and there are incentives to ensure scientific research is used appropriately; facilitating sufficient attention to public health policy, research and profession; and analysing the skills base to understand DH’s current capacity and capability, and the balance between in-house and external expertise.

0.8 A large number of responses to the written consultation addressed the use, maintenance and development of scientific expertise within the NHS, and clinical trials. These issues were also recurring themes in the interviews, and areas of concern to the independent Steering Panel.

0.9 This report provides an assessment of DH performance against each of the ten attributes described above, including the specific areas requested by the Department, the Steering Panel, and respondents to the written consultation. For all of the attributes, areas of good practice have been identified along with recommended areas for improvement and, in some cases, proposals for how improvements might be achieved.

¹⁶ Note: Some of the evidence for the forthcoming Green Paper on social care was considered in the Case Study ‘Building the Evidence Base for Adult Social Care’ (see Annex 7).

0.10 The methodology of the GO-Science Review is described in detail in Annex 9. The GO-Science Review is informed by an analysis of evidence from various sources including: confidential and non-attributable interviews (July 2007 to June 2008) complemented by two workshops with DH staff, one workshop with DH and Arms Length Bodies (ALB) staff on Scientific Advisory Committees, two workshops with the independent Steering Panel and DH staff, and attendance at some Scientific Advisory Committee meetings (Annex 1), a written external consultation (August 2007 – April 2008) (Annex 2), five detailed case studies (Annexes 3-7) and a peer review of a selection of fifteen projects (Annex 8). Information on the terms of reference and membership of the independent Steering Panel and their biographies is in Annex 10. In addition, the DH memorandum on science provided to the GO-Science Review team is in Annex 11. These annexes will be available via the Government Office for Science (GO-Science) website.¹⁷

0.11 The five case studies looked in detail at how the science was managed and used in specific areas. These were:

- Scientific Advisory Committees Sponsored by the Department of Health – their Role, Function and Operation’ (Annex 3);
- ‘18 Weeks Patient Pathway Programme’ (Annex 4);
- ‘Healthcare Associated Infection’ (Annex 5);
- ‘Targeted Funding for Pharmacogenetics’ (Annex 6); and
- ‘Building the Evidence Base for Adult Social Care’ (Annex 7).

0.12 In addition, the GO-Science Review took account of previous departmental reviews (the internal review of analytical services, Cooksey

Review, and Capability Review), avoiding duplication by building on the lessons learned and the development work arising from these.

0.13 *Review of Analytical Services* – Strengthening the analytical function and capability was one of the stated objectives of the Departmental Change Programme of 2003-4 and a focus of the subsequent Review of Analytical Services 2006-07 (RAS). These resulted in the work of operational researchers (OR), economists and statisticians within DH being brought more closely together in smaller, directorate – based multi-disciplinary teams to strengthen direct links with policy-making.

0.14 *Cooksey Review* – In 2006, Sir David Cooksey led an independent review of health research funding, currently in excess of £1bn p.a. The review considered whether or not to merge the Government’s two main health research funding bodies – the Medical Research Council (MRC)¹⁸ funded through the Department for Innovation, Universities and Skills (DIUS) and the Department of Health Research and Development (R&D) Directorate. After a wide ranging consultation, Sir David Cooksey’s report published in December 2006,¹⁹ proposed a central co-ordinating body, the Office for Strategic Coordination of Health Research (OSCHR), to develop a co-ordinated strategy for health research whilst retaining the two separate organisations.

¹⁷ GO-Science Reviews <http://www.dius.gov.uk/policy/science.html> : click on “View Science Reviews”

¹⁸ Medical Research Council <http://www.mrc.ac.uk/index.htm>

¹⁹ Cooksey Review http://www.hm-treasury.gov.uk/independent_reviews/cooksey_review/cookseyreview_index.cfm

0.15 Set up in 2007, OSCHR is a small light-touch organisation, reporting to both the DH and DIUS. Its main function is to act as an oversight body to develop a co-ordinated health research strategy. OSCHR has a high level Board comprising of MRC, the National Institute of Health Research (NIHR), DH, DIUS, and the Devolved Administrations. Other stakeholders such as industry and the charity sector are also represented.

0.16 The report of the *Capability Review* of the Department of Health recommended six 'Areas for Action' (see below). The Department has responded with a 'Development Plan'²⁰ outlining how it will address the actions, setting out the phases and areas for development, and the expected impact and metrics of success. Actions 3 and 6 are key to the science agenda, and have been considered in the GO-Science Review (under a number of the success criteria but especially under success criteria 6). Actions 4 and 5 are also addressed (under success criteria 9 and 10). Recommendations made by the GO-Science Review take into account actions already proposed in the 'Development Plan' as appropriate.

Capability Review Department of Health

Key Areas for Action

1. Establish a vision for improving health, health services and well-being that is clearly understood, widely owned and the primary focus for the whole of the system.
2. The Senior Leadership Team must build and role-model a corporate culture that is consistently manifested in the behaviours of staff at all levels of the Department.
3. Articulate a robust strategic framework and embed an evidence-based approach to inform policy choices.
4. Lead people better, develop their mix of skills, nurture their talent and manage performance to improve the Department's effectiveness.
5. Clarify and articulate roles, responsibilities and accountabilities and strengthen departmental governance structures and processes.
6. Improve the Department's capability for planning the implementation of policy.

²⁰ DH Capability Review and Development Plan http://www.dh.gov.uk/en/Aboutus/HowDHworks/DH_077322

Strategic Aims of DH and the Role of Science

Strategic Aims

0.17 The overall aim of the Department of Health is to improve the health and well-being of the people of England. To do this it:

- develops strategy and direction for the health and social care system and acts to maintain the integrity and values of the system;
- provides a legislative framework;
- sets some standards and ensures others are set;
- builds capability and capacity across the public sector;
- secures and allocates resources; and
- ensures accountability to the public and Parliament.

0.18 The Department has three primary areas of statutory responsibility:

- *Healthcare* – DH has specific responsibility for the National Health Service (NHS) including: funding and allocations; setting the strategic framework; and oversight of the integrity of the system; and has general responsibility for standards of health care in England (i.e. not just NHS).
- *Adult social care* – DH sets the strategic framework, through specific grants and influencing the spend by Local Authority (LA) through the Department for Communities and Local Government Allocations.
- *Public health* – DH is responsible for developing policies for health protection, health improvement and health inequalities issues in England, including pandemic influenza, seasonal flu, patient safety, tobacco, obesity, drugs, sexual health and international health.

Organisational Structure

0.19 DH employs some 2,300 people on core functions in Leeds and London. DH's three main groups of Directorates report to the:

- Permanent Secretary (finance and investment; policy and strategy; social care, local government and care partnerships; departmental management; communications; and equality and human rights);
- Chief Medical Officer (research and development; health protection and improvement; and ten regional public health groups/directors of public health); and
- NHS Chief Executive (NHS Medical Directorate; Chief Nursing Officer; commissioning and system management; workforce; and NHS finance, performance and operations).

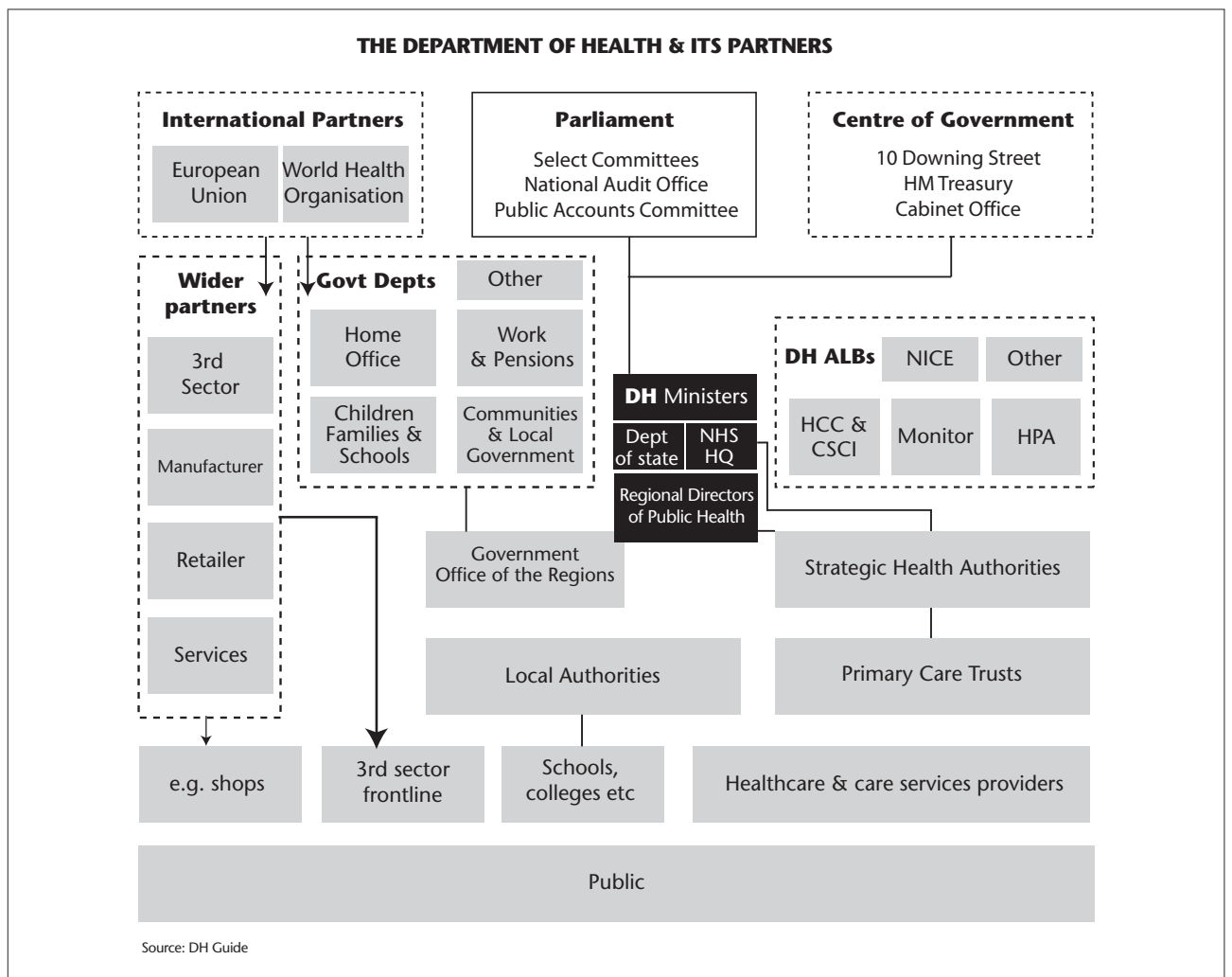
0.20 The DH sponsors three kinds of arm's length bodies (ALBs),²¹ whose remit includes science, such as:

- Executive Agencies which have responsibility for particular business areas – the Agencies are still part of, and accountable to, the Department e.g. Medicines and Healthcare products Regulatory Agency (MHRA); and NHS Purchasing and Supply Agency (PASA).
- Special Health Authorities which are independent bodies, but can be subject to ministerial direction like other NHS bodies e.g. Information Centre for Health and Social Care (ICHSC); National Institute for Health and Clinical Excellence (NICE); and NHS Institute for Innovation and Improvement.

²¹ Arms Length Bodies working with DH http://www.dh.gov.uk/en/Aboutus/OrganisationthatworkwithDH/Armslengthbodies/WhatareALBs/index.htm#_1

- Non-Departmental Public Bodies which have a role in the process of national government, but are not part of Government Departments – e.g. Health Protection Agency (HPA), Human Tissue Authority (HTA); and National Institute for Biological Standards and Control (NIBSC).

0.21 DH also has a regional presence with public health teams co-located with each Regional Government Office, headed by a Regional Director of Public Health, who combines this role with that of Director of Public Health in the 10 NHS Strategic Health Authorities (SHAs). There is also ongoing work to strengthen the regional presence for health and social care.



Delivery of Science

0.22 The Department has responsibility for supporting the generation, translation and application of science across the health and adult social care systems in England. Advances in science and technology have revolutionised modern medicine providing the antibiotics, vaccines and other interventions that have helped improve the nation's health. The Department's role in relation to science includes:

- encouraging innovation; sponsoring the pharmaceutical and medical technology industries;
- contributing through the NHS to the infrastructure for medical research;
- investing in new research; helping to translate research into practice and practical application;
- using scientific evidence to inform policy-making and service delivery;
- ensuring appropriate governance and ethical standards in health research; and
- regulating to protect patients.

0.23 The Department also aims to set clear standards for the commissioning and management of science by its Arms-Length Bodies (ALBs). Many of these organisations are world leaders in their own right, for example the National Institute for Health and Clinical Excellence (NICE) or the National Institute for Biological Standards and Control (NIBSC), and hence have a strong interest in maintaining high standards. However, by holding NICE to account for delivery of its business plan or by setting the requirements and standards to which the Health Protection Agency (HPA) must adhere, the Department is able to ensure that the science commissioned and managed by ALBs matches the Department's strategic goals and operates to a high

standard. Where possible, the Department also encourages publication of these processes to aid transparency, for example NICE's processes for developing appraisals and guidance are well defined and publicly available.²²

0.24 The use of science and evidence is an integral part of policy-making within the DH, and is supported by a work/training programme led by the Policy and Strategy Directorate to improve policy-making across the Department. DH's core approach is to ensure that the use of science and evidence is embedded within policy development from an early stage and is not an add-on or afterthought. Individual policy teams work closely with their analysts and stakeholders (through Advisory Committees and consultations) to identify and work through the issues, and are supported by the Policy Research Programme for commissioned research/reviews as necessary.

0.25 The 'Science and Innovation Strategy' developed by DH in 2001²³ set four goals:

- to ensure that science and innovation lead to improved interventions for health and social care;
- to ensure that DH works with its partners to sustain and develop the science base in health and social care;
- to ensure that policy and practice in health and social care are based wherever possible on sound science and research; and
- to ensure that the rights, health, and safety of the public and patients are protected and their interests reflected.

0.26 The 'Best Research for Best Health' (BRfBH), which DH published in 2006²⁴ outlined the direction that NHS research and development (R&D) would take over the next five years to ensure

²² Information on NICE processes for developing guidance – www.nice.org.uk/page.aspx?o=howwework

²³ DH Science and Innovation Strategy (September 2001) http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4009199

a “vibrant world-class environment for conducting and using NHS health research.” It replaces the NHS R&D funding levy with a transparent, contestable funding strategy. The five strategic goals are to: 1) establish the NHS as an internationally recognised centre of research excellence; 2) attract, develop and retain the best research professionals to conduct people based research; 3) commission research focused on improving health and care; 4) strengthen and streamline systems for research management and governance; and 5) act as sound custodians of public money for public good. The budget is currently £770m.

0.27 The National Institute for Health Research (NIHR)²⁵ was established as a virtual institute in April 2006 to carry forward the vision, mission and goals outlined in BRfBH. NIHR provides the framework through which the DH can position, maintain and manage the research, research staff and research infrastructure of the NHS in England as a national research facility.

0.28 With the establishment of the Health Innovation Council, chaired by Lord Darzi, there is a proposal for a Health Innovation Fund. The aim of this fund will be to facilitate the research and development (R&D) of healthcare products for the benefit of patients, and ultimately raise standards of care within the NHS. The Department also has other initiatives to support innovation with the NHS.

0.29 The Policy Research Programme (PRP)²⁶ enables DH to commission research from leading academic institutions to support the development, implementation and evaluation of policy in public health, health services and adult social care. The

PRP is dedicated to providing research evidence to the Secretary of State for Health and Ministers, directly and through policy Directorates in the Department. The budget is currently £33m per annum with £5.5m ring-fenced for work on transmissible spongiform encephalopathies (TSE).

0.30 The Policy and Strategy Directorate was set up to bring the pre-existing strategy unit into a wider corporate context tied into the Department of State role and provide a source of methodological input to improving strategy across the Department. It has helped to bring coherence and a sense of intellectual rigour across some of the current initiatives e.g. health reform programme; payment by results; and development of a new regulator.

Science Spend

0.31 The broad range of scientific work in the Department is funded in a variety of ways. The Department is embedding science within its policy work to ensure that science and evidence is a core part of the policy-making process. Core programme funding includes expenditure within individual Directorates to support analytical work, social research, and other specific science projects and programmes closely linked with expert policy advisers as necessary.

0.32 The Research and Development Directorate provides the support and infrastructure needed for healthcare, public health and social care research through the National Institute of Health Research (NIHR) programmes; and also supports Directorates across the Department with policy research through the Policy Research Programme. For 2007/08, the expenditure of £790m by the Research and Development Directorate included:

²⁴ Best Research for Best Health (January 2006) http://www.dh.gov.uk/en/Publicationsandstatistics/PublicationsPublicationsPolicyAndGuidance/DH_4127127

²⁵ National Institute for Health Research www.nihr.ac.uk

²⁶ For more information see paras 4.3-4.11.

- £266m through the National Institute of Health Research programmes;
- £437m allocated as transitional funding; to enable previous recipients of NHS R&D funding to plan for the implementation of 'Best Research for Best Health' and the associated NIHR programmes;
- £54m of capital investment in essential research infrastructure in the NHS; and
- £33m through the Policy Research Programme.

In-House Scientists and Scientific Advice

0.33 The Department has over 100 staff with a professional scientific background. Some staff are working in posts where their scientific expertise is an essential part of their job. Other staff are either in posts where their science background is helpful to their work, or posts unrelated to science. Overall, they act as informed intelligent customers and use their expertise, as appropriate, to work effectively with external scientific professionals. In addition, DH has approximately 160 professional analysts in multi-disciplinary analytical teams based in Directorates. There are also a significant number of clinicians – doctors, dentists, pharmacists, nurses, allied health professionals, and public health experts working within the Department (often on secondment) – as well as many individuals who have some scientific background and are familiar with using science and evidence. The DH can also draw on the wealth of expertise and advice available from doctors, scientists, nurses, allied health professionals, and IT professionals in its agencies and in the NHS.

0.34 Responsibility for sustaining the scientific community within DH rests with the relevant Head of Profession. There are Heads of Profession for

operational researchers, statisticians, economists, scientists and social scientists.

0.35 The Chief Analyst has a role in bringing the three analytical networks (economics, statistics and operational research) together, for example through an area on the Department's intranet and through monthly meetings of DH analysts in both London and Leeds, monthly meetings of the Heads of Profession, and regular analytical conferences.

0.36 The Chief Scientific Adviser is the Director-General of Research and Development with responsibility for delivering the new government research strategy, Best Research for Best Health, with a budget of over £770m. The DH and NHS fund applied, clinical and policy research, research infrastructure, research capacity development and support the NHS in its research activities. Key National Programmes include the 'Health Technology Assessment Programme', 'Service Delivery and Organisation Programme' and 'Invention for Innovation'.

0.37 The Chief Scientist provides professional leadership to scientists within the Department and has close links with scientific Heads of Profession in other Government Departments. His role includes providing pastoral support as needed and playing a representational role in the wider Department and across Government. In collaboration with the Chief Scientific Adviser, the Chief Scientist also provides a focus for science-related policy issues that do not fall within a specific policy area in the Department.

0.38 The Chief Scientific Officer (CSO) is the professional head for scientists within the NHS and is responsible for building the capacity of the healthcare science workforce and developing healthcare scientists and their roles in delivering

better services for patients and promoting science and innovation in healthcare. This remit also extends to raising the profile of healthcare scientists and the recognition of the real contribution that they make across over 51 healthcare science disciplines. The CSO Annual Conference and Annual Award Scheme recognise excellence in healthcare science.

0.39 Often, the expertise or experience best placed to undertake or commission the science necessary to support health and social care policy-making and delivery lies outside the Department and its agencies. Therefore a crucial part of the role of the Department of Health is to create an enabling environment in which those working for and with the Department are able to commission and use high quality science, and translate this into real improvements and innovations within the health and social care area.

Working with Other Government Departments and Research Councils

0.40 In support of its day to day contact with Other Government Departments (OGDs), DH has developed relationships with key departments through strategic partnership agreements and management boards for delivery of cross government PSAs. The key OGDs involved in this work include: Communities and Local Government (CLG); Department for Children, Schools and Families (DCSF); Department for Environment, Food and Rural Affairs (DEFRA); Ministry of Justice (MoJ); Department for Work and Pensions (DWP); and Ministry of Defence (MoD).

0.41 In addition, DH also works with OGDs and organisations on specific initiatives, for instance: formula for social care resource allocation (CLG, DCSF and local Government), location of investments by pharmaceutical companies (UK Trade and Investment (UKTI) and industry), drug misuse programme (National Treatment Agency and Home Office), human health aspects of transmissible spongiform encephalopathies (TSEs), and the recent obesity strategy.

0.42 DH works with the Research Councils and other organisations on jointly-funded initiatives, for instance: the Public Health Centres (MRC, Economic and Social Research Council (ESRC)); the Translation Infection Research Initiative (Biotechnology and Biological Sciences Research Council (BBSRC), MRC, Wellcome Trust); the Assisted Living Innovation Platform (Engineering and Physical Sciences Research Council (EPSRC), ESRC on Technology Strategy Board (TSB) led activity); the Health Technology Co-operatives (TSB, EPSRC, MRC); and the National Prevention Research Initiative (MRC, BBSRC, ESRC). DH and the Research Councils also collaborate across other research and related activities, providing qualitative input, even where specific joint funding has not been allocated. For example, DH has been represented on the commissioning panel for the Research Councils' New Dynamics of Ageing Programme. OSCHR will be publishing an overarching co-ordinated health strategy with joint MRC/NIHR plans.

Findings, Conclusions and Recommendations

Introduction

1. This chapter presents the main findings, conclusions and recommendations from the GO-Science Review of the Department of Health (DH). The material is presented under the headings of the ten attributes that underpin good practice for the quality, use and management of science within Government.
2. For each of the ten attributes, the rationale for the attribute is explained, and the submission from DH on how they address the attribute is then provided. The areas the review focused on, as requested by DH and the Steering Panel (see paras 0.6 and 0.7), are highlighted under the section on evidence sought.

1. Science strategy

Rationale

Departments should take a strategic approach to setting R&D budgets, and should publish science and innovation (or evidence and innovation) strategies that set out the broad framework within which research programmes and other science-related activities are carried out. This is an important step in linking research and development to the effective delivery of a department's objectives and showing how value for money is achieved.²⁷

DH Submissions

1.1 DH has said:

How effectively have we developed a clear, overall science strategy?

“One of the key aims of the Department is to ensure science is embedded in all our strategies, and that it is a key part of how we approach policy and delivery for health and social care. This work takes place in the context of the Department's science and innovation strategy from 2001.²⁸ Although the goals are still relevant, the business of the Department and the way in which it works has changed significantly since 2001, and we are reviewing whether a fresh document is required to reflect the way DH currently meets these goals. We see this work as part of the Department's overall aim to improve the way we do our business, and have flagged the strategy as part of the DH Development Plan,²⁹ responding to the Capability Review.³⁰”

“We work to ensure that science, and the effective use of evidence, is integral to the major strategy

pieces within the Department. The range of strategies developed by the Department use science to differing extents, but in all cases, science and the available evidence base are a key part of strategic development.”

Evidence Sought

1.2 Guidance on the approach to update the existing 'Science and Innovation Strategy' to ensure DH can articulate a clear science strategy, with the appropriate content.

Findings

1.3 DH has commissioned RAND Europe³¹ to look at how it should update its existing science and innovation strategy taking on board recommendations from the GO-Science Review. Many respondents were interested in the approach the Department should take in developing a science strategy. Their views, which DH could usefully consider, are summarised below. The overall science strategy is underpinned by strategies in particular areas to achieve specific goals. Examples of these existing strategies are highlighted where stakeholders identified good practice and lesson learning.

Science and Innovation Strategy

1.4 *Issue* – Science both defines the problems and the possible solutions in many areas covered by the Department of Health. The strategic aim of the Department is achieving joined up and forward looking policy based on robust evidence and evaluation, providing a context in which providers of health and social care can operate and innovate, so as to enable more responsive, efficient and high quality public services. The Department's 'Science and Innovation (S&I) Strategy' should support the

²⁷ Cross-Cutting Review of Science and Research: Final Report (March 2002), page 87, HM Treasury, Department of Education and Skills, Office of Science and Technology and Department of Trade and Industry.

²⁸ DH Science and Innovation Strategy (September 2001)

http://www.dh.gov.uk/en/Publicationsandstatistics/PublicationsPolicyAndGuidance/DH_4009199

²⁹ DH Development Plan (October 2007) http://www.dh.gov.uk/en/Aboutus/HowDHworks/DH_077322

³⁰ DH Capability Review (July 2007). http://www.civilservice.gov.uk/about/accountability/capability/web_reports/DOH.asp

³¹ RAND Europe <http://rand.org/randeurope/>

delivery of its own Departmental business objectives, and cover social care, public health and healthcare.

1.5 *Need* – Most DH staff and external stakeholders agree that a visible, clearly articulated Science and Innovation (S&I) strategy with precise objectives, deliverables, metrics of success and a realistic timeframe would be useful for DH. Mapping out the role of the science in achieving the corporate goals was considered to be a key element (in a similar way to that used by the HPA Research Strategy 2005-2010).³² Some stakeholders also suggested that the S&I strategy should include a framework to guide good practice in ensuring scientific principles are used in policymaking. In addition, the GO-Science Review suggests the strategy should assess through horizon scanning the challenging visions for the future (10-20 years ahead), and consider how the opportunities of science and innovation should be translated into reality, to deliver the Department's current objectives, and allow it to be prepared for challenges ahead.

1.6 *Value* – External stakeholders consider a Science and Innovation Strategy is critical if external providers of research capability are to engage in the effective delivery of the Department's objectives. Stakeholders would welcome a clear statement of strategy to help in submitting applications that are in line with funding priorities.

1.7 *Timescale* – Some respondents considered that the S&I Strategy should have a ten year framework, equivalent to that of the R&D timescales of the pharmaceutical industry. This would provide stability and serve to attract and retain scientific

talent in the UK, encourage inward investment, and ensure the development and enhancement of centres of excellence. It should also be a rolling strategy updated on a regular basis (e.g. every three years) to accommodate new areas of work by the Department. The GO-Science Review also recommends that funding should wherever possible be identified at least three years ahead, in line with the spending round provision; although there should also be flexibility to cope with inevitable, unanticipated, and short term need.

1.8 *Science or evidence* – Some Departments are moving on from a 'Science and Innovation' Strategy to an 'Evidence and Innovation' Strategy. DH needs to consider whether or not it develops an 'Evidence and Innovation Strategy'. Whichever title is chosen, by the nature of DH business, it is important that the strategy encompasses science in its broadest sense.

1.9 *Strategy development* – The process of development for the S&I strategy is as important as the outcome, so there is ownership across the Department. Many DH staff gave a clear signal of wishing to be involved, and saw this as an opportunity to help achieve greater coherence on scientific issues across the different Directorates. Processes to develop science strategy used by OGDs that DH might consider include: Defra's 'evidence and innovation project'³³ and HSE's science plan.³⁴ The GO-Science Review suggests that a designated person responsible for representing a Directorate's science and innovation interests in the strategy development process, similar to the Directorate links in the Horizon Scanning Network (para. 2.3), could be a useful mechanism to take this forward.

³² HPA Research Strategy 2005-2010 www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1203064757273

³³ Defra Evidence and Innovation Project www.defra.gov.uk/science/how/part2.htm

³⁴ HSE Science Plan www.deltapartnership.com/exp_uk_hse_scienceplans.htm

1.10 *Stakeholder participation* – Stakeholders had clear views on how they should be involved in the development of a new S&I strategy. Many consultees wished to see substantial stakeholder participation from an early stage. They envisaged charities, industry, government, professional bodies, and users working in partnership. A couple of respondents suggested the need for a single point of contact for science/technical issues in each NHS Trust and other organisations to interact with DH (ideally co-ordinated through the Chief Scientific Officer).³⁵ Earlier GO-Science Reviews found that early and continued engagement of stakeholders is very important in developing science strategies. For instance, HSE found that they received few comments (albeit useful ones) from a three month consultation on their draft ‘Science Strategy’. Whilst better targeting and clearer guidance would have helped, a major factor was that those asked felt that they were being presented largely with a ‘fait accompli’ and that they had little opportunity to shape the Programme. Defra’s early and sustained consultation from development to launch of their science strategy worked well.

1.11 *Transparency* – A request was made by stakeholders that the decision-making involved in both setting budgets (e.g. relative attention to public health and social care) and developing strategies should be more transparent and published in an accessible format. Strategies should also make clear the links with other initiatives and strategies from other funding bodies (such as DWP, DCFS, DFID, MRC, Wellcome and charities) with common science interests.³⁶

Recommendation 1

The next version of the DH Science and Innovation Strategy should show how sectoral strategies and other activities are informed by and contribute to delivery of the overall science strategy and achieving the corporate goals; with precise objectives and deliverables against a realistic timeframe.

Key actions:

- Fully integrate the Science and Innovation Strategy with the Department’s business plan.
- Ensure horizon scanning is part of the intelligence that informs strategy development.
- Identify links with strategies of OGDs with common science interests (such as DWP, DCFS, DFID etc.).
- Involve and consult key internal and external stakeholders from an early stage and throughout the development.

Best Research for Best Health Strategy

1.12 There is positive welcome from external stakeholders to the new clearly presented ‘Best Research for Best Health Strategy’ with the ring-fenced R&D budget,³⁷ and the implementation plans that are regularly updated and rapidly disseminated on the NIHR website. These initiatives are only just being established, and it will take time for them to bed down before their effectiveness can be evaluated. One external stakeholder suggested the five-year BRfBH strategy should be extended to

³⁵ See ‘Written Evidence’ (Annex 2 para 0.3).

³⁶ See ‘Written Evidence’ (Annex 2 paras 1.4 and 4.11).

³⁷ Best Research for Best Health (January 2006) http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4127127

a longer period of time to support longitudinal research of potentially greater value than research focused on short term priorities.³⁸

Good Practice

The strategy for NHS research and development, Best Research for Best Health (BRfBH), in setting the direction for conducting and using NHS research, and tackling the challenges identified with stakeholders.

1.13 The new 'Best Research for Best Health Strategy' is focused on more open, transparent and responsive funding support to health research, with some commissioned programmes (for example those of the Health Technology Assessment programme). A possible weakness of the responsive mode funding approach highlighted by stakeholders, is the risk of missing out on longer-term, strategic research needs, and those that cut across sectoral boundaries. For example, in public health science, commitments to funding in some areas (e.g. environmental hazards such as radiation) have been intermittent; and both the external expertise and capability needed to address the issues has declined or is no longer available (e.g. the necessary community of toxicologists). Consequently, stakeholders suggest DH (working with other relevant organisations) could give even more attention to how research is prioritised to align around strategic priorities, and to the infrastructure for research needed to deliver policy in two, five and ten years time.³⁹

1.14 Stakeholders also asked to be better informed on how strategic decisions are made on the priorities for research, what the processes are, on what basis the decisions are made, and how the decisions are joined up.⁴⁰

Recommendation 2

DH should give more attention to how research is prioritised to align around strategic priorities, and to the research infrastructure needed to deliver policy in two, five and ten years time.

Key actions:

- Inform stakeholders on how strategic decisions are made on research priorities.
- Balance the support for short-term policy priorities with more longer-term strategic and multi-disciplinary research needs.

1.15 The National Institute for Health Research (NIHR) to provide the NHS with support and infrastructure to conduct research is welcomed by many stakeholders.⁴¹ Although, the Cooksey Review recommended that DH, with the Chair of OSCHR, should address how the NIHR, is established as an Executive Agency of the DH (with its own Chief Executive Officer and Advisory Council) by April 2009;⁴² there was uncertainty among stakeholders on how the governance of NIHR will be taken forward.⁴³ The GO-Science Review suggests that it would be helpful to have more transparency on the future governance of NIHR.

³⁸ See 'Written Evidence' (Annex 2 paras 4.1, 4.2 and 4.20).

³⁹ See 'Summary of Written Evidence' (Annex 2 paras 4.12-4.15).

⁴⁰ See 'Summary of Written Evidence' (Annex 2 paras 4.7-4.11).

⁴¹ See 'Summary of Written Evidence' (Annex 2 paras 4.3-4.6).

⁴² Cooksey Review http://www.hm-treasury.gov.uk/independent_reviews/cooksey_review/cookseyreview_index.cfm

⁴³ See 'Summary of Written Evidence' (Annex 2 paras 4.3-4.6).

White Paper on Genetics

1.16 The Government White Paper on Genetics⁴⁴ sets the strategy and outlines the funding for incorporating advancing scientific knowledge into the NHS. Stakeholders consider that its commitment to funding for innovative gene therapy research is a model that has worked well, as it combines responsive and commissioned research, and seeks to enhance research capacity through genetics knowledge parks and training. The White Paper's success depends to a large extent on the fact that, during its preparation, DH sought the appropriate scientific advice, and patients' views; and also took into account a wider range of research initiatives that were current at the time.⁴⁵

Good Practice

The Genetics White Paper setting strategy and funding for incorporating advancing scientific knowledge into NHS practice.

Social Care

1.17 A social care research strategy, developed in collaboration with other stakeholders on a UK-wide (and international) basis is an essential element of the science strategy for the Department. The DH Social Care Strategy Unit (SCSU), established in 2007, recognises that providing strong direction for the development of the social care evidence-base is central to building strategic capability in social care. In developing the strategy, SCSU is working closely with DH's Policy Research Programme (PRP) and the Information Centre for Health and Social Care (ICSC). It is pursuing a three-pronged approach: identifying the gaps in the existing evidence base;

prioritising these in line with strategic policy objectives; and developing a strategy to fill the gaps, beginning with the highest priorities. The GO-Science Review considers this is a model of good practice.⁴⁶

1.18 DH is also sponsoring the establishment of research governance structures appropriate to social care, and the establishment of a framework for social care research across the UK; through the development of a National Social Care Research Register (hosted by Social Care Institute of Excellence – SCIE), and the establishment of the UK Social Care Research Collaboration (co-ordinated by SCIE) with collaboration from the Department for Children, Schools and Families (DCSF).⁴⁷ In addition, the National School of Social Care Research has recently been launched as part of NIHR.⁴⁸

Good Practice

The Social Care Strategy Unit's approach to developing strategy in identifying gaps in the existing evidence base; prioritising these in line with policy objectives; developing a strategy to fill the gaps, beginning with the highest priorities; and establishing research governance structures.

National Programme for Information Technology

1.19 The development of the National Programme for Information Technology (NPfIT) under the 'NHS Connecting for Health' (CfH) provides an example of the importance of DH having a coherent science strategy linked to its overall objectives. It was relatively late in the development

⁴⁴ 'Our inheritance, our future: realising the potential of genetics in the NHS' (2003) http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4006538

⁴⁵ See 'Summary of Written Evidence' (Annex 2 para 1.4); 'Interview and Workshop Summary' (Annex 1 para 1.7).

⁴⁶ See 'Building the Evidence for Adult Social Care' Case Study (Annex 7).

⁴⁷ See 'Building the Evidence for Adult Social Care' Case Study (Annex 7).

⁴⁸ National School of Social Care Research http://www.dh.gov.uk/en/News/Recentstories/DH_085103

of NPfIT, when the mechanisms to ensure the benefits for patient care from research using data in the new patient electronic record systems were addressed in detail. However, stakeholders welcomed the recent establishment of the Research Capability Programme,⁴⁹ to implement the recommendations of the report by UKCRC R&D Advisory Group to 'NHS Connecting for Health' published in June 2007.⁵⁰ This will help to ensure that NPfIT has the full potential to enable research as a 'core' activity for healthcare; alongside other uses of NHS data that lead to improvements in the quality and safety of care.⁵¹ Whilst the early focus of NPfIT was on supporting Payment by Results, the use of information in existing systems is key to plans for supporting the Research Capability Programme. One example, is the Secondary Uses Service, developed by NHS Connecting for Health which takes information from existing patient electronic record systems in NHS Trusts and makes this available for analysis. The GO-Science Review recommends that it is important that DH makes full use of existing pilot schemes whether commissioned by DH or their stakeholder organisations.⁵²

Health Innovation Council

1.20 Stakeholders responding to the written consultation of the GO-Science Review welcomed the creation of the Health Innovation Council and the inclusion on it of representatives of the Wellcome Trust, Research Councils and Technology Strategy Board, to contribute to shaping the manner in which innovation is adopted in the NHS for patient benefit. Many stakeholders hoped that this will further the contribution that research and science advice makes to NHS innovation, including in areas outside the principal health research focus, for instance on the management of large IT projects or resource allocation practices.⁵³

⁴⁹ NHS Connecting for Health – Research Capability Programme <http://www.connectingforhealth.nhs.uk/systemsandservices/research?searchterm=capability+research+programme>

⁵⁰ UKCRC R&D Advisory Group to Connecting for Health <http://www.ukcrc.org/activities/infrastructureinthenhs/nhsitprogrammes/advisorygroup/researchsimulations.aspx>

⁵¹ See 'Summary of Written Evidence' (Annex 2 para 1.14) and 'Interview and Workshop Summary' (Annex 1 para 8.12).

⁵² Also see para 5.10.

⁵³ See 'Summary of Written Evidence' (Annex 2 para 1.17).

2. Horizon scanning

Rationale

Horizon scanning is defined as the systematic examination of potential threats, opportunities and likely future developments, which are at the margins of current thinking and planning. Horizon scanning may explore novel and unexpected issues, as well as persistent problems or trends. Departments should regularly undertake horizon scanning to improve the robustness of their evidence base and policies.

DH Submissions

2.1 DH has said:

How effectively do we use horizon scanning to identify future science-related issues?

“Effective horizon scanning allows the Department of Health to ensure that the scientific cutting edge in any given area can lead to improved interventions for health and social care. It also helps to ensure the Department is thinking about the future when developing policy and is commissioning the right science to meet the future needs of the population. This work is underpinned and supported by the Department’s specialist Horizon Scanning Unit (HSU).”

“Horizon scanning for the Department covers a wide area and it is therefore important that those who have the expertise and knowledge in a particular field should use this to identify future issues, firstly so that their expertise can inform the horizon scanning itself and, secondly, so that horizon scanning can, in turn, feed more easily into policy development. By using those officials and expert Committees with the greatest expertise in a given field to perform horizon scanning, the

Department has an excellent track record of horizon scanning and using this to develop policy.”

Evidence Sought

2.2 An understanding of how DH carries out, uses and evaluates horizon scanning; and to what extent science providers and Scientific Advisory Committees are encouraged to horizon scan.

Findings

2.3 The Department’s specialist Horizon Scanning Unit (HSU), set up in 2007, provides support to improve and embed horizon scanning capability within the Divisions of the Department. The Horizon Scanning Network (HSN) set up by HSU involves collaboration of officials and experts from across the Department, and liaises with horizon scanning bodies in other Government Departments. In addition, the HSU has set up a site on the Department’s intranet as a corporate resource to share scanning information, contacts and methodology. Although too early to identify the impact, the GO-Science Review considered this approach to be a practical and sensible way of addressing horizon scanning in the Department.

Good Practice

The structure and concept of the Horizon Scanning Unit and Network involving collaboration of officials and experts across the Department to scope futures and produce scenarios or vignettes of possible, plausible and preferred futures.

2.4 Some consultees recognised that horizon scanning is taking place at different levels of the Department, for example: collaboration with the National Horizon Scanning Centre (NHSC);⁵⁴ as part

⁵⁴ National Horizon Scanning Centre <http://www.pcpoh.bham.ac.uk/publichealth/horizon>

of the NIHR Health Technology Assessment (HTA) Programme;⁵⁵ in arms-length agencies and bodies sponsored by DH; and participation in four Foresight⁵⁶ projects (including: brain science, addiction and drugs; tackling obesity; infectious diseases; mental capital and well-being). Many Scientific Advisory Committees (SACs) sponsored by the Department include horizon scanning in their remit. Also, the benefits are acknowledged by stakeholders. One example highlighted, is the value of horizon scanning for advances in scientific technology in helping to place the UK at the forefront of the fast-developing areas of stem-cell and genetic science.⁵⁷

Good Practice
DH participation in Foresight projects, providing the opportunity to gather intelligence from other Government Departments and other organisations.

2.5 However, other consultees were not aware of the Department's horizon scanning activities and felt there was a need for better communication with stakeholders and more transparency of the processes for horizon scanning. In addition, they also wished to see the involvement of a wide spectrum of scientific expertise, including those from the private and commercial sectors, and charities. For organisational research, managers and patients should also contribute. This approach to horizon scanning will help DH look beyond immediate challenges or policies, and encourage more research on the underlying, enduring issues. It should also help to identify new opportunities for innovation and exploitation. Industry stakeholders

offered their experience to support DH initiatives in horizon scanning and scenario planning over ten to thirty years.⁵⁸

2.6 An issue raised by many DH staff was their own lack of time for carrying out horizon scanning. They draw on information from various sources including: Scientific Advisory Committees (SACs); the National Expert Panel on New and Emerging Infections (NEPNEI); the Forward Thinking Group (FTG), with NHS managers, GPs, Ambulance managers and the private sector; informal access through their scientific non-departmental bodies (HPA, MHRA etc.), and other European and worldwide organisations (e.g. EU and WHO); National Service Frameworks; and market studies and meetings with industry (e.g. vaccine manufacturers, pharmaceutical companies).⁵⁹

2.7 The GO-Science Review recognises that the Horizon Scanning Unit and Network (HSU&N) have only recently been established, and a key challenge is to promote a shared understanding of horizon scanning across the Department, and improved capability and engagement. To achieve this, the review recommends that HSU&N should consolidate and map the current horizon scanning initiatives and share the lessons learned across the Department and its SACs involved in horizon scanning. Further, the HSU&N should seek to identify opportunities to demonstrate the benefits of using horizon scanning (whether carried out by DH or others) to inform strategy and policy development. Policy makers should also respond promptly to upcoming issues identified through horizon scanning with stakeholder involvement; and where appropriate, commission relevant work to explore issues further.

⁵⁵ NIHR Health Technology Assessment Programme <http://www.ncchta.org/>

⁵⁶ Foresight <http://www.foresight.gov.uk/drumbeat/index.asp>

⁵⁷ See 'SAC' Case Study (Annex 3 para 4.3); 'Written Evidence' (Annex 2 paras 2.6-2.15).

⁵⁸ See 'Summary of Written Evidence' (Annex 2 paras 2.6-2.15).

⁵⁹ See 'Interview and Workshop Summary' (Annex 1 paras 2.4-2.5).

Recommendation 3

The Horizon Scanning Unit and Network should promote a shared understanding of horizon scanning within the Department and improve capability and engagement across the organisation and with stakeholders.

Key actions:

- Explore and share good practice with stakeholders in using horizon scanning to inform strategy and policy.
- Share relevant findings from horizon scanning in OGDs, Select Committees etc. and Foresight with staff and stakeholders (including SACs).
- Promote the use of a wider spectrum of scientific and industry expertise in horizon scanning.
- Work with industry on scenario planning.
- Commit funds to act on the outcomes of horizon scanning as appropriate.

3. Harnessing existing science and identifying gaps

Rationale

To demonstrate value for money and effective use of resources, departments should have in place effective arrangements for deciding what current or potential science could benefit the department's delivery of its objectives and hence whether new research is needed or where it would best be targeted. In particular, departments should actively manage existing knowledge, synthesise existing research, and work with other Government Departments (OGDs) and the research bases in the UK and internationally.

"In other situations, the expertise to commission this work rests outside the Department and our role is to create an enabling environment to allow other bodies to review and harness science in line with the Department's goals. Examples include: the establishment of NIHR, working with industry through groups such as Healthcare Industries Task Force (HITF) and more recently through the National Innovation Council (NIC)."

"The Department is committed to ensuring that high-level concepts such as health reform are as closely and scientifically evaluated as individual policies."

DH Submissions

3.1 DH has said:

How effectively do we review and harness existing science, identify gaps and opportunities for future research?

"The Department takes a flexible approach to the harnessing and reviewing of existing science, modelling the approach to a particular issue on the nature of that particular issue. Sometimes the best approach is for the Department to use its internal capability to analyse current and future issues and identify corresponding knowledge gaps. For example, through systematic reviews by the Policy Research Programme, the liver disease scoping study, and the 360 degree reviews of evidence conducted by the Social Care Strategy Unit. When appropriate, the Department will commission a Scientific Advisory Committee or expert group to conduct the review, for example in planning for an influenza pandemic."

Evidence Sought

3.2 An understanding of how the Department reviews existing science; identifies and addresses gaps in knowledge; and prioritises issues. Also, how the existing and emerging scientific knowledge is harnessed to influence strategy and priority setting within the Department.

Findings

Harnessing Existing Science

3.3 It is essential that existing science is reviewed and harnessed in a structured manner to ensure it yields its potential. This should be an intrinsic and continuous part of maintaining the evidence base, and follows naturally from the horizon scanning process. Areas considered by the GO-Science Review in detail included: systematic reviews, public consultations, data collection, use of Scientific Advisory Committees, and tracking research and development.

Systematic reviews

3.4 There was a recognition by stakeholders, of the initiatives that DH has pioneered to review evidence and inform health and social care practice and to transfer this knowledge to practitioners in services (e.g. NICE,⁶⁰ SCIE,⁶¹ Cochrane⁶² and National Library for Health⁶³). Another example is the independent review of available evidence by NICE to provide guidance on the clinical and cost-effectiveness of different health interventions.

Good Practice

The National Institute for Health and Clinical Excellence (NICE) in improving quality in the NHS by independently reviewing available evidence and providing guidance on the clinical and cost-effectiveness of different health interventions.

3.5 The Department is acknowledged as responding well to harnessing the evidence where there is a potential emergency (e.g. TSEs and pandemic flu); and in priority areas of work (e.g. 18 weeks patient pathway programme).⁶⁴ In other areas of the Department's work, stakeholders suggest that Department could work more with DH stakeholders (agencies, academics, local authorities, and private sector etc.) and other Government Departments to pull together evidence streams and science audits.⁶⁵

Recommendation 4

DH should take a more systematic approach to analysis of the current and future science needs, and the evidence base needed to guide policy and set research priorities.

Key actions:

- Make evidence scanning/systematic reviews an integral part of the policy development and implementation process.
- Work with stakeholders and OGDs to pull together evidence streams and science audits.

3.6 An example of good internal practice by the Department is the recent 360 degree scan run by the Social Care Strategy Unit (SCSU), and comprising of ten separate pieces of analysis on a series of topics, which combine to provide a full view of the evidence base for social care policies and will feed into policy development. The scan identifies issues that will need to be addressed over the long-term as well as gaps in the current knowledge base, feeding these into social care strategy as it develops.⁶⁶

Good Practice

The 360 degree scan run by the Social Care Strategy Unit to provide a full view of the evidence base for social care policies, by analysis on a series of topics.

⁶⁰ National Institute for Clinical Excellence <http://www.nice.org.uk/>

⁶¹ Social Care Institute for Excellence <http://www.scie.org.uk/>

⁶² Cochrane <http://www.cochrane.org/>

⁶³ National Library for Health <http://www.library.nhs.uk/Default.aspx>

⁶⁴ See 18 Weeks Patient Pathway <http://www.18weeks.nhs.uk>

⁶⁵ See 'Summary of Written Evidence' (paras 3.1-3.5 and 3.17); 'Interview and Workshop Summary' (paras 3.1-3.3).

⁶⁶ See 'Building the Evidence Base for Adult Social Care' Case Study (Annex 7).

Public consultations

3.7 DH undertakes a large number of public consultations to identify health issues that generate widespread public concern or raise ethical questions, and to help frame their policy solutions. For example, 'Our Health, Our Care, Our Say' White Paper⁶⁷ was accompanied by a listening exercise⁶⁸ with staff and the public, including the homeless, people with learning difficulties, and teenagers who are often not heard in consultation exercises. The NHS Next Stage Review has followed a similar model.⁶⁹ Whilst DH fully embraces the importance of public consultation in the decision making process, the GO-Science Review found some suggestions for improvement. Several respondents considered that for some consultations there was an inadequate emphasis on the "audit cycle" to assess the outcome and the impact of the consultation (e.g. smokefree legislation, and revision of the Human Fertilisation and Embryology Act (Cm6989)).⁷⁰ The House of Commons Science and Technology Committee re-enforced this message in its report on Government proposals for the regulation of hybrid and chimera embryos; by recommending DH develop a more systematic statistical or scientific approach to quantify and qualify the results of public consultation.^{71 72} An OGD respondent was concerned that, occasionally, the analysis and conclusions following consultations could be adversely affected by unrealistic timescales. Overall, the GO-Science Review recognised that the Department does consult effectively in many cases, though this could be made even more consistent to address the concerns above, in particular to analyse and publish results.

Data collection

3.8 The majority of the data collection work by DH was put out in 2005 to the NHS Information Centre for Health and Social Care (ICHSC).⁷³ As a result, a large number of DH statisticians moved out to the ICHSC. Analysts retain close liaison with contacts in the ICHSC for their areas of data, and hold regular meetings with staff. The informatics team of the NHS Next Stage Review⁷⁴ has reviewed all the data that the Department collects. Staff consider that better awareness of such datasets in the context of wider libraries of evidence would add value to DH research and policy initiatives. They have requested that there should be better institutional knowledge about what data sets DH sponsors/funds and where the lead for their management/access lies.⁷⁵

Tracking research and development

3.9 Access to project databases is an important means for researchers and policymakers alike to harness and build on research outcomes and avoid duplication in effort. DH has recently changed its systems to track R&D funded projects by moving the National Research Register to a searchable archive, and introducing the UK Clinical Research Network (UKCRN) portfolio database and the new national social care research register. This has meant that some stakeholders have found it difficult to keep track of all R&D commissioned on the health agenda. It was suggested that DH needs to ensure that these new systems are monitored carefully, and that the search facilities are in place for stakeholders to identify not only research funded by subject but also research funded at Universities, or by particular themes. DH may

⁶⁷ 'Our Health, Our Care, Our Say' <http://www.dh.gov.uk/en/Healthcare/Ourhealthourcareoursay/index.htm>

⁶⁸ 'NHS Next Stage Review' http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4127357.

⁶⁹ See 'High Quality Care for All' available at <http://www.ournhs.nhs.uk/>

⁷⁰ Human Fertilisation and Embryology Act (Cm6989). http://www.peoplescienceandpolicy.com/downloads/FINAL_HFEA_reportDH.pdf

⁷¹ <http://www.publications.parliament.uk/pa/cm200607/cmselect/cmsctech/272/27211.htm>

⁷² See 'Summary of Written Evidence' (Annex 2 paras 13 and 3.14-3.16).

⁷³ NHS Information Centre for Health and Social Care. www.ic.nhs.uk/

⁷⁴ NHS Next Stage Review – Informatics. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_086073.

⁷⁵ See 'Interview and Workshop Summary' (Annex 1 paras 0.12; 3.3 -3.6).

wish to consider database models used by OGDs, for example, the DFID funded Research4Development database.⁷⁶

Use of Scientific Advisory Committees

3.10 There is good practice by DH in using Scientific Advisory Committees/Expert Panels to gather knowledge and ascertain gaps, assemble existing and emerging evidence, and have sight of the research landscape of other funders in the area. Examples include: a) systematic searches of literature; b) focus sessions at each meeting to scan the evidence and issues on a key theme related to the remit of the SAC; and c) reviews of research on a regular basis to identify future research needs ranging from blue sky to applied research.⁷⁷

Knowledge Gaps

3.11 Knowledge gaps highlighted by written submissions and interviews with internal and external stakeholders are provided in Annexes 1 and 2. Many of these areas the Department is already addressing, but there may be further issues to consider. Key areas highlighted and discussed below include public health, social care, and social science research.

Public Health

3.12 Effective horizon scanning and commissioning by the Department has led to a significant investment in the screening programmes, treatment and care services of the NHS; and has ensured that the profile of research in these fields

has been elevated and maintained as a priority within DH's research portfolio. The HPA plays an important part of developing, reviewing and applying the evidence base for health protection. In health improvement, there is some research available, but there is a need for more high quality research evidence on what works in health improvement. To address this, DH is funding some public health research to support the identification and implementation of cost-effective approaches to improving population health, prevention and reducing health inequalities. New initiatives include: a public health research initiative⁷⁸ as part of the SDO programme;⁷⁹ a Disease Prevention Panel (DPP),⁸⁰ as part of the HTA programme; a National Prevention Research Initiative (NPRI);⁸¹ five Public Health Centres of Excellence;⁸² and a national reference group for health and wellbeing, Health England. In addition, NICE now has responsibility for providing guidance on public health interventions and programmes.

Social Care

3.13 The issues involving healthcare and social care are inextricably linked, and the contribution that social care research can make, is not always fully recognised. A case in point is the need to consider (holistically) the public health and social care needs of those with chronic conditions alongside the application of treatments and therapies. DH has developed several tools to support the management of long term conditions (disease management information tool (DMIT));⁸³ patients

⁷⁶ DFID Research 4 Development Project Database. www.research4development.info/

⁷⁷ See 'Interview and Workshop Summary' (Annex 1 para 3.10); 'SAC' Case Study (Annex 3).

⁷⁸ Public Health Research Initiative

<http://nds.coi.gov.uk/environment/fullDetail.asp?ReleaseID=368459&NewsAreaID=2&NavigatedFromDepartment=False>

⁷⁹ Service Delivery and Organisation Programme <http://www.sdo.nihr.ac.uk/currentpublichealth.html>

⁸⁰ Disease Prevention Panel <http://www.hta.ac.uk/about/People/panels/DPP.shtml>

⁸¹ MRC National Prevention Research Initiative <http://www.mrc.ac.uk/OurResearch/ResearchFocus/NationalPreventionResearchInitiative/MRC001981>

⁸² UK CRC Public Health Centres of Excellence <http://www.ukcrc.org/publications/news/publichealthcentres.aspx>

⁸³ Disease Management Information Tool (DMIT) – a web-based tool covering nine key long term conditions to help decision-making and commissioning services. http://www.dh.gov.uk/en/Healthcare/Longtermconditions/DH_4130657

⁸⁴ Patients At Risk of Re-hospitalisation (PARR) Case Finding Tool – a software tool for use by Primary Care Trusts to systematically identify patients who are at high risk in the future of readmission to hospital via emergency admissions. http://www.dh.gov.uk/en/Healthcare/Longtermconditions/DH_4130655

at risk of re-hospitalisation (PARR) case finding tool;⁸⁴ and raising the profile of long term conditions care: a compendium of information.⁸⁵ In addition, the Whole System Demonstrator⁸⁶ programme is looking at the impact of telehealth and telecare on both health and social care. These initiatives are encouraging a more integrated view of an individual's care needs, however, the GO-Science Review believes an even more systems-based 'holistic' approach is needed to understand all the factors that contribute to patients' well-being (e.g. personal safety, condition of housing). Consequently, there is an opportunity to make a convincing case for the role of social care and the importance of attracting the necessary investment for research. Therefore, DH's strategic approach to building a robust evidence base for social care and public health needs to be an important part of the research programme and co-ordinated with the research programmes of other organisations with a shared interest.

Social Science Research

3.14 Stakeholders identified a need to expand the range of opportunities in which social as well as natural science can contribute to the improvement of health outcomes. The application of social science to health has the potential to lead to novel approaches to the delivery of healthcare, to changes in health policy and to changes in organisational behaviour. An example is research for a better understanding of how to change behaviours of general populations and individual patients (including dietary change, increasing physical activity, smoking cessation, treatment adherence, and behaviours associated with recovery/rehabilitation and secondary prevention); as well as health professionals' behaviours (e.g. promoting the uptake of emerging and

Recommendation 5

Given the need for an integrated approach to health and social care, DH should work with relevant organisations to ensure that its strategic approach to building a robust evidence base for social care and public health is well resourced and commensurate with the needs of the sector.

Key actions:

- Working with other organisations, continue to develop a robust evidence base for social care and public health, by analysis of the existing evidence base; and commissioning research to address the gaps.
- DH should continue to ensure research is well co-ordinated with the research programmes of other organisations.

established evidence-based health technologies, use of clinical guidelines, and consultation skills for supporting patient behaviour change).⁸⁷

⁸⁴ Long Term Conditions Compendium of Information looking at the outcomes that people with long term conditions have said that they want from services and how more effective management of long term conditions in local communities can deliver high-quality and personalised care http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_082069

⁸⁶ Whole System Demonstrator <http://www.dh.gov.uk/en/Healthcare/Longtermconditions/wholesystemdemonstrators/index.htm>

⁸⁷ See 'Summary of Written Evidence' (Annex 2 para 3.17) and 'HCAI' Case Study (Annex 5 para 0.10).

4. Commissioning and managing new science

Rationale

As part of the drive for evidence-based policy and improved service delivery the Government needs to use, and be seen to use, high quality science together with other forms of evidence, and the most appropriate new technologies. Science programmes funded by Government departments make a very important contribution to policy formulation.

DH Submissions

4.1 DH has said:

How effectively do we commission and manage new science?

“As with reviewing and harnessing science, one of the Department’s roles in ensuring effective commissioning of science is to provide a supportive environment for others to commission and manage new science to a high standard. In particular, the Department is responsible for providing such an environment for the NHS through NIHR and for its Arms Length Bodies (ALBs). In certain policy areas, the expertise of independent advisory bodies plays a key role in informing and contributing to the commissioning of science.”

“The Department also needs to be able to effectively commission and manage science and research either from external sources, mainly managed through the Policy Research Programme, or through internal analysis e.g. the NHS deficits work.”

“So, through tightly controlled collaborations with ALBs and independent bodies, through providing the right environment and making best use of our internal capacity, the Department ensures that the commissioning and management of science is of the highest quality.”

Evidence Sought

4.2 Engaging with policy leads in commissioning research to ensure policy research is used systematically across the Department; and policy is mapped against Departmental priorities.

Findings

4.3 The focus under this attribute was on how well the Policy Research Programme commissions and manages new science for policy. The findings are presented below against the different components of the programme cycle (for example: prioritisation, tendering, commissioning, research management, and programme outcomes). Some areas of the programme are also discussed under other sections of the GO-Science Review report covering: 5. ensuring quality and relevance of science; 7. publishing results and debating their implications; and 8. sharing and transferring knowledge.

Policy Research Programme

4.4 The *primary objective* of the Policy Research Programme (PRP)⁸⁸ funded by the Research and Development Directorate is to:

- Provide research evidence for better policy-making to DH policy groups who are developing and formulating policy for the NHS, public health and adult social care. Frequently a scoping paper or systematic review is commissioned to determine whether primary research is required.
- Commission research on the likely impact and cost-effectiveness of policies, and their consequences for people and organisations. This includes evaluating existing policies or experimental pilots, as well as contributing to knowledge and understanding in the policy arena.

⁸⁸ DH Policy Research Programme <http://www.dh.gov.uk/en/Researchanddevelopment/Policyresearchprogramme/index.htm>

4.5 In order to provide the evidence base for policy making in DH, and the evaluation of policies and their implementation, the PRP currently funds research in three ways:

- *five year programmes* of research in university-based units and research centres, both to support medium to long-term needs for research evidence in certain priority areas, and to provide a rapid response function;
- *programmes of interlinked studies* for a range of perspectives on a key policy issue or initiative; and
- *single projects and literature reviews* to meet a number of needs, from synthesising existing research and identifying research gaps through to major policy evaluations.⁸⁹

4.6 The Departmental Board Policy Committee meets regularly with senior representatives from all Directorates, to ensure that there is a cross cutting view of departmental policy. The Policy Committee has been operating for over a year and it has been used to provide more overarching input to the PRP, including lesson learning and sharing of information across the Directorates. The R&D Directorate, and the Policy and Strategy Directorate recently carried out a review of how priorities are set for the PRP across the different Directorates to tie in with the DH Planning Framework and the Public Service Agreements. The aim is that this will initiate an annual prioritisation process for the programme aligned with business planning. This approach was welcomed by the GO-Science Review and responds to a request made by the DH staff interviewees. The GO-Science Review also found this recent review on PRP priorities was already helping to promote closer working arrangements between the PRP and other Directorates.

4.7 The eight *Research Liaison Officers* (RLO) of the PRP establish close working relationships with policy teams across DH early on in the priority-setting process to arrive at a research specification which best meets policy needs. In addition, they oversee the commissioning process and ensure that research in progress remains policy relevant. They subsequently help interpret research findings so that the evidence is used appropriately and effectively to support the policy-making process. The RLO acts as 'intelligent customer' for complex policy evidence by drawing on many sources of information, analysis, and the relevant natural and social science disciplines. This role, by its interactive nature, is labour intensive, but very valuable to ensuring the use of science in policy. The GO-Science Review found they are well respected internally by policy makers and externally with academics.

4.8 The *commissioning and funding systems* for research through the Policy Research Programme are, generally speaking, rigorous and well managed. A small proportion of policy-driven research is commissioned in other Directorates without consultation with staff in the R&D Directorate. It is hoped that the awareness raising work currently planned will encourage policy leads to consult PRP where appropriate. The GO-Science peer review of projects found there was a need for more transparency on the research procurement process and project management documentation for research commissioned in other Directorates.⁹⁰ The GO-Science Review recommends DH should look at how to spread best practice and ensure that all areas of the Department are commissioning work to the same high standards, in line with the Research Governance Framework for Health and Social Care⁹¹ (see para 5.3). Bringing all research

⁸⁹ also see para 0.29.

⁹⁰ See 'Peer Review' (Annex 8).

⁹¹ DH Research Governance Framework for Health and Social Care – second edition (April 2005)
http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4008777

for policy areas within the scope of the PRP would be one way of achieving this, as it would ensure that DH secures consistently high quality, properly targeted research that addresses long-term as well as short-term policy needs.

4.9 *Tendering* – Except for research undertaken by the PRP funded Research Units,⁹² all research commissioned by the PRP is openly and competitively tendered through the appropriate journals and media. The use of a two-stage bidding process is frequently applied by the PRP for projects or programmes (expressions of interest or outline bids, followed by a smaller number of bidders being invited to put forward detailed proposals). This is an effective way of ensuring a wide range of potential suppliers is aware of the work being done by the Department, while minimising the burden on both the bidders and the Department.

4.10 *Collaborative R&D* – As a result of the competitive nature of the tendering process, proposals for research are often submitted by single organisations, rather than organisations working together. Although, there are existing collaborative approaches used by the Department, for example the UKCRC Public Health Research Centres of Excellence⁹³ and Health Technology Collaboratives, some stakeholders wished to see incentives and other ways of encouraging and facilitating more collaborative working arrangements. This approach would work particularly well in areas of limited expertise or those requiring more cross-disciplinary expertise, where Universities and NHS Trusts might pool staff and resources. For example, the NHS Chair in Pharmacogenetics for an area of market

failure, with the aim of setting up a network was considered a good model.⁹⁴ Likewise, the programmes of interlinked studies on policy initiatives under the Policy Research Programme have worked well.⁹⁵ The healthcare-associated infection research network⁹⁶ and the topic specific clinical research networks⁹⁷ should be used to further more collaboration between organisations.

4.11 *Research Management* – The PRP Research Liaison Officers have a broad, strategic role in driving programmes and are supported by an external procurement organisation. Administration for research commissioning and management (project tenders, contracts and reporting etc.) is outsourced to the Central Commissioning Facility (CCF)⁹⁸ at the Laboratory of the Government Chemist (LGC Ltd). The approach to project management is effective, but there are concerns amongst external stakeholders that the process is sometimes excessively focussed on delivery targets, rather than the quality of the science. Often there are short timescales from the announcement of a call for research to submission of a proposal, which can be a challenge for applicants. The peer review of projects in the GO-Science Review found that, in the past, project documentation had not always been thoroughly archived through commissioning, implementation, and completion. This was one of the challenges taken on by the new CCF and is now being addressed. Ideally, this should be managed by a central electronic database (similar to that used by the Technology Strategy Board) and which also provides an interface with an external public facing website (similar to the DFID project database).⁹⁹ PRP RLOs usually hold periodic

⁹² These will be competitively tendered as their current programme comes to an end in the next couple of years.

⁹³ UKCRC Public Health Research Centres of Excellence http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/about/CI/CP/Social_Sciences/issue65/ukcrc.aspx?ComponentId=18212&SourcePagelD=18245

⁹⁴ See 'Targeted Funding for Pharmacogenetics' Case Study (Annex 6).

⁹⁵ See 'Peer Review' (Annex 8).

⁹⁶ See 'HCAI' Case Study (Annex 5 para 45).

⁹⁷ See UK Clinical Research Network <http://www.ukcrn.org.uk/index/networks.html>

⁹⁸ NIHR Central Commissioning Facility <http://www.nihr-ccf.org.uk/site/default.cfm>

⁹⁹ DFID Research 4 Development Project Database www.research4development.info/

progress meetings with policy customers to help policymakers engage more directly with the research process and outputs.¹⁰⁰

4.12 Sometimes an external “Scientific Adviser” is contracted to manage and co-ordinate a research programme, including liaison with the outsourced administration function at CCF, and the interpretation of the programme outputs. At the planning stage, the Scientific Adviser works closely with PRP to help clarify and draft terms of reference for the initiative. They also actively assist the commissioning process and monitor project implementation and reports. This model has worked successfully in projects peer reviewed by the GO-Science Review.¹⁰¹

4.13 *Programme Outcomes* – There would be value in promoting more widely the outcomes of the Programme, possibly through a formal published Annual Report or some form of e-bulletin. DH is already exploring these options. This would help engage policy staff across the Department and raise the profile with external stakeholders.

4.14 The GO-Science Review found the PRP is a model of good practice in concept and operation to be shared with Other Government Departments (OGDs). The GO-Science Review noted the following elements of good practice in the PRP: the role of the Research Liaison Officer as an ‘intelligent customer’ working with policy makers and scientists; the recent review of the mechanisms to set priorities; the attention to project communication strategies;¹⁰² and the longer term programmes of DH Research Units and Centres in supporting the capability and capacity of the academic policy research community.¹⁰³

Good Practice

The approach by the Policy Research Programme to commissioning and use of research evidence for better policy-making. In particular, the effectiveness of the Research Liaison Officer role in ensuring the science meets policy needs.

4.15 In light of the Department’s commitment to delivering evidence based policy, the GO-Science Review recommends that DH should consider increasing the resources allocated to the PRP. There are two main reasons: firstly, the eight Research Liaison Officers currently deal with research across the full spectrum of the Department’s work; and secondly, increased funding could help DH fund further research to deliver more evidence across policy areas.

Recommendation 6

DH should consider expanding the role and remit of the Policy Research Programme; and addressing how it can best be resourced (staff and funds).

Key actions:

- Ensure adequate number of Research Liaison Officers for the breadth of DH’s work.
- Assess the programme budget needed to deliver the role and function.
- Promote the outcomes of the Programme through a formal published Annual Report.

¹⁰⁰ See ‘Interview and Workshop Summary’ (Annex 2 paras 4.8-4.9).

¹⁰¹ See ‘HCAI’ Case Study (Annex 5 para 57); and ‘Peer Review’ (Annex 8 para 14)

¹⁰² See para 7.12.

¹⁰³ See para 10.20.

5. Ensuring quality and relevance of science

Rationale

Even though the outcomes of the science itself cannot always be predicted, departments must be able to commission the right science, assess its quality, and use it effectively. The credibility of departmental policy-making generally will be undermined if individual policies are perceived to be based on poor, incorrect or irrelevant science.

DH Submissions

5.1 DH has said:

How effectively do we ensure the quality and relevance of the work we sponsor?

“Research that is neither relevant nor of a high-enough quality, cannot successfully underpin policy, nor can it be the catalyst that brings about policy change. The Department has produced the ‘Research Governance Framework for Health and Social Care’ to ensure the quality and relevance of research in the health and social care sector. This covers the NHS, the Department’s arms-length bodies, and the Department; and is available to anyone conducting health and social care research. The standards described in the Framework are exemplified by the processes used by the Policy Research Programme (PRP).¹⁰⁴”

“By setting out clear frameworks, with not only principles but also concrete standards, requirements and delivery mechanisms for the governance of research, and by tasking officials with ensuring the quality of research within the Department and the relevance of that research to the Department’s aims, the Department benefits from science that can solidly and safely underpin good policy-making.”

“External peer review of the work we do and the research we sponsor is an important facet of the way in which the Department ensures the quality and relevance of its work.”

Evidence Sought

5.2 How effectively DH appraises (at the proposal stage), monitors (work in progress) and evaluates (after completion) the science it commissions for quality and relevance; feeds science back into its strategies; and reviews or evaluates its science providers.

Findings

Ensuring Relevance

5.3 The ‘Research Governance Framework for Health and Social Care’¹⁰⁵ produced by DH to ensure quality and relevance of research in the health and social care sector was largely NHS-facing and difficult to apply to the personal social care context. A separate implementation plan and a guidance pack were therefore developed to support local social care researchers in implementing the Research Governance Framework. This is an example of how governance frameworks and guidance need to be tailored to a specific target audience.¹⁰⁶

5.4 *Policy Relevant Analysis* – The PRP and analytical teams work closely with policy colleagues to ensure that the scientific research they commission is not only of good quality, but that outputs are timely and have strong policy relevance. In the area of social care, analysts are embedded in the Social Care Strategy Unit, and the Prioritisation of Analysis Group meets regularly to assess what analytical work the Directorate is undertaking, and to ensure analysts are allocated to projects supporting the Directorate’s and the Department’s business priorities.¹⁰⁷

¹⁰⁴ DH Policy Research Programme <http://www.dh.gov.uk/en/Researchanddevelopment/Policyresearchprogramme/index.htm>

¹⁰⁵ Research Governance Framework for Health and Social Care – second edition (April 2005) http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4008777

¹⁰⁶ See ‘Building the Evidence Base for Adult Social Care’ Case Study (Annex 7 para 95).

¹⁰⁷ See ‘Building the Evidence Base for Adult Social Care’ Case Study (Annex 7 para 25).

5.5 *Relevance of Science* – Some stakeholders perceived a mis-match between the research that is funded and that which is needed. In order to ensure the relevance of the science commissioned, it is important to first understand the cause of the problem, and then decide how to identify the appropriate interventions and monitor the outcomes. Stakeholders suggested that there should be more involvement of clinicians, patients and other relevant stakeholders, to ensure the relevance of research commissioned.¹⁰⁸ Examples of current good practice include the HTA prioritisation process and 'INVOLVE',¹⁰⁹ funded through NIHR.¹¹⁰

Recommendation 7

When commissioning science, DH should consistently use cross-disciplinary expertise to work out the root causes of problems and identify potential solutions, and routinely to learn from successes and failures.

Key actions:

- Build on the approach taken for Pandemic Flu, TB, vCJD and HCAI through networks and stock take meetings across Directorates.
- Involve a wide-range of stakeholders in identifying research and policy needs.

Quality Assurance

5.6 *Peer Review* – The DH Policy Research Programme consistently uses independent external peer review (sometimes with a Steering Panel or a Scientific Adviser) to assess the quality of its research proposals and outputs. However, some science and policy driven research is commissioned

less formally in other Directorates. Peer reviewers interviewed suggested it would be helpful to have a formal recorded system for declaring conflicts of interest (i.e. personal specific, personal non-specific, non-personal specific, and non-personal non-specific) of reviewers to ensure that the reviews are not compromised. The requirement for bidders to address reviewers' comments on their proposals, before funding is provided; is good practice in helping to improve the quality and relevance of the projects.¹¹¹

Good Practice

The consistent use by the Policy Research Programme of independent external peer review to assess the quality of its research proposals and outputs.

5.7 *Stakeholder Involvement* – Another approach to ensuring the relevance of research/policies is the use of secondees in DH (from the NHS or customer/supplier organisations) and consultation with stakeholders in the planning, execution and use of science, to inform major policy initiatives. The access to secondary care PSA target and the 18 weeks patient pathway programme has required a whole system approach. The programme highlights the importance of collecting and reviewing a diverse and wide ranging set of evidence and data, which has been used to inform policy and practice. It also highlights the role of performance management of the system, and the value of constantly testing, piloting and evaluating solutions with the eventual implementers in the NHS and the end recipient of care (i.e. public and patients). These principles have constantly shaped the questions and have led to greater engagement and

¹⁰⁸ See 'Interview and Workshop Summary' (Annex 1 para 5.7).

¹⁰⁹ INVOLVE <http://www.invo.org.uk/>

¹¹⁰ See 'Summary of Written Evidence' (Annex 2 paras 5.9-5.11).

¹¹¹ See 'Interview and Workshop Summary' (Annex 1 para 5.5).

understanding by DH and stakeholders. Active involvement of hospital and primary trusts as pilots/pioneers has resulted in showcase sites as advocates to the other stakeholders.¹¹²

Good Practice

The use of secondees in DH and consultation with stakeholders, to inform major policy initiatives, in improving the quality, relevance and use of science.

5.8 *Robust Evidence* – The case study on the evidence base for social care found a view among external stakeholders that DH could risk compromising the quality of some of its research with unintended consequences on the development and implementation of policies. Their impression was that on occasions, e.g. in some of the Modernisation of Adult Social Care grouped studies, the ability to draw conclusions was limited by sample sizes, and relatively short term projects. Given the complexity of social care research and the large number of variables impacting on a situation, DH needs to ensure that greater use of multi-mode and longitudinal studies is made in the key areas of its social care research agenda, with adequate resources.¹¹³

5.9 The use of *Randomised Controlled Trials* (RCTs) is challenging in Government social research generally (and not just in DH), but is also relatively uncommon in social care. The GO-Science Review found evidence of good practice using RCTs in the evaluation of individual budgets for personal social care, where the research team had addressed local concerns about ethics and the impact of using RCT methodology.¹¹⁴ The practice of using RCTs should

be adopted more frequently in social care research funded by DH more generally.

Monitoring and Evaluation

5.10 Government has a responsibility to evaluate new interventions in a way that is methodologically sound, and which will allow policy makers and Ministers to make decisions on their effectiveness, based on demonstrably valid evidence. The PRP is increasingly funding ‘embedded evaluations’ of new policy pilots or demonstration projects; which utilise both formative and summative evaluative approaches to enable assessment of the process and impact of policy initiatives before these are rolled out at a national level. However, the GO-Science Review found that there could be more use of pilots across the Department’s work. One example, is the introduction of MRSA screening in England for all elective patients this year and for all emergencies as soon as practicable within the next three years without pilots. DH decided on this approach after reviewing the evidence available.¹¹⁵ In contrast, NHS Scotland is piloting MRSA screening programmes for a year in three NHS boards; and if these are successful, will introduce screening programmes in every NHS board in Scotland from 2009/10.¹¹⁶ The GO-Science Review suggests ensuring consideration is given to the use and evaluation of pilots before the roll out of initiatives (also see para 1.14), but bearing in mind each initiative to be considered on a case by case basis.

5.11 The PRP arranges detailed and comprehensive five yearly scientific reviews¹¹⁷ to monitor long-term funded research units. Three years into each funding period, its programmes are subject to a high-level scientific review by an expert panel, designed to assess the quality and impact of the

¹¹² See ‘18 Weeks Patient Pathway Programme (Annex 4).

¹¹³ See ‘Building the Evidence Base for Adult Social Care’ Case Study (Annex 7 para 66).

¹¹⁴ See ‘Building the Evidence Base for Adult Social Care’ Case Study (Annex 7 para 71).

¹¹⁵ http://www.nursingtimes.net/news/breakingnews/2008/03/scotland_to_pilot_mrsa_screening_for_inpatients.html

¹¹⁶ <http://www.hps.scot.nhs.uk/haic/amr/wrdetail.aspx?id=37200&wrtype=2>

¹¹⁷ See ‘Peer Review’ (Annex 8); ‘Building the Evidence Base for Adult Social Care’ Case Study (Annex 7).

research being undertaken. In addition, the DH-funded research units participate in the Research Assessment Exercise as part of their 'host' academic departments. These units may also be subject to internal scientific review by their 'host' universities. The GO-Science Peer Review found the scientific review visit made to the Social Care Workforce Research Unit at Kings College in 2006, demonstrated a comprehensive and detailed approach to the monitoring of long term funded programmes.¹¹⁸

5.12 DH routinely re-evaluates the science behind policies like the weighted capitation formula for resource allocation to Primary Care Trusts and Payment by Results.¹¹⁹ Another example of good practice is the cross-government national health inequalities strategy 'Tackling Health Inequalities: A Programme for Action'¹²⁰ with status reports, overseen by the scientific reference group, published bi-annually to monitor developments against the strategy. Appraisal and evaluation often form stages of a broad policy cycle that some departments and agencies formalise in the acronym ROAMEF (Rationale, Objectives, Appraisal, Monitoring, Evaluation and Feedback).^{121 122} DH should consider introducing the use of the ROAMEF approach to the management of programmes, projects and policies (as adopted by the Home Office and DCMS¹²³). This could help improve the use of evidence and research, make more use of pilot schemes where appropriate, and ensure all policies and programmes are clearly specified, monitored and evaluated.

Recommendation 8

DH should consider introducing the use of the ROAMEF (Rationale, Objectives, Appraisal, Monitoring, Evaluation and Feedback) approach to the management of programmes, projects, and policies.

Key actions:

- Ensure the appropriate methodology is in place for the research commissioned, including the use of Randomised Control Trials as appropriate.
- Ensure the methodology and resources for evaluation and feedback are built into programmes and projects from the outset.
- Ensure more consistency in the use of pilots and their evaluation before roll-out of policies.
- Measure the effectiveness of best practice guidance and guidelines.

¹¹⁸ See 'Peer Review' (Annex 8).

¹¹⁹ www.audit-commission.gov.uk/reports/NATIONAL-REPORT.asp?CategoryID=ENGLISH%5e574%5eSUBJECT%5e4700&ProdID=30321654-7A78-4be6-ADA3-C2FC1AD3B515

¹²⁰ Tackling Health Inequalities: A Programme for Action (2003)

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4008268

¹²¹ <http://greenbook.treasury.gov.uk/chapter02.htm>

¹²² ROAMEF: stands for Rationale (why the work is proposed), Objectives (what it aims to achieve), Appraisal (how it should be done, by whom), Monitoring (during a project), Evaluation (after completion) and Feedback (i.e. making sure the results are used).

¹²³ <http://www.culture.gov.uk/NR/rdonlyres/773CCC77-5EA4-4C89-BF9C-7750FE127690/0/WhiteBookforweb.pdf>

6. Using science and scientific advice

Rationale

Departments need scientific advice to underpin their policy making and regulatory activities. Such advice can be provided by external or internal experts, and/or informed by the output of research programmes commissioned by the department. There needs to be an effective communication bridge between the experts and the policy makers.

DH Submissions

6.1 DH has said that:

How effectively do we use science and scientific advice, for example in formulating policy?

“The Department ensures that the officials developing policy and the Ministers making policy decisions are both extremely well-supported with the evidence and research necessary. This commitment to use of science is underpinned by ‘Better policy-making’ which emphasises the importance of evidence-based policy making and the need for policy officials to actively review existing evidence, commission new work as needed, and translate this into policy.”

“The evidence we use is obtained from a wide range of sources, for example the PRP,¹²⁴ advisory bodies such as GTAC,¹²⁵ SPI¹²⁶ and ACRA¹²⁷ and internal analysis. In many cases, advice from a combination of sources is needed. These sources of expertise are just as important when we come to evaluate or review a policy, for example policy on Payment by Results or BCG vaccination. We also use science to improve delivery of services, for example the stroke toolkit ASSET¹²⁸ and the development of a cleanable keyboard.”

Evidence Sought

6.2 How DH systematically uses science to inform policymaking; and makes effective use of science in general. What incentives need to be designed to ensure scientific research is used appropriately.

Findings

6.3 Science is integral to the majority of policy development in the Department; it both defines the problems and helps identify possible solutions in many areas of healthcare, social care and public health. In its 2007 response to the Capability Review, the Department recognised that the use of science in policymaking could be strengthened and is moving to a more rigorous culture of evidence-based policy making.¹²⁹ Various initiatives have been introduced to deliver this aim and are targeted at both specialists and policy makers throughout the Department. Additional views from DH staff and stakeholders on good practice and lesson learning that can also be used are suggested below.

Encouraging better policy-making

6.4 The Department recognises that policy leads need to be able to use research effectively and specialists need to understand the policy-making process. In 2007, the Department published ‘Better Policy-making’, the first report of the Department’s Policy Committee, in order to codify the elements of good policy-making throughout the Department, and ensure that policies are evidence-based. Better policy-making is also the basis for a number of internal DH training programmes (e.g. ‘Thinking Through Slides’, ‘Improving Policy Skills’), which aim to help support effective policy-making. In addition, the Policy Support Unit hosts a series of policy master classes to provide the opportunity for

¹²⁴ DH Policy Research Programme <http://www.dh.gov.uk/en/Researchanddevelopment/Policyresearchprogramme/index.htm>

¹²⁵ Gene Therapy Advisory Committee <http://www.advisorybodies.doh.gov.uk/genetics/gtac/>

¹²⁶ Scientific Pandemic Influenza Advisory Group <http://www.advisorybodies.doh.gov.uk/spi/index.htm>

¹²⁷ Advisory Committee on Resource Allocation

http://www.dh.gov.uk/en/Managingyourorganisation/Financeandplanning/Allocations/DH_4137765

¹²⁸ Stroke toolkit ASSET <http://www.dh.gov.uk/en/Healthcare/NationalServiceFrameworks/Stroke/index.htm>

¹²⁹ See Capability Review (para 0.16).

policy makers to share experience and lesson learning in the development of key policies across the Department. A similar idea is used by the Home Office¹³⁰ in their internal training programmes, where they provide the opportunity for policy and scientific participants to work together on real current case studies. This has been found to be effective in developing a shared understanding of policy and science specialists' needs.

6.5 To supplement these programmes, the Social Care Strategy Unit has established a series of events and introduced training modules that aim to increase their policy colleagues' understanding of how to work with analysts and use evidence; and encourage analysts to demonstrate how evidence can be used to support arguments.¹³¹ This way of working within an individual Directorate could be considered by Directorates across the Department.

Good Practice

The use of various initiatives (guidance, events, policy master classes and training programmes) for policy makers and specialists to encourage better policy-making.

6.6 Some staff indicated that the production of condensed top tips for best practice policy might be helpful, and for this to be disseminated in a variety of ways; perhaps including formal networks which would build on existing informal networking and the information available on the DH intranet.¹³² In addition, training on the communication of the relevance and implications of technical information for non-specialist audiences may be useful to help specialists explain technical issues to policy makers.

Recommendation 9

DH should consider the wider use of 'policy' training courses using actual case studies so that policy and scientific participants can work together to develop a shared understanding of each other's needs; and provide scientists with training on communication of technical/analytical information.

Key actions:

- Disseminate condensed top tips for best practice policy.
- Provide training to scientists on communicating the relevance and implications of technical/analytical information for non-specialists.

Using Science in Policy and Regulation

6.7 DH was praised for its increased use of science/evidence in some policy areas (e.g. pandemic influenza,¹³³ gene therapy clinical trials for inherited eye disease, human fertilisation and embryology bill, cervical cancer vaccination programme, legislation for smoke free public places) over the last few years. In other policy areas, it was less transparent to stakeholders how the evidence base had been used to inform policy and regulation. There are a number of challenges to enable and ensure that science/scientific evidence can be used in developing policies. For some cases, there has been a genuine need for rapid access to evidence for policy making and the Department has had to ensure a capacity to do this. In other cases, there can be problems accessing the appropriate

¹³⁰ GO-Science Home Office Review http://www.dius.gov.uk/publications/ho_moj_sciencereview.pdf

¹³¹ See 'Building the Evidence Base for Adult Social Care' (Annex 7 paras 105-106).

¹³² See 'Interview and Workshop Summary' (Annex 2 para 6.8).

¹³³ http://www.ukresilience.gov.uk/news/flu_national_framework.aspx

scientific information in a useable format. There are also many areas addressed by DH where the evidence is not available and the relative risk has to be managed in developing policies.¹³⁴

Good Practice

- ***The development of solid scientific evidence base for pandemic influenza planning with support from the Scientific Pandemic Influenza Advisory Group.***
- ***Clinical trials of a gene therapy for inherited eye disease, thus enabling the transfer of advances in gene therapy from the bench to the bedside.***
- ***The introduction of a vaccination programme for teenage girls to prevent cervical cancer.***

6.8 In some cases, there is a need to take decisions quickly. The approach to the implementation of the policy on exclusion of those who have received transfusions from donating blood was praised by a Lancet editorial. Their comment was “By utilizing this [precautionary] principle and by acting in advance of complete certainty, policy makers have potentially protected against vCJD emerging as a new large-scale blood-borne epidemic”.¹³⁵ In some cases, where the evidence is uncertain or insufficient, a pilot approach is used in rolling out an initiative to collect the evidence and manage the relative risk e.g. mobile X ray units for screening high risk TB groups in London. This approach recognises the fact that policies formulated on a limited evidence base need to be monitored. However, several stakeholders believe that more could be done to ensure that policies are modified as necessary when the evidence becomes available.¹³⁶

6.9 The need to take decisions, for example in dealing with emergencies, requires a nimbleness in drawing on scientists and their evidence, together with an assessment of the risk of an incomplete evidence base. If fast answers are often needed, there is all the greater need for a comprehensive and anticipatory evidence base and this takes resource, the need for which has to be balanced against other resource requirements. It is also important to have the appropriate expertise available to make judgements on the evidence base in an emergency, for example, the existing expertise in radiation at HPA was key in the handling of the polonium-210 incident in November 2006, working alongside DH.

6.10 All policies should ideally be developed with analytical and specialist support. Analysts act as an interface with the basic science – “often acting as information brokers”. It is still too early to identify the outcomes of the new arrangements of embedding analysts in multi-disciplinary teams within Directorates.¹³⁷ However, a clear early benefit (acknowledged by staff) is the opportunity for analysts to work closely with specialists and policymakers to define the problem early in the policymaking process and consider the evidence.

6.11 DH have recognised that the approach to evidence-based policy making could be strengthened and have put in place new approaches;¹³⁸ and this was endorsed by stakeholders. Staff and stakeholders also recognised that scientific advice and evidence should be sought early in the policy making process.¹³⁹ This requires a systematic approach to gathering robust evidence (from DH commissioned research and other relevant organisations in the UK and overseas) and clearly identifying the risks and assumptions to make the case for moving policy on. Some

¹³⁴ See ‘Interview and Workshop’ Summary (Annex 1 para 6.1).

¹³⁵ K. Wilson, M. Ricketts ‘Transfusion transmission of vCJD: a crisis avoided?’ Lancet (2004) Volume 364, Issue 9433, Pages 477-479.

¹³⁶ See ‘Summary of Written Evidence’ (Annex 2 para 6.3).

¹³⁷ See review of analytical services (para 0.13).

¹³⁸ See paras 6.3-6.5.

¹³⁹ See ‘Interview and Workshop Summary’ (Annex 1 para 6.1); ‘Summary of Written Evidence’ (Annex 2 para 6.14).

examples of good practice highlighted by DH staff in the GO-Science Review interviews, workshops¹⁴⁰ and case studies were as follows:

- *Evidence providers and evidence users jointly scope the question* – Strengthening links across Directorates (e.g. role of Policy Liaison Officers). Supporting wider inclusion of stakeholders at initiation to improve the evidence base variables through interactive workshops with policy colleagues and experts to debate the issues. Use of SACs, multi-stakeholder advisory and commissioning groups, and joint stakeholder funders' forums. Involving analysts and modelling in scoping the evidence at an early stage.
- *Procuring new evidence* – Establishing an effective working relationship between policy and research colleagues (e.g. 'Thinking through Slides', 'Improving Policy Skills' course, SCSU events). Making evidence scanning/systematic reviews become an integral part of the policy development process (e.g. National Service Frameworks). Holding a central database of 'experts' based on objective criteria – across a wide range of areas including PRP funded units which can provide a contingency for late evidence needs.
- *Assembling existing and emerging evidence* – From the outset establishing appropriate, adequately resourced and sound methodological approaches. Use of analytical models to integrate scientific findings. Utilisation of a wide scientific evidence base.

- *...and jointly interpreting the results together* – Working together across Directorates so procurement is timely. Using a workshop environment to work through the evidence (e.g. stock take meetings). Developing more robust processes for handling highly uncertain evidence. More use of seminars to disseminate current evidence in policy areas, celebrate success, and learn from each other.

6.12 Science not only needs to be used in developing the policy, but also in overseeing the implementation, and in the evaluation of implementation to identify if there are unintended consequences. Using science to inform policy and understanding where the science begins and ends is critical. The appropriate expertise in DH for this is key in the role of an "intelligent customer" (with skills in providing a challenge function and influence), as is access to unbiased sources of expertise. The GO-Science Review suggests that a designated person or mechanism in each Directorate would help to ensure the use of science and scientific advice in each policy area; and could also input into the development and monitoring of the S&I Strategy.¹⁴¹

¹⁴⁰ See 'Interview and Workshop Summary' (Annex 1 para 6.10).

¹⁴¹ See para 1.9.

Recommendation 10

DH should continue to encourage more pro-active use of science and scientific evidence to inform policy development, implementation, and evaluation; and stronger links between research and policy stakeholders across the Department.

Key actions:

- Appoint a designated person as a focal point on the use of science and scientific advice in each policy area.
- Actively engage policy and delivery customers in analytical work to ensure relevance.
- Involve the wider scientific community in policy development through external reference groups and Scientific Advisory Committees.

Using the Evidence Base

6.13 Models are one mechanism for bringing together the best scientific advice and evidence from different areas /sources, working out what the evidence says and translating the outcomes into policy or to inform the research agenda.¹⁴²

Modelling work can also help to clarify which of the many unknowns are most significant. Models have played a major role in prioritising the Department's extensive programme of externally-commissioned research into vCJD and related prion diseases. The work of the modelling sub-group of the Scientific Pandemic Influenza Advisory Group has also been of particular interest internationally. The benefits of modelling are being communicated more widely across the Department to policy makers and other scientists through the 'Improving Policy Skills'

course, the 'Impact Assessment' process and through embedding analysts within policy teams.

6.14 Modelling was invaluable for the urgent investigation into the cause of the NHS deficits (around £330 million) that emerged in 2004/05. The Department's Chief Analyst and the corporate analytical team used sophisticated analytical methods to draw out the causes of the deficits, and the lessons that could be learned from the emergence of the deficits.^{143 144 145}

Good Practice

The use of complex analysis techniques to strengthen DH planning and resource management capabilities to tackle NHS deficits.

Using External Expertise

6.15 Naturally, DH does not always have the internal expertise available to assess the validity of the scientific advice received. It is therefore often necessary to undertake peer review of particular issues to ensure that the evidence used for policy decisions is correct. A challenge for DH policymakers is to identify and use the correct source of external expertise for peer review through their agencies, SACs,¹⁴⁶ Expert Panels, networks and professional bodies as appropriate. Scientists in the NHS also provide a huge resource of expertise in the different scientific disciplines rooted in science. A practical example of how this advice has been harnessed to inform policy and delivery is the development of the evidence based commissioning patient pathways in the 18 weeks GP referral to hospital treatment access programme.¹⁴⁷

¹⁴² See 'Interview and Workshop Summary' (Annex 1 para 6.2).

¹⁴³ McCormick, B. et al. 2007. Explaining NHS Deficits 2003/04 – 2005/06. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_065958

¹⁴⁴ On the Lost Art of Analysis, Health Service Journal 15, 29th March 2007.

¹⁴⁵ See 'Interview and Workshop Summary' (Annex 1 para 4.1).

¹⁴⁶ See paras 9.1-9.23.

¹⁴⁷ See '18 Weeks Patient Pathway' Case Study (Annex 4).

7. Publishing results and debating their implications

Rationale

In accordance with the Freedom of Information Act¹⁴⁸ and to ensure robust interpretation of scientific findings and their policy implications, departments should publish and openly debate scientific results. This is important to maintaining public confidence in science.

DH Submissions

7.1 DH has said:

How effectively do we publish results and debate their implications openly?

“We work on the principle that expert advice should be published wherever possible. This means looking for opportunities to publish the evidence base and promote debate at different stages of the process, in particular:

- promoting debate about issue at an early stage of the decision making process e.g. controls on smoking, the ‘Your Health, Your Care, Your Say’ listening exercise, and NICE Citizen’s Council;
- publishing the advice of experts to inform the decision-making of the Department or other bodies e.g. the evidence base on countermeasures for an influenza pandemic, advice from committees such as GTAC, the work of the HCAI Rapid Review Panel and NICE guidance;
- publishing the underpinning evidence for policy work e.g. NIHR publications, work on resource allocations, MISG long-term leadership strategy and best practice guidance for the 18 weeks patient pathway programme; and

- being transparent about the procedures for obtaining advice e.g. NICE guidance, open meetings and descriptions of Scientific Advisory Committees.”

Evidence Sought

7.2 To establish how effectively DH has been able to achieve the commitments to publishing the advice of experts and the underpinning evidence for policy work.

Findings

Publication of Research Results and Advice of Experts

7.3 Stakeholders confirmed that the general policy of the Department of Health, its SACs and ALBs, is to publish all scientific and research findings, except when issues of confidentiality, security and the quality of research are of concern. The DH encourages health service and social care researchers to publish articles in academic journals as well as disseminating their findings to local authorities and other stakeholders.¹⁴⁹ Guidance for project leaders of research funded by the Department is included in project contracts; and aims to ensure that DH is informed of all research publications in advance.

7.4 Where possible, in-house scientists and analysts are encouraged to publish at least one peer-reviewed article a year.¹⁵⁰ Not only does this help the reputation of the DH scientists, but has also provided significant scientific input in key areas including vCJD and pandemic flu.¹⁵¹ It can also provide support for NHS staff, for example the ‘Green Book’ – Immunisation against vaccines for diseases in UK.¹⁵² A limiting factor for staff is the time available for this.

¹⁴⁸ <http://www.opsi.gov.uk/ACTS/acts2000/20000036.htm>

¹⁴⁹ See ‘Building the Evidence Base for Adult Social Care’ Case Study (Annex 7 para 86). See ‘Summary of Written Evidence’ (Annex 2 para 7.1).

¹⁵⁰ See ‘Interview and Workshop Summary’ (Annex 1 para 7.8).

¹⁵¹ Bennett, P.G., Dobra, S.A. 2006. Risk Assessments for Variant Creutzfeldt-Jacob disease and blood transfusion: a perspective from the UK. In: Turner, M.L. ed. Creutzfeldt-Jacob disease: managing the risk of transmission by blood, plasma and tissues Bethesda, M.D. AABB Press, (2006) p.249-288.

Good Practice
Encouraging in-house scientists to
publish their work in refereed journals
and other publications.

7.5 Many Scientific Advisory Committees (SACs) sponsored by the Department ensure the advice they provide is in the public domain, unless it is commercially or security sensitive. Annual reports, scientific reports, statements, guidance, press releases and records of meetings are published on their websites or available on request. Several SACs have open and public meetings; and some of these also have their own Press Officer who is independent of DH, and works regularly with the press.¹⁵³ Some but not all of the SACs have a publication policy on their websites, which helpfully clarify what is published. Some stakeholders have been concerned on the length of time it has taken for some records of meetings and information from SACs to be available in the public domain. The GO-Science Review suggests that the good practice of SACs with a publication policy and making their advice available in the public domain in a timely manner, should be shared across all SACs.

Openness and Transparency of Evidence for Policy

7.6 DH is operating in a more demanding environment than previously, with an improved public understanding of risk and a higher expectation for answers to queries. The Department increasingly publishes more information, in response to the Freedom of Information requirements and a recognition of public need.

7.7 It is important that the Department makes publicly available information on all policy decisions and the evidence underpinning them as emphasised by the Phillips (BSE Inquiry) recommendations,¹⁵⁴ which Government accepted. Transparency regarding uncertainty is crucial when evidence is based on limited numbers of cases and more evidence is clearly needed. However, a common perception among staff and stakeholders is that the Department does not consistently publish the evidence base underlying policy decisions.¹⁵⁵ By addressing this perception, DH could encourage better relations with its stakeholders and potentially reduce the number of PQs, Minister's letters, and FoI requests. It would also offer internal and external stakeholders the opportunity to monitor the sensitivities of policy to changes in the underpinning science.

¹⁵² Salisbury, D., Ramsay, M., and Noakes, K. (Eds) Immunisation Against Infectious Disease, Department of Health http://www.dh.gov.uk/en/PublicHealth/HealthProtection/Immunisation/Greenbook/DH_4097254

¹⁵³ See 'SAC' Case Study (Annex 3 para 5.10); 'Interview and Workshop Summary' (Annex 1 para 7.9).

¹⁵⁴ Extract from the Phillips Inquiry report: "Our experience over this lengthy Inquiry has led us to the firm conclusion that a policy of openness is the correct approach. When responding to public or media demand for advice, the Government must resist the temptation of attempting to appear to have all the answers in a situation of uncertainty. We believe that ... scares thrive on a belief that the Government is withholding information. If doubts are openly expressed and publicly explored, the public are capable of responding rationally and are more likely to accept reassurance and advice if and when it comes. ...:

- To establish credibility it is necessary to generate trust.
- Trust can only be generated by openness.
- Openness requires recognition of uncertainty, where it exists.
- The importance of precautionary measures should not be played down on the grounds that the risk is unproved.
- The public should be trusted to respond rationally to openness.
- Scientific investigation of risk should be open and transparent.
- The advice and the reasoning of advisory committees should be made public."

¹⁵⁵ See 'Interview and Workshop Summary' (Annex 1 paras 7.1-7.4); 'Summary of Written Evidence' (Annex 2 para 6.5 and para 7.3).

Recommendation 11

DH should maintain and extend its transparency of research findings and the underpinning evidence to inform policy making in the public domain.

Key actions:

- When research results are published include a brief statement of the implications of the results.
- Set out and reference the relevant evidence in all published policy documents.
- Put in place a robust mechanism to analyse and publish outcomes of public consultations.

7.8 One of the benefits of the 18 weeks patient pathway programme has been the transparency of evidence produced, highlighting the data available to policy makers, Chief Executives and Ministers involved, as well as being in the public domain. The review considered this a good practice model that should be followed more widely across DH.¹⁵⁶

7.9 Many of the DH sponsored agencies also work in a consultative and transparent way to ensure that the evidence base used in decision making is clearly exposed and understood. There are opportunities for lesson learning from these practices; for example:

- The National Institute for Health and Clinical Excellence (NICE)¹⁵⁷ operates a strong public engagement programme; with a “Citizen’s Council”, which meets a few times each year to consider complex questions and to advise NICE

on some of the key value judgements which underpin its work. NICE also consults on the draft recommendations of each area of guidance it produces (health technologies, clinical practice and public health).

- The HPA’s Rapid Review Panel, set up at the request of the Department to assess the potential of new or novel products to reduce healthcare associated infections, publishes reports on every product it reviews.¹⁵⁸

7.10 The modelling sub-group of the Scientific Pandemic Influenza Advisory Committee (SPI) published a summary of the modelling results and their implications for policy.¹⁵⁹ However, much modelling work carried out by the DH analysts in-house that has been invaluable in informing policy, has never been published, even retrospectively, or as evidence in the public domain. Occasionally, publishing is not possible for reasons of confidentiality; but in other cases, time and resource pressures may have limited the capacity to render the models or analyses suitable for publication (at least on the DH website). This can make it more difficult for future researchers to draw on valuable modelling work.¹⁶⁰

Debating the Implications of Science and Research Findings

7.11 In terms of debating implications of research findings, there were examples of good practice. Some external stakeholders, however, considered this was not always the case, and this good practice could be shared further across the Department.¹⁶¹

7.12 Examples of good practice across the Department include the successful public debate of

¹⁵⁶ See ‘18 Weeks Patient Pathway Programme’ Case Study (Annex 4).

¹⁵⁷ National Institute for Health and Clinical Excellence www.nice.org.uk

¹⁵⁸ HPA Rapid Review Panel. http://www.hpa.org.uk/infections/topics_az/rapid_review/default.htm

¹⁵⁹ ‘Modelling and Implications; High Level Summary – January 2007’ Influenza Pandemic Scientific Advisory Group, modelling sub-group. www.advisorybodies.doh.gov.uk/sagpf/minutes/modelling-implications-summary-jan07.pdf

¹⁶⁰ See ‘HCAI’ Case Study (Annex 5 paras 73 and 94); ‘Interview and Workshop Summary’ (Annex 1 para 7.7).

¹⁶¹ See ‘Summary of Written Evidence’ (Annex 2 paras 7.4-7.5).

issues in genetics (e.g. recent launch and defence of controversial legislative proposals on stem cells and embryology) with the emphasis on the science and ethical interface.¹⁶² Another example is the approach by the Policy Research Programme to work closely with external partners to develop strategies to increase the accessibility and use of the research it commissions. These communication strategies for social care research not only include newsletters, reports, and websites, but also briefing sessions and national events ‘showcasing’ the findings of recently completed research and offering the opportunity for open and frank debate by stakeholders.¹⁶³

Good Practice

The use of communication strategies to increase the accessibility and use of social care policy research with the inclusion of dissemination activities and opportunities for open and frank debate of the findings by stakeholders.

¹⁶² See ‘Interview and Workshop Summary’ (Annex 1 para 7.2).

¹⁶³ See ‘Building the Evidence Base for Adult Social Care’ Case Study (Annex 7); ‘Interview and Workshop Summary’ (Annex 1 Table 2).

8. Sharing and managing knowledge

Rationale

Knowledge transfer should be treated by departments as a strategic goal and enjoy high level focus. It is vital to driving innovation and wider exploitation of the knowledge base, as well as avoiding duplication of effort.

DH Submissions

8.1 DH has said that:

How effectively do we share, transfer and manage knowledge?

“Sharing and managing knowledge is critical, not only within the Department, but also for staff and patients in the NHS. This knowledge can be clinical or diagnostic information about individuals or sharing of clinical knowledge. The Department takes several roles in managing knowledge, including:

- working with the NHS and the wider scientific community to develop systems and resources to facilitate sharing of information e.g. the National Library for Health, clinical networks, NHS Care Records Service, Picture Archiving and Communications System (PACS) and development of mobile working hardware;
- ensuring the availability of data to support service development and research e.g. Hospital Episode Statistics, NHS Information Centre and the Health and Social Care Outcomes & Accountability Framework; and
- communicating information outside the Department to NHS staff and the public e.g. Health Profiles for England, NHS Choices, immunisation information and pandemic flu communications.

“The Department works to ensure effective sharing and management of knowledge both by developing enabling systems and through directly communicating to staff and patients in appropriate formats. This is underpinned by our data collection systems to ensure the supporting information is available. Together these mechanisms allow the Department and NHS staff to make decisions on service delivery and people to make decisions on their care.”

Evidence Sought

8.2 How DH promotes the transfer of knowledge from research it funds? How cross-cutting science issues are handled by the Department? How DH promotes the effective exploitation of the research if funds? How can DH articulate better the huge range of work undertaken by and for the Department and ensure they maintain the links between the work?

Findings

Internal Communications

8.3 In general, the GO-Science Review found that for high priority policies, DH works effectively in multi-disciplinary networks across directorates within the Department. The model of weekly vCJD stock take meetings with representatives from different directorates and disciplines across the department has worked well, and is an example of good practice. These well managed links are key in sharing information on policy, research, analytical, internal and external advice (SEAC),¹⁶⁴ and links to the surveillance unit. Similar networks are also maintained in HCAI, pandemic flu, blood and TB. Links between different areas are also maintained in other policy areas through project boards and

¹⁶⁴ Spongiform Encephalopathy Advisory Committee <http://www.seac.gov.uk/committee/about.htm>

advisory groups. In all these networks, it will be essential to ensure that the links between all relevant parties remain robust (such as embedding the role into the objectives of individuals' job descriptions). The GO-Science Review also recommends that the format of regular stock takes be considered in other areas of the Department's work where this could add to existing networks and groups. This will help to ensure the relevance of science commissioned¹⁶⁵ and avoid the unintended consequences of different policy initiatives for a policy theme area.

Good Practice

"Stock take" meetings to allow stakeholders across the different DH directorates to share information in certain key areas e.g. CJD, pandemic influenza, blood, tuberculosis and healthcare associated infections.

8.4 Staff welcome the monthly meetings for analysts across the Department,¹⁶⁶ and the recently established Scientific Network with its regular meetings, as fora to discuss their work, develop networks and presentational skills. Several staff would also value more opportunities to "re-ignite a networking culture" across the DH, by fostering formal networks, and opportunities for informal meetings. However, they recognised that resource constraints and lack of time are barriers which need to be overcome.¹⁶⁷

Good Practice

Monthly meetings with analysts and the Scientific Network in providing a forum for the Department's scientists to discuss their work, network and develop presentational skills.

8.5 The effective use of science in a government department is supported by harnessing informal knowledge ("corporate memory") about what worked well and what has not worked in the past and the reasons for this, as well as the formal knowledge that can be provided by research reviews and databases. Several staff and stakeholders emphasised the need to map existing knowledge by policy areas to avoid loss of "corporate memory" resulting from policy staff turnover in policy teams through career development. Staff considered that the existing systems, for example the MEDS (electronic filing) and the library of policy briefs available internally (CHIP), were not used consistently. DH should consider implementing practical mechanisms to ensure the effectiveness of its internal knowledge management systems (e.g. evidence logs used in the management consultancy sector or policy briefs used by DCSF and BERR). Some policy makers (especially in social care) would welcome succinct policy briefs signposting: a) specific policy priorities; b) key questions and issues; c) new, relevant research and initiatives; d) sources of information and expertise; and e) access to data collections.¹⁶⁸

¹⁶⁵ See para 5.5.

¹⁶⁶ See para 0.35.

¹⁶⁷ See 'Interview and Workshop Summary' (Annex 1 para 10.15, Table 3).

¹⁶⁸ See 'Summary of Written Evidence' (Annex 2 para 8.16); 'Interview and Workshop Summary' (Annex 1 paras 6.8, 8.2-8.3).

Recommendation 12

DH should consider the effectiveness of its internal knowledge management systems, and the maintenance to and access to evidence across the Department, ensuring that the evidence base is maintained with continual access to historical data.

Key actions:

- Map the internal knowledge management systems for specific policy priorities.
- For each policy area, identify evidence needs and information sources, and the mechanisms to distribute the evidence within DH.
- Establish succinct policy briefs signposting new, relevant research and initiatives, and access to data collections.

Communication Strategies

8.6 Many stakeholders interviewed have found it difficult to understand the structure of the Department and how it works,¹⁶⁹ in particular how DH works with the NHS.¹⁷⁰ This was an issue highlighted to DH in the early stages of the GO-Science Review. DH has since, as part of its development plan,¹⁷¹ compiled 'The DH Guide'¹⁷² to help all DH staff "make sense of DH and how it operates". The document has also been placed on the website so stakeholders can access it. This guide has some useful maps showing the delivery chains of the DH with the NHS, and working with other

partners on social care, and on public health. The structure of the Department and its values are set out in the Annual report,¹⁷³ but some stakeholders mentioned it would be helpful to have organograms available on the external DH website as can be found on OGD websites (e.g. Defra and DFID). This would help stakeholders to understand the internal organisation of the Department and find out who is the best contact for a particular theme area.

8.7 DH has a lot of information to share and manage, and uses a variety of mechanisms and channels to ensure that it is accessible to its key stakeholders and the public. The Map of Medicine, NICE guidance and commissioning pathways for the 18 weeks patient pathway programme¹⁷⁴ are good examples of assimilating the information and providing signposts in healthcare. In the future, Clinical Research Networks, as they become more established, could be instrumental in identifying research needs, promoting research, disseminating and sharing good practice and developing research capacity. However, despite DH's best efforts, some key stakeholders were not aware of some recent initiatives and others found it difficult to navigate the wealth of information on the DH website.¹⁷⁵ The recent changes to the DH website should help address this, but monitoring will be needed to ensure that this is the case. The GO-Science Review suggests DH should continue to develop a communications framework to map and raise awareness of its many science activities and initiatives and those undertaken on its behalf. A successful communications framework will require continued engagement with all stakeholders.

¹⁶⁹ Also a finding of the MORI stakeholder perceptions audit: DH, 2004.

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4130794

¹⁷⁰ See 'Interview and Workshop Summary' (Annex 1 para 8.1).

¹⁷¹ See details on the 'DH Development Plan' (para 0.16).

¹⁷² The DH Guide http://www.dh.gov.uk/en/Aboutus/HowDHworks/DH_083465

¹⁷³ Department of Health: Departmental Report 2007.

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/AnnualReports/DH_074767

¹⁷⁴ See '18 Weeks Patient Pathway Programme' Case Study (Annex 4).

¹⁷⁵ See 'Summary of Written Evidence' (Annex 2 paras 7.6-7.8).

DH should: a) together with its main stakeholders, examine options for improving the awareness, integration and availability of its scientific knowledge/data; and b) develop and maintain its science/knowledge information system(s) as a means of enabling better cross-sectoral awareness of its existing multi-disciplinary knowledge to avoid corporate memory loss and duplication of effort.

Recommendation 13

DH should continue to develop a communications framework to map, communicate and raise awareness of the many science activities and initiatives undertaken by and for the Department.

Key action:

- Examine, with main stakeholders, the options for a) improving the awareness, integration and (especially external) availability of scientific knowledge/data; and b) develop and maintain science/knowledge information system(s) that enable cross-sectoral and multi-disciplinary awareness of existing knowledge.

8.8 The importance of tailoring publications and other forms of knowledge transfer to make them appropriate to the needs of the audience has been stressed by many interviewees and in written submissions from external stakeholders. An example of good practice are the communication initiatives for Pandemic influenza, which given the potentially huge impact of a pandemic, have struck a balance between being open about the possible risks, but not being too alarmist. Information has also been disseminated in a range of formats tailored to different interests of stakeholders.¹⁷⁶

Good Practice

The range of formats for information on pandemic influenza that allow stakeholders differing levels of detail depending on their interest.

Working with Other Government Departments

8.9 Many of the factors that affect public health, healthcare and social care, such as income, education, and employment, are outside the remit of the DH or, indeed any single Government Department. The HSE finds that routinely DH is very willing to consult on their initiatives, guidance and proposals; and not only brings expertise on the practical issues related to the healthcare sector but is also able to access an extensive network of experts to contribute. The Welsh Assembly Government's Wales Office for Research and Development (WORD) and the Department of Public Health and Health Professions (DPHHP) rely on a number of DH-sponsored scanning mechanisms (e.g. NHSC, NICE, and HPA) as a prime input to their own horizon scanning initiatives, and have found the rigorous reviews of SACs (e.g. COMARE) are also valuable.¹⁷⁷

8.10 Several OGDs suggested areas for more collaboration with DH. DPHHP would welcome a widening of systematic review activities to address additional topic areas and is keen to maintain and develop current good communications with DH. The Home Office and Ministry of Justice requested more collaborative initiatives to address better integration of health, social care and the criminal justice system to improve health, address inequalities and reduce crime. Another request was for more capacity in DH to work with DCSF

¹⁷⁶ See 'Interview and Workshop Summary' (Annex 1 para 8.6); 'Summary of Written Evidence' (Annex 2 para 8.6).

¹⁷⁷ See 'Summary of Written Evidence' (Annex 2 paras 6.6, 6.20, 8.27-8.30).

on topics such as ‘young carers’ and services to children with complex health needs. The GO-Science Review suggests it is important that DH continues and expands its engagement with OGDs on health and social care issues as appropriate, especially in cross-cutting PSAs, to develop joint strategies and transfer knowledge essential for effective policy making.¹⁷⁸

Working with Research Councils

8.11 The Research Councils would welcome and encourage continued joint working with DH building on the success of many joint initiatives.¹⁷⁹ Joint workshops hosted by DH and Research Councils with other major research funders have been held to explore better ways of managing knowledge and knowledge transfer.

8.12 The Office for Strategic Coordination of Health Research (OSCHR) was welcomed by a number of respondents for building the partnership across DH and MRC with the public and private research sectors, and creating new co-ordination in the translation of medical research into practice and in the provision of new evidence to inform policy making.¹⁸⁰

Stakeholder Engagement

8.13 A range of engagement and communication vehicles such as the DH professional conferences (e.g. the Chief Scientific Officer annual conference for healthcare scientists) or SHA roadshows and workshops (e.g. 18 weeks patient pathway programme) enable a range of policies and initiatives to be shared and debated more widely. Staff across the Department also participate in EU, WHO and other International conferences/events to share knowledge, highlight some of the excellent

science carried out in the UK, and make the most of the networking opportunity to learn what is going on elsewhere. A key challenge for the 18 weeks patient pathway programme has been enabling patients to understand the meaning of the pathway or journey; critical to this has been the bottom up approach to communication. There are some good examples of consultation by DH with leading behavioural and social scientists, including the NICE panel on behavioural intervention, a recent DH sponsored seminar series on Self-Care Support, and consultation on the Wanless report. This type of interaction should continue to be encouraged in the future, including involvement in working groups associated with specific illnesses (e.g. asthma, diabetes, heart disease), public health problems (obesity, infection control) and population groups (e.g. children, older people).¹⁸¹

8.14 In some areas of the Department’s work (in particular health improvement), key stakeholders and some sponsored Agencies would like to work more closely and in parallel with DH priorities. Some hold useful informal meetings with DH contacts, but find it difficult to organise and commission more complementary activities with DH that they feel could add value. There is a perceived need from stakeholders to create appropriate partnerships with a range of stakeholders, and at all levels and stages of strategy, policy-making, implementation and evaluation. It is important in creating the stakeholder partnerships, that DH ensures it is aware of, draws on, and pools the best possible sources of advice and expertise (from its NDPBs, academia, industry and internationally).¹⁸²

¹⁷⁸ See ‘Summary of Written Evidence’ (Annex 2 para 3.17).

¹⁷⁹ See para 0.42; ‘Summary of Written Evidence’ (Annex 2 paras 8.23-8.26).

¹⁸⁰ See ‘Summary of Written Evidence’ (Annex 2 para 4.1).

¹⁸¹ See ‘Summary of Written Evidence’ (Annex 2 paras 3.14-3.16).

¹⁸² See ‘Interview and Workshop Summary’ (Annex 1 para 3.3); ‘Written Evidence’ (para 6.6; 6.14-6.20).

Recommendation 14

DH should build on the good practices in stakeholder engagement at all levels and stages of strategy and policy development, implementation and evaluation.

Key action:

- DH should ensure it is aware of, draws on, and pools the best possible sources of advice and expertise from its NDPBs, academia, industry and internationally.

8.15 The National Service Frameworks (NSF) are an example of good practice in stakeholder engagement and management. The National Directors are experts who oversee the development and implementation of a NSF, or other specialist area of development. National Directors work with policy and delivery teams, external networks (where applicable) and the NHS management community to achieve joined up action. The role of the National Director of Cancer, for example, includes:- providing advice to Ministers, horizon scanning, developing policy and strategy on cancer and overseeing implementation of policy (i.e. supporting the NHS) in all aspects of cancer. It is also a co-ordinating role: supplying the direction and drive, encouraging the sharing of good practice and outward facing – networking with and influencing charities, industry, parliamentarians, patients etc; building EU and international links; and working together with other

countries to improve cancer outcomes. The stroke strategy and revised cancer plan led by National Clinical Directors have been widely welcomed by the field as professional, evidence-based products.¹⁸³

8.16 Areas of policy outside the National Service Frameworks also have key clinicians or scientific experts in leadership roles, such as the Inspector of Microbiology and Infection Control, whose remit includes the scientific lead on healthcare associated infection policy. These leadership roles are highly important in ensuring that scientific expertise is embedded in the Department's development of policy.

Good Practice

National Directors (experts) who oversee the development and implementation of a national service framework (NSF), working with policy and delivery teams, external networks (where applicable) and the NHS management community to encourage sharing of knowledge, and achieve joined up action.

¹⁸³ See 'Interview and Workshop Summary' (Annex 1 para 8.8); 'Summary of Written Evidence' (Annex 2 para 3.17).

9. Scientific Analysis in Policymaking and Scientific Advisory Committees

Rationale

The GCSA Guidelines on Scientific Analysis in Policymaking (2005) is a high-level document aimed at the way Government departments obtain and use scientific advice in policy-making. Its key messages are that departments should: think ahead and identify early the issues on which they need scientific advice; get a wide range of advice from the best sources, particularly where there is scientific uncertainty; and publish the scientific advice and all relevant papers. The Guidelines were drawn upon in formulating the ten success criteria for the GO-Science Reviews.

The purpose of the Code of Practice for Scientific Advisory Committees is to provide more detailed guidance specifically focused on the operation of Scientific Advisory Committees and their relationship with Government, and to help them translate the principles in the Guidelines into day-to-day practice.

DH Submissions

9.1 DH has said:

How effectively have we implemented CSA guidelines and the Code of Practice for Scientific Advisory Committees?

“Mechanisms for identifying and incorporating scientific advice into policies are well developed, and accord with the Government Chief Scientific Adviser’s Guidelines on scientific analysis in policy-making. The three main messages of the guidelines covered under other criteria include:

- thinking ahead to identify issues where scientific advice is needed and where the current evidence base is weak;
- getting a wide range of advice from the best sources; and
- publishing the evidence and analysis.

“We also adhere to the Code of Practice for Scientific Advisory Committees, and have also been actively involved in work to update the Code.”

Evidence Sought

9.2 How should DH manage its Scientific Advisory Committees? Who should support the Committees and to whom should they provide advice?

Findings

9.3 The Department seeks independent expert advice through both Scientific Advisory Committees (SACs) and Expert Panels. The role of the Department’s Chief Scientific Adviser is also to provide a challenge function. The Department sponsors a total of 22 Scientific Advisory Committees covering theme areas including: aids; TSEs; genetics; medicines; vaccination and immunisation; antimicrobial resistance and healthcare-associated infection; nutrition; dangerous pathogens; borderline substances; carcinogenicity and mutagenicity of chemicals in food, consumer products and the environment; medical aspects of radiation in the environment and air pollution; administration of radioactive substances; and registration of homeopathic medicines.

Guidelines on Scientific Analysis in Policy-Making

9.4 The importance of making policy evidence – based is emphasised in the Department’s internal report ‘Better Policy-Making’; and the ‘Improving Policy Skills’ course, includes a session on analysis and evidence with reference to the GCSA’s Guidelines.¹⁸⁴ In providing evidence and advice, the Policy Research Programme also follows the GCSA Guidelines.

9.5 Impact Assessments being adopted by the Department provide a framework to encourage policy makers to collect, analyse and use evidence – consistent with the key messages in the GCSA’s guidelines. To promote effective use of the Impact Assessments, DH is establishing a network of analysts to act as advisers and provide supplementary guidance on how they fit with other types of assessment and guidance. DH also requires a senior analyst to sign off all impact assessments, in order to ensure high quality of the science and other evidence used in developing policy. The GO-Science Review suggests that DH may wish to consider the practice that Defra has recently initiated, whereby the Chief Economist not only signs off all Impact Assessments but also provides a comment on the cost-benefit approach.¹⁸⁵

Code of Practice for Scientific Advisory Committees

9.6 All of the Department’s SACs, including those that jointly advise Defra, FSA or DIUS, have adopted the Code of Practice for Scientific Advisory Committees. They have also been actively involved in work to update the Code during 2007.¹⁸⁵

Role and Function of Scientific Advisory Committees

9.7 The ‘challenge function’ of the Scientific Advisory Committees (SACs) is very important and viewed positively by a large proportion of interviewees, within and outside the Department. The formal SACs are well managed and provide a valuable function to the Department for specific key theme areas: providing an independent view and help with horizon scanning; peer review for strategies, White Papers, and research initiatives; advice to Ministers and support on Parliamentary questions; certification; regulation; and knowledge transfer through conferences etc.¹⁸⁶ Many SACs publish their reports, records of meetings etc. in an open and transparent way on their websites.¹⁸⁷ The Department values the contribution of members that give their time freely, with some benefits in terms of their career development and professional recognition.

Good Practice

The use of Scientific Advisory Committees as a valuable resource for access to independent expert advice in helping with strategic direction, horizon scanning, input to policy, peer reviews, regulation, certification and sharing knowledge.

9.8 The GO-Science Review suggests there are opportunities for more formal and informal (virtual) networking between the SACs, through the secretariats and the Chairs. This would be particularly helpful to address training issues and sharing of good practice (especially for the agency based secretariats). DH might consider adopting an

¹⁸⁴ See para 6.4.

¹⁸⁵ See ‘SAC’ Case Study (Annex 3); ‘Interview and Workshop Summary’ (Annex 1 para 9.3).

¹⁸⁶ See ‘SAC’ Case Study (Annex 3); ‘Summary of Written Evidence’ (Annex 2 para 9.8); ‘Interview and Workshop Summary’ (Annex 1 para 9.5).

¹⁸⁷ See para 7.5; ‘SAC’ Case Study (Annex 3); ‘Interview and Workshop Summary’ (Annex 1 para 7.9).

annual meeting of the Chairs with the Chief Scientist and the Chief Medical Officer; perhaps combined with a meeting of the Chairs to discuss emerging issues which need addressing or learn about outcomes and impacts of individual SACs.¹⁸⁸

9.9 The cross-Government Chief Scientific Advisers' Committee (CSAC) has agreed there will be light touch monitoring of all SACs with Departments reporting back to CSAC. Some DH sponsored SACs implement a regular light-touch monitoring and evaluation of their impact to help in setting the direction and workplan of the SAC. The GO-Science Review suggests encouraging this practice across the SACs could be beneficial; while recognising the different roles of the SACs. In addition, monitoring should also look at whether the relationship between the SAC and the relevant policy people in DH (and OGDs where appropriate) is working well or not – this is particularly important for agency based secretariats.¹⁸⁹

Good Practice
Regular light-touch monitoring and evaluation of impact to inform the direction and workplan of Scientific Advisory Committees.

Recommendation 15

DH should monitor its portfolio of Scientific Advisory Committees to identify needs, gaps and overlaps, and ensure that their role and remit is appropriate and directed where they have most impact and value.

Key actions:

- Identify needs, gaps and overlaps in portfolio of Scientific Advisory Committees.
- Ensure that monitoring and evaluation is undertaken at an appropriate level and frequency for each SAC.

9.10 The value in openness and transparency of using the Appointments Commission to appoint SAC members was recognised, however there is concern from some stakeholders as to whether the formal application procedure is always delivering the best people. Some chairs and secretariats commented that some key people have been discouraged from applying, because of the lengthy formal selection procedure. Other Chairs and Secretariats use their networks to encourage the appropriate experts to apply.¹⁹⁰

9.11 Stakeholders considered that it was critical to identify clearly the skill set required of SAC members. The importance of an experienced and effective Chair for the successful running of a SAC is recognised by Secretariats and members. Induction for new members of SACs varies, and this may have an impact on their understanding of their roles and responsibilities. DH should consider providing

¹⁸⁸ See 'SAC' Case Study (Annex 3).

¹⁸⁹ See 'SAC' Case Study (Annex 3); 'Interview and Workshop Summary' (Annex 1 paras 9.24-9.26).

¹⁹⁰ See 'SAC' Case Study (Annex 3); 'Interview and Workshop Summary' (Annex 1 para 9.7).

¹⁹¹ See 'SAC' Case Study (Annex 3); 'Interview and Workshop Summary' (Annex 1 paras 9.7-9.14).

guidance to Secretariats of DH SACs on the appointment of Chairs and possibly additional guidance for Chairs.¹⁹¹

9.12 The HPA provides the scientific and administrative secretariat for nearly all DH-sponsored committees concerning public health. The GO-Science Review considered the differences between in-house and agency based secretariats:

- *In-house secretariats* – There is generally a perception among DH staff that there is no conflict between the secretariat being based in DH and the SAC being independent; as long as it is properly managed. An advantage of this is the close working relations that can be established with the DH policy group to improve focus, and the opportunity to provide quicker response times to policy issues, with a direct link to the Press Office and Ministers.
- *Agency based secretariats* – Some DH staff who have moved across to HPA have felt divorced from the policy context, and resolve this by spending a couple of days a week in DH. Some staff had concerns on stakeholder perceptions of the status of the Committee and its ability to attract high calibre members; given it is not internal to DH. A benefit to secretariats at HPA is that they serve both external committees and internal programmes, allowing some alignment and two way flow of information between the two functions.¹⁹²

9.13 There are different views on the appropriate type of staff for the Secretariat. One option is for staff without specific expertise, who perform an administrative secretariat role. Alternatively, they can be dedicated experts with a knowledge of the science area. Some SAC members found this enabled the Secretariat to relate better to the SAC members, grasping the issues, and understanding how to phrase questions for the Committee

(open, probing, challenging). Several SACs also valued a Secretariat with expertise in the science area, for their additional ability to contribute to literature searches and scientific reports. Some SAC Secretariats have considerably greater resources than others and DH should ensure that Secretariats are adequately resourced for their role, in particular ensuring that they include sufficient and appropriate scientific resource.¹⁹³

9.14 With the smaller number of specialist scientists in the Department, some stakeholders expressed their concern as to how DH will in future maintain the informed customer function (with the appropriate expertise) to provide functional links for SACs managed externally to DH, and take forward the advice from the SAC.¹⁹⁴

9.15 In some cases there appears to be a lack of clarity and understanding among members as to how their advice reaches decision makers in DH and, where appropriate, OGDs and how this is used by them. A clear two way communication process provides the opportunity to make the advice effective. The SACs need to understand the policy perspectives and be able to present the research findings and advice to the DH in a form that is meaningful to policymakers. Some SAC members would welcome the opportunity for more follow-up to find out the impact of their role, i.e. how advice and reports have been used and the impact achieved. The role of the senior officials from DH and OGDs attending the meetings, often as observers, needs to be recognised more formally as a means of engagement across Departments, and contributing to the delivery of wider Government objectives.¹⁹⁵

¹⁹² See 'SAC' Case Study (Annex 3); 'Interview and Workshop Summary' (Annex 1 para 9.6).

¹⁹³ See 'SAC' Case Study (Annex 3); 'Interview and Workshop Summary' (Annex 1 para 9.6).

¹⁹⁴ See 'Interview and Workshop Summary' (Annex 1 para 10.9).

¹⁹⁵ See 'SAC' Case Study (Annex 3); 'Interview and Workshop Summary' (Annex 1 paras 9.20-9.22).

Expert Panels and External Expertise

9.16 In addition to SACs, the Department uses expert panels to help provide advice in areas where a SAC would be less appropriate. As these are usually time limited, DH does not tend to use the formal Appointments Commission process. This aims to minimise the bureaucracy and ensure members are identified in a timely way. However, several internal and external stakeholders asked for greater transparency when appointing members of Expert Panels.¹⁹⁶ A transparent process may help to broaden the expert base to incorporate multi-disciplinary expertise and facilitate the identification of those advisors most knowledgeable in the area under consideration. It would be helpful to the Department to have a central co-ordinated database of experts that members of the Directorates can use (similar to that used by MHRA).

9.17 Some Expert Panels are mentioned on the website but not all. A means of tracking current Expert Panels and their members would be useful (ideally available in the public domain on the DH website). DH also needs to consider which policy areas are appropriate for longer established Scientific Advisory Committees compared with shorter term Expert panels.¹⁹⁷

Recommendation 16

DH should set up a central co-ordinated database of 'experts' for use across the different Directorates in sourcing evidence/advice; and selecting and tracking members of Expert Panels.

Key actions:

- Consider the model used by MHRA.
- Use objective criteria and cover a wide range of areas.
- Regularly update the list of Expert Panels and their members on the DH website.

9.18 The role of the 18 Weeks Clinical Advisory Group in providing a forum for dialogue between the 18 weeks patient pathway programme team and its wider stakeholders, particularly NHS colleagues is a good practice model.¹⁹⁸

Role of the Chief Scientific Adviser and the Chief Analyst

9.19 The role of the Chief Scientific Adviser (CSA) is to provide independent advice to the Department's Ministers and Management Board (or the Board with responsibility for strategy). The CSA is responsible for ensuring that the quality of science-based advice within the Department is of sufficiently high standard and fit-for-purpose, in line with the GCSA's 'Guidelines on Scientific Analysis in Policy Making'. A key part of the role of the CSA is the ability to alert the Department to those areas where current research can assist, or new research is required, in developing sound public policy. The CSA should be fully involved in the development of the S&I strategy and be the champion of its implementation.

9.20 Although the DH CSA's role is fully recognised within the Government-wide community of CSAs, where she is an active participant, the Review was unable to find public reference to this role (e.g. on the DH website). It is important for people outside Government to be aware of the DH CSA, given that the responsibilities extend beyond those of the executive DG function for the Research and Development Directorate, which also falls to the same individual. Within DH, the GO-Science Review suggests that these additional cross-cutting responsibilities should be made explicit and better known, clearly distinguishing between the CSA and Chief Scientist roles. The post needs to have full access to and understanding of the use of

¹⁹⁶ See 'Interview and Workshop Summary' (Annex 1 paras 6.18-6.20, 9.28); 'Summary of Written Evidence' (Annex 2 paras 9.4-9.5).

¹⁹⁷ See 'SAC' Case Study (Annex 3).

¹⁹⁸ See '18 Weeks Patient Pathway Programme' Case Study (Annex 4).

science across the range of the Department's work, with the supporting resource to ensure this happens in practice.

9.21 The Government's response to the House of Commons Science and Technology Committee's Report 'Scientific Advice, Risk and Evidence-Based Policy Making' says 'The Government's position is that each departmental Board should include the department's senior analyst. This may be the Department's CSA or another analyst. The senior analyst should represent all analytical disciplines at Board level, without prejudice to the right of other departmental Chief Advisers to put advice directly to the Board or Ministers when they think necessary.' Departments which have the CSA on the Board include Defra, DfT and FSA. The GO-Science Review understands that the CSA is part of the Policy Committee, a sub-committee of the Corporate Management Board (CMB) that is responsible for policy governance. It advises the CMB on relative priorities, resourcing and the overall delivery of the total policy programme by the health and care system; including fit with Departmental strategy, costs, risks, and the robustness of project plans for the development of each policy. In addition, the CSA is also a member of the CMB, which is responsible for developing the Department's strategy and prioritisation of resources.

Recommendation 17

Given the importance of science in DH strategy, the role of the Chief Scientific Adviser (CSA) in challenging science across the Department should be made more explicit, with her responsibilities as CSA clearly described and recognised, within and outside the Department.

Key action:

- Ensure that evidence is made available and effectively taken into account in strategic decision making and high level policy development, and any risks clearly recognised where evidence is limited or there are gaps.

Scientific Advisory Council

9.22 Increasingly, departments like the Home Office (HO), Ministry of Defence (MoD) and Defra,¹⁹⁹ have Science Advisory Councils with expert and independent advice (across a range of disciplines: physical, social and natural sciences, engineering, technology and economics) on science policy and strategy. These help guide the department's scientific priorities and work across the complete range of the department's policy activities, including horizon-scanning and long-range planning as well as dealing with immediate risks and opportunities.

¹⁹⁹ Defra Scientific Advisory Council www.defra.gov.uk/science/how/advisory.htm

9.23 Several stakeholders felt that a Scientific Advisory Council would add value to DH, given the wide remit of science across the Department.²⁰⁰ It would set its own agenda and provide advice on issues identified by the CSA and the Permanent Secretary. The Council should be set up as an independent Non-Departmental Public Body (NDPB), established in accordance with the Office of the Commissioner for Public Appointments (OCPA) Code of Practice.²⁰¹ It should also follow the GO-Science 'Code of Practice for Scientific Advisory Committees'; meet regularly; use working groups (for specific areas or topical interests); make use of individual members' expertise, and networks; and include representatives from the Scientific Advisory Committees.

Recommendation 18

DH should establish a Scientific Advisory Council to provide an independent challenge function and advice to support the Chief Scientific Adviser, with oversight on the strategic direction of science sponsored by the Department.

Key actions:

- Establish a Scientific Advisory Council with appropriate expertise and representatives from Scientific Advisory Committees.
- The Science Advisory Council should: a) set its own agenda and respond to issues from the CSA, in order to advise the CSA and Department; b) hold regular meetings and use working groups (for specific areas or topical interests); c) make use of individual members' expertise, and networks; and d) identify needs and gaps in the SACs that DH should sponsor.

²⁰⁰ See 'Interview and Workshop Summary' (Annex 1 para 9.29).

²⁰¹ OCPA Code of Practice http://www.ocpa.gov.uk/the_code_of_practice.aspx

10. Use, maintenance and development of scientific expertise

Rationale

Whether a department has its own dedicated research unit, or commissions work from outside organisations, it needs to ensure it has long-term access to experienced scientists who are able to understand and interpret issues at the science-policy interface, taking into account the full range of scientific opinion as appropriate.

DH Submissions

10.1 DH has said:

How effectively do we use, maintain and develop scientific expertise (including both capacity and capacity building)?

“DH recognises the value of sustaining capacity in the UK scientific community both to do commissioned research and to generate independent undirected research. Such a community helps ensure that DH can obtain and use scientific advice from appropriate high-quality experts. We help maintain this expertise through a variety of mechanisms including commissioning research, seeking advice from individuals or inviting them to join a relevant Scientific Advisory Committee. Maintaining a strong, skilled scientific community also provides indirect benefits in improved productivity and economic benefits for the UK. We also recognise the value of maintaining a strong central scientific capability for example through embedding our analysts in policy teams and creating scientific resource in our agencies such as the Health Protection Agency.”

“We act to develop capability through three main routes:

- Research funding, through the NHS and DH e.g. NIHR, Policy Research Units and NIC;²⁰²
- Sponsoring scientific Department arms length bodies e.g. NIBSC²⁰³ and HPA;²⁰⁴ and
- Professional development, both within the Department and externally e.g. through Heads of Profession and expert networks, and developing healthcare science careers.”

“We recognise the importance of developing scientific expertise, not only within the Department but also in the NHS and wider scientific community. This expertise is important in policy development, in ensuring delivery of health and social care services and promoting innovation. By taking steps, such as those described above, we can ensure that we have access to high-quality scientific advice, not only today, but in the future.”

Evidence Sought

10.2 As well as understanding DH’s current capacity and capability; how does DH ensure the balance between in-house and external expertise; and anticipate future skills that will be needed to deal with the emerging issues?

Findings

In-house Scientific Expertise

10.3 *Capacity* – The Department has reduced its head count significantly in recent years, and several of the scientific functions previously undertaken by DH have been transferred to arms length bodies. The in-house staff that remain in the Department provide a strong, committed and skilled professional workforce. Many specialist scientists and doctors are recognised as experts in their field, not only in

²⁰² National Innovation Centre <http://www.nic.nhs.uk/Pages/Home.aspx>

²⁰³ National Institute for Biological Standards and Control <http://www.nibsc.ac.uk/>

²⁰⁴ Health Protection Agency <http://www.hpa.org.uk/web/home>

the UK but internationally. Operational researchers, economists, and statisticians within the Department generally work in multi-disciplinary teams at the Directorate level contributing to the formulation, implementation and evaluation of policies. In addition, many of the Department's staff have a scientific background which they are able to apply to their work.²⁰⁵ It is important that there are the available skills for thorough planning in implementation of policy. The Capability Review highlighted shortages of some skills, for instance in economic analysis and modelling. DH has commissioned a small external modelling unit to supplement DH capability for modelling and build a high level whole system model and relevant sub models for the NHS.

10.4 Intelligent Customer Function – If DH is to retain the ability to develop robust policies, it must maintain the capacity to commission and access good quality science and translate the findings into policy. This means having at least some in-house expertise. Currently, DH employs experienced scientists, clinicians and analysts who operate as “intelligent customers” at the science/policy interface. Some staff and external stakeholders are concerned about the possible impact of the shift of specialist staff outside the Department, and whether enough measures are in place to maintain the expertise and corporate memory both in DH and its Agencies. An example is the decline in the number of toxicology scientists, where numbers reduced from 30-40 scientists to less than 10 by the time the toxicology scientists moved from DH to HPA. The size and balance of expertise across the Department and its Agencies needs to be strategically reviewed on a regular basis, at both an organisational and programme level, so that changing needs can be accommodated more easily.²⁰⁶

Recommendation 19

DH should monitor its intelligent customer function for science, to ensure it retains sufficient levels of experienced scientists, clinicians and analysts who are able to communicate and commission the science required and to understand and interpret issues at the science-policy interface.

Key actions:

- Implement a consistent approach to tracking staff deployment and expertise.
- Provide opportunities for secondments into and out of DH (including NHS and Agencies).
- Encourage key experienced staff to stay in post longer.
- Ensure better provision for succession planning.

10.5 Continuing Professional Development (CPD) – Internal and external stakeholders expressed concern about the ability of the Department's scientific staff to retain the high level of expertise necessary to operate effectively. Although staff do have access to training relevant to their work, it is not always possible to attend events essential to keeping up to date and informed in their particular specialisms. Also, the smaller critical mass of scientific posts can potentially mean scientists feel isolated and they see fewer opportunities for career development within the Department.²⁰⁷ Steps that could be taken to mitigate these concerns include: increased opportunities for secondments in and out of DH (including NHS and Agencies); better provision for succession planning; a consistent approach

²⁰⁵ See 'Interview and Workshop Summary' (Annex 1 paras 10.1-10.6).

²⁰⁶ See 'Interview and Workshop Summary' (Annex 1 paras 10.7-10.10); 'Summary of Written Evidence' (Annex 2 paras 10.3-10.5).

²⁰⁷ See 'Interview and Workshop Summary' (Annex 1 paras 10.11-10.16)

to tracking staff deployment and expertise; and consideration of fellowships for individuals with high levels of expertise which the Department wants to retain. Senior analysts provide career support to analysts through continuous professional development and managed moves.

Good Practice
Career support to analysts through continuous professional development and managed moves.

10.6 *Head of Science and Engineering Profession Network* – For DH to be an intelligent customer for scientific advice, it is important the Department fosters and maintains its scientific capability. The continuing role of the Chief Scientist in the Head of Science and Engineering Profession (HoSEP) network,²⁰⁸ will provide the Department with access to wider Whitehall thinking and experience on issues related to supporting and championing its scientific [and engineering] expertise.

10.7 *Secondments* – The benefits of secondments include: training potential contractors in academia on Government research needs, including the quality (and succinctness) of reports; strengthening links between DH and its stakeholders (such as the NHS) as well as internally; and identifying potential new staff. However, DH needs to bear in mind the concerns of permanent civil servants in DH working with a changing workforce of secondees (for example, perceptions of more limited prospects of promotion as a result). Secondments have historically been very strong in the healthcare sector, and to a slightly lesser extent in the public health and social care sectors. More opportunities of secondments for social care practitioners within the Department could be beneficial in developing social care policy.²⁰⁹

External Capacity

10.8 In addition, to retaining its internal ‘intelligent customer’ function, the Department has a role in working with OGDs to ensure that relevant external scientific expertise in delivery bodies and academia is sustainably maintained. Several issues were raised in this area including: NHS research, medical academic workforce, clinical trials, social care research capacity, and the policy research community.

NHS Research

10.9 *Scientists in the NHS* – Some respondents were concerned that with current NHS career structures, it is difficult to recognise previous experience gained outside the NHS. As a consequence some NHS departments now find it difficult to recruit experienced scientists with good research pedigrees into NHS positions, where their skills would be extremely valuable – especially for specialist skills e.g. computer scientists and radiologists.²¹⁰

10.10 *Incentives for Research in the NHS* – The GO-Science Review coincided with the phasing out of the NHS R&D levies and the establishment of the ‘Best Research for Best Health’ Strategy to improve the quality of research by making funding more transparent and open to competition.²¹¹ Many academic clinicians were bidding into the different funding streams to secure the necessary funds to continue their research. However, some considered there were economic and opportunity costs to this for their institutes in writing project proposals and supporting research administration, and that it might not be possible to sustain the same level of research capacity within their organisations as previously under the NHS R&D levies. Also, there is currently a lack of capacity to design a quality research proposal; as shown by the lower number of quality proposals received by the CCF than

²⁰⁸ Head of Science and Engineering Profession Network

<http://www.dius.gov.uk/policy/science.html>; <http://www.berr.gov.uk/dius/science/science-in-govt/profession/page22837.html>

²⁰⁹ See ‘Interview and Workshop Summary’ (Annex 1 para 10.17).

²¹⁰ See ‘Summary of Written Evidence’ (Annex 2 para 10.9); ‘Interview and Workshop Summary’ (Annex 1 10.23).

²¹¹ See para 0.26.

originally anticipated.²¹² In response, DH has commissioned a 'NIHR research design service'²¹³ across England. The GO-Science Review suggests that it will be important for DH to monitor and evaluate research capacity in the NHS through the new initiatives under BRFBH to check that these concerns are not borne out in practice, and give early warnings of any inappropriate decline in research capability and practice within specific NHS trusts and foundations.

10.11 *Supply of Scientific Expertise* – There are concerns among stakeholders that in a few specific areas, there is a need for DH to encourage the supply of scientific expertise that is needed now and will be needed in future, for example in the infectious diseases, histopathology, and biomedical science research areas.²¹⁴ The GO-Science Review suggests that DH should monitor whether the availability of expertise needed in a given area required to deliver DH's objectives is sufficient and not under threat.

Good Practice

The appointment of the Chair in pharmacogenetics to support basic research and build capability in a new or under-resourced research area.

Recommendation 20

DH should work with other funders of health research to maintain the health of the research community.

Key action:

- Ensure that there is a systematic approach in place to monitor the health of the research community – particularly in un-fashionable research areas.

10.12 *NHS Academic Relationships* – Internal and external stakeholders stated that they felt there were barriers to increasing the academic involvement in healthcare and other research areas. One of these is the governance arrangements for funding NHS research and the perception that it is always a requirement for Universities to be sub-contracted by the NHS, making re-imburement of full economic costs difficult. Another is the perceived lack of recognition of the value of applied research by the Research Assessment Exercise in Universities (RAE), which gives greater importance to peer reviewed publications of research. Responsibility for the RAE currently rests with DIUS, and while it has been modified, and DH is committing substantial new funding to support applied research through the NIHR, Universities still remain sceptical about the incentives for embracing applied research. Apart from a relative lack of training opportunities, non-medical health care professionals are also disadvantaged as they cannot attract honorary NHS contracts, to enable them to maintain clinical salaries within the higher education sector in the way that doctors can.²¹⁵

²¹² See 'Summary of Written Evidence' (Annex 2 paras 10.7-10.8, 10); 'Interview and Workshop Summary' (Annex 1 10.23).

²¹³ NIHR Research Design Service http://www.nihr.ac.uk/infrastructure_research_design_services.aspx

²¹⁴ See 'Summary of Written Evidence' (Annex 2 para 10.18); 'HCAI' Case Study (Annex 5).

²¹⁵ See 'Summary of Written Evidence' (Annex 2 paras 4.29-4.32, 10.7-10.8).

10.13 *Research infrastructure* – DH recently announced that twelve new NIHR Biomedical Research Units (BRUs) will be established to complement the existing twelve NIHR Biomedical Research Centres (BRCs). Each BRU will receive £3.75 million over the next four years, to enable more research groups to increase their ability to undertake translational research. However, some external stakeholders are concerned that a number of the substantial research programmes in biomedical science and related areas, are almost all very large scale and focused on a limited number of providers (Russell group/teaching hospitals and similar partnerships). They requested that these schemes do not neglect the contribution smaller providers can make in niche areas.²¹⁶ The Case Study on healthcare associated infections²¹⁷ also points out the vital importance of ensuring adequate support for laboratory structures and services in the NHS (and what happens if they are neglected).

10.14 *Medical Academic Workforce* – Stakeholder interviewees and respondents expressed considerable concern about the decline in the medical academic workforce. Clinical staff play a vital role in clinical research within the NHS at the interface between research and the patient. There is currently a shortage of clinical staff who are able or incentivised to pursue a career in research or provide the interface. It is also increasingly difficult for clinicians to get academic training, without funding support, and there are not many incentives for this within the career pathway.²¹⁸ This highlights the need for clinical academic career pathways which include fit for purpose research training. The expansion of the medical academic workforce is a stated aim in the BRfBH strategy.²¹⁹ In response the National Institute for Health Research (NIHR) has developed

integrated academic training pathways to support doctors and dentists undertaking clinical training. Academic Clinical Fellowships (ACFs) and Clinical Lectureships (CLs)²²⁰ are available across England running for three and up to four years respectively in parallel to standard medical speciality training. These innovative posts allow trainees to spend a proportion of time in research and clinical training. Good progress has been made towards achieving target numbers of 250 ACFs and 100 CLs appointed annually, so the numbers of doctors and dentists on these academic training paths will in steady state total over 1000. The GO-Science Review suggests that DH will need to monitor that the systems it has in place do effectively ensure that clinical staff who are able, in terms of time and training, are incentivised to pursue a career in research, or to be the interface between researchers and the patient.

Recommendation 21

DH should continue efforts to encourage more effective NHS research and involvement of clinicians and academics.

Key action:

- Monitor and evaluate the effectiveness of BRfBH in attracting, developing and retaining the best research professionals in the NHS.

Clinical Trials

10.15 Clinical research encompasses a large number of activities, but there are two major areas a) experimental medicine, clinical investigation directed at establishing disease causation and 'proof of concept' – testing the validity and

²¹⁶ See 'Summary of Written Evidence' (Annex 2 para 4.34).

²¹⁷ See 'HCAI' Case Study (Annex 5).

²¹⁸ See 'Summary of Written Evidence' (Annex 2 paras 10.28 - 10.31).

²¹⁹ The NIHR Faculty, set up in April 2007, aims to attract, develop and retain the best clinical, health service and public health research professionals with a national collegiate ethos. <http://www.nihr.ac.uk/faculty.aspx>

²²⁰ Academic Clinical Fellowships (ACFs) and Clinical Lectureships (CLs) <http://www.nccrhd.nhs.uk/intetacatrain/>

importance of new discoveries or treatments in patients or healthy volunteers;²²¹ and b) clinical trials with patients which test a variety of new medical treatments and other interventions (including preventative, diagnostic or therapeutic). These are carried out by the private sector (including the pharmaceutical industry), charities, and other public funded organisations. The National Health Service (NHS) should provide the perfect environment in which to carry out high quality clinical research for the benefit of patients. Whilst a large amount of good research takes place, there is concern that conducting clinical research in the UK has been harder than it need be.²²²

10.16 Investment in the UK by the pharmaceutical sector is important for the economy, the science base and the health of the population; and the Government is keen that the UK continues to be recognised as an attractive place for the industry to invest and do business. This includes the ability to carry out clinical trials in a well regulated manner. However, industry stakeholders perceive the efficiency and effectiveness of implementing clinical trials in the UK is not currently competitive in an international context. The time to initiate trials sites is longer, and the rates of patient accrual in UK centres are significantly lower than in other countries where performance is higher (and costs are often lower). In addition, multi-site trials are particularly difficult with the requirements for ethics approval (often with re-approval for changes in research protocols) and the logistics of site approval at different trusts.²²³

10.17 DH works in partnership with other major research funders under the umbrella of the UK Clinical Research Collaboration (UKCRC).²²⁴ There

have been significant improvements in turnaround times of the research ethics committees. Building on work with partners in the UKCRC, the NIHR is establishing a managed process and a unified information system to co-ordinate trial preparations and approvals, so that all sites in a multi-site trial can find out how it is progressing and be ready to act and sign off the agreement. In addition, the NIHR has an adoption process for industry trials (with an explicit agreement to support them). Also, a consortium of research regulators has harmonised the information they require. This has enabled the National Research Ethics Service to pilot an Integrated Research Application System through which researchers can use a single set of information to apply to an ethics committee, for regulatory approvals, and for permission from NHS sites.

10.18 Although, these steps are welcomed, several industry stakeholders expressed a view that they may not be sufficiently timely to stem the attrition in UK clinical trials already underway, and which will lead to a loss of skills that are vital to an internationally competitive biotechnology community in the UK. To address these concerns, one industry consultee suggested the UK should focus more on early phase trials where the UK has excellent scientific and clinical experience; as there will always be strong competition from countries overseas for Phase 3 trials with large patient numbers.²²⁵ One aim of the NIHR is to address the difficulties experienced by industry in conducting clinical trials within the NHS. The Comprehensive Clinical Research Network (CRN)²²⁶ (recently established under 'Best Research for Best Health')²²⁷ is taking on more responsibility for this. Appropriate decisions remain with local CRNs (which are

²²¹ Strengthening Clinical Research – A report from the Academy of Medical Sciences (2003) <http://www.acmedsci.ac.uk/images/publication/pscr.pdf>

²²² Clinical Research Collaboration <http://www.ukcrc.org/aboutus/whywastheukcrcsetup.aspx>

²²³ See 'Summary of Written Evidence' (Annex 2 para 10.34); 'Interview and Workshop Summary' (Annex 1 para 10.23).

²²⁴ UK Clinical Research Collaboration <http://www.ukcrc.org/>

²²⁵ See 'Interview and Workshop Summary' (Annex 1 para 10.23).

networks of local NHS bodies) operating with agreed standards and performance indicators; while the Centre has begun to coordinate tasks which need only be done once and not repeated at each NHS site.

Recommendation 22

DH should address how the UK maintains competitiveness for clinical trials by the private sector and experimental medicine in the face of international competition.

Key action:

- Examine with the private sector the issues and support needed to sustain early phase clinical trials and an internationally competitive biotechnology community in the UK.

Social Care Research Capacity

10.19 DH is aware²²⁸ that a limited number of funding opportunities and a lack of co-ordination are some of the major challenges facing social care research. Support for researchers in the field is limited due to a fragile research infrastructure and low capacity. It also recognises that capacity is low and possibly declining as the research community ages. As a result, it is becoming difficult to attract new young researchers into the social care field and to keep them. The DH has formed the UK Social Care Research Collaboration (UKSCRC) with partners in social care, Government and academia. The Collaboration aims to develop the capacity and capability of the social care research workforce. The GO-Science Review suggests that a Head of Profession for Social Care science could help ensure that the nature and importance of social care

research and evidence is better understood within DH and OGDs. Their role would be to help ensure coherence in the commissioning of research and the use of evidence both within DH and OGDs is maintained; and that DH's strategic approach to building a robust evidence base for social care continues to be well supported and co-ordinated with the research programme of other organisations with a shared interest.²²⁹ In addition, the Government Chief Scientific Adviser should also consult with the DH CSA, DH and across Government to look into the issues involved in establishing more support for social care research.

Recommendation 23

DH should appoint a full-time senior level person (Head of Profession) for Social Care science to help ensure that the nature and importance of social care research and evidence is well understood both within DH and OGDs.

Key actions:

- Play a leadership role in advocating for more integrated research on social care issues across Government and other major funders.
- Ensure that a strategic approach to building a robust evidence base for social care is well supported and co-ordinated with the research programmes of other organisations.

Policy Research Community

10.20 The longer-term programmes funded by the PRP in Research Units and Centres in Universities has allowed academic researchers to develop a substantial understanding of the policy process,

²²⁶ UK Clinical Research Network <http://www.ukcrn.org.uk/index.html>

²²⁷ Best Research for Best Health http://www.nihr.ac.uk/about_implementation_plans.aspx

²²⁸ Modernising Adult Social Care – what's working. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_076203

²²⁹ See 'Building the Evidence Base for Adult Social Care' Case Study (Annex 7 para 102); 'Interview and Workshop Summary' (Annex 1 para 10.22).

while at the same time becoming national and international experts in their respective fields. This longer-term support has also enabled real career development for researchers in the Units, helping to retain them in the field, and hence develop the science base in areas critical to DH's work. This model of support, is an exemplar within government funded research, and has had clear demonstrable benefits for DH and the NHS, for the health and well being of the public, and for the health of the UK science base.²³⁰

Good Practice

Longer-term programmes funded by the PRP in Research Units and Centres of Universities in allowing academic researchers to develop an understanding of the policy process and become national and international experts in their respective fields.

²³⁰ See 'Summary of Written Evidence' (Annex 2 paras 10.30-10.31).

Steering Panel Members

Professor John Beddington,
Government Chief Scientific Adviser – Chair

Professor Deborah Ashby,
Queen Mary University of London

Professor Martin Bobrow,
University of Cambridge

Professor Ray Fitzpatrick,
Nuffield College, Oxford

Professor Nigel Gilbert,
University of Surrey

Dame Deirdre Hine, Chair of BUPA Foundation,
Non-Executive of Welsh Water,

Professor Les Iverson,
University of Oxford

Professor Julian Le Grand,
London School of Economics

Professor Tom Meade,
London School of Tropical Hygiene and Medicine

Professor Nancy Rothwell,
University of Manchester

Department of Health representatives attending the Panel meetings:

Professor Sally Davies, Chief Scientific Adviser

Professor David Harper, Chief Scientist

Professor Sue Hill, Chief Scientific Officer

Mr Ian Dodge, Policy and Strategy Directorate

Ms Simone Bayes, Policy and Strategy Directorate

Ms Rebecca Spavin, Policy and Strategy Directorate

Ms Siobhan Jones, Policy and Strategy Directorate

Mr Robert Brown, Policy and Strategy Directorate

GO-Science Review Team:

Dr Elizabeth Warham –
Team Leader and Panel Secretary

Mr Arup Kar

Dr Sarah Ball – Specialist

Ms Helen Lucas – Specialist

See Annex 10 for detailed information on the Steering Panel.

List of those providing written evidence

1. In August 2007, a consultation document was sent to over 400 DH stakeholder organisations and published on the GO-Science (then OSI) web-site.
2. In total, written evidence was received from 73 organisations and individuals, as listed in the table overleaf. None of those listed has objected to their responses being made public and, on completion of the review, submissions of evidence will be posted on GO-Science's web-site.²³¹
3. A summary of the written responses is provided in Annex 2 of this report.

²³¹ <http://www.dius.gov.uk/policy/science.html>: click on "View Science Reviews"

List of organisations contributing evidence to the review

Age Concern	Age Concern
AMS	Academy of Medical Sciences
AHPF	Allied Health Professions Federation
ABPI	Association of the British Pharmaceutical Industry
AstraZeneca	AstraZeneca UK Ltd.
AS	Autism Speaks
BAA	British Academy of Audiology
BHA & FH	British Homeopathic Association and Faculty of Homeopathy
BIOS	British and Irish Orthoptic Society
BIR	British Institute of Radiology
BLF	British Lung Foundation
BSF	Biosciences Federation
BMA	British Medical Association
BPS	The British Psychological Society
BSDR	British Society for Dental Research
CRU	Cancer Research UK
CHRE	Council for Healthcare Regulatory Excellence
CDH	Council of Deans of Health
DMU	De Montfort University
EA	Epilepsy Action
KF	King's Fund
HOP	Health & Offender Partnerships
HPA	Health Protection Agency
HSE	Health & Safety Executive
HSRN	Health Services Research Network
IC	Imperial College
IPEMB	Institution of Physics & Engineering in Medicine & Biology
KU	Keele University
KC	King's College London
LSHTM – SDO	London School of Hygiene and Tropical Medicine – Service Delivery and Organisation Programme
LoughboroughU	Loughborough University
MHF	Mental Health Foundation
MoJ – NOMS	Ministry of Justice – National Offender Management Service
MSC	Medical Schools Council
NCOR	National Council for Osteopathic Research
NICE	National Institute for Health and Clinical Excellence
NIHR	National Institute for Health Research
NHS – HTAP	NHS R&D – Health Technology Assessment Programme
NHS – SDO	NHS R&D – Service Delivery and Organisation Programme
NPL	National Physical Laboratory
NPHS – W	National Public Health Service for Wales
Onyvax	Onyvax Limited
RC – UK	Research Councils UK

RCM	Royal College of Midwives
RCN	Royal College of Nursing
RCP – CH	Royal College of Paediatrics and Child Health
RCP	Royal College of Physicians
RCP – FPH	Royal College of Physicians of UK – Faculty of Public Health
RVC	Royal Veterinary College
SACAR	Specialist Advisory Committee on Antimicrobial Resistance (personal contribution)
SCIE	Social Care Institute for Excellence
SCR	The Society and College of Radiographers
SHU	Sheffield Hallam University
UKPRIBS	UK Panel for Research Integrity and Biomedical Sciences
UKSBM	UK Society for Behavioural Medicine
UNISON	UNISON
Universities UK	Universities UK
UoBedfordshire	University of Bedfordshire
UoBirmingham	University of Birmingham
UoBristol	University of Bristol
UoEast Anglia	University of East Anglia
UoExeter	University of Exeter – Peninsula Medical School
UoHertfordshire	University of Hertfordshire
UoGlamorgan	University of Glamorgan
UoSouthampton	University of Southampton
UoStirling	University of Stirling
UoSussex	University of Sussex
UoTeeside	University of Teeside
UoYork	University of York
UoWarwick	University of Warwick
UoWestminster	University of Westminster – School of Integrated Health
Wellcome	Wellcome Trust
WAG	Welsh Assembly Government

Case Study Summaries

1. Five case studies were carried out to look at detailed examples of how the Department of Health (DH) uses science, against all ten review criteria. Case study topics were chosen in consultation with the independent Steering Panel and DH. The topics chosen were:

- Scientific Advisory Committees
- 18 Weeks Patient Pathway Programme
- Healthcare Associated Infection
- Targeted Funding for Pharmacogenetics
- Building the Evidence Base for Adult Social Care

2. The enclosed notes summarise the main findings for each of the five case studies. Further information on the conduct of the case studies is provided in the methodology for the GO-Science Review (Annex 9), and the findings are described in detail in the individual Annexes 3 to 7. These are all available on the GO-Science web-site at:

<http://www.dius.gov.uk/policy/science.html>:
click on "View Science Reviews"

3. The findings from the five case studies have been used in the main report in support of the review's findings, conclusions and recommendations.

Scientific Advisory Committees sponsored by the Department of Health – their Role, Function and Operation (See Annex 3 for details)

The function of a Scientific Advisory Committee (SAC) is to help Government collect scientific information and make judgements about it. In setting up and managing SACs the GO-Science Code of Practice for SACs (CoPSAC) is a principle-based document that represents good practice across Whitehall.

The Department of Health (DH) sponsors a total of 22 SACs. A case study on their role, function and operation as part of the GO-Science Review, therefore presented the opportunity to provide: guidance on the management of the SACs (at the request of DH); and lesson learning and examples of good practice for other Government Departments.

The Case Study ran in parallel with the GO-Science consultation on the Code of Practice for Scientific Advisory Committees (CoPSAC), and many of the findings informed the revised Code of Practice.

Access to the advice of the experts on the SACs is of great importance and value to DH, and the use of SACs to provide this expertise is a notable example of good practice.

Other examples of good practice in the contribution of SACs to the use of science by Government Departments, in terms of their role, function and operation, include: input to policies, strategies and White Papers; horizon scanning activities; use of sub-groups or working groups on specific topic areas; and knowledge transfer.

The GO-Science Review found there was no formal system for reviewing the whole portfolio of SACs to identify needs, gaps and overlaps; or for sharing experience and best practice across the Secretariats of the SACs. In some cases, there was a lack of clarity and understanding among members of the SACs as to how their advice reaches the decision makers in DH and, where appropriate, other Government Departments. A more consistent approach to induction for new members to SACs would also be welcomed.

18 Weeks Patient Pathway Programme

(See Annex 4 for details)

The NHS Improvement Plan (June 2004) set out an ambitious new aim. “By the end of 2008 no-one will have to wait longer than a maximum of 18 weeks from the time they are referred for a hospital operation by their GP until the time they have that operation.”

The 18 Weeks Public Service Agreement (PSA) target (reaffirmed in CSR 2007) is: “By December 2008, no-one waits more than 18 weeks from GP referral to the start of hospital treatment or other clinically appropriate outcome (for clinically appropriate patients who choose to start their treatment within 18 weeks).”

This is the most challenging waiting time target ever set, with the aim of removing hospital waiting as a concern for patients. It builds on successive reductions in waiting times since the publication of the NHS Plan in 2000. Previous targets focused on reducing waits for particular stages of assessment or treatment (the wait to see a consultant in outpatients; the wait for hospital admission following a decision by a consultant that admission is required). For the first time, the 18 weeks target measures the whole of the patients wait. Within this, there is also a diagnostic stage of treatment milestone for March 2008 in place – set at a maximum of 6 weeks. The 18 weeks patient pathway is different in two key ways:

- it measures the whole patient wait (including the ‘hidden waits’ for diagnostics and outpatient appointments after the first consultation) that is from the time that a patient is referred to a consultant by their GP (this is known as Referral to Treatment); and
- it covers all medical and surgical consultant-led treatment, whereas the previous elective care stage of treatment targets concentrated on waits for the first out-patient appointments – which

covered medical and surgical care, and time on inpatient and day case waiting lists – which was predominately – but not exclusively surgery.

The Case Study considered areas including: the whole system approach; making measurements; gathering data; and the role of analysts.

The access to secondary care PSA target and the 18 weeks patient pathway programme requires a whole system approach. It is rooted in a) service redesign and service transformation; b) measuring complete patient pathways (rather than stages of treatment) through a range of hardware and software solutions; c) collecting and using information and data and drawing on evidence from a wide range of sources; d) testing and rigorous evaluation of potential solutions to achieving the target and reducing the long waits in the NHS; and e) modelling and economic evaluation. The programme is under constant scrutiny and requires the whole of the NHS in England as well as other providers of healthcare (e.g. independent sector healthcare providers) to be engaged and delivering.

The 18 weeks delivery and implementation programme has involved evidence based on modelling and requiring analytical expertise (statistics, mathematics, operations research, economics) to track and monitor patient pathways, and scientific evidence in the traditional sense to inform the 18 weeks commissioning pathways. As the information and evidence is constantly changing, it has required major engagement with stakeholders, and has brought together a wealth of disparate evidence and information sources. It has also demonstrated the value of testing hypotheses and finding solutions to complex problems and issues, and of working with a range of major

stakeholders. This programme highlights the importance of collecting and reviewing a diverse and wide ranging set of evidence and data on an ongoing basis, and using this to inform policy and practice. It also highlights the role of performance management of the system and the value of constantly testing, piloting and evaluating solutions with the eventual implementers in the NHS and the end recipient of care (i.e. public and patients). These principles have constantly shaped the questions and have led to greater engagement and understanding by DH and stakeholders. Active involvement of hospital and primary care trusts as pilots/pioneers means DH gets early buy-in, gets more work done than would be possible by DH alone and results in showcase sites as advocates to the others.

The GO-Science Review found that the 18 weeks patient pathway programme has used science in the shaping of the policy and its implementation and has focused on getting the policies “right”. It has emphasised quality and success as well as process. There is lesson learning from the 18 weeks patient pathway programme in this context to inform how other policies in DH are developed and implemented. DH will need to continue to build on and monitor the 18 weeks patient pathway programme across the NHS after the target is met in December 2008, including potential impacts in other delivery areas.

One of the benefits of the 18 weeks patient pathway programme has been the transparency of evidence produced, highlighting the data available to policy, Chief Executives and Ministers involved, as well as being in the public domain. This is a model of good practice that should be followed more widely across the Department. Good practice lessons from performance management of the system, the crucial role of data, and the value of constantly testing, piloting and evaluating solutions with the eventual implementers in the NHS and the end recipient of care (i.e. public and patients), should also be shared across the Department for developing future policies.

Healthcare Associated Infection

(See Annex 5 for details)

The case study focused on Methicillin resistant *Staphylococcus aureus* (MRSA) and, to a more limited extent, *Clostridium difficile* to illustrate lessons learned at a strategic level in the use of science to inform policy that could be transferred for the study and control of other types of healthcare associated infections (HCAIs).

For a period of about 30 years after the introduction of antibiotics to control infections, there was a gradual decline in perception of infection as an important element in healthcare. Infection control disappeared from clinical training programmes and the need for hygiene and cleanliness in healthcare became low priority. In parallel there was very little research funding to address the topic. Scientists became aware of antimicrobial resistance from the 1960s and concerns grew through the succeeding decades until, by the 1990s, antibiotic resistant strains of pathogens such as MRSA were causing increasing numbers of healthcare associated infections, and were becoming a matter of public concern. MRSA was relatively uncommon through the 1960s and 1970s. A few more cases appeared in the 1980s, but the problem really arose in the 1990s when particular “epidemic” strains of MRSA became established in hospitals throughout the UK.

DH commissioned systematic reviews of the evidence in the late 1990s as a basis for guidance to the NHS. The results showed that the evidence base was weak so DH set up an intensive programme to attempt to tackle the problem on a wide range of fronts simultaneously. Guidelines were produced and actions were planned based on a combination of the available evidence, expert opinion and common sense. It became clear that a fundamental culture change in behaviour was

needed, especially in hospitals. New initiatives were set up by DH to target MRSA bacteraemias, reduce HCAIs and to improve hygiene and cleanliness. The infection strategy for England now includes more infection control nurses, patient screening, deep cleaning and a campaign to reduce antibiotic use; with an extra £270 million a year available for infection control by 2011. The massive effort expended has achieved dramatic improvements in targeted areas of healthcare associated infection such as MRSA where the changes in attitude and approach are being adopted and implemented; but there is still a lot more work to be done.

A mandatory MRSA reporting scheme was introduced for Acute NHS Trusts in England in 2001; and from 2004 a surveillance scheme was also introduced for *Clostridium difficile* infection (CDI). These schemes are run for DH by the Health Protection Agency (HPA). By the quarter ending March 2008, the number of MRSA bacteraemias recorded had almost halved compared with the average quarter in 2003/04. It is thought that MRSA costs the NHS tens of millions of pounds each year. Despite the decline since 2001, the variation in MRSA rates between hospitals remains high and there is more progress to be made. *Clostridium difficile* differs from MRSA in that it is more readily spread through contact with infected patients and, unlike MRSA, it produces spores that are resistant to measures such as alcohol rubs. Surveillance figures from HPA showed that numbers of infections in patients aged 65 and over increased in the last few years up to about 55,930 cases in 2006/07. The figure for 2007/08 is 45,334, a reduction of 19%. Stakeholders advised that further improvements will be necessary and highlighted the fact that there are other HCAIs which will also need to be addressed in future. This means that

there will continue to be requirements for robust research and evidence.

In addition to the evidence reviews and surveillance DH also commissioned research programmes. In 2001, a portfolio of 14 research projects was set up to address some of the important gaps in antimicrobial resistance and HCAI (£2.5 million); and in 2005, a further programme of 6 projects was commissioned to look at the cost-effectiveness of interventions for the control of HCAI (£2.5 million). Since then there have been initiatives, led by DH, to increase the evidence base in a concerted way in partnerships with other funders to understand more about infections, detection, infection prevention (including buildings and equipment design and environmental management) and control whether by drugs, other therapies or identified good practice in general and/or specific to the infectious organisms.

A new HCAI and Cleanliness Division was established in DH early in 2008 to oversee future developments in this complex area, through an ongoing programme. This will be necessary if the improvements are to become universally sustainable and to extend awareness into primary care and the general public. The perception by external stakeholders that there did not appear to be a joined-up strategy in DH for the scientific, policy and administrative aspects of the healthcare associated infections programme was addressed by DH through the publication in January 2008 of 'Clean, Safe Care' and will be reinforced once DH has communicated information to its key stakeholders in the HCAI area about the remit, structure and internal linkages of the new Division. It will also be important to continue to ensure that HPA, as an expert arms-length-body, and also the relevant Scientific Advisory Committees are actively involved.

This case study has demonstrated that this topic, after a slow start, became a good example of the

way evidence was gathered and best practice was identified and shared. Hard science, such as the typing of the organisms and sharing the information by the reference laboratories prompted the initiatives for major changes in practice. This topic showed the great importance of laboratory structures and services in NHS and the need to ensure adequate resources for laboratory science and maintenance of science skills (and re-skilling laboratories in the NHS). There was praise for the appointment of the Inspector of Microbiology and Infection Control, which has been very beneficial. In due course, it will be important for DH to review which aspects of implementation and guidance had the most impact (this could be treated as a piece of scientific work). Other lessons learned included the need for effective communication of the evidence that underpins policies to achieve behaviour change by the medical profession, ancillary healthcare staff and patients. It was not always possible to have all the evidence necessary, so a pragmatic approach had to be taken in some cases, but relevant research, surveillance, systematic reviews and other evidence gathering must continue, and the results should be built into updated policies and processes.

The GO-Science Review suggests that DH should continue to build the evidence base with initiatives to study more about infections, infection prevention (including buildings and equipment design and environmental management) and control by antibiotics, other therapies and specific good practice. In addition, DH should seek to improve on surveillance data analysis and research studies on some of the mechanisms of transmission and the risk factors to identify more specific preventive measures to break the chain of transmission. Likewise, DH should continue to study whether policies have the intended effect and remain relevant.

Targeted Funding for Pharmacogenetics

(See Annex 6 for details)

Pharmacogenetics is the study of how people respond differently to drugs due to their genetic makeup, in terms of both how well the drug will work and what side effects the person might suffer. Research in pharmacogenetics should help make the use of medicines more effective. It should allow doctors to identify patients who could suffer adverse reactions as well as those who may not respond to a particular drug at all. In addition, it should help doctors tailor the dose according to a person's individual needs.

DH is providing targeted support to the area of pharmacogenetics research, comprising of funding for: a portfolio of six research projects (c. £4m); and an NHS Chair in Pharmacogenetics (c. £3m) for a five year period. The focus of the research is on existing medicines which patients are taking now, and which is unlikely to be addressed without public sector funding; i.e. it is addressing a market failure. This is an example of the targeting of funding at an identified research need with significant potential benefits in terms of improved patient health and reduced NHS costs.

The appointment of an NHS Chair (in September 2007) has the potential advantages of building critical mass, attracting further funding and providing continuity through sustainability. If successful, this could prove to be an example of good practice for use in other areas of DH and other Government Departments. The targeted funding arrangements for pharmacogenetics highlight an appropriate use of DH funds to support basic research in a new area, with a small amount of funding to catalyse change.

The GO-Science Review suggests that DH should take further steps towards defining its future strategy for pharmacogenetics research and implementation, beyond the existing research portfolio and in addition to, and complimentary to, the activities of the Chair. In addition, DH should ensure that funding is available for good quality proposals for research which is not necessarily highly novel but addresses clinical need. DH through the Chair of Pharmacogenetics, should ensure that the research community is aware of this and encouraged to apply for funding.

Building the Evidence Base for Adult Social Care

(See Annex 7 for details)

Social care has been the focus of a series of modernising reforms over the last decade. The White Paper 'Caring for People' (1989) which set out 10-year vision for community care, aimed to provide a "needs led" responsive range of services and promote maximum independence of those wishing to live at home rather than enter institutional care. Further reforms de-emphasised the status of the provider in favour of promoting independence and ensuring the delivery of quality services. The continuing drive to modernise social care led to the publication of the White Paper 'Our Health, Our Care, Our Say' that set out a vision for a radical and sustained shift in the way in which services were delivered and a greater emphasis on personalisation.

Prompted by its concerns about the long-term funding of social care, the King's Fund launched a major investigation in 2005, which provided a comprehensive analysis of the demand for social care and estimates of spending requirements over the next twenty years. The report also noted that the social care evidence base was under-developed and recommended an increase in research funding. In the course of assessing the progress and outcomes of the process of modernisation initiated in 1998, DH raised awareness of the state of social care research and the difficulties associated with obtaining high quality evidence in the face of rapid change brought about by modernisation. It recognised the need to develop imaginative ways to produce robust evidence, not just on what works but also under what conditions and with what implications.

As a research terrain rather than a disciplinary area, social care research has much in common with health services research (HSR) on what works in front-line practice, such as in the primary care

clinic. In social care, effective intervention in the front line requires research that derives directly from practice concerns and offers solutions designed and tested to be feasible in practice. As with HSR, social care research draws largely on the social sciences and involves a wide range of disciplines and methodologies. DH's Policy Research Programme (PRP) is responsible for providing the evidence to inform policy development. Much of PRP's research is evaluative in nature, but explanatory and exploratory research is also funded.

It is difficult to get an accurate picture of the overall investment in social care research, given the diversity of funding sources involved. According to one study, DH accounted for around one third of all funded social care research activity in '02/'03. DH's current spend on social care research activity is around £10 million per annum (largely through PRP). Those stakeholders, who are keen to see an increase in funding, have compared the figure with the £750 million DH spends on NHS-facing research. While funding for the latter is from the NHS budget for patient care and is ring-fenced, social care research is funded from the much smaller budget for centrally financed services.

Social care accounts for around £14 billion of Government spend every year, a private market of around £5 billion, and an informal market that is worth at least as much again. However, despite the extremely high costs associated with social care, the collection of evidence and research into social care has been neglected over the last 50 years. Recognising the major implications for its ability to make robust evidence-based policy, DH is now developing a coherent strategy to build the evidence base.

DH's commitment to social care is being demonstrated by the appointment of its first Director General for the sector in 2006, followed soon after by the establishment of the Social Care Strategy Unit (SCSU). The Unit is working closely with PRP and the NHS Information Centre for Health and Social Care to identify gaps in the existing evidence base, prioritising these in line with policy objectives and developing a strategy to fill the gaps, beginning with the highest priorities. The SCSU contributes social care input to the work of DH's Horizon Scanning Unit and considers the impact of emerging trends on the analysis of existing evidence. It has also identified areas of interest with implications for the future of social care, but these need to be developed taking account of the DH's wider horizon scanning activities. The DH's work with partners in other funding bodies to develop a more strategic approach to research across the sector as a whole, has led to the formation of the UK Social Care Research Consortium.

The PRP commissions primary research, secondary analysis, formative evaluations, systematic reviews and scoping papers explicitly to inform the DH policy process. It does this through: five year programmes of research in three university-based funded units; large-scale research initiatives comprising grouped studies on a key policy issue or area; stand-alone single projects and embedded evaluations of specific innovations. Except for research undertaken by the research units, all research commissioned by the PRP is openly and competitively tendered. In addition to robust commissioning processes, peer reviews are routine, at both the project formulation stage and following completion. DH's commitment to the quality of evidence was noted in its use of randomised control trials despite facing challenging circumstances for its use. Quality and relevance is also assured through five-yearly reviews of funded research units.

DH has taken steps to ensure that the evidence used to inform social care policy is timely, relevant and of good quality as far as possible. Structural re-organisation has led to the Social Care Directorate having its own analytical team and the Directorate has taken a number of steps to strengthen the connection between policy and PRP commissioned research.

DH has put in considerable effort into ensuring that commissioned research has maximum impact on policy development. This is facilitated by the close links that have been established between policy staff and their in-house analysts and teams of researchers managing programmes in the funded units. This is augmented by its close links with the NHS Information Centre for Health and Social Care, which provide information to help with a wide range of projects including resource allocation and measurement of the output and productivity of adult social care. The case study found examples where research has had a direct and immediate impact on areas of high policy importance.

Social care researchers are encouraged to publish articles in academic journals as well as disseminate their findings to local authorities and other stakeholders. Articles on DH-funded research have been published in high-impact peer-reviewed journals in various disciplines. The PRP is working closely with SCSU and external partners to develop strategies for maximising the dissemination and use of the research it commissions. However some important external stakeholders believe DH could do more to ensure that the results of research are communicated in a timely manner and in a form which is relevant and useful to practitioners. DH is aware of a continuing need to find better ways of improving the translation of research findings into policy and practice.

DH is aware of the major challenges facing social care research and that support for researchers is

limited due to a fragile research infrastructure and low capacity. To respond to some of the challenges, DH has worked with its social care partners, other health authorities and government departments, and carried out a wide public consultation on social care research capacity. It has now formed the UK Social Care Research Collaboration with partners in social care and academia to develop the capacity and capability of the social care research workforce.

The SCSU is also building the capacity of social policy colleagues to make use of evidence by being an exemplar of good practice in this area and also by encouraging members of its analytical teams to demonstrate how evidence can be used to support arguments. More formally, SCSU has established a series of events which aim to increase their policy colleagues' understanding of how to work with analysts and use evidence and are exploring the introduction of training modules to augment this.

The GO-Science Review suggests that DH should lead discussions with social care delivery agencies, and organisations that have an interest in social care including other Government Departments such as Communities and Local Government, Department for Children, Schools and Families, and the Department for Work and Pensions, with a view to significantly increasing investment in research and encouraging a co-ordinated strategic approach to social care research.

The Department recognizes that social care research is complex and requires a range of methods, from multivariate analysis of large datasets to ethnographic research on small samples, and that it is often difficult to commission and carry out quality research in timescales that match with policy imperatives. The Department should continue to experiment with alternative forms of commissioning and supporting studies on key policy issues. The aim should be to link research more closely to policy development and implementation, and to involve stakeholders more effectively.

Acronyms

List of abbreviations used in this report:

ACF	Academic Clinical Fellowship
ACRA	Advisory Committee on Resource Allocation
ALB	Arms Length Body
ASSET	Action on Stroke Services and Evaluation Toolkit
BBSRC	Biotechnology and Biological Sciences Research Council
BCG	Bacillus Calmette-Guérin vaccine against tuberculosis
BRC	Biomedical Research Centre
BRfBH	Best Research for Best Health
BRU	Biomedical Research Unit
BSE	Bovine Spongiform Encephalopathy
CCF	Central Commissioning Facility
CL	Clinical Lectureship
CSO	Chief Scientific Officer
CfH	NHS Connecting for Health
CJD	Creutzfeldt-Jakob disease
CLG	Communities and Local Government
CMB	Corporate Management Board
CoPSAC	Code of Practice for Scientific Advisory Committees
COMARE	Committee on Medical Aspects of Radiation in the Environment
CPD	Continuous Professional Development
CSR	Comprehensive Spending Review
CSA	Chief Scientific Adviser
CSO	Chief Scientific Officer
DCFS	Department of Children, Families and Schools
DCMS	Department of Culture, Media and Sport
DFID	Department for International Development
DG	Director General
DH	Department of Health
DIUS	Department for Innovation, Universities and Skills
Defra	Department for Environment, Food and Rural Affairs
DMIT	Disease Management Information Tool
DPHHP	Department of Public Health and Health Professions
DWP	Department of Work and Pensions
EPSRC	Engineering and Physical Sciences Research Council
ESRC	Economic and Social Research Council
EU	European Union
FSA	Food Standards Agency
FTG	Forward Thinking Group
GO-Science	Government Office for Science
GCSA	Government Chief Scientific Adviser
GTAC	Gene Therapy Advisory Committee
HCAI	Healthcare Associated Infection
HITF	Healthcare Industries Task Force
HO	Home Office
HoSEP	Head of Science and Engineering Profession
HPA	Health Protection Agency
HSN	Horizon Scanning Network

HSU	Horizon Scanning Unit
HSU&N	Horizon Scanning Unit and Network
HSE	Health and Safety Executive
HTA	Human Tissue Authority
ICHSC	The NHS Information Centre for Health and Social Care
LA	Local Authority
MHRA	Medicines and Healthcare products Regulatory Agency
MISG	Ministerial Industry Strategy Group
MoD	Ministry of Defence
MoJ	Ministry of Justice
MRC	Medical Research Council
MHRA	Medicines and Healthcare products Regulatory Agency
MRSA	Methicillin resistant Staphylococcus aureus
NDPB	Non Departmental Public Body
NEPNEI	National Expert Panel on New and Emerging Infections
NHS	National Health Service
NHSC	National Horizon Scanning Centre
NIBSC	National Institute for Biological Standards and Control
NIC	National Innovation Council
NICE	National Institute for Health and Clinical Excellence
NIHR	National Institute for Health Research
NPfIT	National Programme for Information Technology
NPRI	National Prevention Research Initiative
NSF	National Service Frameworks
OCPA	Office of the Commissioner for Public Appointments
OR	Operational Research
OSCHR	Office for Strategic Coordination of Health Research
OSI	Office of Science and Innovation
OGD	Other Government Department
PACS	Picture Archiving and Communications System
PARR	Patients at Risk of Re-hospitalisation
PASA	Purchasing and Supply Agency
PRP	Policy Research Programme
PSA	Public Service Agreement
R&D	Research and Development
RAE	Research Assessment Exercise
RAS	Review of Analytical Services
RCT	Randomised Control Trial
RLO	Research Liaison Officer
ROAMEF	Rationale, Objectives, Appraisal, Monitoring, Evaluation and Feedback
S&I	Science and Innovation
SAC	Scientific Advisory Committee
SCIE	Social Care Institute for Excellence
SCSU	Social Care Strategy Unit
SDO	Service Delivery and Organisation
SEAC	Spongiform Encephalopathy Advisory Committee
SHA	Strategic Health Authorities

SPI	Scientific Pandemic Influenza Advisory Group
TB	Tuberculosis or tubercle bacillus
TSB	Technology Strategy Board
TSE	Transmissible Spongiform Encephalopathies
UKAP	UK Advisory Panel for Healthcare Workers Infected with Bloodborne Viruses
UKCRC	UK Clinical Research Collaboration
UKCRN	UK Clinical Research Network
UKTI	UK Trade and Investment
WORD	Wales Office for Research and Development

Glossary

Term	Definition
Aims	High-level, strategic objectives.
Appraisal	A review of proposals for a piece of work, prior to its being started, when deciding whether or not to proceed.
Capacity/capability maintenance	Maintaining sufficient capacity/capability in a department to ensure that the department's science needs can be adequately addressed.
Chief Scientific Adviser (CSA)	The person accountable to the Secretary of State and Ministers for science procurement and advice within a department.
Evaluation	An independent, constructive analysis of the impact, efficiency and appropriateness of a policy, programme or other activity: in most cases <i>ex-post</i> , i.e. after completion.
Horizon scanning	The systematic examination of potential threats, opportunities and likely future developments, which are at the margins of current thinking and planning. Horizon scanning may explore novel and unexpected issues, as well as persistent problems or trends. Overall, horizon scanning is intended to improve the robustness of policies and the evidence base.
Knowledge transfer	The processes by which knowledge and ideas move from the source of knowledge/science to other [potential] users of that knowledge.
Monitoring	Assessment/management of a piece of work while it is being done.
Outcome	What happens as a result of a piece of work, e.g. economic or social benefits to the UK.
Output	The product(s) of a piece of work, e.g. reports.
Peer review	Assessment of research proposals and outputs by peers.
Policy	The translation of government's political priorities and principles into programmes and courses of action to deliver desired change (including regulation).
Policy-maker	A person or organisation charged with assisting a decision-taker in reaching a decision by providing policy analysis, generating policy options, or by conducting a risk assessment.
Project	A single, self-contained piece of work with fixed timescale and dedicated budget.
Programme	A set of organised but often varied activities (projects, measures or processes), directed towards the achievement of specific operational objectives.
Rationale	The reasons for supporting an activity, e.g. expected social or economic benefits.
Research	Systematic study directed towards fuller scientific knowledge or understanding of the subject studied.

Science	<p>For the purposes of this Review, 'science' encompasses all branches of science including social and natural sciences, research, data collection, and monitoring.</p> <p>Natural Science: deals with the physical world, e.g. physics, chemistry, geology, biology.</p> <p>Social Science: deals with the study of society in general, the factors motivating the behaviour of humans within that society, and the results of such behaviour, e.g. economics, psychology and sociology.</p>
Stakeholder	<p>A person or organisation representing the interests and opinions of a group with an interest in the outcome of the review or policy decision.</p>
Targets	<p>Activities (usually measurable) whose achievement will indicate that objectives are being met.</p>

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