



Response from the University of Southampton to the Cooksey Review of UK Health Research

Preamble

In framing our response to the questions posed we have had the following aims as those we would want the new system to achieve:

- ◆ Decisions on funding made on independent scientific advice.
- ◆ Increase links between basic and clinical science and between biomedical/health and the physical/social sciences.
- ◆ Integrate decisions on strategic priorities in conjunction with other major funders, specifically medical charities.
- ◆ Continue to support the development of research competencies in the emergent disciplines whilst maintaining strength in biomedical and medical research.
- ◆ Sustain both basic and clinical research activity on geographically dispersed basis through out the UK and throughout the regions within England.
- ◆ Invest to facilitate more rapid translation from basic to clinical studies and onwards to clinical trials.

Review questions

- 1. What are the strengths and weaknesses of the MRC and NHS R&D programmes at present? How do each of these support the research and training needs of the NHS, social care, industry and academia? Does more need to be done?**

The methods based on competitive peer-reviewed intra and extramural research funding are a core feature and should continue. The MRC has an efficient, robust system of peer review that is tried and tested. In addition, the Council has been positioning itself increasingly to embrace the applied end of the research spectrum. However it has had much less of a focus on clinical and 'near-patient' research. NHS R&D has a more direct focus on clinical and applied research, but has not established the same track record with peer review.

Both the DH and the MRC support research and training needs reasonably, but there will be an increased need in the future, particularly in the light of the new clinical academic training schemes.

Compared with other Research Councils, the MRC do not actually fund much of the overall portfolio of medical research – this is an area in which the charities play a major part. It is therefore essential that there is sharing of strategic plans by the MRC, NHS R&D and the major charities.

In contrast to the MRC, the NHS R&D Programmes are devolved across the four UK countries. Further, whilst maintaining quality, they have provided substantial funding for the full range of health and social care professionals. They have also encouraged capacity building in disciplines new to research by funding studentships, bursaries and fellowships. Unlike the MRC, the research projects funded by NHS R&D Programmes tend to be across the entire spectrum of health and social care research.

The National Coordinating Centre for Health Technology Assessment (NCCHTA), part of the Wessex Institute for Health Research and Development at the University of Southampton, coordinates the HTA programme on behalf of the Department of Health's Research and Development Division. The overall aim of the HTA programme is to ensure that high quality research information on the costs, effectiveness and broader impact of health technologies is produced in the most efficient way for those who use, manage, provide care in and develop policy for the NHS. This element of the DH R&D has been a considerable success and should continue in its present form.

2. What do you believe are the key scientific and organisational challenges facing health research, and underpinning training, in the UK over the next decade? How might the UK Government best help address those challenges? What do you believe should be the Government's objectives for health research, and why?

Key challenges include creating the capacity to do large scale, time-consuming clinical studies. There is a need to expand the pipeline for multidisciplinary R&D in a climate of increasing pressure from clinical service. It is not easy to address R&D in the NHS in isolation. One of the major constraints is prioritization of direct clinical care over research. Service pressures make it difficult for NHS staff to find time to contribute to research and service targets force managers to focus on clinical performance indicators rather than R&D. This is compounded in the current financial climate by the use of funding streams for research and education (which should be ring-fenced) to support clinical service needs.

How can Government help? They could understand that research is as important as treatment (as part of the overall provision of healthcare) and ensure that funds are adequate and 'ring-fenced'.

The medical profession does not represent the only professional group in the NHS. Nursing and the allied health professions are key members of the multidisciplinary team. But, little funding has been provided to build capacity among these disciplines in comparison to that channeled to medical researchers. One of the remaining challenges is how best to harness these health professionals to undertake high quality clinical research. This can only be achieved with an increase in funding to build capacity and research expertise.

3. What should be the Government's priorities for health research? Is there anything it should stop doing or funding? What is it not doing or funding that it should do, and, in the absence of further sources of support, what can it lower in order to release the necessary funds?

Priorities need to be broad and not too focused. They need to cover basic and applied science. There should not be just a focus on short term gains. There is a need to think longer term – but maybe get there in short-term steps. It will be important not to stifle innovation in (basic) research areas, for example, outside the "big six" health priorities that are currently driving UKCRC.

Specific challenges will be: a continuing shortage of resources, greater demand for cure and palliation, emphasis on care closer to home, a better educated and assertive public, a greater incidence of diseases of old age, changing family structure and globalisation of health care. Therefore, the government's priorities for health research should include more research into old age and chronic diseases from pathology through to the support, treatment and caring of these individuals.

4. How should decisions be taken on the balance between the long-term economic and social benefits of a high quality biomedical research base; and the needs for research to improve healthcare and other public services? What is the appropriate balance between public funding for investigator-led and priorities led research? How do we balance funding for basic science, translational science and applied science? Is this something that should vary over time? What mechanisms should be used to make judgements about this balance?

In all cases decisions need to be based on the quality of science, be it biomedical or health service related. It is difficult to say what the balance

should be: it will vary from field to field and over time. Overall the current balance of a "roughly equal spend" on biomedical and health research (as represented by the current MRC and DH R&D budgets) seems about right. Again, decisions should be made on the quality of science and cover the spectrum from basic to translational/clinical. The balance should change with time and this should be determined by quality of science, peer review and input from a range of stakeholders (including 'lay').

Internationally, the NHS is unique in terms of the provision of health services and many billions of pounds are required to keep it functioning. Because of its complexity there are a number of problems in terms of how best to manage and maintain the NHS in order that the populations obtain the best possible health care. Many of these problems can be addressed through research projects and programmes in the form of translational science and applied science. In the NHS R&D Programmes, the balance should also be influenced by government priorities. This may alter over time; for example during times of impending disease crises (e.g. Avian Flu, AIDS, CJD) more funding may need to be channeled into basic science.

5. In your experience, how have the results of publicly-funded health research in the UK been used, both in the development of new treatments and to influence / change wider policy and healthcare practices? What lessons can usefully be learned to improve the uptake of advances in science and medicine?

New developments should be much better advertised/marketed. We do really excellent research in the UK – we need to let the public know how successful UK science is! One of the problems is that health services research takes a long time and is expensive. The mechanism established by NICE for dissemination to the health care community of information about innovation and research evidence is essential and needs to be enhanced and possibly streamlined to speed up dissemination.

There are many examples within acute, community services where publicly funded research has underpinned improvements in the care of patients, their families and communities. These include research that drives the NICE and NIH guidelines. Other examples include research outcomes showing the effectiveness of behaviour therapy with acutely ill psychiatric patients, of folic acid in the prevention of spina bifida, of electrical stimulation in the control of chronic pain, of the importance of nurse practitioners and medical assistants in relation to NHS staffing policy.

6. How might better links be forged between 'basic', translational and applied researchers, working across the whole field of health research, from the laboratory bench to the front line of the NHS? How might better links be forged across disciplines, e.g. with engineers, physicists, and social scientists?

There needs to be increased support for clinical and non-clinical academic careers through competitive fellowship awards (following models outlined by the Walport report and the AMS report on nonclinical academic careers).

There is a role for Biomedical Research Centres to link basic and translational research but care is needed not to disenfranchise those who do not get such funding. It should be recognized that excellent basic and translational research will still be performed outside the major comprehensive Biomedical Research Centres. It will be essential to continue to support such research. Centres of research excellence need to have direct access to large and representative patient populations. In addition, centres outside the 'top ten' will continue to play a crucial role in providing the environment for training the next generation of research leaders.

With regard to links between disciplines, at Southampton we have created an Institute for Life Sciences (IfLS) where biomedical and clinical scientists collaborate on research with engineers and physical scientists. These staff remain members of their own academic Schools and form flexible collaborative teams to address research problems at the life science interface. We see this model as one that can sustain links between different disciplines. Many of the problems being addressed will have a health focus; others may be more basic biomedical science. This model is being extended to include health and health service research where collaboration between clinical and non-clinical health researchers and social scientists can be created.

There should be special multidisciplinary funding available to encourage these links. It seems obvious that basic research should lead to translational research and then onto applied research. Incentives should be put in place to encourage researchers to collaborate across these linkages. The same principle should be applied to promoting research collaborations between researchers in different fields of science. This will also be stimulated through research priorities and calls for research proposals that emphasise partnerships between different disciplines coming together to work on research programmes. For example, a research programme that focuses on rehabilitation of stroke patients can bring together engineers, computer scientists, physiotherapists, nurses and physicians.

7. How can the Government encourage translation, entrepreneurship and innovation in health research to improve public services in the UK?

It will be important to create funding opportunities. It will also be desirable to develop a system for staff appraisal that allows metrics around enterprise to count for as much as 'traditional' academic measures.

Entrepreneurship should be a core element in the curriculum of all health professional courses. Similarly, universities and the NHS should include innovation and knowledge transfer as criteria for promotion and advancement.

The MRC and the NHS R&D Departments tend to focus their funding on the generation of new knowledge rather than the application of this knowledge to practice through translation, entrepreneurship and innovation. Ring fenced funds could be made available to support 'proof of concept' research, practice developments and research into technology and knowledge transfer.

8. How can UK health research funding be most effectively used to provide the appropriate infrastructure for basic, translational and applied research, whether funded by the UK public sector or other sectors? How can UK health research funding be most effectively used to support the work of NICE, facilitate innovation and collaboration with industry, and address market failures in the application of healthcare?

The research capacity development function of the NHS R&D programmes has been essential in developing the quantity and quality of applied research. This includes the NHS R&D fellowship programmes at doctoral, post-doctoral, and career scientist levels, and DH infrastructure contracts with universities and NHS institutions for research networks, R&D support units, and clinical trials units. However, it is essential to try to avoid short term fluctuations in infrastructure funding (people and their environment).

Translation will not happen by continuing with the status quo. Rather, there must be a strategic decision to fund the infrastructure to underpin basic, translational and applied research. Funding streams should be available to train health researchers in the most appropriate and robust methodologies for undertaking translational and applied research. Alongside this there should be ring fenced funds to support translational and applied research. There is a need to ensure that the Board of the research funding agency is composed of peer reviewers and experts from different disciplines and with expertise in different methodologies. The view that translational research is indicative of weak or soft science has to be challenged if it is to be utilized to improve the quality of patient care.

9. What lessons should the UK learn from other countries in making the proposed changes to the institutional arrangements for the funding of health research?

We should be able to learn from the US model based on the National Institutes of Health. However we should at all costs avoid the heavy bureaucratic burden of paperwork inherent in the NIH system. In relation to this the high rejection rate (80%) for research applications to MRC should not be interpreted as reflecting anything other than a lack of funds. Many applications submitted to MRC are of at least good scientific quality and this is usually supported by the views of referees to the MRC. We need to develop a system where we avoid four out of five applications wasting researchers' (and reviewers') time. This is not only a waste of resource but can have a demotivating effect on excellent researchers

There are additional lessons to be learned from a comparison of the USA and Canada. In the former the NIH has a number of research institutes that focus attention on the Government's research priorities. The UK NIHR reflects this model. One of the drawbacks is that all the institutes have their base in Bethesda Maryland. In contrast, the Canadian Institutes of Health Research (CIHR) are spread geographically across the country. This illustrates the value that the Canadian government places on geographic diversity as well as disciplinary and methodological diversity. This model could be used in the UK NIHR with institutes having their base in the four countries of the UK.

10. In implementing the single fund for health research, to what extent should the MRC and DH / NHS R&D be merged or brought together? And to whom should the single, ring-fenced fund be accountable? Please provide reasons and any supporting evidence for your response.

The two funding streams could be brought together under a single umbrella along the lines suggested by the Academy of Medical Sciences and the Royal Society. This would permit the two streams to retain a degree of autonomy but within an overall strategic framework. Importantly, this should not change the current direction of travel and ongoing BRfBH and MRC reforms should not be put on hold until the decision is made.

The MRC and the NHS R&D Programmes should only be brought together if the philosophy of the new body embraces the broadest spectrum of health research, health researchers, and research methodologies. However care must be taken not to let the pendulum swing too far towards basic or clinical research at the expense of the other.

The proposed single fund should be accountable to the public through their elected representatives. However, decisions on scientific merit should continue to be by independent peer review.

11. To what extent does the success of recent innovations in health research (e.g. Clinical Research Networks) and the proposed structures rely on the new Connecting for Health NHS IT system, and to what extent should it do so?

Many existing networks probably use non NHS-based IT support. This is unlikely to change radically in the short term.

12. Given that NHS R&D is currently devolved, but that the work of Research Councils is not, how can these functions work best together to maximise the health and economic benefits to the UK?

This is a real issue as the devolved administrations have adopted a very different approach to healthcare provision. If the NHS R&D Programmes and the MRC merge to form a single ring fenced funding stream the new fund should be devolved not only in terms of processes but also with regard to infrastructure. Evidence from a recent edition of Research Fortnight show that Scotland, Wales and Northern Ireland do not do well compared to England when it comes to MRC funding.