

## RCUK Response to the Cooksey Review of UK Health Research

### Introduction

1. Research Councils UK (RCUK) is a strategic partnership between the eight UK Research Councils. RCUK enables the Research Councils to work together more effectively to enhance the overall impact and effectiveness of their research, training and innovation activities, contributing to the delivery of the Government's objectives for science and innovation. Further details are available at [www.rcuk.ac.uk](http://www.rcuk.ac.uk).
2. RCUK welcomes the opportunity to respond to the Cooksey Review of UK Health Research. This memorandum is submitted by RCUK on behalf of the Research Councils and represents our collective views on issues of common interest. It does not include, or necessarily reflect the views of, the Office of Science and Innovation (OSI). MRC and BBSRC are submitting more detailed, separate responses. RCUK supports the submissions from BBSRC and MRC.
3. We note that Sir David Cooksey has already consulted with Chief Executives of BBSRC, EPSRC, ESRC and MRC. This has afforded them the opportunity to elaborate on the issues covered in this response below.
4. The Research Councils agree that the principle of closer strategic coordination and rationalisation of funding across public sector health research is desirable and beneficial. Strengthening the systems for funding the entire spectrum of biomedical research, both basic and applied clinical research, and enabling better links between fundamental and applied health-related science and clinical practice, can bring great benefits to UK research base and to healthcare through the world. However, it is important to recognise that the UK research system generally works well at present, and UK research productivity, especially in biomedical areas, exceeds that of the United States and other G8 countries<sup>1</sup>. It is vital that we do not lose existing strengths in pursuing new opportunities. It will be particularly important that issues of independence and working in partnership with other Research Councils are given careful consideration. These issues are discussed further below.
5. While we will not comment here, in detail, on any governance model, we believe that it is essential for the overall health of the research base in this country that decisions around the funding of fundamental health-related research are taken within a structure which balances such research against the wider research base and involves OSI. We believe that this is important to ensure an effective balance across the entire research base while maintaining synergies between Research Councils which have been developed in recent years.

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<sup>1</sup> David King "The Scientific Impact of Nations" **Nature**, 15 July 2004. UK surpasses all GB countries (incomplete data for Russia) on citations and publication per unit GDP, per research, and per unit of funding for higher education R&D. Biology, preclinical medicine, and clinical medicine are the UK strongest areas of research output in these bibliometric measures.

## **Independence**

6. Within the new health research, strategic and research funding decisions should be transparent and accountable. The Research Councils recommend that all parts of the funding system should be based on the principles that have proved effective for the UK's system of Research Councils. Specifically:
  - Individual funding decisions should be taken by mission-oriented specialist bodies at arms length from the Department(s) that ultimately benefit from the research.
  - Most aspects of strategy development should be devolved to an arms length body – to ensure that strategies and implementation activities fully reflect the scientific tractability of the problem, and current scientific strengths and weaknesses. Oversight should remain light-touch, rather than introducing much stronger “top down” direction-setting.
7. MRC's research is internationally recognised as a key strength of the UK. Health research must continue to form an excellent and innovative part of the UK's world-class research base, and it is vital that funding is managed to support the best research across the full spectrum, from basic through to translational and clinical studies. This will require a range of funding mechanisms. Some applied research needs more strategic direction or development of research plans to meet specified user needs, but it is important that all funding decisions should be underpinned by rigorous review process and expert management. The Research Councils' carefully managed peer-review processes gauge UK research against international standards and provide both ideas and feedback for strategy development and review. These are appropriate mechanisms for funding decisions for both research and infrastructure, and should have a central role in the distribution of the health research fund.
8. RCUK strongly supports maintaining basic, strategic and applied medical research, including clinical and public health research, within a single organisation, in order to facilitate transition of application from bench to bedside, and the flow of information back to the laboratory. While MRC does not (and does not need to) fund all the underpinning research related to human health, having one organisation responsible for addressing quality, priorities, and integration across a full spectrum of research, strengthens scientific quality and facilitates pull-through to application.

## **Interfaces and Partnerships**

9. In a robust research base the relative importance of different goals and support for priorities will ebb and flow in response to new knowledge, technological challenges and new strategic economic and social needs. The key to success is to ensure that the UK research base has sufficient agility and incentives to capitalise on new knowledge, technologies and priorities, whilst retaining strength and expertise in core areas and those of strategic importance.
10. It is important that the new health fund is established in such a way as to promote a strong interface with the other Research Councils that support research to underpin and inform health research. All areas of medical and health research are

underpinned and supported by the basic and strategic research in many different areas. This ranges across the biological sciences, engineering, physical sciences, environmental science, mathematics, and social and economic research. The aspect of this interface will change over time, as productive new areas emerge from engineering, social science, and other disciplines, and need to be linked with relevant health research. Therefore, good links across Research Councils will be required to take this agenda forward. Existing mechanisms support a number of areas in which the Councils co-operate very closely and any new funding system must integrate with these wherever appropriate.

11. MRC already funds a broad spectrum of health research, with investments also funded in related areas by the EPSRC and ESRC which are embedded within core disciplines to ensure that projects funded on health are both grounded in, and as innovative as the best in, their respective fields. This not only ensures appropriate academic rigour in disciplinary and interdisciplinary research, but also allows for much more flexibility and agility in the mix of the publicly funded portfolio. This also feeds back into the parent disciplines of research conducted in the applied field of health.
12. Other underpinning research that may inform health research should continue to be supported across Research Council remits. For example, health economics research needs to be undertaken in the wider context of economics research, not in isolation; fundamental studies of animal health need to remain in a veterinary context, but often inform aspects of human disease. The impacts of the natural and built environments are increasingly acknowledged to be a significant factor in human health (e.g. the impact of climate change on new and emerging diseases in the UK) and non-invasive diagnostic methods and novel monitoring instrumentation will continue to depend heavily on outputs from the physics and engineering communities. There is a great benefit in health research being able to draw upon the wide range of skills and expertise nurtured by the other Councils in order to respond to unpredictable future challenges.
13. The Research Councils have already explained in some detail the growing importance of, and their support for, interdisciplinary work in their collective response to the 'Next Steps' consultation. This can be read in full at <http://www.rcuk.ac.uk/nextsteps.asp>. The box below provides exemplars of health research that receives coordinated support by more than one Research Council.

#### **Stem Cells**

Research into the basic biology of stem cells is still in its infancy and significant progress has been made in the UK. Researchers in basic science areas in both BBSRC and MRC institutes and communities have developed stem cell biology. Stem cells are a useful tool for understanding cellular differentiation and cell function and are important to the basic science remits of both Councils. The therapeutic use of stem cells is aimed at addressing human disease and is not funded by BBSRC.

Social science research provides an understanding of the social and economic issues pertaining to human stem cell research including issues of public trust, confidence and understanding and knowledge about new technologies, concerns about regulation, and practices around informed consent and the donation of human genetic material. There

is also vital research to be undertaken on the commercialisation and implementation of these technologies, the role of the media in shaping public perceptions and the global dimensions of these technologies particularly in relation to scientific and regulatory standards. The ESRC is working on this as part of the RCUK programme of work on stem cells.

### **Engineering and Health Care**

Innovation in health care can be driven by advanced engineering in many different areas – development of new research tools, clinical imaging, clinical tools (e.g. robotics), assistive devices, and information and communication technology. Both MRC and EPSRC support imaging research, and some of their largest investments are joint – the Medical Images And Signals interdisciplinary programme in Oxford (MIAS) and the development of 7T MRI in Nottingham. Both Research Councils see a need to strengthen interdisciplinary working in health related research, and cross-Council activities such as New Dynamics of Ageing aim to link excellent engineering with excellence in behavioural, sensory, evaluative, and population health sciences.

### **The Environment and Human Health**

NERC funds many areas of science of relevance to human health. Climate change, for example, can affect human health directly (e.g. heat-related deaths) and indirectly through changes in the ranges of disease vectors, pathogen transport and viability, water quality and quantity, air quality, and other changes to the ecosystem on which human well-being depends. NERC science also plays a critical role in understanding the mechanisms and dynamics of transport and transformation of pollutants and pathogens on the environment, as well as the distribution and availability of elements, ions and key micronutrients whose impacts may be either beneficial or harmful. Understanding the links between the natural environment and human health is of high priority to NERC, and we have recently established a joint programme on Environment and Human Health to address this in collaboration with other Research Councils (MRC, BBSRC, EPSRC, ESRC) government departments (Defra, Environment Agency, MoD) and the Wellcome Trust.

14. RCUK recognises that it is important for the single fund mechanism to have the freedom to fund the best research anywhere in the UK. Responsive mode funding should be open to competition from the best researchers across the UK, and this should be a core responsibility within the funding structure of any new system.
15. Many researchers supported by the Research Councils, in both universities and institutes, undertake studies commissioned by government departments as well as their own, investigator-led research. In principle, applied research commissioned by the Department of Health, which is currently handled mainly through the Health Technology Assessment Programme and the Service Delivery Organisation, could be managed within the single fund mechanism. This would make the academic strength of the research base available to provide evidence of the highest quality to inform policy on implementation and procurement, and it would facilitate coordination of commissioned research with response-mode research. It would be important, however, to maintain strict separation of the budgets for commissioning and investigator-led funding.

### **Enabling efficiency and shared services**

16. Given the need to respond rapidly to new priorities and opportunities that increasingly cut across Research Councils' missions and portfolios, RCUK recommends that the medical research funding body should continue as part of the RCUK family. As well as ensuring a common approach to research, training, innovation, and science in society activities, any new body managed under the auspices of the Office of Science and Innovation should contribute to the RCUK efficiency savings agenda, and participate in the ongoing shared services project, which will deliver IT/IS, human resources, financial and procurement transactions and support for peer review to all of the Research Councils via a shared services centre. The present embedding of the MRC within ongoing RCUK projects should be taken into account.
  
17. Any new body should also be represented on the UK Research Base Funders' Forum to enable it to contribute to the overall management, financial sustainability and health of the UK research base.

**RCUK Secretariat; 28 July 2006**

## Annex 1 – EPSRC

1. EPSRC looks forward to working with the single health research fund to aid the translation of underpinning engineering and physical sciences research into clinical practice. EPSRC will seek to work effectively with the health research fund and other organisations, to continue to support collaborations between leading engineers, physical scientists, life scientists, biologists and medical professionals. To this effect, such current activities as the cross-council discipline hopping scheme should continue following the formation of the new health research fund.
2. EPSRC has a balanced portfolio of fundamental and applied research, funded through both investigator-led and targeted activities. EPSRC occupies an important niche within the overall spectrum of health funding, with research underpinning a number of application areas, of which healthcare is one.
3. EPSRC research projects are driven by high quality engineering and physical sciences research, often working within a multidisciplinary framework to provide a broader perspective than research focussed solely on clinical outcome. The focus for EPSRC is the engineering and physical sciences research, with the application of that research providing a vehicle for demonstrating its relevance. Information and communication technologies, engineering, mathematics and the physical sciences are important translators of life sciences research, so their continued engagement is crucial.
4. Two pen-portraits are provided as illustrations of how EPSRC support has been crucial in attracting and enabling engineers and physical scientists to apply their expertise to health related research. Such future success relies on the continued support by EPSRC of high quality underpinning engineering and physical sciences research.
  - 4.1. Professor John Fisher: John Fisher is Professor of Mechanical Engineering and Pro Vice Chancellor at the University of Leeds. His specialist area is the study of bearing surfaces. Around fifteen years ago, with EPSRC support, Professor Fisher began to apply his expertise in bearing materials to the study of new hip joints. He is currently Principal Investigator on a major Portfolio Partnership, 'Tissue Replacement and Regeneration', set up in 2003 to help deliver improved biomaterials, medical implants and new tissue engineered products to patients.
  - 4.2. Professor Mike Brady: Mike Brady is BP Professor of Information Engineering in the Department of Engineering Science at the University of Oxford. His specialist area is computer vision and image analysis with a basis in artificial intelligence. Professor Brady has recently applied his research expertise to medical image analysis and minimally-invasive surgery. He is currently Principal Investigator on a major Interdisciplinary Research Collaboration, 'Medical Images and Signals to Clinical Information (MIAS)', set up in 2001 to help transform the enormous amount of medical data into clinically useful information. MIAS is co-funded by the MRC.

## Annex 2 - ESRC

1. The Economic and Social Research Council (ESRC) is the UK's leading research funding and training agency addressing economic and social concerns. The ESRC delivers top quality social science research, develops world-leading social scientists, data sources and knowledge transfer. The ESRC is engaged in health related research both through its responsive mode and targeted initiatives.
2. The ESRC will wish to build upon its existing strong links and partnerships with the UK Health Departments and the MRC in future work with the single health research fund. Such cross-agency working is critical both to funding research which is relevant to policy and practice and to building strong multidisciplinary teams able to offer high quality and timely responses to key research questions. Examples of existing successful collaborations include the Innovative Health Technologies Programme, the New Dynamics of Ageing programme, our joint studentship and postdoctoral training scheme with MRC, and the large investments across the Research Councils and Government in the UK's high quality large scale data sets such as the British Birth Cohort Studies and the National Prevention Research Initiative.
3. Given the range of influences on human health it is to be expected that significant insights can be drawn from a broad range of the ESRC's research. The ESRC's health relevant portfolio is therefore very broad in its nature with potential contributions from the whole range of social science disciplines. For instance, the ESRC funds research on; public perceptions of risk, effectiveness of public services, social exclusion/inclusion, inequality and poverty, economic effects of population health, health behaviours and their underlying causes, health impacts of new technology, acceptance and usability of new technologies and technological interventions, environmental effects on health and spatial patterning of health. This draws upon disciplines as diverse as, for example, economics, management science, sociology, human geography, social policy and political science. Not all of the research described here will be directly related to health, but all will have implications for it. Included below are some examples of high quality ESRC funded research with obvious implications for health:

### *Public Services: Quality, Performance and Delivery Programme*

The ESRC's 'Public Services: Quality, Performance and Delivery' Programme is a £5 million Programme of 28 projects. The Programme draws together researchers from across the broad range of social sciences to explore critical issues surrounding public service provision. The Programme focuses on three sets of inter-linked themes: transparency, targets, trust and responsiveness; Rewards, incentives, blame and liability; metrics evidence, management and innovation. The programme looks at these themes across a range of public services domains, however it has a strong cadre of projects related to health service provision and performance. The programme is in a strong position to make a unique contribution to health research by:

- Drawing out the added value of a critical mass of researchers from across the range of social sciences and including researchers that would

not perceive of themselves as 'health' researchers within a programme context.

- Providing a research environment which generates and fosters synergies between research domains giving a holistic view of public services issues

An exemplar of research conducted within this programme relates to composite measure of performance within the public services. Current government policy in England emphasises the creation and publication of composite performance measures which are used widely in health, social care, education, the environment and other public sector areas. Composite measures integrate a large amount of information in a format that is easily understood. Although apparently simple, the process of creating the composite from a wealth of disparate performance data, is very complex and involves a series of judgements at each stage of construction which can have a profound impact on the results. This study will assess whether composite measures do indeed provide a robust and stable summary of public sector performance. Do they reflect accurately the performance of organisations? How much of the variation in performance indicators is due to random statistical variation?

#### *Centre For Market And Public Organisation*

The Centre for Market and Public Organisation (CMPO) is a leading ESRC/Leverhulme research centre, combining expertise in economics, geography and law. The Centre's objective is to study the intersection between the public and private sectors of the economy, and in particular to understand the right way to organise and deliver public services. One strand of the Centre's work is in the study of financial incentives in the public sector. Incentive schemes are becoming more common in the public services. In the NHS incentive pay has been introduced for teams. This can cause problems of 'free riders' where no one individual has the incentive to work as hard as possible but in addition, CMPO research shows that it may be tricky even to define the team responsible for a specific health outcome. The Centre is also investigating the effects of competition, both direct and indirect, in order to discover whether, and under what circumstances, competition will improve service delivery.

#### *ESRC Network on Social Contexts and Responses to Risk*

The topic of risk has attracted a great deal of attention from social scientists and public policy-makers in recent years. Rapid shifts in employment patterns and in family life, the impact of new technologies and scientific discoveries and the wider range of opportunities and uncertainties that confront people during the course of their lives all contribute to greater interest in risk. Many such risks relate to health and well-being and this ESRC network brings together a wide range of social science disciplines to examine perceptions of, and responses to, risk in a range of areas, including sexual behaviour and partnering choices, pensions and financial planning, industrial pollution and environmental hazards.

#### *Birth Cohort Studies*

The studies involve multiple surveys of large numbers of individuals from birth followed up throughout their lives. There are cohorts born in 1958, 1970 and

2001. They have collected information on education and employment, family and parenting, physical and mental health, and social attitudes. Due to their longitudinal nature they show how histories of health, wealth, education, family and employment are interwoven for individuals, vary between them and affect outcomes and achievements in later life. Through comparing the different generations in the three cohorts, we can chart social change and start to untangle the reasons behind it. Findings from the studies have contributed to debates and enquiries in a number of policy areas over the last half-century including: healthy childbearing; education and equality of opportunity; poverty and social exclusion; gender differences in pay and employment; social class differences in health; changing family structures; and anti-social behaviour. As the cohorts age they are increasingly becoming a valuable tool for the study of health in later life

### *Genomics*

The implications of genomics for human health are potentially vast and ESRC investments in genomics undertake research into the social and economic aspects of genomic science from how people manage genetic information in their daily lives through to the development of the bioscience industries upon which genomic technologies will be heavily dependent. The ESRC Genomics Centres draw upon a broad base of disciplinary perspectives including sociology, science and technology studies, economics, political science and the philosophy of science and technology. They are leading contributors to the international research effort in the relevant social sciences and work closely with medical scientists.