

REVIEW OF UK HEALTH RESEARCH: RESPONSE OF THE JOINT RESEARCH EXECUTIVE, NEWCASTLE UPON TYNE HOSPITALS NHS FOUNDATION TRUST AND NEWCASTLE UNIVERSITY FACULTY OF MEDICAL SCIENCES

Introduction

This response to the Review of UK Health Research is submitted on behalf of the Joint Research Executive of Newcastle University and Newcastle upon Tyne Hospitals Foundation NHS Trust. This committee was formed to ensure the development of a coherent and coordinated strategy for basic and clinical research in Newcastle; research in the Faculty of Medical Sciences and in the Trust is increasingly being supported by a common infrastructure. As such we perceive it as a paradigm of Joint NHS/University working – particularly in the area of translational research.

We welcome the proposal that there should be a single ring-fenced budget to fund health research in the UK which, appropriately managed, could enable the country to realise its full potential across the spectrum of health research, capitalising more effectively on the almost unparalleled resource for research which exists in the conjunction of the NHS and Universities. We believe however that for this to be successful there will need to be clear governance arrangements for managing the fund and this is likely to be best achieved by the development of a single overarching arm's length body which allocates resource on a selective basis guided by the principles of external peer review driven by scientific and clinical excellence rather than policy.

We welcome the initiatives in *Best Research for Best Health* and the move to greater selectivity and transparency in NHS R&D but believe that for these to be effective there needs to be greater emphasis on the synergies between HEIs and Trusts; we would argue that our own success in health research owes much to having focussed on developing such a relationship. However, we are concerned that removal of the Support for Science funding streams to large Trusts over the timescale proposed may be destabilising to the delivery of services and patient care and potentially counterproductive to efforts aimed at enhancing the quality of research in the NHS. It will be important to know what happens to the balance of funding from the present model (as the proposal is to taper rapidly down to 25% of current levels) and how the model caters for material change in the status quo, i.e. what are the entry and exit strategies for new and existing players? Has the Department of Health modeled the likely impact on existing teaching Trusts and is it clear how the effectiveness as well as efficacy of research and its outputs will be taken into consideration? What are the implications for education and teaching in Trusts and respective Medical Schools?

It will be important to ensure that appropriate methods are used to evaluate research both in the basic biomedical area and in translational research when a single research fund is created. Peer review is central to this; ensuring that the model of peer review is fit for purpose is a major challenge. Experts with a background in fundamental science may not be best placed for assessing translational and applied research in centres with access to large and stable cohorts of patients and focussed on delivering change in clinical practice across the NHS (and vice versa). There is presently much discussion about the use of metrics in lieu of the RAE to assess performance of HEIs in research. The current review provides a unique opportunity to arrive at health research metrics which aggregate and support HEI-Trust interactions.

We recognise that substantial amounts of research continue to be supported by Charities and the new arrangements need to ensure that there is better engagement with this sector and with industry. There is an argument for the development of firm partnerships between the proposed new fund and the major charities (eg Wellcome, CRUK, BHF) to ensure consistency in the approach taken to full economic costs and research sustainability. Furthermore, there need to be effective linkages with other components of RCUK (such as EPSRC) given the increasing importance of multidisciplinary research.

Our responses to specific questions raised are as follows:

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?

STRENGTHS

We recognise the strong, internationally renowned basic science base of MRC-funded research in the UK. It has supported innovative fundamental research in biomedicine but has also provided invaluable support for large scale clinical trials. It has developed a good system for high quality peer review of grant submissions and has been able, in the main, to maintain political independence.

The NHS has supported the development of medical research; historically this has been largely through the funding of clinical academic posts. However, in recent years this policy has been strained and in Newcastle there are now relatively few clinical academics funded by the Trust. The development of Clinical Research Networks is beginning to provide a greater focus for R&D in the NHS as does other initiatives in the Best Research for Best Health strategy.

WEAKNESSES

Over the past few years there have been pressures on the MRC budget leading to a falling success rate for investigators (many excellent grants are unable to be funded). The allocation of funds for critical new areas is slow in the UK and there is consequently a failure to capitalise on emerging areas such as stem cell therapies.

The NHS R&D programme at present concentrates on what it perceives to be major disease areas with high mortality with less emphasis on common diseases with high morbidity. For example, recent funding for respiratory disease and musculoskeletal disease by MRC has been low and this is true for many chronic diseases that affect an ageing population. There is a perception that the strategy is sometimes driven by political agendas. There is a tendency towards tactical thinking / short term strategy – we need to invest in more lengthy (and appropriately audited) high quality research programmes to free up researchers to produce outputs, rather than repeatedly preparing grant renewals. At the other end of the spectrum however is the need for smaller pots to pump-prime early research endeavours; the current NHS R&D programme has largely lost its “response-mode” element and local/regional NHS R&D funding is no longer available. Furthermore, the UK is not yet reaping the benefits of there being a national system of health delivery. We should have one of the most rapid passages from research idea to application but some of the procurement protocols have acted against innovation and increased bureaucracy have made procedures very slow.

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?

The main objectives for health research should be to ensure the enormous advances in biomedical science translate into patient benefit and that UK research is internationally competitive; the latter is as important for the wealth as the health of the nation. Technology transfer and commercialisation have not been part of the NHS ethos hitherto. Integration of NHS IP hubs and University Technology Transfer offices should be encouraged to create specialist health technology centres.

There needs to be a stronger framework for joint working with the pharma industry and to ensure a two-way co-operation, i.e. that pharma does not simply acquire the Intellectual

Property and exploit it. The exploitation of Intellectual Property and commercialisation should be tied in closely with translational research. A great deal of this research effort is about UKPLC and consequently additional funding should therefore be identified in some areas from DTI to enlarge the overall biomedical research "pot".

There are many challenges over the next decade. It will be essential to ensure that all components of the bench to bedside continuum of health research are supported; establishing an appropriate balance between basic research and more applied studies will be of utmost importance. It must be recognised that in some areas there is a long incubation period before there is direct clinical application; areas such as stem cell and regenerative medicine must not be neglected in funding priorities through implementation of short term strategies. The other balance which will be important for the new funding agency to achieve is that between investigator-led and priority-led research. In addition, biomedical research needs to be conducted in a wider research environment, with access to inputs from social scientists, health economists and the like.

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?

To achieve the objectives outlined above with emphasis on translational research it is important to provide an appropriate environment in which talented individuals (clinical and non-clinical academics and supporting staff) can be nurtured and developed; this requires attention to the nature and structure of both non-clinical and clinical academic posts and the research infrastructure to underpin cutting edge studies at the basic-clinical interface. In some areas, for example stroke rehabilitation, there has been some reasonable amount of translational research funded but it has never reached large clinical trial stage so is never translated in practice. Thus, increased funding of translational research should deliver real benefits.

We recognise that there is merit in investing heavily in research which relates to major causes of morbidity and mortality in the UK, but believe that focusing on four or five disease areas should not be done at the expense of other conditions which nevertheless have a profound effect on quality of life and contribute to the overall burden of disease in the community. Particular emphasis needs to be placed on diseases in which age is a significant risk factor. With the continuing shift towards a high proportion of the elderly in the population it is imperative that the whole spectrum of research on these key diseases are funded. This will deliver high economic benefit. The UK needs a strong translational research base not only to deal with key diseases of today but also allow us to understand and intervene with new, emerging processes. There needs to be continued and enhanced support for preventative programmes /disease modifying treatments with an emphasis on early diagnosis.

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?

Striking the right balance is crucial and will be influenced by input from a range of stakeholders. This will need to be overseen by a well informed overarching body which is independent of government departments while still being publicly accountable. The balance between the strands should not be fixed but subject to regular review. Ensuring this balance

is perhaps the biggest reason for having a single organisation for, (or at least a coordinated approach to), funding medical research.

Some of the most innovative ideas from our brightest biomedical and clinical academic staff have almost by definition a much longer lead in time to application than highly focussed clinical interventional studies but nonetheless have the capacity to impact very markedly on patient outcomes and health. There has been a tendency hitherto in NHS R&D to invest in areas in which there is almost immediate direct application; this should not be at the expense of more speculative research.

We feel that some distinction should be made between, and possibly separate assessment mechanisms and funding streams applied to distinct areas of “applied” research. Thus applied research specific to the UK health and social care system is different from clinical trials of medications that are applicable worldwide.

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?

There has been a reasonable track record of translating advances in basic science into changes in health care practices however this could be improved. The integration of the continuum of research in specialist centres with critical mass and access to large patient cohorts is the best way to achieve this. Research has clearly had most impact on the development of individual treatments rather than on wider policy or organisational factors. We believe that a key task of a single overarching body for Health Research in the UK needs to take a lead on the evaluation of how individual areas/projects impact on individuals, patient groups and the wider society.

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?

The promotion of the interaction between biomedical scientists and clinicians is key. It is important to ensure that basic biomedical sciences are embedded within research structures where contact with clinicians is maintained.

We suggest that a distinct funding stream to support translational research should be established – with related organisational arrangements such as conferences and in-house publications to promote dissemination of findings or more integrated academic meetings. We need better links between constituent groups within the academic community for example by getting more clinicians to pursue an academic career with a grounding in basic science. There is a need to incentivise effective multidisciplinary collaborations through creative, multi-source grant schemes. As noted elsewhere this will need engagement with other funding agencies and with industry.

The policy focus on outputs is welcomed with regard to the quality of research and there should be a more focused, co-ordinated approach to the three strands of research – basic, translational and applied. However, tying the above in with the Healthcare Commission’s Annual Health Check is not initially a good idea, until acceptable metrics can be developed

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

Technology transfer has had little success in the NHS and there has been some suspicion within the organisation towards commercialisation. The same can be said of a significant

number of academics but there is evidence of a culture change and examples within the UK (eg through MRC) of units capitalising on intellectual property allowing for further investment. There is an argument that closer partnerships with the commercial sector could be developed by funding more clinical research with an emphasis on industrial input. Specific funding for partnerships between NHS, University and industry must be the approach.

Consideration should be given to a “bonus scheme” for those research projects/ideas which demonstrably save funds in UK healthcare costs (similar schemes are highly effective in large companies)

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?

If we are to really compete with our major international competitors then the £1.3 billion fund is insufficient since many excellent projects are not funded simply because the public sector has insufficient resource to fund them.

The UK is in the process of establishing an NIHR at the same time as the US is anguishing over the future of NIH. Lessons can and should be learnt from the current status of NIH. We would argue that a more effective model is the Canadian Institutes for Health Research although it also has its critics. Integrated approaches to medical research with true joint working between university and health service are seen in individual institutions elsewhere (eg. Academic Medical Centre, Amsterdam; Johns Hopkins, USA). We would welcome a joint Academic Medical Centre in Newcastle.

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.

There are clearly several possible models for this. The overriding principle must be to have a new and independent funding body which is responsible for disbursing this very substantial expenditure to ensure a new start and a new ethos and for monitoring effectiveness of the investment. This may need to consider three separate funding streams, for basic, translational and applied research and focus on boosting translational research in particular. This body should not report directly to a single government department but to a cross departmental committee. The scientific rigour in the assessment of proposed projects and programmes should be based on the approaches taken by the MRC but we do not believe that the best option is for the MRC in its current form to take over all of the processes. As noted above it will be essential to have appropriate assessment of the different parts of the health research spectrum. Difficulties have already been experienced when this has not been the case. For example, the UK Stem Cell Foundation used a MRC appointed committee to review proposals for applied stem cell research and deemed none to be of sufficient merit. This may have been the fault of an inappropriately chosen panel rather than poor quality applications.

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?

The TCRNs will facilitate collaboration across geographic regions which is critical for the delivery of future multicentre large clinical trials, increasing links between basic scientists and clinicians. Recent innovations in clinical research rely heavily on the new Connecting for Health NHS IT system. This should enable vast amounts of clinical research to be

performed in the UK which is currently almost impossible. The NHS represents an almost unique resource for translational research which needs to be fully exploited in order to be ahead of international competitors. Forming elaborate clinical research networks without the system would be pointless. We recognise however that despite considerable investment by the NHS, interactive, comprehensive IT networks have been slow in their development and we do not have full confidence that Connecting for Health will be able to deliver all that will be required to fulfil the full potential of UK health research.

The opportunity for patient self-registration for potential trials would be enormously helpful.