

1. Strengths and weakness of MRC and NHS R&D programmes at present ?

Strengths of MRC programmes include the transparency in the method of funding allocation and peer review. Although there are aspects of this system that can be criticised there are no obvious alternatives that do not have more associated problems.

Weaknesses of MRC programmes, in common with many current systems that require regular audit, are the large amount of administrative and academic time that have to be devoted to the application and review processes and the management of grants.

Strengths and weaknesses of NHS R&D programmes and management of budgets could be seen as almost the inverse of those of the MRC. The perceived lack of transparency, competition and external peer review is balanced by (but also caused by) the simpler but less accountable award system.

How do each of these support the research and training needs of the NHS, social care and academia ?

The MRC does the best job it can with limited resources. We appreciate that the funding has increased over recent years, but so have the costs as HEIs have steadily increased their administration and the academic performance of our university entrants and graduates has declined.

Does more need to be done ? see various responses below

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.

The major problem we all face, both in the NHS and in academe, is the lack of time needed both to develop longer term, more interactive programmes and to provide and acquire training in new skills.

A basic scientific training, essential for high quality in any area of health research, has become an unattractive option for many young medics and other health professionals who earn significantly more in clinical than in non-clinical environments, while a strong academic profile and the ability to generate high quality research output has become increasingly less important in the selection of clinical appointees, even to joint university/trust positions, with growing pressure to meet clinical targets.

These factors influence the quality of research and do not favour effective interactions between basic science and clinical research.

How might the Government help address these challenges ?

The obvious answer to this question is by providing us all with more funds and improved infrastructure so that we can devote more time to development and training. However, with more modest budgetary increases, changing the culture surrounding NHS-based research, promoting a significant high quality academic component in clinical career structures would be beneficial.

The most effective way to achieve this is of course through the allocation of funding and the mechanism thereof.

What should be the Government's objectives for health research and why ?

To provide a sound basis from which the challenges to human health and well-being that exist and those that are yet to develop can be effectively tackled.

To train clinicians and scientists to tackle complex problems and to provide the incentive to 'go the extra mile'.

To provide the solid support structure that allows the flexibility needed for new challenges to be met rapidly and effectively.

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 ? What can it lower to release necessary funds?

Areas of major concern to the health and well-being of the population that could be tackled in a relatively cost-effective way spring to mind:

i) Infections, particularly those that are becoming resistant to existing antibiotics, antivirals and antiseptics. Not only do poorly controlled/resisted infections cause distress and sometimes death, they can result in chronic disease.

ii) For the majority of neurological diseases there are few therapies that are effective in the longer term and no cures. Only rarely is it the case that a common neurological neuro-degenerative disorder results from a single, identifiable cause. Most, like many cancers, are of multi-factorial origin. We need to understand the contributions these factors make to the development of overt disease, often many years after the insult and to focus attention on diagnostics and predictors with the longer term aim of prevention, or delay of disease onset.

iii) Paediatric medicines and therapies are often simply cut-down versions of adult therapies. Drug trials rarely include babies, children, women or the elderly, for many understandable reasons. Yet these drugs are prescribed widely and a wealth of clinical data should exist on the effectiveness of these treatments in different populations, if only those data could be collated usefully.

What the Government should clearly not be attempting to fund with the very limited budget available, is the development of new drugs. The MRC's total annual budget would barely bring one new compound to the clinic. Government funding can, however, help to provide the training and support needed for an active vital scientific community that will encourage eg. the Pharmaceutical industry to invest in R&D here and help us to tackle major health issues. Many large companies are reducing R&D in the UK, with stated reasons including increasing costs, animal rights issues and bureaucracy: we need to encourage them to stay.

A great deal of funding has already gone into development of imaging techniques. It may be timely to take stock of the value of continuing to increase the funding here at the expense of other less costly disciplines.

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

Research that leads to improvements in health and other public services arises from a high quality research base. The two cannot be treated separately. The knowledge, skills and resources needed to tackle acute and chronic needs develop largely out of basic research programmes.

There must necessarily be a level of priority-led research, but rarely do intelligent people perform at their best and most enthusiastically when too narrowly restricted in what they are required/allowed to do.

Although not infallible, the combination of a transparent peer review process for applications and assessment of track record, preference given to priority areas, ring-fenced funding where necessary for particularly important endeavours and expert panels can probably not be bettered.

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

A few examples from the experience of members of this department, where much of the research is at the basic science end of the spectrum:

i) Novel targets for potential drug therapies have been identified. However, the lag time between

site identification, through the demonstration of its possible involvement in a disease process, into the development of effective compounds and finally to the clinical application of that information takes between 10 and 20 years, even when the effective therapy is cheap, readily available and does not require extensive toxicology testing or additional approval.

ii) Human genetic studies are identifying a wide range of mutations that contribute to the development of disease. These will be invaluable in assessing the underlying causes and in developing strategies for prevention, particularly if it becomes possible to store genetic profiles and clinical records on a data base that is accessible to scientists and clinicians. At present, the time associated with gaining ethical approval, liaising with the clinicians who currently hold the material and cross-checking whether or not the analysis has already been done, is limiting the speed at which these studies can progress. The possessiveness of some senior clinicians in relation to their patient base and the benefits these provide for their own career enhancement have been known to cause difficulties in collaborations.

iii) Environmental pollutants that contribute to disease development have been identified. Experience shows, however, that a lot of work is then needed to bring the findings to the attention of those determining policy and even more to effect change.

6. How might better links be forged between basic, translational and applied researchers..... from bench to NHS front line ? How might better links be forged across disciplines - engineers, physicists, social scientists ?

An effective structure within the USA is the powerful academic environment encouraged in some of their leading university hospitals. Basic science of the highest quality runs in parallel with clinical research and practice. In UK clinical environments, basic scientists, or clinicians engaged in basic research often feel undervalued and research often has to take a back seat against other priorities. Possibly our best attempts at such structures outside Oxford and Cambridge, was represented by the PGI's before most were forced to merge with larger institutions.

Again the worst enemy of cooperation and collaboration across disciplines is time.

7. How can the Government encourage translational, entrepreneurship and innovation.. to improve public services in the UK

see answer to Q6.

8. How can UK health research funding be most effectively used to provide effective infrastructure for basic translational, 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 application of healthcare ?

While we appreciate that Government needs the public sector to be seen to be accountable, it could greatly relieve the pressure on academics and clinicians alike and their institutions by reducing the burden of all to frequent and invasive auditing.

9. What lessons should the UK learn from other countries in making the proposed changes?

We should appreciate our strengths as well as our weaknesses. For example in the UK scientists can begin an independent research career at a much earlier stage than in most European countries. Powerful mentors are helpful, but not essential here, with the result that research is more diverse, less inclined to follow the 'party line' and extremely cost-effective. It also means that we are able to attract talented mid-career scientists from the EU. Disadvantages perceived by these scientists are the absence of significant research support before bids for external funding are successful.

10. To what extent should MRC and DH/NHS R&D be merged/brought together ? To whom should the single ring-fenced budget be accountable (provide reasons in support) ?

Clearly, the MRC has the experience and necessary structures for assessing the quality of research and allocating funds. Such a system will place an additional burden on clinical research and

even those clinicians who currently receive funding from the MRC complain that the competitive review process places them at a disadvantage. A more rigorous and transparent process would, however, help to ensure that funds intended for research are used for that purpose. An interim during which a gradual transition from one form of allocation to another is implemented will probably be necessary.

11. To what extent does the success of eg. Clinical Research Networks, rely on new Connecting for Health NHS IT system and to what extent should it do so.

Some of the advantages that must result from such systems are outlined In response to Q3 and Q5. There is an international perception that such a system run within our health service could be of outstanding value since it could include information from all aspects of the sector.

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

see response to Q10.
