

Translation in practice

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It is an exciting time for UK health research. Strong Government support, additional funding, and a clear strategy for investment – in equipment, in facilities and in people to carry it out – leave us with only one task: to deliver. I'd like to explain how the Medical Research Council, along with its partners in research, are responding to the challenge.

It's now a year and a half since Sir David Cooksey's report, 'A review of UK health research funding', focused the minds of public funders on accelerating the translation of fundamental research into benefits for the person, in health and disease. A generous settlement for the MRC's 'translational research' in the Comprehensive Spending Review (CSR) – an extra £132 million over the next three years – has demonstrated the Government's clear support. Working in collaboration with the National Institute for Health Research (NIHR), the body through which the Department of Health delivers its new R&D strategy, the MRC has published plans to deliver on this investment.

Working in partnership

In his review, Sir David identified the need for an overarching health research strategy to ensure UK health priorities are considered through all types of research. He also proposed measures to help health researchers develop and deliver better therapies for patients, building on the UK's outstanding record in basic health research.

He identified two gaps in translation – first, the translation of basic and clinical research into ideas and products and, second, the introduction of those ideas and products into clinical practice.

We now have a co-ordinated strategy aimed at filling these gaps, built around the advice, priorities and needs of the NIHR, the MRC and the NHS. The strategy encompasses translational, public health, e-health records and methodology research and human capital.

Plan to deliver

The MRC's plans will build on translational activities and schemes that already exist, such as our substantial funding for clinical and pre-clinical research on healthcare innovations, support for MRC and NIHR clinical trials, other initiatives and programmes, work within the MRC's own units, institutes and centres, and research funded through UK universities. Our plans include a continued investment in fundamental basic and clinical research which underpins our translational agenda and has been shown time and time again to be the engine room of healthcare innovation. Figures on the UK research base in 2007 show that the UK comes second after the US in the number and share of the world's scientific citations.

A major focus of the MRC's strategic funding will be in 'experimental medicine' – targeted programmes that support early-stage clinical discovery work. Funding for this will double by year three of the CSR period. Our overall approach is to make sure that we have an integrated way of supporting research, developing the infrastructure and ensuring that we have the highly trained people able to deliver this agenda.

Enabling and supporting new treatments

The MRC leads in implementing a



strategy for the discovery and exploratory development of fundamental research towards patient benefit. The aims of this strategy include:

- accelerated development of novel therapeutics, devices and diagnostics;
- faster identification of pathways of disease leading to the identification of targets for therapeutic intervention;
- increased skills base to deliver high quality research for greater health and economic benefits; and
- increased partnership by the industry sector in UK biomedical research.

To deliver this plan there will be dedicated funding streams, specific targeted initiatives, support for key facilities, co-ordination of existing infrastructure and capacity development.

The MRC already supports a substantial amount of fundamental, hypothesis-led basic and clinical research through its research funding boards. We are augmenting these proven funding mechanisms with a new funding stream, specifically aimed at accelerating the process of research and development of promising discoveries, through support of milestone-driven, goal-oriented research.

To support and underpin experimental medicine research, the MRC has

launched a series of strategic initiatives, targeted at specific points in the process. These initiatives are in biomarkers (surrogate indicators of a biologic state or process), human and animal disease models, and disease-based sample collections. They will be achieved through the support of relevant investigator-initiated research proposals, as well as specific calls for proposals in defined areas with earmarked funding. There are further initiatives in drug safety science.

There are opportunities for partnership funding for certain initiatives, from charities and industry, as well as from the Technology Strategy Board (TSB) – the executive non-departmental public body which promotes innovation in the UK.

There is already significant support by the MRC and NIHR for infrastructure that underpins translational research, but levels of support will be reviewed. We want to identify and fill potential gaps in UK research facilities.

Big ideas

The MRC's translational plans and activities are wide-ranging. We have been nurturing our relationship with industry and running 'showcase' events, which bring together academics and industry representatives to share ideas and develop future collaborations. We have funding schemes to encourage joint grant applications. Other ways of working with industry are being explored with industry stakeholders, the TSB and other research councils.

Increasing the UK's capabilities in translational research will require increased numbers of scientists trained in relevant areas of science. The MRC will enhance training and career opportunities in translational areas, such as clinical research training, pharmacology, toxicology, informatics, methodology, and biostatistics, together with industrial collaborative studentships.

The MRC is leading in methods research and the development of new and improved systems and theories for health research. We aim to develop a high-quality national platform in

methodology research and establish the UK as a world leader in innovation in this area.

NIHR will lead on evaluative research and clinical trials, and will increase the amount of high-quality research in the UK. Through the NIHR, the MRC will provide funding for trials that assess potential new treatments and their underlying mechanisms of action, and continue to support trials in global health.

On the world stage

Translating research is high on the international agenda. By building partnerships with our European and international counterparts, the MRC ensures that we share and develop best practice, have the chance to learn through others' experiences and influence policy-making across borders.

I represent the UK research councils on the steering committee of the European Heads of Research Councils. This forum provides the opportunity to discuss key issues relating to the effectiveness of European translation research, such as intellectual property rights and sharing of knowledge between researchers, and allows us to co-ordinate our approaches to translation.

Translational research has recently been raised in the biomedical field in a high-profile White Paper published by the European Medical Research Council, to which the MRC contributed. The paper sets out the present status and future strategy for medical research in Europe.

Stem cell research and the MRC

Stem cell research has the potential to result in life-saving treatments and is an important part of the MRC's portfolio and translational strategy – we continue to support research on both adult and embryonic stem cells. We are reviewing our stem cell and regenerative medicine research strategy with an aim to develop joint strategies with the TSB and NIHR for academic and industry co-operation. There has already been a joint call with the TSB

in regenerative medicine.

The MRC will lead the stem cell area and will also continue to strongly support basic stem cell research through response mode funding. The Delivery Plan sets a goal of increasing spend on stem cell research by at least a third.

The new approach will be managed through a new expert committee with its own budget. It will be responsible for reviewing and funding all stem cell research applications received with a translational basis. There will be a new stem cell 'portal' to receive all applications, and to enhance partnership with other funders.

The UK is a leader in stem cell research and regulation and, here, research can flourish with public support in a tightly-regulated environment. The MRC supports the scientific aspects of the Human Fertilisation and Embryology Bill, currently going through Parliament, which is an update of the 1990 law. It will allow new scientific procedures, under strict regulation, that can potentially help understand and cure debilitating diseases such as Parkinson's and Alzheimer's. Polls suggest that around 70 per cent of people support the use of embryos in research to find cures for disease, but we need to continue to discuss this rigorously.

Benefits to society

The new measures for health research funding in the UK, and the emphasis on translation, will bring discoveries in science closer and faster to the clinic and to society in general. It will enable new therapies to be identified as early as possible, and improve prevention, diagnostic and public health strategies in the most efficient way, boosting productivity and the economy. There is always the need for a vibrant and well-resourced basic science base, which the MRC will continue to support. These leading discoveries and the benefits that ensue will enable the MRC and its partners to play a prominent role in the worldwide effort of accelerating the process of turning science into outcomes, resulting in better and longer lives for us all.