

Reaping the rewards: a vision for UK medical science

Groundbreaking advances in medical science over the last 30 years offer the next UK Government an unprecedented opportunity to reinvigorate the economy, to enhance the productivity of the NHS and to make public services more cost-effective. Bold leadership will ensure that the UK can continue to generate world-class medical science that is translated into health and wealth benefits, and can become the best location in the world for medical research in both the public and private sectors.

The UK has historically supported vibrant research-intensive medical science industries and internationally renowned academic medical research centres as part of its knowledge economy. The UK generates over 10% of the world's clinical science and health research outputs and has created nearly a quarter of the world's top 100 medicines. Historically, both larger pharmaceutical and smaller biotechnology companies have flourished in the UK, where the availability of skilled researchers and a unified health system present a significant advantage for both basic and clinical research.

However, the future of commercial medical research in the UK is under serious threat, and much activity has already moved abroad. Between 2000 and 2006 the proportion of the world's clinical trials conducted in the UK fell from 6% to 2%, in part because of more attractive regulation and incentives elsewhere. The UK's competitors, including the USA, China, Canada and Singapore, have begun to realise the huge potential of medical research to both their economies and public services, and are implementing robust policies to grow this crucial sector. Decisive action is needed now to attract and anchor increasingly mobile medical researchers and life science industries in the UK.

No other country enjoys the outstanding opportunities for medical research represented by the NHS, which together with the world-class status of our researchers, universities, research funders, charities and companies, offers an unparalleled competitive advantage to the UK. We are uniquely positioned to attract the whole research and development (R&D) chain for new medicines to the UK - from basic science discovery to clinical application - and to improve the health of the population both here and abroad. To reap the rewards from recent public sector investment in medical science, the UK must tackle seven important challenges set out in this document. A Government that unites researchers from across academia, the NHS, industry and the charitable sector, and engages with patients and the public, can make significant progress towards addressing these challenges within five years.

Reaping the rewards: a vision for UK medical science

1. To benefit patients the NHS must become a willing participant in health research

As one of the largest single healthcare systems in the world, the NHS offers the UK a unique strategic advantage as a resource for medical research and innovation. Despite recent progress by the National Institute for Health Research (NIHR), the research potential of the NHS remains unfulfilled. We recommend that:

- High-quality research should be an integral component of the next NHS Operating Framework and be part of the outcomes on which the performance of NHS Trusts is measured.
- Research is made a central goal of any NHS system for electronic health records, allowing researchers access to data to improve the safety of medicines, to better understand the causes of disease, to identify research participants and to locate patients who would benefit most from targeted health interventions.

2. The regulatory environment is driving medical science abroad

The combined regulatory requirements of the EU Clinical Trials Directive, European Medicines Agency (EMA), UK Medicine and Healthcare products Regulatory Agency (MHRA), NHS ethics committees, R&D offices in NHS Trusts, the National Information Governance Board and other agencies are stifling UK R&D in both the private and public sector. Medical research involving patients must be subject to robust regulation, but this regulation must be proportionate to the risks involved. Current application of data protection regulation in particular represents a serious impediment to medical research without apparently providing significant benefit to patients. Streamlining and improving current regulation represents a cost-effective approach to creating a more fertile and productive research environment. We recommend that the UK:

- Should lead the world in creating a proportionate, risk-based regulatory framework for medical research involving patients, which is fit for purpose and informed by an independent review of existing regulations.

3. Innovative incentives must firmly root the medical science industries in the UK

A flourishing industrial bioscience sector will translate scientific discoveries into new treatments and interventions, generate public revenue and create high-value jobs. We recommend:

- Using a range of instruments to drive investment and stimulate the development of novel therapeutics, diagnostics and devices, including flexible pricing, public procurement strategies, tax incentives and new pathways to support uptake and access to medicines.
- Encouraging alliances between the NHS, universities and industry to share the risk and reward associated with generating more cost-effective and novel therapeutics, diagnostics and devices.

4. Publicly funded health research needs further coordination

To maintain the UK's medical science base in the near and longer term, public investment in medical research must be sustained and delivered in a coordinated fashion. This will ensure that our investment continues to leverage many times its value in funding from industry and charities. We recommend:

- Maintaining a ring fence around the budgets held by the Medical Research Council (MRC) and NIHR.
- Protecting and building on the successes of the Office for the Strategic Coordination of Health Research (OSCHR), to ensure basic biomedical and translational science are managed in a coordinated fashion. The UK should further strengthen health research by maintaining and enhancing coordination of the MRC and NIHR, in close collaboration with the NHS. The relationship with other scientific disciplines, industry, charities and the devolved administrations are crucial determinants of a successful health research agenda.

5. Public health challenges must become cross-Departmental priorities

Effective public health research and delivery can provide enormous economic and health benefits to the UK, but are hindered by under-investment and fragmented responsibility and oversight. The UK lacks the necessary co-ordination to tackle health inequalities and major public health challenges such as obesity, infectious pandemics, ageing, alcohol and climate change, which cut across government departments; political engagement is required at the highest level. We recommend:

- Establishing budgets and strategies for specific public health priorities that fund research and service delivery across Government departments.
- Ensuring that all new public health policies are supported by evidence-based decision-making, robust piloting and rigorous evaluation throughout.

6. Health research should be used as a driver of foreign policy and international development

Medical science can underpin cost-effective international development measures that enable poorer countries to address their health needs and help to reduce health and security threats to the UK. To tackle three of the Millennium Development Goals that directly concern health we recommend that:

- Health research should be central to UK foreign policy and should underpin all efforts to tackle disease in resource-poor countries.
- Greater efforts are made by the UK Government to support indigenous research capacity in resource-poor countries.

7. The UK must grow and sustain its world-class biomedical workforce for our knowledge economy

To sustain the UK's world-class science base we must equip our biomedical professionals with the full range of skills needed to advance understanding and develop novel treatments for major diseases. We recommend:

- Better coordination of efforts to build UK biomedical research capacity, focusing on developing interdisciplinary researchers and workers in key areas of current and future need, including quantitative science and bioinformatics, systems biology, ageing, physiology and pharmacology.
- Promoting and supporting biomedical research training for doctors and other healthcare professionals in the NHS, and incentivising the mobility of researchers across academic, industry and healthcare sectors.

The Academy of Medical Sciences' 944 elected Fellows are the UK's leading medical scientists from hospitals, academia, general practice, industry and public service. In setting out our vision we call on the next Government to put medical research to work as the engine of Britain's future prosperity. We believe that making medical science a central pillar of government policy will produce a flourishing UK economy and alleviate the burden of ill-health on patients and public services.

This document is a summary of a more detailed position paper; a complete copy of which can be found at www.acmedsci.ac.uk For further details please contact Laurie Smith +44(0)20 7969 5289 laurie.smith@acmedsci.ac.uk.

Working group who prepared this position paper

Sir David Cooksey GBE FMedSci (Chair)

Chairman, UK Financial Investments

Professor Fran Balkwill OBE FMedSci

Professor of Cancer Biology and Centre Lead for Translational Oncology, Centre for Cancer and Inflammation at Barts and the London, Queen Mary's School of Medicine and Dentistry

Professor Sir John Bell FRS HonFREng PMedSci

Regius Professor of Medicine, University of Oxford

Professor Carol Dezateux FMedSci

Director of the MRC Centre of Epidemiology for Child Health, Institute for Child Health, University College London

Professor Sir Andrew Haines FMedSci

Director, London School of Hygiene and Tropical Medicine

Professor Ron Laskey FRS FMedSci

Honorary Co-Director of the MRC Cancer Cell Unit, University of Cambridge

Dr Melanie Lee FMedSci

Director, Think10

Professor Sir Alex Markham FMedSci

Professor of Medicine, University of Leeds

Professor Patrick Maxwell FMedSci

Head of the Division of Medicine, University College London

Professor Terence Rabbitts FRS FMedSci

Director of the Leeds Institute of Molecular Medicine, University of Leeds

Professor Jonathan Seckl FRSE FMedSci

Director of Research at the College of Medicine and Veterinary Medicine, University of Edinburgh

Professor Stephen Smith FMedSci

Chief Executive of Imperial College Healthcare NHS Trust and Principal of the Faculty of Medicine, Imperial College London

Professor Patrick Vallance FMedSci

Senior Vice-President for Drug Discovery, GlaxoSmithKline

The Academy of Medical Sciences

The Academy of Medical Sciences promotes advances in medical science and campaigns to ensure these are converted into healthcare benefits for society. Our Fellows are the UK's leading medical scientists from hospitals and general practice, academia, industry and the public service. The Academy seeks to play a pivotal role in determining the future of medical science in the UK, and the benefits that society will enjoy in years to come. We champion the UK's strengths in medical science, promote careers and capacity building, encourage the implementation of new ideas and solutions – often through novel partnerships – and help to remove barriers to progress.