

The background of the entire page is a blurred photograph of a surgical team in an operating room. Several surgeons in blue scrubs are visible, with their hands and instruments in focus. Bright, circular surgical lights create a bokeh effect in the foreground and background, casting a blue and white glow over the scene.

MRC

Medical
Research
Council

MRC Delivery Plan

2011/12 to 2014/15

1. Introduction

The UK academic research base in biomedicine and health is exceptionally strong, and delivers great economic and health benefits for people around the world. Life sciences companies are a significant part of the UK economy contributing over £10 billion and 120,000 highly skilled jobs¹ to the UK. Recent investment to strengthen translation of UK medical research, combined with technological advances in areas such as genome analysis means there are now exceptional opportunities for research to have an increased impact on health and to drive economic growth.

The MRC's Strategic Plan² sets out the key aims and research themes over the CSR period and how MRC will develop and sustain leading edge research programmes that will accelerate the transition of fundamental research into measurable positive impact on health, innovation and wealth creation.

'Research Changes Lives' MRC Strategic Plan 2009-2014

Strategic Aim One	Priority Theme 1	Resilience, repair and replacement
	Priority Theme 2	Living a long and healthy life
Strategic Aim Two	Research to people	Bringing the benefits of excellent research to all sections of society.
Strategic Aim Three	Going global	Accelerating progress in international health research
Strategic Aim Four	Supporting scientists	Sustaining a robust and flourishing environment for world-class medical research.

Fundamental to this delivery plan is a transformative **translation** agenda to drive innovation and speed up the exploitation of the best ideas in medical science to deliver new preventive and therapeutic interventions and demonstrable improvements in the return on investment in the science base.

Partnership will be more important than ever as a means to deliver more from public sector investment in difficult economic circumstances. Engagement across the research council family to address the most important challenges for medicine and health will remain a major focus of MRC activity, and we will continue to work closely with partners in the NHS, government, industry and the charity sector to in order to achieve greater impact on health and wellbeing. Fortunately, the research budgets of our major public sector partners, NIHR and DfID, are secure and increased interest from the medical research charities in partnership working as a means to drive efficiency and innovation means the risk to our ability to leverage funding from partners is low. Partnership with charities also brings greater engagement with patients, carers and volunteers in line with the governments "big society" agenda.

Potential economic impact

Worldwide the pharmaceutical and medical technology sectors have been less affected by the global recession and are forecast to continue to grow³. Richer nations spend more on health, meaning that future growth will be accompanied by a corresponding expansion in demand for healthcare⁴, presenting enormous potential markets for countries that choose to make biomedical science a centre piece of their economies⁵. The MRC will aim to

1 UK inward investment report 2009/10 (Life Sciences Sector report), (UKTI 2010) http://www.ukti.gov.uk/download/114034_102544/Life%20Sciences_09-10.html

2 Research Changes Lives (the MRC Strategic Plan 2009-2014) www.mrc.ac.uk/About/Strategy/StrategicPlan2009-2014

3 BIS (2010). *Life science in the UK – economic analysis and evidence from 'Life Sciences 2010: Delivering the Blueprint'*. <http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/10-541-bis-economics-paper-02>

4 Fogel R (2009). *Forecasting the cost of US healthcare*. <http://www.american.com/archive/2009/september/forecasting-the-cost-of-u-s-healthcare>

5 BIS (2010). *Life science in the UK – economic analysis and evidence from 'Life Sciences 2010: Delivering the Blueprint'*. <http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/10-541-bis-economics-paper->

deliver the strong academic research base and highly skilled researchers which are so important in attracting and retaining these companies in the UK.

Unemployment and sickness absence is estimated to cost the UK £100 billion pa⁶, more than the entire annual cost of the NHS. Changing lifestyles and demographics present huge health challenges with significant economic impact. For example, the additional cost to the NHS of increasing levels of obesity is estimated to reach £49.9 billion per year by 2050⁷. Improvements in health care and prevention strategies will bring substantial economic benefits.

In this delivery plan, we outline innovative programmes designed to deliver the aims and objectives described in the MRC strategic plan, together with plans for reform and increased efficiency designed to maintain the strength of fundamental UK biomedical science while increasing its impact on public policy and on the economy.

2. Research and Training Priorities

2.1 MRC CSR 2010 Strategic Programmatic Themes

2.1.1 New frontiers in biomedical research

Strategic Delivery Priorities

Strategic alignment with industry in research, training and translational investments

Joint working with TSB, NIHR and Research Councils in support of stratified medicine, regenerative medicine and stem cell research

Strengthening the drive towards novel therapeutics and diagnostics interventions

'Research Changes Lives' the MRC Strategic Plan, sets out our key aims and objectives for the next 4 years. This delivery plan highlights some major examples of activity that will rapidly deliver gains in health and wellbeing, together with increased economic impact. Understanding more about the mechanisms of resilience, repair and replacement will channel discoveries towards disease prevention and treatment. Addressing the complex interplay between genetics, development and life events or lifestyles will improve the chances of living a longer, healthier and productive life.

i) Stratified medicine

Stratified medicine identifies key subgroups of patients with distinct mechanisms of disease, or particular responses to treatments. Stratification allows targeting of treatments to specific disease pathways, identification of treatments effective for particular groups of patients, and co-development of diagnostics to ensure the right patient gets the right treatment at the right time, avoiding overuse of drugs, radiotherapy or surgery. The MRC will lead development in this area on behalf of the OSCHR partners, coordinating action with Technology Strategy Board (TSB), Cancer Research UK (CRUK), Arthritis Research UK and other charities. This will interface closely with the proposed OLS Cluster. The MRC will:

- lead on disease stratification in high priority diseases, building on partnerships with industry and the Health Departments
- work with the TSB and charities to share costs and harmonise plans

6 Black C (2008). *Working for a healthier tomorrow*. <http://www.workingforhealth.gov.uk/documents/working-fora-healthier-tomorrow-tagged.pdf>

7 Foresight report (2007) Tackling Obesity: Future Choices <http://www.bis.gov.uk/foresight/our-work/projects/current-projects/tackling-obesity>

- develop and disseminate research methodology – in trials and large data analysis - that will maximise the academic contribution to stratification
- invest in underpinning research skills in clinical pathology and pharmacology and informatics
- continue work with the ABPI on the inflammation and immunology initiative which will commit up to £12m in 2010 stratifying and analysing disease sub-types in lung and joint disease, both priority areas for industry
- develop further joint academic/industry initiatives in disease areas where UK medical research strengths and translational/commercial opportunities align. The choice of areas will be coordinated with TSB's stratified medicine innovation platform and/or OLS clusters. We will assess the potential for initiatives in neurodegeneration and diabetes/obesity in early 2011; our aim is to commit £60m in stratified medicine initiatives over the next four years in alignment with TSB, some of which will be in collaborative funding.
- widen translational links to industry in biomarkers/diagnostics research; working with other funders to maximise use of clinical sample resources

Expected outcomes and outputs

- coordination with industry of approaches to disease-mechanism research
- better models and markers of disease to accelerate therapeutic discovery
- better patient cohorts and improved capability in medical bioinformatics, linking rich biomedical data to clinical/population data sets
- increased innovation in molecular and genetic pathology
- adaptive clinical trial designs with more biological subgroup analyses
- public-private partnerships to fully extract information from treatment trials and long-term follow-up

ii) Regenerative medicine, stem cells and tissue repair

Regenerative medicine spans tissue engineering, developmental and stem cell biology, gene therapy, cellular therapeutics, biomaterials (scaffolds and matrices), nanoscience, bioengineering and chemical biology. It may involve transplantation of stem cells or tissue, stimulation of dormant natural repair processes, gene therapy or bioengineering of cells and tissue. MRC plans to spend in the region of £130m overall in regenerative medicine (a priority area for TSB) during the spending review period. The MRC will:

- support research into the mechanisms of stem cell renewal and differentiation; predictive models for tissue integration, healing and repair; scaling up and safety of stem cell therapy for clinical practice; and systems for delivering and monitoring cell therapies in the body
- continue to invest in the UK Stem Cell Bank to ensure availability of cell lines and biomaterials to support translational research in regenerative medicine
- coordinate a cross-RC review of regenerative medicine investments in 2011 and coordinate the next phases of development with other partners. We expect that larger, proactively managed, investments will be needed from 2012 to address preclinical research opportunities with the NHS and with industry
- develop with the MoD and NIHR a pilot initiative in trauma research, to apply regenerative medicine approaches to treatment of traumatic injuries in military and civilian settings
- continue to work closely with the TSB, BBSRC, EPSRC and ESRC on a joint Regenerative Medicine Programme for multidisciplinary research base and fund significant academic-industry collaborations in areas ripe for pre-competitive development. MRC will commit up to £2.5m to the first phase of this programme in 2011
- partner with TSB's initiative in Technology Innovation Centres and international agencies such as the Californian Institute of Regenerative Medicine and work with the Wellcome Trust to align our stem cell programmes in Cambridge

Expected outcomes and outputs

- UK stem cell research centres of excellence continue to recruit and retain the best scientific staff, and attract international and private sector funding to the UK
- resolution of issues around scaling up and safety of stem cell therapy for clinical practice
- novel regenerative medicine tools, products and therapies in areas where healthcare costs are high (such as diabetes, cardiology, wound healing, neurodegenerative disease, and orthopaedics)
- development of a variety of new business and service models necessary for the delivery of regenerative medicine by the private sector and the NHS

iii) Systems medicine

Successfully translating basic discoveries into healthcare improvements will increasingly depend on having a broad, integrated 'systems' understanding of how normal and disease states emerge from highly complex interactions between components of physiological systems at the molecular, cellular, tissue, organ and system levels. Areas of particular challenge include understanding controls over gene expression, the way macromolecular assemblies, signalling and cellular components self-organise within cells, understanding disease and ageing effects at a whole-system level and applying whole-pathway understanding to the design and use of new therapies. The MRC will:

- support highly collaborative programmes focused on clinical problems
- invest in quantitative skills and supporting informatics, complementing BBSRC investment and building on investment⁸ linked to the MRC supported High Throughput Sequencing hubs around the UK
- increase pull-through from new imaging and analytical technologies into cellular and sub-cellular research

Expected outcomes and outputs

- increased numbers of informaticians and biologists trained in systems medicine
- new insights into complex disease mechanisms, underpinning work on stratification
- projects in the synthetic biology area enter first into human and developmental clinical studies
- faster and more accurate drug target identification and evaluation, increased industry collaboration
- new cross disciplinary collaborations – eg in mathematics

2.1.2 Living a long and healthy life

Strategic Delivery Priorities

Strategic investment in mental health, nationally and internationally

Determining the most effective strategies for tackling lifestyles that are detrimental to health

Leading the cross-Council Grand Challenge Lifelong Health and Wellbeing

Driving forward interdisciplinary research addressing health and wellbeing from childhood to older age

i) Mental health and well being

Building on the 2010 strategic review of the area and the National Research Agenda, we are planning a coordinated effort with OSCHR partners to drive research aimed at optimising mental health and wellbeing throughout life, including older age. The MRC will build on current excellence in psychiatric genetics and cognition, and strengthen research on mechanisms underlying mental illness and provide targets for the development of new treatments. The MRC will:

- promote a 'cross-symptom' approach to human studies recognising that the same psycho-pathological processes may be involved in several different conditions
- expand our programmes of exploratory and Phase 1/ 2 clinical studies and build opportunities for collaboration between academia and industry
- support research to develop biomarkers to support drug development and to identify people at risk of mental illness in order to target preventative or early therapeutic interventions

In parallel, the MRC will support population-based science to accelerate development of early intervention strategies for preventing chronic mental ill health and promoting wellbeing. We will:

- work with ESRC to identify means of evaluating 'wellbeing' in the medical and social contexts
- identify mechanisms that confer resilience and vulnerability to inform early interventions to relieve the burden of chronic and relapsing mental illness
- support research into the effects of events in childhood and adolescence to understand the emergence of conduct and emotional problems and the development of 'adult' disorders

⁸ In particular, 100-200 skilled postdoctoral researchers will be emerging from BBSRC's six systems biology institutes over the next two to three years, offering a unique opportunity to expand the systems medicine area.

- support studies in large population cohorts to elucidate how genes interact with environment and social factors in determining risk of mental illness, and identify the causal links between poor mental health and physical disease
- exploit European links and work with ESRC to study environmental and social determinants (including migration) which influence the prevalence of psychiatric disorders such as schizophrenia in different European regions

Expected outcomes and outputs

- new validated biomarkers leading to effective novel differential diagnostics for brain diseases such as dementia and depression
- strengthening of translational clinical neurosciences driving development of new therapeutics and interventions
- early interventions to promote wellbeing over the life course
- new treatments for mental health problems and dementia entering clinical trials
- evidence to inform social and public health policy related to support for vulnerable individuals and families and reducing the economic burden of mental ill health

ii) Addressing the impact of lifestyle and behaviours on the health of the nation

Obesity

MRC will pursue research in the areas highlighted in the 2010 MRC obesity research priorities statement⁹, in partnership with the Wellcome Trust, including:

- understanding the processes leading to obesity, those linking obesity to disease, and the lifestyle, physiological and genetic factors causing differences in susceptibility between individuals
- investigating the neuroscience of obesity, including appetite regulation, energy homeostasis and reward pathways
- identification of testable interventions to prevent and treat obesity, particularly at population level as a basis for developing effective public health policies

Addiction

Building on the National Addiction Research strategy (developed by MRC with OSCHR partners) and MRC and ESRC investment in national addiction research clusters in 2010, MRC will support research to:

- develop new approaches to reduce alcohol abuse
- understand the causes, risk factors and natural history of addiction, focusing on adolescence
- monitor the incidence and prevalence of problem drug use and understanding biological and social harms
- develop and implement new treatments and preventive strategies for addiction and relapse

We will spend over £10m in this area in support of strategic activities and ongoing baseline activities.

Expected outcomes and outputs

- increased UK research capacity in addiction
- new therapeutic interventions (pharmacological and behavioural) for prevention and amelioration of obesity and addiction
- increased interaction between industry and UK science base to translate discoveries into new therapeutic approaches and economic and societal gain
- evidence to inform policy in relation to preventing and treating drug misuse, excessive drinking and obesity

iii) Healthy ageing

MRC will continue to lead the cross-Council Lifelong Health and Wellbeing (LLHW) challenge, which is core to our strategy in ageing research. A major challenge associated with an ageing population is to reduce the burden of morbidity from age-related conditions such as dementia and frailty, and create physical environments that

⁹ www.mrc.ac.uk/Ourresearch/Priorities/Obesityresearch

support productive and independent older lives. As part of the national strategy for ageing research led by the MRC, we will develop initiatives in neurodegeneration, musculoskeletal ageing and extended working lives. We will:

- promote links between national centres of excellence in neurodegeneration research to develop research into predictive animal models, common platforms for brain imaging, and frameworks for multi-centre clinical studies (in partnership with German and Canadian funding agencies)
- lead UK participation in a new EU-wide Joint Programming initiative in neurodegeneration, aiming for jointly funded activities from 2011
- promote research to translate research into age-related deterioration in bone and muscles into novel diagnostic, prognostic and therapeutic measures
- work with Arthritis Research UK to understand the mechanisms that modify age related changes, including physical activity and diet, to identify preventive interventions to sustain musculoskeletal health and mitigate disease risk
- work with partners through the LLHW programme to understand the changing capabilities of an ageing workforce and investigate the health and socioeconomic impact of working in later life
- aim to spend at least £150m in neurodegeneration across the full range of activities, including increased funding for dementia research.

Expected outcomes and outputs

- new preventive interventions to maintain musculoskeletal health and reducing frailty
- evidence to underpin policy on extended working lives
- increased research towards new treatments for dementia

2.1.3 Health research is a global issue

MRC is the UK lead agency for the provision of public funding for biomedical research relevant to developing countries¹⁰. We also represent the UK's interests in international programmes and collaborative initiatives in medical research.

Strategic Delivery Priorities

Providing international leadership in partnerships which enhance the competitiveness of the UK knowledge and health base

Working in partnership to optimise funding for the support of high quality global health research

i) International leadership

For biomedical knowledge and understanding to progress rapidly and to make an impact on public health, UK scientists must have access to the most innovative ideas, technologies and information, wherever those may be. The MRC facilitates this by enhancing international collaboration in areas of strategic importance. By supporting international and intergovernmental partnerships MRC can also actively leverage overseas funding to complement UK funding to strengthen the UK science base. The MRC will:

- develop and sustain strategic partnerships with key international players, particularly in South East and Southern Asia, exploring opportunities for technology transfer and innovation
- play a leading role in influencing the European scientific agenda, leading the development of EU Joint Programming on Neurodegeneration, and contributing to joint programming in ageing, antibiotic resistance and food for health
- engage with negotiations relating to the Framework Programme and the development of the European Science Foundation, and contribute to negotiations on European Directives affecting research

ii) Global Health

As time and distance boundaries decrease, the health challenges facing nations become a shared agenda. Infections can spread around the world in hours, knowledge and the rising tide of chronic disease is a challenge

¹⁰ http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_088702

shared by both industrialised and developing countries. The MRC will continue its long-standing partnership with DfID to deliver high quality research to underpin improved health care and more effective health systems for delivery. We will:

- continue our joint scheme for global health clinical trials with DfID and the Wellcome Trust, focussing on trials addressing health inequalities likely to make the biggest impact delivering both practical interventions and improved policy advice
- work through our Units in The Gambia and Uganda to harness the value-added from our population-based and laboratory programmes addressing global health issues such as tuberculosis, HIV and chronic non-communicable disease
- provide support for research leadership in Africa to help reverse the brain drain of qualified biomedical researchers
- run a joint call to study chronic non communicable disease with the Indian Council for Medical Research
- as a founding member of the new Global Alliance for Chronic Diseases, the MRC will support a global approach to research on chronic diseases including hypertension and mental health.

Expected outcomes and outputs

- increased funding leveraged from international partners to support UK scientists
- alignment of international biomedical science policies and funding strategies with UK priorities
- increased inward investment from strategic partnerships in Europe and globally
- access to international research consortia and infrastructure
- new strategies for tackling global health threats impacting on UK
- strengthened and progressive science leadership in MRC African Units working in the local research environment for a sustainable future
- improved evidence base for targeting overseas aid budgets for health and for provision of healthcare in the UK setting (eg for HIV and TB)
- new evidenced based treatment for the major global health threats moved into policy and practice in low and middle income countries

2.1.4 Harnessing the value of population health sciences for the public health agenda

Working together with OSCHR partners, MRC and NIHR have developed strategies that will drive the evidence-base needed to develop an effective public health agenda. MRC supported research employs powerful population-based research approaches to address pivotal public health challenges.

Strategic Delivery Priorities

Optimising the contribution population health sciences can bring to a vibrant public health research agenda, in partnership with NIHR and Health Departments

Fully exploiting the benefits of population based data to inform the development and implementation of public health policies

Working across sectors to achieve an integrated response to the threats to health of emerging infectious diseases

Maximising the impact of large scale population-based cohorts

Population cohorts represent a major way for members of the public to engage with and personally contribute to medical research and the improvement of public health by volunteering their time and access to their personal information, a proven and substantive contribution to the 'Big Society' agenda.

The MRC is working in collaboration with the ESRC, the Wellcome Trust and other major funders to maximise use of existing population data sets to study the association between social, biological, environmental and lifestyle factors in human health and disease processes. The recruitment of half a million people to UK Biobank is complete, offering unprecedented opportunities to determine the role of genetics and life style influences

on health outcomes. Over the next CSR period the MRC will exploit this rich data resource by supporting both initial cross-sectional analyses of the baseline data to assess associations between the environment and disease prevalence (e.g. asthma or obesity) and genetic and biochemical analyses, linked to environmental data, of new disease cases within the cohort to provide unique insights into mechanisms and causes of diseases that are a major public health burden. We will support the development of a new 2012 birth cohort and its linkage to existing birth cohorts to ensure maximum impact on both health and social policy is realised.

Increasing economic and societal gain through E-health research

E health records research is an area in which the UK is well placed to develop a world lead. MRC is leading an exercise on behalf of the UK funders and industry to determine the requirements to create a sustainable research base in the UK which can fully exploit the research potential of the available e-health data. The MRC, in partnership with Government and charity funders, will invest in:

- support for methodological development and the integration of medical informatics
- outstanding research environments to deliver training and skills in data management, analysis and statistics
- co-ordination of best practice, collaboration and inter-disciplinary culture

Public health infections research

With an ever changing physical and natural environment the human population is constantly under threat from new, emerging and re-emerging infections. In joint work with NIHR, MRC has developed a new strategy for public health infections research¹¹. Using the UK's strong infection and immunity science base, along with epidemiologists and population scientists, MRC will address the need to have a robust rapid response capability for outbreaks and epidemics of new or re-emerging infections, refresh the approach to antimicrobial resistance, identify and target effective prevention and treatment strategies towards the most vulnerable groups in society and foster innovation in detection, treatment, and prevention. Research approaches will include partnership with BBSRC to deliver strong, multidisciplinary virology programmes, translational vaccine and anti-infective work as a priority, and development of work on the ecology of infection, modelling, and dataset integration.

Expected outcomes and outputs

- greater understanding of environmental and genetic determinants of disease, leading to novel approaches for prevention and therapy
- increased national capability in quantitative skills in population data management and analysis
- increased ability to respond to new and re-emerging infections
- ability to target infectious disease interventions to vulnerable groups

2.2 National Capability

Strategic Intent

MRC will develop and sustain a research infrastructure for the future delivery of the highest quality biomedical research, driving interdisciplinarity and engaging with partners in Government, industry and the charity sector

- MRC will continue to develop the UKCMRI as a key element of our strategy to increase the impact of basic science on health, now and for decades to come.
- The new Laboratory of Molecular Biology building will be completed in 2012, providing modern infrastructure to maintain LMB's leading role in supporting innovation and translation of fundamental research discoveries into new technologies
- UK Biobank and other longitudinal cohorts are key resources for population health studies: investment will be focussed on maintaining effective usage of these cohorts and making data available for widespread use across the UK and internationally.

¹¹ A new strategy for public health Infections research, report to OSCHR June 2010

- MRC will continue to support development of national capability in experimental medicine, including development of new methodology for clinical studies and to support the work of the National Institute of Clinical Excellence. Investment will be co-ordinated with NIHR, adding value to anticipated additional NIHR investment in Biomedical Research Centres and Units.

2.3 Cross-council themes and multidisciplinary priorities

Strategic Intent

MRC will continue to lead the Lifelong Health and Wellbeing programme working with other Research Councils in the successful delivery of priority challenges. Boundaries with other Research Councils will be clarified to promote clarity of purpose in cross-council working.

2.3.1 Lifelong Health and Wellbeing (LLHW – see Annex A)

MRC will continue to lead this programme, which is a high priority for maintained investment and is core to our strategy in ageing research. We will work with funding partners, policy makers, industry and service providers under the auspices of the cross-council LLHW initiative to implement the recently published Strategy for Collaborative Ageing Research in the UK. We will develop and strengthen multi-disciplinary and cross-sector partnerships to enhance mental and physical health in older age, promote healthy extended working lives and increase wellbeing, mobility and independence in an ageing population.

2.3.2 Living with Environmental Change (LWEC)

MRC has engaged actively with LWEC through its development and has invested heavily in this area, funding the Centre for Health and Environment at Imperial College, together with the Health Protection Agency and leading the development of two joint calls on infections and environmental exposures with other research councils. Further investment in research on environmental exposures is a strategic priority. We anticipate spending in the region of £25m pa in the next 4 years on LWEC relevant activities, including £8m on accredited strategic initiatives.

2.3.3 Food Security, Global Uncertainties and Digital Economy

MRC has supported BBSRC in the development of the Food Security initiative, and will continue to lead, in partnership with the Food Standards Agency, on the theme “Sustainable, healthy, safe diets”. We anticipate that most research in this area will be funded in response mode in response to highlight notices. MRC will continue to engage in the development of the Global Uncertainties and Digital Economy themes.

2.3.4 National / International facilities

We will work with STFC to ensure activities on national / international facilities support the strategic direction of MRC, our priorities are for Diamond and ESRF in support of our highly successful structural biology portfolio which includes the research base at LMB.

2.3.5 MRC contribution to RCUK integrated activities

i) Public engagement with research

Public engagement is a key part of the MRC’s mission and MRC-funded researchers are both required and encouraged to engage with public audiences to discuss their own research and the work of the MRC. We will work with RCUK to support implementation of the new Concordat for Public Engagement, which provides a key focus for promotion and evaluation of engagement activity during the next CSR period. Public engagement is embedded in the MRC through a network of regional communication managers who will continue to create opportunities, facilitate participation and provide training for researchers. Public engagement is also an integral part of the MRC’s five-year assessment of its units and institutes, and will continue to be evaluated annually

for both intramural and extramural programmes through MRC e-Val, which enables collection of information on engagement with non-academic audiences. The evidence collected from e-Val covering 2006-9 shows that almost 60% of MRC researchers are already actively engaged with non-specialist audiences.

ii) International offices

MRC is currently actively engaged with the RCUK international offices, as managing council of the RCUK China Office in Beijing. Together with RCUK MRC will consider opportunities for a more strategic collaborative engagement between the overseas offices in India, China and the US and the evolving SIN network to meet the strategic needs of the Research Councils.

2.4 Other Government research and development initiatives

2.4.1 Translational medicine: Accelerating translational health research

Strategic Delivery Priorities

Enhancing the capability to partner with TSB and the OLS clusters with stratified and regenerative medicine as the highest priority areas

Continued investment in developmental pathway, portfolio schemes and developmental clinical studies, maintaining the successful strengthening of translational research following the 2006 Cooksey review

Meeting the needs of industry for the development of novel industry-focused initiatives

MRC will build on our investment in translation in the previous spending period and continue to enhance the opportunities for collaborative working with relevant industry sectors to ensure the fast and effective translation of biomedical discovery science into new therapeutic and diagnostic interventions. The overall spending in this area is likely to reach £250m over the spending period, including an increase in spending on the managed programmes to £50m pa by 2014/5. The MRC will:

- sustain investment in the Developmental Pathway Funding Scheme (DPFS) and increase funding for the Developmental Clinical Studies (DCS) scheme, for preclinical and clinical development of novel interventions, including stem cells
- enhance support of experimental medicine through co-ordination of national and regional resources and facilities, and the training of researchers, ensuring investment is aligned to add value to NIHR funding for translation
- further develop productive alignments between basic and experimental clinical research in academia and industry, based on the successful model of the Immunology and Inflammation initiative
- actively support the development of OLS clusters and the Scottish and Welsh Academic Health Sciences Collaborations to increase both economic impact of biomedical research and inward investment
- evaluate and further develop novel ways of supporting translational activities, building on Translators and Devolved Portfolios Awards
- provide the cross-Council lead for relationships across the pharmaceutical sector, to simplify and speed up policy dialogue and maximise the impact from RC investments
- lead a stocktaking of RC and TSB regenerative medicine investments and their alignment with changing business models and pathways from research to impact
- promote best use of research resources across academia and industry, including imaging facilities, tissue and informatics resources
- explore and fund innovative models of pre-competitive and collaborative research partnerships with industry through the MRC Industry Collaboration Awards and CASE studentships, specifically targeting support for experimental medicine, biomarkers & stem cell medicine
- form new partnerships with other industry sectors (e.g. food industry)

Expected outcomes and outputs

- quicker realisation of health and economic impact from basic research investment

- UK remains an attractive environment for R & D investment for the pharmaceutical and biotechnology sector.
- an increase in the number and diversity of new therapies, devices and diagnostics in development at all stages from validation of new targets to clinical trials
- meeting academic and industry expectations for a pipeline of innovative, commercialisable research assets with high health impact
- better tools and resources to facilitate more rapid development of novel therapeutics

2.4.2 National Centre for the 3Rs (NC3Rs)

MRC remains committed to reduction, refinement and replacement of animal use in scientific research. To help deliver on our commitment, as well as the government pledge to reduce animal usage, MRC will continue supporting NC3Rs, working with BBSRC to maintain our joint contribution at the current level in real terms (rising to £5.6m pa by 2014/5).

2.4.3 Stem Cells

Work on stem cells is at the heart of our proposed work on regenerative medicine, as described in Section 2.1.1 (ii).

2.4.4 Technology Strategy Board (TSB)

Concerted action with TSB is central to many of the strategic funding initiatives in both planned expenditure and future new commitments. Our focus for joint working with TSB will be moving the concepts in stratified medicine into innovations for detection and diagnosis and also regenerative medicine (see section 2.1.1). We will spend a total of £133m on research aligned with TSB programmes during the 4-year CSR period.

2.4.5 Collaborations with other Government Departments

Strategic Intent

MRC will continue to work Government Departments both bilaterally and in the RCUK Grand Challenges and Funders' networks in health, international development, food security and environmental change

MRC will continue ongoing partnership arrangements with the **Departments of Health in England and the Devolved Administrations** under OSCHR¹², maintaining close alignment of our public health and translational research, specifically in the areas of ageing, infection, obesity, addiction, mental health and experimental medicine. Careful co-ordination with the new NHS-based translational "pull-through" moneys in DoH will further accelerate impact in England. We will continue our long-standing working relationship with **DfID** and will continue to work through our concordat to deliver high quality research that can be translated into improved health care and more effective health systems for delivery. We will continue to work with the **Ministry of Defence, DH** and the charity sector, to develop an initiative in trauma research.

2.5 Safeguarding the skill base for UK biomedicine

Strategic Delivery Priorities

Strengthening and sustaining a skilled research workforce through targeted support for excellent training and the development of world class leaders

Safeguarding the future, through support of future leaders at the intermediate stage of their careers

Responding to industry needs for well trained industry-aware researchers

¹² OSCHR First Progress report November 2008 www.parliament.the-stationery-office.com/pa/cm200809/cmselect/cmdius/655i/655we02.htm

PhD studentship provision

A flow of new PhD graduates is essential to sustain the skilled workforce for the industrial and academic sectors. In the biomedical & life sciences field, MRC funds about 1600 students, 20% of PhD studentships available. We will maintain our overall investment, reducing the number of students slightly but increasing the research training support provided to each, with the aim of enhancing the ability to attract the best students. We will continue to focus studentships in institutions and programmes that provide breadth and depth of excellence in research and training, with appropriate high quality transferable skills training. We will sustain our recent increase in support for CASE PhD students at 35 pa. CASE students experience both a commercial culture and an academic environment, and act as front line knowledge transfer agents, strengthening academic-industry collaboration. We will work with universities, industry and the TSB to enable CASE graduates to continue to act as agents of innovation in their host companies. Options include participating in the TSB's Knowledge Transfer Partnership scheme and extending MRC's existing People Exchange Scheme.

Research masters

MRC does not fund taught masters, but supports *research* masters places, targeted at building capacity in strategic skills gaps identified by industry and academia. We will consult to ensure this scheme meets industry needs and plan to support 50 pa over the CSR period, to enable outstanding candidates aiming for PhD training to "re-route" their interests from their first degree discipline.

Fellowships

We plan to increase the number of early and intermediate career fellowships to provide career support for scientists at a critical career stage when they seek to build their research teams. We shall align the new fellowships with Strategic Plan priorities – for example, to develop the following capabilities:

- development and integration of biological and engineering technologies to provide insights and solutions to the challenges of tissue repair and regeneration
- development and application of innovative mathematical and statistical methods to understand disease mechanisms, predispositions to disease and the interplay of genetics, development, lifestyle and environment in health and disease – working across a range of complex data sources
- innovative research methods at the interface of preclinical and clinical medicine and population health sciences, developing researchers able to accelerate the translation of research knowledge towards practical applications for better health.
- post-doctoral researchers developing careers in cross-industry/academia or translational areas, with long-term awards to complement the shorter MRC Research Leader Fellowships

Senior Fellowships enable outstanding individuals to establish themselves as leaders of world-class research teams. MRC fellowships attract highly talented researchers from abroad to the UK. We will sustain investment in Senior Fellowships at the current level to ensure the most talented researchers can develop their research career in the UK.

Research Careers and Diversity

In advancing our continued commitment to the development of UK research leaders for science of the future, and to strengthen scarce, strategic research skills to benefit the wider economy, we shall continue to work closely with other Research Councils both directly and through the RCUK Research Careers programme, including supporting implementation of the Concordat for Researcher Development and managing the transition of the Vitae programme towards a self-sustaining position.

Clinical Research Training

OSCHR partners have agreed that the weak point nationally is the number of post-doctoral clinician researchers. To address this MRC will rebalance the investment in clinical research training, increasing the number of intermediate Clinician Scientist Fellowships.

Expected outcomes and outputs

- more CASE studentships, involving a wider range of users, delivering a new cohort of innovators in research used to working across disciplinary and sectoral boundaries to boost economic impact
- closer alignment between academic research programmes and industry – with a greater proportion of students and staff supported on MRC grants finding employment in the private sector
- expansion of fellowships to deliver 20 new early career entrepreneurial researchers
- increased supply of researchers with scarce quantitative and experimental skills to industry, academia and healthcare

3. Economic Impact

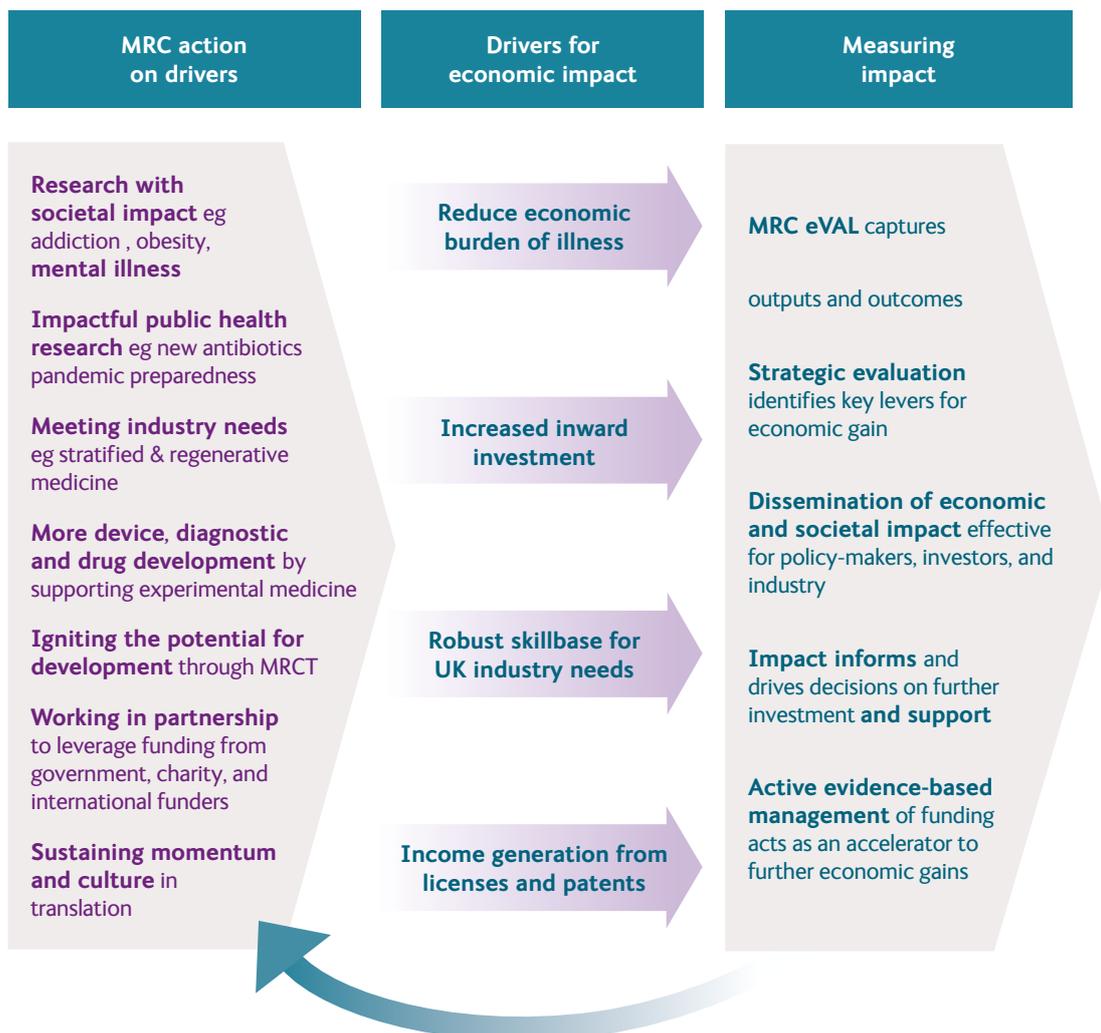
Strategic Intent

To maximise the economic and societal impact of MRC research by:

building on the capability for strategic evaluation delivered by the MRC e-Val system, to identify and disseminate outputs and outcomes

developing further our successful translational research strategy for economic and policy impact

3.1 MRC vision for increasing impact



The MRC has a proven track record in delivering economic, academic and societal impact, and a strong pipeline of innovative discoveries. The introduction of e-Val¹³, a web-based outputs and outcomes capture system, gives the MRC the capability to prospectively track the progress of MRC funded research over time, analyse the rate of translation and the extent of success of its strategic initiatives. The MRC's strategy is to maximise potential impact by identifying approaches that are tractable, build on UK research strengths, and address the most pressing health challenges.

3.2 Implementing the vision: MRC action over the next spending period

MRC will take steps to increase economic impact through targeted activity in the following areas:

- Ensuring that research has the maximum societal impact by strategic investment in target areas such as addiction, mental health, and dementia where the burden of disease is highest, and UK research strengths can be leveraged most effectively
- Sustaining and protecting the burgeoning culture of translational biomedical research by building on the success of the DPFS and DCS schemes
- Raising the profile and impact of public health research, through joint working with NIHR and relevant stakeholders, targeted towards effective strategies in obesity and preparedness for emerging infections such as influenza
- Meeting industry needs and building enduring links with industry through prioritisation of development and engagement with OLS clusters, and industry bodies (ABPI and BIA), and targeted support such as industry CASE studentships
- Strengthening links with the diagnostics and imaging industries, supporting innovative partnerships between industry, funders and researchers across life sciences and bioengineering/technology sectors
- Driving adoption of innovation in healthcare delivery by supporting groups that will work closely with NICE and MHRA to strengthen methods for the evaluation of new treatments and technologies, including refinements to economic assessments
- Using the strengthening interface and collaborative working with TSB to drive innovation
- increasing the potential and capacity of MRCT to engage with researchers with innovation-ready research output. This will be achieved through:
 - the work of MRCT Centre for Therapeutics Discovery (CTD), which will widen access to specialist translational infrastructure and expertise to support small molecule and antibody based therapy development
 - the Development Gap Fund, which provides funding to help projects with commercial potential bridge the gap between academia and commercial development
- Continuing to strategically support measures to address key skills shortages e.g. MRC Clinical Pharmacology and Pathology Fellowship Programmes

3.3 Measuring and disseminating the impact of MRC research

The MRC is at the forefront of gathering structured and informative feedback from the research community. MRC e-Val will continue to provide evidence of the progress, productivity and quality of MRC research with minimal administrative overhead. MRC will use this evidence, plus feedback from the users and beneficiaries of research, to ensure that assumptions about what leads to impact can be tested, and develop a sound evidence base upon which to develop future strategy. By 2015 the MRC will have gathered at least nine years of data on output (publications, patents, licenses, collaborations, product development, influences on policy arising) from MRC researchers. We will have demonstrated the impact of these results and used the data to assess progress against the MRC's strategic plan. The MRC will work with other RCs, NIHR, the devolved administrations and major medical research charities, as well as with the major research intensive Universities and HEFCE to analyse the impact of medical research on the economy and society. We plan to revisit and update our formal economic analysis of the impact of medical research¹⁴ by 2013, building on our previous partnership based approach.

¹³ MRC e-Val 2009 <http://www.mrc.ac.uk/Achievementsimpact/Outputsoutcomes/MRCe-Val2009/index.htm>

¹⁴ "Medical Research: What's it Worth?" <http://www.wellcome.ac.uk/About-us/Publications/Reports/Biomedical-science/WTX052113.htm>

We anticipate that other funding organisations in the UK and internationally will also adopt approaches to gather output data, providing the opportunity for the MRC to compare and evaluate its output against international benchmarks. HEFCE's aim to introduce the assessment of impact into the Research Excellence Framework will mean that MRC's UK stakeholders will be focussed on gathering and analysing similar data.

4. Delivery Analysis

An agenda for

Reform: novel strategic partnerships with the HEI sector to support the best scientists in a strong research environment

Efficiency: delivering the RCUK harmonisation agenda for optimal performance

Prioritisation: a strategic approach to support world class research

4.1 Strategy for Delivery

MRC will address the **reform** and concentration agendas by increasing strategic partnerships with HEIs, this will be supported by a **Strategic Research Fund** enabling us to respond fast to new developments, needs for new infrastructure or important opportunities for new partnership working. This will be managed via our Strategy Board, which will maintain an overview of all investments and adjust the balance of resources to ensure opportunities for high-impact investment are not lost.

We have created our first 'University Unit' in partnership with the University of Oxford, moving significant research investments from MRC to University ownership to create greater flexibility and unified management and strategic direction of MRC and University investments, delivering increased **efficiency**. Building on the success of this initiative, MRC will reform its intramural programme over the course of the spending period moving more existing Units into 'University Unit' strategic partnerships with HEIs where shared investment can add significant value to support centres of excellence and critical mass, increasing the impact of our investments and the efficiency of delivery. There will be small initial costs which will be offset in the longer term by ongoing efficiency savings and by the benefits of research concentration.

Core funding for 5 MRC Centres will finish during the SR period as part of planned recycling. MRC will move resources to support new MRC Centres in areas of highest strategic importance identified as priorities in our strategic and delivery plans, enabling us to engage pro-actively in the transformative agenda to support foci of scientific excellence and to leverage support from other funding sources, particularly charities. The peer review system has already led to a very high level of concentration of MRC extramural funding in a small number of HEIs (~20); demand management solutions, promotion of shared use of large equipment, and the focus on centres of excellence will lead to further concentration, particularly as HEIs collaborate and/or develop novel strengths.

MRC, like all the research councils, is committed to achieving improvements in the **efficiency** of the research funding system though, for example, partnering with universities to manage demand in the system (**Demand Management**). Research Councils have agreed the following core set of principles should guide their approaches to Demand Management. RC's will:

- work in partnership with Universities to support them in self-managing demand and delivering quality control of research proposals.
- Discuss plans for demand management with stakeholders.
- Develop and share tools for demand management across RCs & Universities, share good practice and strive for continual improvement
- Maintain awareness of the effect of demand management on the wider community & stakeholders.

In addition to managing demand RCs will consolidate and simplify/streamline schemes, where appropriate, to reduce complexity.

MRC has the following specific plans for managing future demand for funding.

- MRC will require less successful HEIs to take steps to move their institutional success rate to at least the current average. If improvements are not seen MRC will move to specific sanctions including for example restrictions on frequency of submission and resubmissions
- MRC is undertaking a strategic programme of visits to HEIs, initially to those which submit a high volume of applications and have below average success rates. We will share HEI specific data and wider anonymised HEI data to better understand and manage poorer performing areas
- MRC will engage with HEIs around development of shared research facilities and explore opportunities for a more strategic approach to some devolved portfolio management by Universities
- MRC will consider creative approaches to support young investigators and help improve their success rates

4.2 Financial framework

4.2.1 Managing expenditure – Resource

Expenditure modelling over the next spending period with Programme Resource baseline flat real, UKCMRI funded by DH¹⁵

	Current		2011/12		2012/13		2013/14		2014/15	
	2010/11		change v							
Resource:	£m	£m	10/11	£m	10/11	£m	10/11	£m	10/11	
Grants	240	265	10.3%	271	12.7%	290	20.9%	291	21.2%	
Studentships	21	23	9.0%	24	12.7%	25	20.5%	26	21.2%	
Fellowships	54	59	9.0%	61	12.7%	65	20.5%	65	21.2%	
Units	205	214	4.6%	210	2.5%	210	2.3%	210	2.7%	
International Subs	21	21	1.9%	20	-2.4%	20	-1.9%	21	-1.0%	
Restructuring	4	–	-100.0%	–	-100.0%	–	-100%	–	-100%	
LMB Transition	1	2	100.0%	4	300.0%	–	-100%	–	-100%	
UKCMRI Transition	–	–		6		–	–	14		
Head Office Relocation	6	–		–		–	–			
Contingency	1	1	0.0%	1	0.0%	1	0.0%	1	0.0%	
	553	585	5.9%	597	7.9%	612	10.7%	628	13.5%	
Earned Income										
IP Income	65	80	23.1%	85	30.8%	87	33.8%	89	36.9%	
IP Direct costs	35	41	17.8%	44	26.4%	45	29.3%	46	32.2%	
Income Cap Excess	15									
Net IP Income	15	39	156.6%	41	169.7%	42	176.3%	43	182.9%	
Other Earned Income	10	10	0.0%	10	0.0%	10	0.0%	10	0.0%	
Resource Programme DEL	538	536	-0.3%	546	1.5%	560	4.1%	575	6.9%	
In year adjustments	8									
CSR07 Resource Programme DEL	546									

Note: Resource expenditure is shown net of co-funding income.

The above figures are based on commitment budgets of £1.5bn over the period. There is a small reduction in the intramural programmes, due in part to displacement activity from the moves between intramural and university units. Further expenditure not included in the table above has been planned for re-structuring, in relation to the reform agenda for our intramural programme, at a level of £21million over the spending period.

¹⁵ Which will therefore not require any virement from the commercial fund, or a call on the LFCF

4.2.2 Capital Projects and Programmes

The main capital projects and programmes are listed in order of priority below.

Priority Ranking	Capital Projects & Programmes	2011/12	2012/13	2013/14	2014/15	Total CSR Period
1	Councils' own contribution to approved large facility projects (LMB)	35.6	3.0	0.2	0.0	38.8
	Councils' own contribution to not-yet approved large facility projects					
1	UKCMRI	43.0	46.0	107.0	24.0	220.0
	• Building Costs	41.0	66.0	98.0	27.0	232.0
	• Capital Receipts from sale of National Temperance Hospital/Mill Hill site		(28.0)		(35.0)	(63.0)
	• Day 1 capital costs	2.0	8.0	9.0	32.0	51.0
	<i>Research Maintenance at institutes/facilities</i>	13.5	11.0	15.8	16.0	56.3
3	• Clinical Sciences Centre new L block	2.6	–	–	–	2.6
4	• Contribution to new building for Centre for Virus Research, Glasgow	3.0	3.0	–	–	6.0
5	• Capital infrastructure & equipment renewals in Units & Institutes	7.9	8.0	15.8	16.0	47.7
5	Capital Grants for strategic equipment provision in HEIs	7.5	7.5	7.5	7.5	30.0
5	Capital Grants for strategic equipment required for specific research projects at HEIs	7.5	7.5	7.5	7.5	30.0
	Total Capital Expenditure	107.1	75.0	138.0	55.0	375.1
	Funding assumption	107.1	75.0	138.0	55.0	375.1
	Capital Baseline	33.0	29.0	31.0	31.0	124.0
	Large Facility Funding LMB	4.5	–	–	–	4.5
	Dept of Health – UKCMRI	43	46.0	107.0	24.0	220.0
	Brought Forward Capital EYF	26.6	–	–	–	26.6

The depreciation, amortisation & impairment charges estimated for the CSR period are shown in the table below.

	2011/12	2012/13	2013/14	2014/15
Depreciation	25.5	29.8	27.4	22.2
Amortisation of Intellectual Property Intangible Asset	20.8	19.1	19.3	21.6
Impairment			2.0	
Total	46.3	48.9	48.7	43.8

4.2.3 Managing new MRC commitments

Commitment budget for Delivery Plan

The total £1.5bn available over the spending period for funding of new commitments has been allocated to the themes in section 2.1 to 2.5 of the delivery plan as shown in the table below.

Delivery Plan	Area of commitment budget	Commitment budget in 4yrs 11/12 to 14/15
		Total £1.5bn
2.1 Programmatic Themes		£million
1 New frontiers in biomedical research	All 4 Boards and 75% of Strategic Reserve Fund	690
2 Living a long and healthy life		+
3 Health research is a global issue		192
4 Harnessing the value of population health sciences		=881

2.2 National facilities and infrastructure	25% of Strategic Reserve Fund	64
2.3 Cross Council and multidisciplinary priorities	Included within 2.1	-
2.4 Other government initiatives – Translational medicine	Managed programme and EME	201 +54
		=255
2.5 National capability – safeguarding the skill base	Training budget	300

4.3 Efficiency

Commitment to Wakeham Agenda

Research Councils have accepted the recommendations contained in the Wakeham report and are committed to working with research organisations to drive down the full economic cost of research undertaken whilst retaining their commitment to funding research on the current fEC basis. In the light of the 2010 Comprehensive Spending Review, Research Councils are examining further options for driving efficiency savings which in turn will be reinvested in research. It is expected that these recommendations will be implemented from April 2011. Further work will be carried out to investigate any scope for additional savings

Maximising funding value

MRC will aim to leverage contributions to the research effort from HEIs and the NHS¹⁶ by promoting optimum use of infrastructure through shared use and avoiding duplication, and by partnering with charities such as the Wellcome Trust, to deliver major research resources at centres of national excellence.

MRC operational efficiency

MRC's current administrative cost baseline is £42.7m, 6% of the MRC's total resource. We are exploring routes to increase administrative efficiency whilst maintaining the capability to deliver high quality science through the MRC's intramural and extramural programmes¹⁷. These include:

- the administrative baseline of each Research Council includes the costs of activities that are and/or shortly will be delivered to them by RCUK SSC Ltd. The Research Councils are collectively working with each other and RCUK SSC Ltd on how best to deliver the necessary administrative savings whilst minimising the impact on our service delivery. A key element of this will be the scope of future services to the Research Councils from RCUK SSC Ltd and the associated charges. Until the work has been completed, it is not possible to identify specifically the element of our administrative budgets that will be spent on the service we receive from RCUK SSC Ltd. This will be a key element of our ongoing administrative expenditure and as such will be subject to close scrutiny to ensure we receive maximum value for money.
- review and elimination of lower value-adding administrative activities and projects.
- adoption of lighter review and decision-making processes where possible, reducing the number of smaller funding schemes, and working with RCUK and HEIs on demand management.
- continuing our move towards management of Units by HEIs (University Units) and transfer of administrative functionality from NIMR to UKCMRI, and streamlining Head Office support functions to reflect the smaller intramural programmes
- working with RCUK secretariat to reduce their costs (and thus MRC's contribution), and reducing contributions to lower priority partnership activities outside MRC/RCUK (e.g. administrative costs of the National Cancer Research Institute, the National Co-ordinating Centre for Health Technology Assessment)

It is estimated that approximately proportional savings across institutes and headquarters' operational costs can be realised.

¹⁶ NOCRI <http://www.nihr.ac.uk/infrastructure/Pages/default.aspx>

¹⁷ The allocation for the administrative budget for the CSR period has not yet been finalised

Annex A: Delivery Plan for MRC-led Cross-Council Programme

AGEING: LIFELONG HEALTH AND WELLBEING

The challenge

Life expectancy in the UK has risen by 30 years in the past century. In common with other developed countries, this increase in longevity has been accompanied by a decrease in the fertility rate, leading to a growing proportion of the population over current retirement age. To fully prepare for the socio-economic challenges and opportunities associated with an ageing population, the Lifelong Health and Wellbeing programme seeks to

- improve and extend cognitive and physical function, independence and quality of life in old age
- develop strategies to create an equitable, affordable and sustainable ageing society for the future

Aims of the Lifelong Health and Wellbeing Programme

The Lifelong Health and Wellbeing cross-council programme (LLHW) encompasses targeted ageing research initiatives supported by the Research Councils. The MRC leads LLHW on behalf of the Councils. The objectives of LLHW are to:

- target factors over the life course that may be major determinants of health and wellbeing in later life.
- identify and develop effective interventions that lead to improved health and quality of life in older age.
- inform policy and practice including the development of services and technologies to support independent living.
- increase capacity and capability in ageing-relevant research.

Priorities for CSR 2010

A strategy for collaborative ageing research in the UK developed as part of the LLHW programme was published recently. The strategy adds value to existing UK strengths and ongoing initiatives in ageing research by identifying opportunities for greater impact on major research challenges through cross-sector collaborative approaches. Based on the strategy, the priority themes for LLHW in CSR 2011 will be:

Achieving good cognitive function and mental wellbeing in later life

- exploring the development and evaluation of interventions with the potential to enhance wellbeing in older age.
- identifying influences throughout the life course that shape cognitive function in old age and exploring strategies to maintain cognitive reserve.

Promoting physical health in older age

- identifying the drivers and effects of health behaviours and developing interventions that lead to sustained healthy lifestyles.
- understanding the determinants of life expectancy and the relationship between natural ageing and development of age-related conditions.

Extending healthy working lives

- creating environments to support health and wellbeing in the workplace.
- understanding the socioeconomic, health and quality of life implications of working at an older age.

Enhancing mobility and independence in an ageing population

- designing physical environments, products and services which facilitate mobility and social participation.
- developing effective interventions to support independent living.

Delivery mechanisms

The delivery plans for LLHW include individual Councils highlight specific ageing-related priorities and initiatives, including partnerships with other funders and stakeholders, as well as joint Research Council activities. As previously, the essential element to delivering the added value of cross-sector collaborations will be a series of jointly funded LLHW calls, supported by a number of cross-council activities that focus on the priorities described above.

Expected outcomes

By the end of the spending period we will have:

- a diverse portfolio of high quality collaborative ageing research which aligns with strategic priority themes
- demonstrable impact and added value of multi-disciplinary research funded through the previous cross-council New Dynamics of Ageing programme and early LLHW joint investments
- enhanced collaborative working across academic fields in the UK and internationally
- facilitated knowledge exchange between researchers, the private, public and third sectors to accelerate translation of research outcomes into policy, practice and services
- increased capacity and skills in multi-disciplinary collaborative ageing-related research through new training and career development opportunities and attracting expertise from outside the ageing related field
- encouraged greater synthesis, analysis and use of existing data, resources and evidence

Expenditure over CSR

The CSR 2010 figures for LLHW are based on the estimated spend in strategic ageing investments and activities by the Research Councils over the 4 year period. These targeted ageing investments within the programme are underpinned by a large portfolio of ageing-related response mode funding by the individual Research Councils. Reporting on strategic spend only will allow LLHW to have greater oversight, coordination and accountability and will enable the programme to bring added value to the wider portfolio of response mode ageing research supported by the Research Councils.

Total estimated expenditure within LLHW over CSR 4 year period*

Council	Total Expenditure
AHRC	£2.4m
BBSRC	£48m
EPSRC	£23m
ESRC	£39.4m
MRC	£83m
Total	£195.8m

*Strategic expenditure in LLHW is underpinned by a large portfolio of ageing-relevant response mode funding.

Annex B: Joint Statement on Boundaries between BBSRC and the MRC

BBSRC and the MRC have clearly different remits which are synergistic and complementary:

- BBSRC funds world-class research to understand how complex living systems function (normally and abnormally) across life-science - in microorganisms, plants and animals, including research to better understand normal function in humans. We are positioned uniquely across bioscience to drive innovation in many sectors such as agriculture, food, biotechnology, energy and pharmaceuticals. Our fundamental bioscience also underpins vital further research and innovation in healthcare and disease prevention, including the development of platform technologies and associated companies that attract inward investment and create wealth.
- MRC supports a wide portfolio of research relevant to human health and disease, ranging from fundamental molecular studies to population and social sciences. We aim to add value by linking the best fundamental science with the best clinical and population science, in multidisciplinary centres and initiatives, and by working across health/disease themes. By working across the spectrum, MRC can ensure that our investment is in the most productive type and stage of research in each area.

Whilst our remits are clear and distinct, there are particular areas at our boundary where we have complementary interests, for example aspects of ageing, food security, neuroscience, immunology and stem cells. The combination of BBSRC and the MRC's strategic perspectives and respective remits serves the UK well and is backed up with good coordination and dialogue to avoid duplication, maximise synergy and ensure effective routes for funding exciting work at our boundary. Coordination mechanisms include:

- Shared top-level planning in areas such as the pharmaceutical sector, stem cells/ regenerative medicine and NC3Rs
- Continued co-planning for major initiatives – e.g. DIAMOND, ELIXIR, and frequent joint consultation on smaller scale initiatives
- Cross-Council initiatives covering areas such as infectious disease (e.g. linking veterinarians and medical researchers to study zoonotic diseases), ageing (LLHW) and diet and health (GFS)
- Mutually agreed administrative rules to aid boundary management in grants and peer review

In developing their CSR2010 Delivery Plans, Research Councils have considered examples of areas in which they may increase or reduce funding. Specific to the BBSRC/ MRC boundary, where areas are of interest to both Councils we will continue to discuss changes together before action is taken to ensure that UK capability in important areas is not adversely affected.

Medical Research Council
2nd Floor, David Phillips Building
Polaris House
North Star Avenue
Swindon
Wiltshire
SN2 1FL
Tel: 01793 416 200

www.mrc.ac.uk

Published November 2010
© Medical Research Council 2010