

Delivery Plan Reporting Framework (formerly Scorecard) 2014/2015

MRC will report on the outputs of activities every six months (in October (Q3) and April (Q1) each year) to the Department for Business Innovation and Skills. The following table sets out milestone reports/data and evaluations that will be used to assess progress against delivery plan areas in the fourth year of this spending review period. Target dates for delivery of this information are indicated. The expected outcomes, as published in the MRC delivery plan¹, are included in the table.

The MRC tracks progress with internal projects using information gathered using an online programme and projects management system (PPMS), reporting by exception to MRC's Management Board. Strategy Board and Council receive summary updates on key projects at each meeting.

Achievements and progress for the third year of the spending review (2013/14) are noted below, these replace the annual delivery plan reports previously published separately.

An indication is given of monitoring and evaluation plans for 2014/15, and these plans will be updated each year. To note that some plans have been modified from 2013/14, and that following the 2012 and 2013 Treasury Autumn statements additional items were added to take into account the amendments to the MRC delivery plan².

Delivery Plan Aims 2011/2012 to 2014/2015	Key outputs reported in 2013/14	Expected outputs/outcomes 2014/15	Expected Outcomes by the end of the CSR
2.1.1. New frontiers in biomedical research			
i) Stratified Medicine			
<ul style="list-style-type: none"> • 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 • 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 	<p>In the Government's life science strategy³ MRC's £130m commitment to stratified medicine was highlighted. The £130m comprises; £60m for new research in stratified medicine, £60m to address some of the most challenging questions about disease mechanisms, and £10m in collaboration with AstraZeneca who are providing proprietary compounds to academic researchers to help develop medicines.</p> <p>Stratified medicine MRC has committed £60m over four years to this area with a new initiative launched in</p>	Evidence of new research in stratified	<ul style="list-style-type: none"> • 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

¹ MRC Delivery Plan 2011/12 – 2014/15 http://www.mrc.ac.uk/consumption/idcplg?IdcService=GET_FILE&dID=30667&dDocName=MRC007642&allowInterrupt=1

² Addendum to MRC Delivery Plan for 2013/14 <http://www.mrc.ac.uk/Utilities/Documentrecord/index.htm?d=MRC009167>

³ Government's new Strategy for UK Life Sciences <http://www.bis.gov.uk/assets/biscore/innovation/docs/s/11-1429-strategy-for-uk-life-sciences>

<ul style="list-style-type: none"> • 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 	<p>2012 to establish disease-focused partnerships to stratify disease for patient benefit⁴.</p> <p>Experimental Medicine Challenge Grants The new Experimental Medicine Challenge Grant scheme was launched in 2012⁵ to support ambitious, challenge-led studies of disease mechanisms in humans. The commitment in this area is set to reach £20m per year.</p> <p>MRC/AstraZeneca: Mechanisms of Disease In 2011/12 MRC and AstraZeneca announced an innovative approach to provide access for UK academic researchers to a high-quality collection of AstraZeneca compounds⁶. By 2014 the first compound from this award winning collaboration entered clinical trials⁷</p>	<p>medicine, and new partnerships reported in 2014/15</p> <p>Outcomes from challenge grants to be reported in 2014/15</p> <p>Further initiatives to support open innovation/proximity to discovery to be announced in 2014/15</p>	<p>to clinical/population data sets</p> <ul style="list-style-type: none"> • 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			
<p>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:</p> <ul style="list-style-type: none"> • 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 	<p>A cross BBSRC, EPSRC, ESRC, MRC and TSB strategy for regenerative medicine was published in May 2012⁸.</p> <p>£25m UK Regenerative medicine platform (UKRMP) funding announced (September 2013). £4.5m from the MRC, BBSRC, and EPSRC to establish a hub for pluripotent stem cell research involving Sheffield,</p>	<p>Summary of outcomes from the regenerative medicine programme to be reported in Q4 2014/15</p>	<ul style="list-style-type: none"> • 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

⁴ Stratified Medicine - Call for proposals for disease-focused partnerships to stratify disease for patient benefit

http://www.mrc.ac.uk/Fundingopportunities/Calls/stratified_medicine/MRC008386

⁵ Experimental Medicine Challenge Grants <http://www.mrc.ac.uk/Fundingopportunities/Grants/EMCG/index.htm>

⁶ MRC/AstraZeneca: Mechanisms of Disease call for proposals <http://www.mrc.ac.uk/Fundingopportunities/Calls/MoD/MRC008389>

⁷ <http://www.labtalk.astrazeneca.com/collaboration/open-innovation-breathes-new-life-into-compound-for-chronic-cough/>

⁸ A Strategy for UK Regenerative Medicine http://www.mrc.ac.uk/consumption/idcplg?IdcService=GET_FILE&dID=35196&dDocName=MRC008534&allowInterrupt=1

<p>availability of cell lines and biomaterials to support translational research in regenerative medicine.</p> <ul style="list-style-type: none"> • 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 	<p>Loughborough and Cambridge Universities. In addition £20m capital funding from the MRC to provide state-of-the-art facilities and equipment to support the work of the UKRMP and the wider regenerative medicine research community via 12 projects. This follows the announcement in April 2013 of an additional £20m investment in regenerative medicine (April 2013)⁹ This first stage of the UKRMP included a total £13m commitment from MRC, BBSRC and EPSRC, plus a £7.5m investment from the British Heart Foundation.</p>		<p>around scaling up and safety of stem cell therapy for clinical practice</p> <ul style="list-style-type: none"> • 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			
<ul style="list-style-type: none"> • support highly collaborative programmes focused on clinical problems • invest in quantitative skills and supporting informatics, complementing BBSRC investment and building on investment 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 	<p>MRC assessed the current portfolio of work in systems biology and initiatives undertaken by other research councils. This has led to a new initiative jointly with the BBSRC, "systems immunology of the human life course"¹⁰</p>	<p>By Q4 2014/15 report examples of new research established as a result of MRC investment in systems medicine.</p>	<ul style="list-style-type: none"> • 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

⁹ <http://www.mrc.ac.uk/Newspublications/News/MRC009073>

¹⁰ <http://www.mrc.ac.uk/Fundingopportunities/Calls/SI/MRC008958>

			and developmental clinical studies <ul style="list-style-type: none"> • faster and more accurate drug target identification and evaluation, increased industry collaboration. • new cross disciplinary collaborations – e.g. in mathematics
2.1.2. Living a long and healthy life			
i) Mental Health and Wellbeing			
<ul style="list-style-type: none"> • 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 <p>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:</p> <ul style="list-style-type: none"> • 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 	<p>Having assessed in detail the challenges to stimulating research in the area of mental health research, the following actions were taken;</p> <ul style="list-style-type: none"> • 13 new exploratory studies in experimental medicine for mental health (EMMH)¹¹ were funded (£3.8m). • a Population and Patient Data Sharing Initiative for Research into Mental Health¹² was launched and 7 awards were made (£1.1m). Cohorts such as ALSPAC featured, but there were also proposals to use administrative datasets held by the Home Office and electronic patient registers established by NIHR. • with funding from the Medical Research Foundation a new flagship fellowship training programme to 	<p>Summary of progress against the priorities set out in the 2010 review of mental health research deferred until 2014/15.</p>	<ul style="list-style-type: none"> • 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

¹¹ Experimental medicine for mental health <http://www.mrc.ac.uk/Fundingopportunities/Calls/Experimentalmedicineformentalhealth/MRC007531>

¹² Population and Patient Data Sharing Initiative for Research into Mental Health <http://www.mrc.ac.uk/Fundingopportunities/Calls/DataSharingInitiative/MRC007964>

<ul style="list-style-type: none"> • 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 	<p>provide innovative training in key areas of mental health research¹³.</p>		<p>to support for vulnerable individuals and families and reducing the economic burden of mental ill health</p>
<p>ii) Addressing the impact of lifestyle and behaviours on the health of the nation</p>			
<p>Obesity MRC will pursue research in the areas in the 2010 MRC obesity research priorities statement:</p> <ul style="list-style-type: none"> • 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. 	<p>The primary route through which the MRC is delivering on its obesity research priorities is via its investment in the new MRC Metabolic Diseases Unit at the Institute of Metabolic Sciences, University of Cambridge. In May 2013 a new £24m MRC/Wellcome Trust joint investment in the IMS/MDU and MRC Human Nutrition Unit in Cambridge was announced¹⁴.</p> <p>Several MRC translational awards are also making significant progress in this area. For example, Professor Sir Stephen Bloom's programme at Imperial College has developed a gut hormone (PYY3-36), shown to inhibit food intake and result in weight loss without behavioural side-effects in animal models, into a therapeutic that is entering early phase trials¹⁵.</p>		<ul style="list-style-type: none"> • new therapeutic interventions (pharmacological and behavioural) for prevention and amelioration of obesity • 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 & treating drug misuse, excessive drinking and obesity
<p>Addiction Building on the National Addiction Research strategy MRC will support research to:</p>	<p>Plans for evaluating early outcomes from the increased investment in addiction research have been deferred until 2014/15.</p>	<p>Progress with the addiction strategy, including information</p>	<ul style="list-style-type: none"> • increased UK research capacity in addiction • new therapeutic

¹³ Medical Research Foundation's mental health clinical research training fellowship programme
<http://www.mrc.ac.uk/Fundingopportunities/Calls/MRFmentalhealthfellowship/index.htm>

¹⁴ <http://www.mrc.ac.uk/Newspublications/News/MRC009171>

¹⁵ <http://www.telegraph.co.uk/science/science-news/10177794/Obesity-drug-could-end-need-for-gastric-bypass-surgery.html>

<ul style="list-style-type: none"> • 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 <p>We will spend over £10m in this area in support of strategic activities and ongoing baseline activities.</p>		<p>about changes in the spend in this area, progress in developing new interventions, interactions with industry and evidence of influencing policy, will be captured in a programme stocktake to be conducted in 2014/15.</p>	<p>interventions (pharmacological and behavioural) for prevention and amelioration of addiction</p> <ul style="list-style-type: none"> • 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 & treating drug misuse, excessive drinking and obesity
iii) Healthy ageing			
<p>MRC will continue to lead the cross-Council Lifelong Health and Wellbeing (LLHW) challenge. We will develop initiatives in neurodegeneration, musculoskeletal ageing and extended working lives. We will:</p> <ul style="list-style-type: none"> • 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 	<p>LLHW programme progress is reported annually, the LLHW programme expert committee (AGE) is discussing the compilation of a series of case studies to illustrate impact and complement the strategy for collaborative ageing research (2010)¹⁶ which set out long term objectives to build multi-disciplinary and cross-sector support for research in this area.</p> <p>The MRC Population Health Sciences Group discussed in 2014 new LLHW projects funded under the “extending working lives call”. It was noted that projects included engagement with a range of non-academic partners and innovative use of the wealth of existing datasets in the UK and internationally. Several projects would link datasets to</p>		<ul style="list-style-type: none"> • new preventive interventions to maintain musculoskeletal health & reducing frailty • evidence to underpin policy on extended working lives • increased research towards new treatments for dementia

¹⁶ <http://www.mrc.ac.uk/Utilities/Documentrecord/index.htm?d=MRC007289>

<p>physical activity and diet, to identify preventive interventions to sustain musculoskeletal health and mitigate disease risk</p> <ul style="list-style-type: none"> • 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 	<p>routine health and administrative records. This initiative was cited as a good model for facilitating academic stakeholder collaboration. The DWP hosted a workshop for the successful applicants, designed to demonstrate to researchers how policy-makers set their policy priorities and provide insight into their working methods. Following this first meeting, DWP has offered to host regular meetings with LLHW researchers, extending the membership to include BIS and DH. The meetings should provide an important opportunity for the researchers to maximise the translational potential of their projects.</p> <p>The MRC UK Dementia Research Platform (UKDP) launched in 2013 is a new approach to public-private partnership aimed at accelerating progress in this important area. The first industry partner to fund the UKDP is GSK, and the initiative is expected to launch in April 2014. The first project awarded £5m funding is to be led by Professor John Gallacher at the University of Cardiff, with an executive team from seven UK institutes.</p>	<p>Update on MRC's contribution to progress in Dementia research by Q4 2014/15</p>	
2.1.3. Health research is a global issue			
i) International leadership			
<ul style="list-style-type: none"> • 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 (JPND), and contributing to joint programming in ageing, antibiotic 	<p>In August 2013 the EU Joint Programming initiative on Neurodegenerative Diseases (JPND)¹⁷ announced funding of more than €19 million (over £16 million) for five new projects aimed at identifying factors which make might make individuals more or less prone to developing age-related neurodegenerative disease. The MRC contributed £2.7m support for four out of the</p>		<ul style="list-style-type: none"> • increased funding leveraged from international partners to support UK scientists • alignment of international biomedical science policies and funding

¹⁷ www.jpnd.eu

<p>resistance and food for health</p> <ul style="list-style-type: none"> 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 	<p>five projects, and UK researchers are also involved in the fifth study¹⁸.</p>		<p>strategies with UK priorities</p> <ul style="list-style-type: none"> increased inward investment from strategic partnerships in Europe and globally access to international research consortia and infrastructure
<p>ii) Global Health</p>			
<ul style="list-style-type: none"> 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, MRC will support a global approach to research on chronic diseases including hypertension and mental health. 	<p>Summary of progress with global health research published as part of the mid-term review of the MRC Strategic Plan</p>	<p>Reporting of spend and commitment to specific global health schemes by Q4 (2014/15)</p>	<ul style="list-style-type: none"> 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 (e.g. 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

¹⁸ <http://www.mrc.ac.uk/Newspublications/News/MRC009309>

2.1.4. Harnessing the value of population health sciences for the public health agenda			
Maximising the impact of large scale population-based cohorts			
<p>Over the next CSR period the MRC will exploit the rich data resource of large cohorts, such as the UK Biobank, 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.</p> <p>Genotyping of participants in UK Biobank will pump-prime a longer-term strategy for genomic analysis of this cohort, and align strategically with the recent Government investment of £100m to start sequencing 100,000 whole genomes from NHS patients for research and clinical care.</p> <p>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.</p>	<p>During 2012/13 the MRC committed £23.6m to support three major new enhancements to UK Biobank, in partnership with other funders. All 3 of these activities will significantly enrich the information about participants in the UK Biobank, which in turn will increase the ability of researchers using the data to decipher how genes, lifestyle and environment interact to cause disease. Taken together, this detailed information will provide a unique and insightful data resource for scientists.</p>	<p>Update on Biobank progress and utilisation in Q2 2014/15</p>	<ul style="list-style-type: none"> • 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
Increasing economic and societal gain through E-health research			
<p>The MRC, in partnership with Government and charity funders, will invest in:</p> <ul style="list-style-type: none"> • 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 	<p>The new Farr Institute for Health Informatics Research was announced in July 2013¹⁹ with the addition of £20m of capital funding across four existing e-health centres. The existing centres were set in 2012 up under a £19m partnership across ten funders including research councils, UK health departments and major medical research charities. In May 2013 the MRC convened a conference to discuss strengthening the UK's capability in health informatics research²⁰, to launch the e-health centres and build on its strategy in</p>	<p>Summary of achievements in Health Informatics research by Q4 (2014/15)</p>	<ul style="list-style-type: none"> • significant contributions to medical informatics, leading to improvements in the utilisation of medical data

¹⁹ <http://www.mrc.ac.uk/Newspublications/News/MRC009207>

²⁰ <http://www.mrc.ac.uk/consumption/groups/public/documents/content/mrc009395.pdf>

	<p>this area to secure the UK as a world-leader in health informatics research²¹. It was announced in February 2014 that the MRC had made an investment of £32m, to improve capability, capacity and capital infrastructure in medical bioinformatics. The five strategic awards took the total invested in this area by the MRC to £90 million to tackle 'big data' challenges for the advancement of medical research.</p>		
Public health infections research			
<p>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.</p>	<p>The MRC will lead a cross-funder initiative to support new research in this important area. The work will involve the integration of novel chemistry with biology and extensive collaboration across research councils, industry and other UK and international funders to address this important interdisciplinary research challenge</p>	<p>Update on actions taken to capitalise on opportunities in translational bacteriology and outcomes from existing portfolio by Q4 2014/15.</p> <p>Update on strengthening of capability for Flu research via the Francis Crick Institute by Q4 2014/15</p>	<ul style="list-style-type: none"> Significant contributions to preparedness for new disease outbreaks and monitoring and treatment of existing infectious disease.
2.2. National Capability			
2.2.1. Enhancing national capability in imaging/microscopy			
<p>Enhance the UK's ability to capitalise on the latest and emerging technologies to address important questions in biomedicine,</p>	<p>In a partnership initiative with BBSRC and EPSRC, the MRC invested £25.5m in 17 next generation optical imaging platforms to enhance the UK's ability to capitalise on the latest and emerging technologies to address important questions in biomedicine, and establish it at the global forefront of innovation in technology, chemistry and software, including through partnership with the technology industry.</p>		<p>Research infrastructure for the delivery of highest quality biomedical research is developed</p>

²¹ <http://www.mrc.ac.uk/Ourresearch/ResearchInitiatives/E-HealthInformaticsResearch/index.htm>

2.2.2. MRC Institutes and Units			and sustained, driving inter-disciplinarity and engaging with partners in Government, industry and the charity sector
<p>Continue to develop the The Francis Crick Institute as a key element of our strategy to increase the impact of basic science on health now and for decades to come.</p> <p>The new Laboratory of Molecular Biology building will be complete in 2012, providing modern infrastructure to maintain LMB's leading role in supporting innovation and translation of fundamental research discoveries into new technologies</p>	<p>For the construction of the Francis Crick Institute and transition from MRC NIMR to the new Institute see 4.2.2. i)</p> <p>MRC LMB moved into their new building at the start of 2013. See 4.2.2.ii)</p>		
2.2.3. UK Biobank			
<p>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</p>	<p>For UK Biobank see 2.1.4.</p> <p>In March 2014 the MRC published the first review of the UK's largest cohort studies. The Strategic Review of the Largest UK Population Cohort Studies²², which looks at cohorts funded by the MRC and other funders. The review found that more than 2.2 million people (3.5 per cent of the population or one in 30) are a participant in a cohort study. A commentary in <i>The Lancet</i>²³ highlighted the MRC's 50-year history of supporting population cohort studies including the world's longest continuously running birth cohort (the 1946 Birth Cohort), UK Biobank's tracking of half a million participants, and the largest longitudinal study of women's health (the Million Women Study). Close to £30m per annum is spent on the 34 largest UK population cohort studies. More than half of these participants have been followed for more than 20 years.</p>		

²² http://www.mrc.ac.uk/consumption/idcplg?IdcService=GET_FILE&dID=41205&dDocName=MRC009764&allowInterrupt=1

²³ [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(14\)60412-8/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)60412-8/fulltext)

2.2.4. Clinical Infrastructure			
<p>Development of the 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</p>	<p>New MRC Clinical Research Infrastructure initiative launched (January 2014)²⁴. This £150m initiative will catalyse scientific innovation in clinical research in the UK, enhance translational capability and partnerships with industry and add value to existing strategic clinical research infrastructures. At least £50m of additional funding is sought from potential partners in the public, charity and private sectors to add value to all aspects of this work. Funding decisions will be reached in July 2014 for implementation in 2015/16.</p> <p>For experimental medicine challenge grants see 2.1.1.</p> <p>In April 2011 the MRC established an innovative partnership with three London Universities (Imperial College, Kings College and UCL). The independent company which resulted (Imanova²⁵) now owns and manages the Clinical Imaging Centre (CIC) located at Imperial College London's Hammersmith Hospital campus. The CIC will be operated as a leading centre for imaging research and training and currently employs 50 staff.</p>	<p>Update on activities planned for 2015/16 and funding leveraged.</p> <p>Report outcomes arising as the result of establishing Imanova by Q3 2014/15</p>	
2.3. Cross Council Themes			
2.3.1. Lifelong Health and Wellbeing			
LLHW is core to MRC's strategy in ageing research. See			

²⁴ <http://www.mrc.ac.uk/Fundingopportunities/Calls/EnhancingUKsClinicalResearchCapabilitiesandTechnologiescallforExpressionsofinterest/MRC009535>

²⁵ Imanova Limited - a centre of excellence in imaging sciences <http://www.imanova.co.uk/company/>

section 2.1.2.			
2.4. Other Government research and development initiatives			
2.4.1. Translational Medicine			
<p>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. MRC will:</p> <ul style="list-style-type: none"> • 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 • 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) 	<p>MRC's translational research initiatives are creating a large increase in the opportunities for developing new treatments and devices, which is key to growth for the UK life sciences industry. Data from the Researchfish system has highlighted 600 projects developing new products and interventions out of MRC research, including around 100 that have reached the market since 2006.</p> <p>MRC has worked closely with TSB to deliver the Biomedical Catalyst programme, an integrated scheme providing grant support to UK academics and SMEs developing innovative solutions to healthcare challenges both individually and in collaboration. As of January 2014, 186 projects, over 60% led by SMEs, have received grant funding totalling nearly £150m. This funding has been matched by nearly £80 of private finance and enabled companies to raise over £50m of further private investment.</p> <p>The MRC has led a review of molecular pathology, presented to OSCHR in February 2013. The review has drawn on primary and secondary publications, discussions with domain experts and a workshop held in November 2013 to provide a vision for how medical science will lead to new approaches to molecular pathology (including the use of biomarkers for stratified medicine) over the next 10 to 20 years.</p> <p>For experimental medicine challenge grants see 2.1.1.</p> <p>For regenerative medicine see 2.1.1. ii)</p>	<p>Evaluation of new mechanisms for support starting with DPFS in Q2 2014/15 and then methodology in Q3 2014/15</p> <p>Analysis of EME pipeline to examine the strategic positioning of this portfolio, and maximise impact to be carried out in Q2 2014/15.</p> <p>Update on progress with the Biomedical Catalyst fund by Q4 (2014/15)</p>	<ul style="list-style-type: none"> • 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 & 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

2.5. Safeguarding the skill base for UK biomedicine			
PhD studentship provision			
<p>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 sustain our recent increase in support for CASE PhD students at 35 pa. 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</p> <p>Research masters MRC does not fund taught masters, but supports <i>research</i> 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.</p> <p>Fellowships We plan to increase the number of early and intermediate career fellowships. We shall align the new fellowships with Strategic Plan priorities – for example, to develop the following capabilities:</p> <ul style="list-style-type: none"> • 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 	<p>MRC reform of Doctoral Training Grants completed²⁶.</p> <p>Information on the numbers of CASE studentships supported, analysis of other aspects of private sector involvement, and overall analysis of available next destination data included in the 2012 MRC Researchfish report²⁷ and Economic Impact Report²⁸.</p>	<p>Changes in reported skill shortages will be evaluated toward the end of the spending review period, in order that reforms to training provision feed through to delivering skilled people in key areas (2014/15).</p>	<ul style="list-style-type: none"> • 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 & experimental skills to industry, academia & healthcare

²⁶MRC Doctoral Training Grant competition <http://www.mrc.ac.uk/Fundingopportunities/Studentships/DTG/index.htm>

²⁷ <http://www.mrc.ac.uk/Achievementsimpact/Researchfish2012/index.htm>

²⁸ MRC 2012/13 Economic Impact Report <http://www.mrc.ac.uk/Utilities/Documentrecord/index.htm?d=MRC009754>

<p>a range of complex data sources</p> <ul style="list-style-type: none"> • 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 <p>Senior Fellowships We will sustain investment in Senior Fellowships at the current level.</p> <p>Research Careers and Diversity 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.</p> <p>Clinical Research Training MRC will rebalance the investment in clinical research training, increasing the number of intermediate Clinician Scientist Fellowships.</p>			
3.0. Economic Impact			
<p>3.2. Implementing the vision MRC actions include:</p> <ul style="list-style-type: none"> • Targeting investment in areas expected to have greatest societal impact and where UK research strengths can be leveraged (e.g. addiction, mental health and dementia) see 2.1.2 above • Sustain translational research (e.g. by building on the success of DPFS and DCS) see 2.4.1. above • Raise the profile and impact of public health research. See 2.1.4. above. • Meeting industry needs and building enduring links with industry and TSB. See 2.4.1. above. <p>3.3. Measuring and disseminating the impact of MRC research</p>	<p>The fifth annual MRC output data gathering exercise was completed in December 2013, using the federated Researchfish system. Compliance was maintained at 98%, and the additional information has continued to add to our understanding of progress, productivity and quality of MRC research.</p> <p>Researchfish data has been used routinely to support strategic discussions with Universities, highlighting strengths and opportunities.</p> <p>By the end of 2013 80 organisations were using Researchfish to track progress, productivity and quality of the research they</p>	<p>By 2014/15 the MRC Researchfish dataset will encompass almost ten years of progress from MRC research, and we will have leveraged benefit from this evidence base across all areas of MRC strategy development and decision making.</p>	<p>Evidence of the progress, productivity and quality of MRC research. In particular quantitative and qualitative evidence of progress with the MRC strategic plan.</p> <p>MRC will use this evidence, plus feedback from the users and beneficiaries of research,</p>

	<p>fund. The total annual research investment tracked reached £3bn.</p> <p>Work was also completed to harmonise the data model used across all seven research councils²⁹.</p> <p>Four studies have been funded under the MRC economic impact highlight notice and further studies will be supported in 2014/15³⁰.</p> <p>Analysis of UK health research portfolios (in partnership with Wellcome Trust, NIHR, ARUK, CRUK, BHF, AMRC) completed³¹. A further analysis is planned for 2014/15, for publication in 2015/16.</p>	<p>Update progress with studies funded under the economic impact highlight notice 2014/15</p> <p>Publish further analysis of health research funding 2015/16</p>	<p>to ensure that assumptions about what leads to impact can be tested, and that there is a sound evidence base upon which to develop future strategy.</p> <p>The MRC will work with NIHR, the devolved administrations, major medical research charities, the major research intensive Universities, HEFCE and other research councils to analyse the impact of medical research on the economy and society.</p>
4.0. Delivery Analysis			
4.2.1. Managing expenditure – resource	Council and Management Board will review expenditure during the course of the year to ensure that this remains within budget	MRC will manage its expenditure as set out in its delivery plan, and report performance against budget regularly to BIS	MRC will ensure that funding is deployed to areas of work that support the delivery plan objectives.
4.2.2. Capital projects and programmes The Francis Crick Institute	Construction work on the Crick Institute will be on-going throughout whole period.	Transition planning and implementation at advanced stages by the end of the period.	New building in commissioning phase for hand over in Summer 2015.

²⁹ <http://www.rcuk.ac.uk/research/researchoutcomes/>

³⁰ <http://www.mrc.ac.uk/Fundingopportunities/Highlightnotices/MRCEconomicImpact/MRC009122>

³¹ <http://www.ukcrc.org/index.aspx?o=3645>

New LMB	The new MRC LMB building was formally opened by HM the Queen on 23/5/13 ³² . The event was a highlight of MRC's centenary programme. Apart from positive and widespread media coverage, and a surge in social media interest, the event helped strengthen links between the Institute and Cambridge University, the local NHS Trust, key academic and private sector stakeholders in the Cambridge Biomedical Cluster, and local schools.		New building fully occupied and functioning.
4.2.3. Managing new MRC commitments	Strategy Board and Management Board undertake stock-takes of commitment progress during the course of the year to ensure the commitment programme stays on course.	MRC will manage new commitments as set out in its delivery plan. Progress toward achieving these commitments will be outlined in MRC's financial reports.	MRC will ensure that funding is deployed to areas of work that support the delivery plan objectives.
4.3. Efficiency <ul style="list-style-type: none"> • Commitment to the Wakeham Agenda • Maximising funding value • MRC operational efficiency 	<p>Research councils have identified and implemented efficiency savings through the RCUK Efficiency Programme 2011-15.³³ Recognising the continued need for efficiencies, this programme is being extended into the 15/16 SR period, building on projected savings of over £400M. Based on draft projections, extending Wakeham savings into 2015/16 will generate additional efficiencies of over £100M over the subsequent years.</p> <p>MRC's programme of Unit transfers to Universities has reduced the scale of MRC operations realising administrative savings.</p>	MRC will report regularly to BIS, via RCUK, on efficiency savings realised.	Enhance and encourage the optimal use of resources provided through full economic costing in Universities and MRC Units and Institutes.
4.4. University Units	MRC has sought substantial added value for	Update on progress	Strengthen the

³² <http://www.mrc.ac.uk/Newspublications/News/MRC009168>

³³ <http://www.rcuk.ac.uk/Publications/policy/Pages/Efficiency2011.aspx>

	<p>the benefit of front-line science by striking stronger partnerships with Universities. The MRC's University Unit programme has transferred 14 MRC Units to University ownership with a total annual research expenditure of £65 million. 970 high quality research staff have transferred to University employment.</p>	<p>with the programme of University Unit transfers in Q4 2014/15.</p>	<p>support for long-term programmes of research by closer integration with Universities. Realise benefits including maintaining/enhancing high quality research, open up new scientific opportunities, strengthen integration with University research activities, returning efficiency savings to front-line science, and enhance MRC branding within the University.</p>
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