



Building the Ideal Environment for Medical Research

Cancer Research UK's analysis of the components required to
conduct world-class research across the UK

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Executive Summary

In the autumn 2010 Spending Review the UK Government announced its plans for reducing public expenditure to help cut the fiscal deficit. The Government recognised the large and positive contribution of scientific research to the UK economy; the £4.6bn science budget was frozen for the review period.

The UK offers a high quality, internationally-respected, scientific research base that relies on support from a mixture of public, for-profit and charitable funders. The UK is unique compared to the rest of Europe in the contribution of its medical research charities, with them funding over £1bn of research annually. A key strength of this environment is the existence of the critical mass necessary to enable research to be conducted efficiently and successfully.

Following the Spending Review science budget commitment and the emphasis in the Plan for Growth for the life sciences to be a driver of growth, Cancer Research UK wanted to consider the different elements that should be brought together in an ideal medical research environment. We wanted to add to the existing evidence base that has outlined the value of medical research and the interdependencies between research funders, by considering the current UK medical research environment, and identifying the different mechanisms that are required to support researchers and the wider UK science base.

The external policy environment has significant influence on the strength of research. This is particularly relevant in an extremely challenging public funding climate. This report outlines mechanisms for UK governments to demonstrate clear commitments to medical research, and enhance the environment in which it is conducted, enabling us to maximise our potential to deliver economic growth as well as ultimately leading to improvements in the health of the nation.

The report draws upon the experience of thirty Cancer Research UK experts, including our researchers and in-house professionals with expertise in research funding and strategy, with whom we conducted in-depth interviews. We considered how the following elements are needed to build a thriving medical research environment: **funding; infrastructure; collaboration; investing in people; regulation and governance.**

The Government recently announced its plans for a research and innovation strategy. Development of the strategy provides an important opportunity for the Government to outline how it plans to develop a supportive environment for medical research for the long-term. It should recognise the value of the range of medical research funders in the UK – charitable, public and private - and seek to encourage innovation via supportive infrastructure, a proportionate regulatory regime, and ensuring we continue to attract the very best people into medical research.

Cancer Research UK would like to see the Government's vision for medical research, and the leadership role they will take to deliver their vision, outlined in the strategy. It should provide a framework outlining how the different elements in the research environment will be strengthened over the coming years, addressing our following recommendations:

- UK governments should maintain the diversity of funding streams including funding to Research Councils, Funding Councils and National Institute of Health Research funding. They should also continue to demonstrate long-term commitment to supportive funding (such as the charitable support element of QR funding) that enables charities to fund world class research in universities and the NHS.
- UK governments should better advertise opportunities for accessing EU funding, encouraging researchers to engage with all available funding mechanisms.
- UK governments should set a strategic vision for the different funding streams designed to support infrastructure, to reassure researchers and investors of their long-term support.
- UK governments should develop an infrastructure strategy to enable access to, and sharing of, research data.
- Funding bodies and research institutions from across the private, public and charity sectors should share best practice on collaborative working.
- Assessment of the quality of research must be accommodating of multi-disciplinary projects. The Research Excellence Framework panels should include appropriate expertise to faithfully assess the quality of collaborative research.
- The Department for Business, Innovation and Skills in England will need to monitor the impact of reforms to university funding to the uptake of STEM courses to ensure that the supply of future scientists is not unduly disrupted.
- UK governments should ensure that immigration policy is supportive of UK science and enables recruitment of the brightest and best scientists from all over the world.
- We urge the UK Government to take forward its announcement to create a health research authority in 2011, outlining a vision for the regulatory functions of the body, and to further develop proposals for a national system of research governance.
- The Government should ensure that transposition of the EU Directive on the protection of animals used for scientific purposes maintains the current high standards for animal protection that we have in the UK, whilst ensuring a supportive environment for research.

Research is a complicated process that requires long-term commitment and support. There have been several recent high level commitments to medical research in the UK. We believe the Government should build on these recent announcements in the development of the research and innovation strategy, announced in the Higher Education White Paper. In such a tight financial climate, we hope this strategy will show investors, including charities, industry and international funders, that the UK is not only committed to supporting a stable environment for medical research now, but also that it is committed to enabling the life sciences to be a key driver of economic growth in the future.

Introduction

The UK has a strong and enviable science base. Many of the researchers that are attracted to work in the UK choose to come here because of our outstanding reputation as a hub for cutting-edge research.¹

Medical research benefits from a unique combination of stakeholders that are increasingly working together in this field. The mixture of Government support, charity and industry partners, university research laboratories, and a National Health Service, provides the breadth and diversity that are crucial to tackle many existing health-related challenges, and those of the future.²

Four of the top ten universities in the world are based in the UK,ⁱ and medical research charities such as Cancer Research UK work on a level unparalleled elsewhere.ⁱⁱ

Research is a complex process, relying on the gradual accumulation of data and information over a number of years. For medical research this process can lead to the development of new treatments, and also to better understanding of different factors, both genetic and environmental, that might cause ill health in the first place. Research can provide evidence to direct public policy,³ to highlight inequalities in service provision, and to improve quality of life.ⁱⁱⁱ

It contributes to the financial strength of the nation,^{iv} providing job opportunities, encouraging private investment, and leading to the creation of intellectual property.

Reforms to the NHS and university tuition fees could have significant ramifications for medical research. Changes to the immigration system by the Home Office have reverberated in research laboratories throughout the country, serving to demonstrate how important it is to consider the consequences of decisions being made in one area of government, on the remit of other departments.

Following last year's spending review commitment to freeze the science budget, together with the emphasis in the Plan for Growth for the life sciences sector to be a driver of growth, Cancer Research UK wanted to consider the different elements that should be brought together in an ideal medical research environment. We wanted to add to the existing evidence base that has outlined the value of medical research and the interdependencies between research funders, by considering the current UK medical research environment, and identifying the different mechanisms that are required to support researchers and the wider UK science base.

The report draws upon the experience of 30 Cancer Research UK experts, including our researchers and in-house expertise in research funding and strategy.

¹ In the lead up to the Spending Review, in a letter to the Times, eight Nobel Prize winners stated that the UK's reputation was central to attracting non-EU researchers. <http://sciencecampaign.org.uk/?p=2287>

² The Academy of Medical Sciences raised many of these issues in its submission to the Spending Review, <http://www.acmedsci.ac.uk/p48prid83.html>

³ For example the Tobacco Advisory Group (TAG) is a Cancer Research UK funding and policy-setting committee, focussing on several tobacco policy areas.

Factors contributing to the quality of a research environment

Throughout the UK there are several different types of research environment, supporting different kinds of research. Each environment has associated advantages and disadvantages that are often inherent of the organisation, institution or research goal. It is impossible to select the best bits of each environment to produce a single 'ideal environment for research'.

There are, however, certain underlying aspects, common to each environment, that are vital to research wherever and however it is being conducted. The three central factors that make up each research environment are:

- the **people** conducting the research,
- the idea behind the **project** and the process of carrying this out,
- the **place** where this research is conducted.

Within a research environment there are several specific themes that need to be supported relating to these common features to ensure high quality and productive research, including:

- funding to support excellence,
- infrastructure,
- opportunities for collaboration,
- investment in good people,
- supportive regulation and governance.

Funding

UK governments should maintain the diversity of funding streams including funding to Research Councils, Funding Councils and National Institute of Health Research funding. They should also continue to demonstrate long-term commitment to supportive funding (such as the charitable support element of QR funding) that enables charities to fund world class research in universities and the NHS.

UK governments should better advertise opportunities for accessing EU funding, encouraging researchers to engage with all available funding mechanisms.

Medical research requires stable and predictable funding to realise its full potential. On average it takes 17 years to develop an initial idea into a useful product, often as a result of a series of different projects contributing to a related research area.^{iv}

Funding for medical research in the UK comes from the public, private and charitable sectors, and increasingly from international organisations.

This mixture of funding bodies is a credit to the UK's research base, and certainly contributes to the strength and quality of UK science. Each partner within this complex system has a responsibility to drive research, and to ensure that the UK is efficient, productive and remains internationally competitive.

Each funding body, as a result of their specific priorities and motivations, will cover different aspects of research funding, and will contribute to particular stages in project development. These variations will be apparent for example in the types of research that different institutions support, or the intended research output.

Different funders will pick up different costs of a project. While Funding Councils provide core infrastructure support for higher education institutions, for example, charity grants for university researchers cover the direct costs of research, but not the indirect costs, such as heating and rent for the laboratory.

Government funding for research

Public funding and support is instrumental for the continued strength of UK science. It provides a framework in which all other funders can operate, both by funding specific institutions and through policies and regulations that shape the funding environment for other investors.

Public funding enables an assortment of different tools that help to incentivise and support UK research. Some tools, for example investing £100m in 2011-12 in capital development for the commercialisation of research,⁴ are designed to support certain types or stages of research, while others, such as the charity support element of QR funding, or R&D tax credits, are intended to assist particular stakeholders.

The research base is a necessarily complex ecosystem, with sectors, organisations, and disciplines heavily interlinked and interdependent. There have been found to be substantial benefits, both financial and qualitative, from the existence of a diversity of funders for UK medical research.^v

Given that UK science relies on a multiplicity of research funders working in a variety of environments, governments must continue to find ways to implement a full range of tools to incentivise this support.

Universities are at the heart of the UK's science base, housing some of our most renowned research groups, and training the researchers of the future. It must also be recognised that research and teaching are inextricably linked. This link is vital in order to maintain high quality teaching, and to prepare students for future research. Decisions made regarding tuition fees and funding for teaching could profoundly influence university research.

⁴ This commitment, included in the Plan for Growth, looks specifically at providing funds to a number of existing research facilities, including the Babraham Research Campus in Cambridge. Plan for Growth, March 2010.

It is difficult to predict what effect reforms to university funding will have on the uptake of STEM courses. The governments will need to monitor any changes to make sure that the supply of future scientists is not unduly disrupted.

International funding

Increasingly researchers in the UK are looking to other countries for funding, and are winning support from the private, public and charity sectors.

UK research groups have benefited from EU funding through the Framework Programmes, with FP7 (which was initiated in 2007) having been a particularly useful resource.

UK scientists have also benefitted from the Innovative Medicines Initiative (IMI), Europe's largest public-private initiative, which aims to support collaborative research projects, particularly with the pharmaceutical sector.

While many UK researchers have successfully negotiated these European funding mechanisms, several have been deterred by the seemingly complicated application process. More effort is needed within the UK to better advertise opportunities for EU funding, and to develop clear guides for successful application.⁵ UK Governments could do more to encourage researchers to engage with all available funding mechanisms.

Infrastructure

UK governments should set a strategic vision for the different funding streams designed to support infrastructure, to reassure researchers and investors of their long-term support.

UK governments should develop an infrastructure strategy to enable access to, and sharing of, research data.

Infrastructure describes the physical, organisational and technical support needed for a research laboratory to function. Infrastructure support includes the technical staff employed to support the running of large equipment and assistance within the laboratory to carry out non-research specific tasks.⁶ Consideration of how infrastructure is provided and supported is essential to ensure a stable research environment.

⁵ As demonstrated in many of the responses to the consultation, on EU Framework, by the Department for Business, Innovation and Skills. <http://www.bis.gov.uk/Consultations/fp8-call-for-evidence?cat=closedwithresponse>

⁶ Conversations with researchers for the preparation of this report, February 2011.

Researchers recognise that good infrastructure support within their laboratory allows them to be more productive, and therefore more competitive within their research field.⁷ It is central to high quality research.

Sharing facilities

Infrastructure and access to facilities are largely dictated by the availability of funding. In the UK there are several examples of well-resourced institutions that enable researchers to be productive, including the Sanger Institute⁸ in Cambridge, the Centre for Genome Damage and Stability in Sussex,⁹ and Cancer Research UK core-funded institutes, including the London Research Institute.¹⁰ Increasingly there are also examples where resources are being shared between different institutions to meet research needs in an economically-viable way. This can include large pieces of equipment and processes, for example the Sheffield RNAi Screening Facility, which provides a service for RNAi screening experiments, to supply whole genome screens to the wider scientific community at low cost.¹¹

Sharing equipment between different researchers and research groups has advantages and disadvantages depending on the demand for a piece of equipment and the resource available within a particular department. If equipment is highly specialised, required infrequently, or can be used quickly relative to the demand for access, it can be more efficient to share it between different groups.¹² However, if waiting to access equipment needed on a regular basis ultimately dictates the pace at which research is conducted, it is frustrating and time-consuming.

Large facilities with strong central infrastructure provide a prime location for scientific, academic and business collaboration. Scientific hubs provide a focus to attract investment and can stimulate productive collaboration.^{vi}

Given the rapid rate at which science and technology are developing, it is vital that infrastructure support is developed to ensure that UK laboratories are keeping up with

⁷ Conversations with researchers for the preparation of this report, February 2011.

⁸ The Sanger Institute was established using funds provided by the Medical Research Council and the Wellcome Trust. Today, the Institute is funded primarily by the Wellcome Trust, which contributes around 85 per cent of the funding. Individual research projects often receive research grants from third-party funding agencies.

⁹ The Centre is located at the University of Sussex, and is funded by the Joint Infrastructure Fund, the Wolfson Foundation and Sussex University. Much of the research conducted at the Centre is funded by the MRC.

¹⁰ The London Research Institute (LRI) houses 46 research groups based at two locations: Lincoln's Inn Fields laboratories in central London, and Clare Hall laboratories at South Mimms, Hertfordshire. Both laboratories boast state-of-the-art instrumentation and access to first-class core and service facilities.

¹¹ The facility is based at the University of Sheffield, and is funded by the University of Sheffield, Biomedical Sciences Department and the Wellcome Trust. The facility was formed to service the needs of research groups wanting to carry out high-throughput RNAi screens with *Drosophila* cells and to provide RNAi libraries and the specialist equipment and expertise to do such screens.

¹² Conversations with researchers for the preparation of this report, February 2011.

international competitors. This support is by no means guaranteed,¹³ and there is already concern that cuts announced in the Spending Review may limit funding for hardware and facilities and force scientists to share facilities more often,^{vii} eclipsing the point at which sharing stops being efficient and becomes debilitating, to the detriment of research.

Longer-term commitment to the various different funding streams designed to support infrastructure, beyond existing timeframes, will reassure researchers and investors alike that there is Government commitment to ensure the future of UK research.

Data sharing

As science and technology develops, the nature of the facilities required also evolves. Progress in the development of networked resources, as a result of advances in information technology and communication, means that research communities can rely more on centralised facilities for sharing data and results, and this increased focus on pooling data will ultimately lead to improvements in healthcare.¹⁴ This is particularly important where research involves larger scale research efforts, with a number of different contributing groups working in collaboration.^{viii}

In line with the increasing focus on access to data, it is important to consider how the required infrastructure to support this sort of research can be provided.

Collaboration

Funding bodies and research institutions from across the private, public and charity sectors should share best practice on collaborative working.

Assessment of the quality of research must be accommodating of multi-disciplinary projects. The Research Excellence Framework panels should include appropriate expertise to faithfully assess the quality of collaborative research.

Collaborative research can refer to a multidisciplinary team, a cross-sector partnership, or a combination of both. It involves different researchers, groups or organisations, increasingly from different countries and allows skills and resources to be pooled to enable a more efficient and productive approach to research.

¹³ In a letter to Adrian Smith, Director General Science and Research, following the Spending Review announcement, the Royal Society asserted that cuts to infrastructure will be damaging to the UK's research base and expensive to reverse. Lord Rees of Ludlow, November 2010.
<http://royalsociety.org/WorkArea/DownloadAsset.aspx?id=4294974044>

¹⁴ Science funders from across the industrial world recently issued a joint statement about their expectation for researchers funded by them to share data more readily. <http://www.wellcome.ac.uk/About-us/Policy/Spotlight-issues/Data-sharing/Public-health-and-epidemiology/WTDV030690.htm>

Collaboration between researchers

Advances in research rely on specialists from different disciplines contributing to a common problem. Traditionally however, different scientific disciplines have operated in isolated silos, in which the development of an area of research would have occurred as a result of isolated projects being pieced together by individual researchers. A partnership model is not only more efficient but also provides access to expertise and facilities that might not otherwise have been available.^{ix}

While the onus is usually on the individual researcher to engage in collaboration, they will also be influenced by how adept the research environment is at supporting researchers working in partnership.¹⁵

Support for collaboration is required within the host institution – to remove bureaucratic barriers to working in partnership – and by the funding body. To improve collaboration throughout the UK best practice from funding bodies and research institutions, that are doing well to support collaboration, needs to be shared.

To truly embed collaborative research, subsequent assessment of the quality of research, for example during the Research Excellence Framework (REF), must be accommodating of multi-disciplinary projects. Panels should include appropriate expertise to faithfully assess the quality of collaborative research. This will need to be monitored during and after the first REF assessment in 2014.

Collaboration across sectors and between funding bodies

Biomedical academic papers co-published with industry have greater citation impact than purely academic papers. This is not limited to the public and private sectors. Medical research charities are recognised for contributing in-depth knowledge of specific disease areas and providing invaluable links with patients.¹⁶

Finding ways to foster greater opportunities for collaboration between the private, public and charity sectors will have a considerable benefit for UK research.

¹⁵ Conversations with researchers for the preparation of this report, February 2011.

¹⁶ Cancer Research UK engages with patients through a number of different channels, for example clinical trials <http://www.cancerhelp.org.uk/trials/>.

Investing in people

The Department of Business, Innovation and Skills in England will need to monitor the impact of reforms to university funding to the uptake of STEM courses to ensure that the supply of future scientists is not unduly disrupted.

UK governments should ensure that immigration policy is supportive of UK science and enables recruitment of the brightest and best scientists from all over the world.

Excellent people are the foundation for excellent science. Medical research relies on scientists involved in basic, translational and clinical research.

The future of UK research depends upon a continued supply of high quality researchers. The two central elements to this are the need to attract students into science, and, once trained, to encourage them to stay.

Encouraging students to take up science

A strong supply of scientists is underpinned by good education for children and young people.^x The quality of science education at school is therefore incredibly important to the UK's science base.

Unfortunately at the first opportunity to stop studying science, large numbers of students opt out by choosing not to pursue scientific A-Level courses,¹⁷ although the number of students taking science at GCSE and A-level has increased in recent years.^{xi}

An undergraduate degree is essential for a future career in scientific research, preparing students to continue working in science, either in academia or in industry. Proposals for tuition fees to be the major source of university income, and the specific commitment to give students 'a greater role in shaping higher education' in the future,¹⁸ could mean that institutions might consider compromising their preferred course content to attract students, and therefore gain funding,^{xii} at the expense of excellence. This could be detrimental to the quality of UK science and scientists, and will need to therefore be closely monitored to ensure no adverse impact.

¹⁷ The Royal Society recently published a report that found that the current educational system for 16-19 year old students results in only a small proportion of pupils studying science and mathematics subjects at A-Level or equivalent in the UK. The Royal Society, *State of the Nation*, 2007-2011, <http://royalsociety.org/education/policy/state-of-nation/>

¹⁸ Conversations with researchers for the preparation of this report, February 2011.

Encouraging the best scientists to stay in science

At various stages along the science career path, a proportion of high quality scientists leave research to pursue other careers.^{xiii} The skills that researchers are equipped with during their undergraduate and postgraduate degrees are seen as being highly transferable to other sectors, including finance, banking and education.^{xiv}

It is widely recognised that researcher salaries are not as competitive as those for other careers that would require a similar level of training or skill, and this can be seen as a considerable disadvantage at the early stages of a scientific career.^{xv} This is compounded by the fact that competition for jobs and funding is increasingly fierce.^{xvi}

Career development

For scientists who wish to remain in science, career progression can be unstable, and unpredictable.¹⁹ The current career route involves a sharp pyramid structure whereby a large number of PhD students are eventually competing for a much smaller number of Group Leader positions.

In addition the transition from post-doctoral research to running a research group is considerable, and has been described as the most brutal step in career progression.²⁰ The skills that are needed to conduct high quality research in order to gain support for a research career are not necessarily the same skills required to manage other people, to write grant applications or to meet teaching responsibilities.²¹ Support during this development is necessary to facilitate the transition.^{xvii}

Attracting the best scientists to the UK

The UK research base depends not only on the contribution of British scientists, but also on an influx of researchers from other countries, including those from outside the EU.²²

It is widely accepted that scientists will move from laboratory to laboratory, and country to country, to enhance their training and broaden their experience throughout their career.^{xviii} This mobility between different environments and the sharing of expertise and skill contributes to the development and progression of science as a whole.

The Government needs to be mindful that its immigration policy is supportive of UK science and enables recruitment of the brightest and best scientists from all over the world.

¹⁹ Conversations with researchers for the preparation of this report, January 2011.

²⁰ Conversations with researchers for the preparation of this report, February 2011.

²¹ Conversations with researchers for the preparation of this report, February 2011.

²² Patterns of international collaboration for the UK and leading partners (summary report), J. Adams, K. Gurney, S. Marshall, evidence, a report commissioned by the UK Office of Science and Innovation, 2007. <http://image.guardian.co.uk/sys-files/Education/documents/2007/07/13/OSICollaborationSummaryRepo.pdf>

Regulation and governance

We urge the UK Government to take forward its announcement to create a health research authority in 2011, outlining a vision for the regulatory functions of the body, and to further develop proposals for a national system of research governance.

The Government should ensure that transposition of the EU Directive on the protection of animals used for scientific purposes maintains the current high standards for animal protection that we have in the UK, whilst ensuring a supportive environment for research.

The process of medical research to further our understanding of disease and develop interventions requires the involvement of human participants, their tissue and/or data in clinical research. At some stages in the medical research process it is also necessary to use animals in research, either when researchers are studying cells and processes in the context of living organisms, or to fulfil the legal requirement of testing new treatments in animals before they can be trialled in people.

Both clinical research and the use of animals in research require stringent regulation to ensure that biomedical research is safe, ethical and appropriate, and that participants are protected.

The current system for regulation and governance is complex. It is shaped by primary and secondary legislation, local governance arrangements, and the actions and oversight of a wide range of organisations.

Clinical research

The recent review of the process of regulation and governance for UK clinical research, published by the Academy of Medical Sciences (AMS),^{xix} received strong support from across the research community.^{xx,23} The central recommendation was that a new independent agency for health research should be established, to bring together existing regulation and governance processes. The aim of this recommendation, and others within the report, is to streamline the processes required to set up a clinical research study.²⁴ The 2011 Plan for Growth outlined how the Government intends to take forwards some of the recommendations, including setting up a Health Research Authority to streamline regulation and improve the cost effectiveness of clinical trials.^{xxi}

²³ Conversations with researchers for the preparation of this report, February 2011.

²⁴ Prior to the review, an analysis by Cancer Research UK showed that after funding for a study has been agreed, it takes an average of 621 days to recruit the first patient. This is the average time of 25 studies approved by Cancer Research UK's Clinical Trials Awards and Advisory Committee during the period of November 2006 to July 2007.

It remains unclear what regulatory functions will be forming the Health Research Authority, meaning uncertainty amongst the research community. We call on the Government to outline a clear vision for this body, outlining how it will fit with the rest of the regulatory and governance landscape, and consult with stakeholders if necessary. The Department of Health and the Department for Business, Innovation and Skills should continue to work together to support measures to improve clinical research regulation, to ensure a seamless transition to the new system, and to guarantee that it leads to genuine improvement.

Animal Research

A great deal of medical research is carried out without using animals. However, in certain areas, animal research remains essential if we are to understand, prevent and cure disease. This work is not undertaken lightly – animal research is costly and governed by stringent regulations set down by UK law. These laws ensure that research involving animals is only used to obtain information that could not be acquired by other means.

Animal research is governed by stringent regulations set down by UK law. The breeding and supply of animals for use in scientific procedures is regulated in the UK by the Animals (Scientific Procedures) Act 1986. This legislation exists to ensure that experimentation is only permitted when there is no alternative research technique and the expected benefits outweigh any possible adverse effects.

The UK currently possesses the most detailed, effective and workable legislation in the EU. This should be retained during the transposition of Directive 2010/63/EU to avoid a step backwards in consideration of animal health and welfare. It is important that UK legislation continues to provide a supportive environment for research, whilst protecting high standards for animal protection for which the UK should be rightly proud.

Conclusion

Medical research within the UK relies on a complex ecosystem of different research funders, institutions, and stakeholders. A major strength of UK science is the diversity of funding bodies from the private, public and charity sectors. These different partners respond to different influences, priorities and motivations, resulting in high quality medical research at all stages in the research pathway.

The external policy environment has significant influence on the strength of research. This is particularly relevant in an extremely challenging public funding climate and the concomitant focus on economic growth. This report has outlined mechanisms for governments to demonstrate clear commitments to medical research, and enhance the environment in which it is conducted, enabling us to maximise our potential to deliver economic growth as well as ultimately leading to improvements in the health of the nation.

Medical research has the potential to make a considerable contribution to the growth agenda, provided it can be appropriately supported during a time of economic constraint. By carefully considering the other elements, in addition to funding, which influence medical research, as outlined in this report, there is opportunity to ensure that researchers and research funders are empowered to remain productive and to drive advances in healthcare and medicine.

The Government recently announced its plans for a research and innovation strategy.^{xxii} Cancer Research UK wants this to set out the Government's vision for medical research, building on the science budget settlement and existing commitments in the Plan for Growth. It should provide a framework outlining how the different elements in the research environment will be strengthened over the coming years. We would like to see the strategy clearly outline the role of the different Government departments in ensuring a supportive research environment, and how different stakeholders can work in partnership, providing support but also instilling accountability, and defining measureable objectives.

Research is a complicated process that requires long-term commitment and support. The UK Government's should demonstrate to the different stakeholders involved in research that it is committed to providing a strong and productive environment now and in the future.

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About Cancer Research UK

Cancer Research UK is leading the world in finding new ways to prevent, diagnose and treat cancer. We are the largest independent funder of cancer research in Europe. Cancer Research UK's vision is that *Together we will beat cancer*. To achieve this aim, we support high quality medical research as an important way to help tackle this life-threatening disease.

Cancer Research UK's work is entirely funded by the public and in 2010/11 spent £332 million on research. With this funding we aim to provide scientists with the facilities and environment they need to excel. We are also committed to developing the next generation of high calibre researchers, to enable the fight against cancer to continue into the future.

Currently the charity supports over 4,000 doctors, nurses and scientists, to carry out research into the causes, detection, prevention and treatment of over 200 different types of cancer.

This research does not take place in isolation. We work closely with our partners within the sector, including public and private organisations and charities, to meet our research aims.

We would be happy to provide any further information or an expert to discuss these issues further, as required. Please contact the Policy Team at policydevteam@cancer.org.uk or telephone 020 3469 8360.

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