Written evidence to the inquiry into Research and Development funding for science and technology in the UK

August 2013

1. Every year around 300,000 people are diagnosed with cancer in the UK. Every year more than 150,000 people die from cancer. Cancer Research UK is the world’s largest cancer charity and is dedicated to saving lives through research. Together with our partners and supporters, Cancer Research UK’s vision is to bring forward the day when all cancers are cured. We support research into all aspects of cancer through the work of over 4,000 scientists, doctors and nurses. In 2012/13, we spent over £330 million on research in institutes, hospitals and universities across the UK. The charity’s pioneering work has been at the heart of the progress that has already seen survival rates in the UK double in the last forty years. We receive no Government funding for our research.

2. Cancer Research UK funds research into all aspects of cancer from exploratory biology to clinical trials of novel and existing drugs as well as epidemiological studies and prevention research. We support research in a variety of different environments, including university research groups, core funded Institutes and Cancer Research UK Centres. We welcome the National Audits Office (NAO’s) report on the current state of R&D funding as useful for demonstrating the levels of investment into Research and Development (R&D) over the last 18 years. The report supports previous published evidence that a sustained guarantee of future investment in research from Government provides confidence for industry to invest in the UK. This investment particularly in medical research delivers clear and substantial improvements in the health of the UK population.¹ Cancer Research UK recently released a report Working together: the impact of medical research investment on the health and wealth of the nation which demonstrated the impact of Government investment in research.²

Recent Government Spending Reviews

3. Cancer Research UK was supportive of the Government’s decisions in the 2010 and 2013 spending reviews to maintain a flat cash settlement for the £4.6 billion science budget. We also welcomed that the ring fence for the science budget was maintained within the Department of Business, Innovation and Skills to ensure that spending continues to be focused on research.

4. With public finances severely stretched, and other Government departments experiencing real terms cuts, we are pleased that science has been protected and, indeed, will see increases in spending on infrastructure and equipment until 2020.

¹ Department of Business, Innovation and Skills, Leverage from public funding of science and research, March 2013 p.5
² Cancer Research UK, Working together: the impact of medical research investment on the health and wealth of the nation

http://www.cancerresearchuk.org/prod_consump/groups/cr_common/@nre/@pol/documents/generalcontent/cr_109616.pdf
5. Cancer Research UK and others in the sector will continue to make the case to Government why increasing the amount spent on research is beneficial to both patients and the economy. We are jointly funding work which will demonstrate the value of Government investment in medical research and also a project which looks at the interdependencies of research funders in the UK. Both reports will be available by the end of this year. We believe it would be worthwhile for the committee to explore how increasing spend on science in the longer term could yield even greater health and wealth benefit.

**RECOMMENDATION 1: Committee inquiry on science spending**
Government should produce a plan outlining how it will support science in the long-term. This should incorporate spending decisions on all elements of publicly funded research including infrastructure. This will help provide certainty for future funding decisions by both commercial and non-commercial funders. Medical research in particular is a long-term endeavour that requires sustained and stable funding in order for basic research to be translated into technologies that benefit patients. It can take decades for medical research to develop into treatments, much longer than the 4-5 year spending review periods that Government currently adopts. The Committee should investigate the merits of such a plan and advise on possible content and a suitable length.

**RECOMMENDATION 2: Committee inquiry into the distribution of the current science budget**
The academic and charitable sector welcomed the Government’s announcements of a flat cash settlement in the 2013 spending review. How money is allocated within the science ring fence will be of particular interest to the sector, including how the outcome of the research councils’ triennial review affects the settlement. Investigating how to effectively allocate the science budget could be a potentially useful inquiry for the science and technology committee.

**Comments on the NAO report**
The following section contrasts the findings of the NAO report with Cancer Research UK’s experience of funding UK research.

**Diversity of funding**
6. The NAO report demonstrates how Not-for-Profits have contributed to the increased investment in Higher Education Institutions but does not go further into explaining the importance of a diversity of different types of funder and the advantages they bring to R&D taking place in the UK.³

7. Government investment into R&D not only provides its own direct economic returns but more importantly provides the foundation on which charities, industry and other funders invest in research. It is Government funding, through bodies such as the Medical Research Council (MRC), the National Institute for Health Research (NIHR) and the Higher Education Funding Council for England (HEFCE) that ensure that the UK has a world leading medical research sector. It is the UK’s traditional strength in life sciences that makes the UK attractive in the global marketplace.

³ National Audit Office, Research and Development funding for science and technology, p.21
8. In 2011 we commissioned the Office for Health Economics (OHE) to produce a report, *Exploring the interdependencies between Public and Charitable Medical Research*, which provided further evidence on the need for Government investment in research. In the report the OHE concluded that:

“Wholly independent and self-sufficient medical research initiatives are rare. Arguably all research activity depends, to a greater or lesser extent, on other parts of the total medical research “ecology” in the UK, and in many cases, internationally. For example, universities conducting charity-funded projects also receive infrastructure support from the public sector through QR and the CRSF.”

9. The report provides additional evidence on the effects of “Crowding In” and “Crowding Out” and the need for continued funding to support existing infrastructure:

10. “The argument for crowding in is that changes in Government funding flows can affect charities’ funding flows and vice versa. If, for example, Government funding of medical research decreases (increases) and this causes donors to increase (decrease) their own contributions to medical research charities, then Government funding and private donations are substitutes. This effect is identified in the literature as “crowding-out”. If, however, decreases (increases) in Government funding lead to decreases (increases) in private contributions to charities, then the two sources of medical research funding are complements and there is a “crowding-in” effect.”

11. This message from the OHE research was largely mirrored in the Department for Business, Innovation and Skills report *“Leverage from public funding of science and research”* which demonstrated the value of Government investment through attracted additional investment from both commercial and non-commercial sources. The following case study shows the value of investment for commercial, public and non-commercial funders.

**CASE STUDY: STRATIFIED MEDICINE**

12. In partnership with the Government funded Technology Strategy Board, Pfizer and Astra Zeneca, Cancer Research UK is undertaking an ambitious programme to lay the foundations for stratified medicine development and treatment in the UK. Stratified medicine will allow patients to receive targeted treatments.

13. The programme is testing tumour samples from 9,000 patients across six different tumour types to help establish the foundations for a national service that will ensure standardised, high quality, cost-effective genetic testing of tumours is available for people with cancer. Ultimately this has the aim of also helping further research into new targeted therapies. The programme requires collaboration between universities, hospitals and commercial industry to support the infrastructure of collecting tumour samples.

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5 Department of Business, Innovation and Skills, Leverage from public funding of science and research, March 2013 p.5
14. As a direct result of the programme, two pharmaceutical companies, Roche and Bristol-Myers Squibb, are working with Cancer Research UK to set up trials in the UK that draw on this information. Doctors will be able to use the database to see if any of their patients have specific faults in their tumour identified through the stratified medicine programme, which might make them suitable to join the companies’ trials.

RECOMMENDATION 3 Committee inquiry on diversity of funding
The NAO report highlights the importance of the Not-for-Profit sector in the UK research environment. We know that the diversity of funding is a unique element to the UK and brings about significant advantages. The Committee may wish to consider an inquiry into the relationship between Government, industry and Not-for-Profits for the R&D in the UK and whether there are any additional measures that Government could be taking to ensure that collaboration takes place and that Not-for-Profits can invest their money most effectively.

RECOMMENDATION 4: Committee inquiry on higher education R&D spending
The NAO report outlines the real terms decrease in public sector spending in research in Higher Education Institutes. The committee could consider reviewing the impact of Government investment in higher education R&D and look at the possible outcomes for increasing or decreasing investment in these areas, especially the knock on effects for investment by commercial and non-commercial entities.

Regional Spending
15. The NAO report notes that 89% of R&D expenditure takes place in the South East of England. While spending may typically be focused in this location especially due to the concentration of world class universities in Oxford, Cambridge and London, Cancer Research UK can demonstrate that investment outside of this area is vitally important to the overall research output of the UK. Cancer Research UK spent over £91 million outside of the South East last year in research institutions across the UK out of a budget of £330 million. Two of our five institutes are based in Glasgow and Manchester and many of our research centres are located in major cities outside of the South East.

European Framework Funding
16. We receive no Government funding for our research but some researchers we fund may receive funding from other sources, such as EU Framework Programme funding. Cancer Research UK’s five core funded institutes have attracted funding from EU research budgets, currently there is £37.7 million worth of EU grants in these institutes.
17. Research depends on co-operation across scientific communities internationally. With cancer research and treatments becoming increasingly specialised, it is necessary for international

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6 Department of Business, Innovation and Skills, , Leverage from public funding of science and research, March 2013
7 National Audit Office, Research and Development funding for science and technology, p.21
teams to engage in collaborative working to share knowledge and also to identify the number of patients necessary to run clinical studies. EU legislation can promote harmonisation to ease the setting up of multi-state trials, international cooperation and sharing of best practice and knowledge.

18. The EU provides a substantial amount of research funding, as well as supporting cooperation and data sharing. The UK is the primary beneficiary of EU research funding for health which is welcome. While Cancer Research UK does not directly receive EU funding, we acknowledge that such funding supports the wider research environment in the UK.

19. Overall we welcome the analysis of R&D spend by the NAO and believe that the data presented will be useful in highlighting trends in R&D investment into which the House of Commons Science and Technology Committee can investigate further.

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