CANCER VISION 2025:

THE SCIENCE PATHWAY TO EFFECTIVE TREATMENTS AND SERVICES

by Newton’s Apple
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Acknowledgments

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We would like to thank the working group chaired by Dr Monica Darnbrough CBE, which has advised on this first project of Newton’s Apple and also all those who took part in the stakeholder consultation event, which was generously supported by Cancer Research UK, King’s Fund, Pfizer and UCB (see Appendix III for the agenda). We are very grateful to Mia Nybrant, Director of Newton’s Apple, who organised the stakeholder consultation event and supported the working group, as well as helped with the editing of this report assisted by Gillian Pepper, Vivienne Raper and Conor Kennedy. Thanks also to Matt Branch, Caitlin Ferguson and Andrew Leach who assisted at the stakeholder consultation event.

This report has been produced by Newton’s Apple as an organisation, and no views expressed in it should be attributed to any individual or any other organisation.

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Newton's Apple is a science think tank with the objective to bring a greater understanding to society of the vital role that science, technology and engineering contribute to the wealth of the UK and the health of its people. As an inclusive non-partisan organisation, we engage scientists of all age groups and from different fields in the policy process, with the aim to offer robust solutions to some of the challenges we are facing in the 21st century and beyond.

With this project we wanted to explore the science underpinning cancer treatments and services, and identify some actions that need to be taken today to ensure delivery of the best possible treatments and services to all cancer patients in 2025. By then today's research will have been pulled through into new treatments (or discarded), and the approaches being discussed at the moment about delivery of patient centred healthcare will have become embedded in the NHS. The thread which flows through this report is that of science and technology in cancer treatments and services: how to strengthen the research base (trends, funding, collaborations, careers); and how that research can be successfully translated into products and treatments (translational research) delivered effectively to all patients.

In the Foreword, Dr Monica Darnbrough, who chaired the working group advising this project, sets out our vision of cancer treatments and services in 2025 as a wish-list. In the following chapters, we highlight some facts and make some suggestions that we believe can contribute to the realisation of our vision. This report aims to put forward innovative recommendations for concrete actions by government, regulators, funding bodies, industry and other stakeholders (often working together to devise collective approaches), as well as suggesting areas for further investigation and stakeholder consultation. However, cancer is a very complex area and we have only been able to refer to some of the actions needed.

In preparing this report we consulted expert stakeholders by bringing them together to discuss concerns and emerging ideas at a stakeholder consultation event (the agenda and details of principal participants are in Appendix III). We have not been able to include all of the points made in these deliberations, but we believe that we have made a fair choice. The working group has also contributed ideas and offered invaluable advice.

Newton's Apple will seek opportunities to develop the ideas in this report in national debates on research funding, academic-industry collaborations, translational research, NHS delivery of treatments and many other areas in which cancer research and technology forms an integral part, working with researchers, clinicians, patient groups, charities, companies and trade associations, and with regulatory bodies, Government and Parliament. In particular, we hope to engage in the development process of the Cancer Reform Strategy.
Every patient remembers the day when they were diagnosed as having cancer – so do their families. They fear imminent death. But that response is changing as more cancers are successfully treated and an increasing number of patients return to work and live full lives for several decades after their diagnosis.

Much has improved since 1990 - as we describe in Chapter 1. Many partners have played their part in making things better for patients: Government through funding the NHS, through its Cancer Plan and setting up the research network; Research Councils; the cancer research charities; charities which provide information and helplines for patients; charities which provide specialist nursing, hospice and respite care; academic and industry-based research teams; the regulatory bodies – the Medicines and Healthcare Products Regulatory Agency (MHRA) and the National Institute for Health and Clinical Excellence (NICE); and not least the doctors and nurses treating cancer patients. It is important that recent improvements become fully embedded in the UK health system.

Our cancer vision for 2025 is:

**Overall**

- A much better understanding of the causation of cancers. Effective treatments available for everyone for most common cancers - so that many cancers are known to be curable if detected early enough. The successful development of personalised medicine has cut the number of deaths caused by cancer.

**Excellent research moving fast from the lab to the clinic...**

- High priority and substantial funding given to research in all aspects of cancer, including social science research to understand influences on lifestyle choices.

- A world class, flourishing cancer research community in the UK in which people move easily between academia, pharmaceutical companies and cancer charity laboratories.

- Collaboration between academia and industry is commonplace and the sectors have reached effective agreements on issues such as intellectual property rights and created a research environment in which they feed off each other’s expertise and resources.

- A research environment in which discoveries are rapidly moved into clinical trials thanks to translational research, and are introduced quickly and equally across all geographical areas of the NHS.

**...and to the patient**

- The adoption of preventative measures in the general population is wide-spread and so the individual risk of cancer is lower than ever before.

- People with a family history and genetic predisposition to cancers advised, supported and regularly screened, and encouraged to adopt a lifestyle designed to avoid the preconditions likely to cause the cancer.
• Greater knowledge of cancer symptoms in the general population so that more patients are able to take advantage of early investigation and diagnosis, rather than seeking help and advice as late as many of them do now.

• Diagnostic centres in all regions of the country with specialist equipment and trained staff, using the latest proven tests based on biomarkers and imaging.

• ‘Joined-up’ care which treats the whole patient and not just the cancer – providing a smooth transition through all parts of the NHS and bringing in specialist home care services and hospices when needed; and cost effective, efficient commissioning of NHS services and supplies in which scientific and technological expertise is an integral part of the process.
CHAPTER 1: CANCER THEN & NOW

20 years ago cancer had a low profile in UK. It was considered a no-hope area, with very high death rates particularly for lung and breast cancer and poor survival rates compared to other Western European countries. A diagnosis of cancer was virtually a death sentence. The situation was compounded by the inadequate communication between different levels of cancer care.

The Calman-Hine report in 1995 was one of the first to bring all aspects of cancer care together and things have changed considerably for the better in the last 10 years. For example the 2000 NHS Cancer Plan helped to transform cancer services in England and placed cancer firmly on the NHS and the political agenda. It presented a comprehensive national strategy for tackling cancer and linked prevention, diagnosis, treatment, care and research, all backed with the essential investment needed to deliver services in terms of improved staffing, equipment, drugs, treatments and information systems.

Successes of the 2000 NHS Cancer Plan have included:

- Improving speed and equality in access to treatment
- More money being invested in cancer treatments and services
- Designing more co-ordinated and specialised service delivery throughout the country
- Improving smoking cessation services
- Expanding screening services

The consequences of this have been:

- Death rates, adjusted for age, are falling, but total incidence has stayed the same, due in major part to an ageing population
- Survival rates are improving
- Patients report improvements in their care
- The oncology workforce has increased
- Multidisciplinary teams have been created
- Waiting times have been cut
- Legislation has been passed banning smoking in enclosed public places

The National Audit Office (NAO) has quantified the achievements. Death rates from cancer (per 100,000 population, standardised by age) have fallen by 15% between 1971 and 2005 although over this same period deaths from respiratory diseases fell by 42%, reflecting perhaps the greater progress in the discovery of new medicines to control asthma and bronchitis and effective antibiotics.
The 2000 NHS Cancer Plan also made extremely important contributions to cancer research through the creation of the National Cancer Research Institute (NCRI) which has been a great success. It has significantly increased collaboration and co-ordination in cancer research and has brought academic and industrial researchers closer together. It has launched a number of important research programmes in areas such as supportive and palliative care and prevention.

A significant achievement has been the increasing numbers of patients entering clinical trials as a result of the work of the National Cancer Research Network (NCRN). This will be hugely important for improving the health outcomes for cancer patients now and in the future. The 2000 NHS Cancer Plan had a target of doubling the total proportion of cancer patients entering clinical trials within three years. This target was met in 2004 when almost 11% of patients with newly diagnosed cancers participated in trials under the leadership of the NCRN, and investment in UK trials from the major research funders such as Cancer Research UK has increased. The success of the NCRN and NCRI models has been acknowledged and they are now being replicated across clinical research in other disease areas.

Despite recent positive developments cancers are still a major cause of death in the UK. In 2005 there were 512,692 deaths in the UK and about 26% of these deaths could be attributed to malignant disease. Cancers were second only to coronary and circulatory diseases which represented about 36% of deaths, and significantly ahead of the other major cause of death, respiratory diseases (14%). Cancers were the leading cause of death in both men and women between the ages of 45 and 64. The mortality rates in this age group were 229 and 209 per 100,000 for men and women respectively. The total number of new cases of cancer is still increasing by 1.4% per year — mainly as a result of the ageing population and because of screening and earlier diagnosis.

Therefore we believe that more needs to be done to move towards the realisation of our cancer vision 2025. In the remaining chapters we are highlighting some of the issues that we believe need to be addressed.

**STATISTICS**

- More than 1 in 3 people in England and Wales will develop cancer during their lives and more than 25% of the population will die from cancer
- More than 50% of cancers are diagnosed in people aged 70 or over, and 75% in those aged 60 or over.
- The proportion of people aged over 65 is projected to increase from 16% in 2004 to 23% by 2031


CHAPTER 2: TRENDS IN RESEARCH

Research in molecular and cell biology and genetics is providing new insights into the processes within cells and tissues which lead to the genesis and growth of malignant tumours. These new insights are leading to the discovery and development of some highly effective new generation anti-cancer medicines and treatments and to new approaches to tackling tumours (e.g. by targeting the blood supply). Drugs are being designed which can be made active once they reach the site of the tumour thus avoiding effects on other tissues in the body. Research has also led to the development of novel and improved diagnostic biochemical tests for some cancers. Human genomics holds out the promise of detecting predisposition to cancer and other diseases, as well as the prospect of the discovery and development of individually tailored anti-cancer medicines. Early results with vaccines are showing some promising results in the prevention field - for example vaccines against the Human Papilloma Virus (HPV) which should prevent the preconditions for the development of cervical cancer. There have also been major advances in imaging technology which are making screening for early cancers technically feasible, these also improve ability to track patient response and tailor treatments. Advances in ultrasound such as high intensity focussed ultrasound, laser techniques and other radiotherapy techniques are offering new approaches to surgery which will be less invasive.

We expect that by 2025 knowledge of genetic predisposition to particular cancers will be better understood. People with a family history and genetic predisposition to cancer will be identified long before they have any signs of a cancer - they can be given advice and counselling about the risks they face and about lifestyle and other choices which might affect those risks. People who are thought to have a high risk of developing precancerous conditions or cancers will be offered regular screening.

Two research areas which we would like to highlight in this chapter are personalised medicine and preventative measures as they require extensive consultation and collaboration but, if successful, both will have an enormous impact by cutting the occurrence of cancer as well as curing it.

2.1. PERSONALISED MEDICINE

Each individual has his or her own distinctive genetic makeup and this makes some more prone to develop cancers than others under certain environmental conditions. These genetic differences result in slight variations in many aspects of metabolism. This means that while some people will find that a drug works effectively for them (e.g. in reducing pain) others will experience little or no effect from the same drug. Similarly, genetic differences mean some people experience side effects whilst others do not. As our knowledge of the small differences in DNA which lie behind these individual differences increases, it will be possible to design drug treatments for sub-groups of the population - treatments which will work for them but will not work as well for others. Likewise, tumours differ in their genetic profile. An example is that of Herceptin, an anticancer drug targeted towards aggressive breast tumours which have high expression of the ‘her-2 protein’. This drug is not effective in tumours which, despite looking similar, do not have high levels of ‘her-2’.

Thus, for some new drug treatments there will be a need for genetic screening of patients in order to decide which drugs to prescribe for them. On the one hand, this should make prescribing more cost effective.
because drugs will only be given when they are likely to work (and expensive drugs which do not work will not have been wasted). However, from the point of view of the company developing the drug, the economics look rather different. They will have to bear the full cost of developing the drug but sales will be restricted to a defined sub-set of the population – that is a smaller market. It may be appropriate to make changes to the regulatory requirements for drugs which are designed for use with a specified genetic sub-population. Instead of requiring them to be tested on the general population, the drug might be tested only in the genetic population for whom it is specifically designed. This could reduce the size and costs of the trials. However, the smaller patient population available means that recruitment into trials could be slower, making it crucial to have a good system for organising multi-centre trials to access sufficient patients in a timely manner. In designing such trials it may also be necessary to assume that no-one in the general population (i.e. who does not have the specific gene) will be given the drug, although that requires that everyone participating in the trial has been pre-screened. In many (if not close to all!!) cases, we won’t be able to identify the right population until response and biomarker data have been analysed post-clinical trials. So it is also necessary to support trials with the right technology and resources in order to identify these populations by clinical validation.

In order to prepare for the introduction of personalised medicine, society in general needs to understand better the reasons why drugs will work for some people and not for others and to understand the cost-benefit relationships. There will be many difficult questions to address about equality: Can Governments or other healthcare providers afford bespoke medicines for the entire population? Will the patient have to pay? If so, what about the poor, must they make do with older, cheaper and less effective medicines? Inexpensive sequencing technology will be available in the future so a lot of genetic information will be available about an individual which can be communicated to and interpreted by the individual but what will it mean in practice when someone is told they have a 20% increased risk of developing a certain type of cancer?

We note that, during the preparation of this report, MHRA has put out a brief and interesting paper on this subject (March 2007) and Newton’s Apple would like to explore ways in which it can take part in discussions to take this issue forward. It is necessary to ensure that promising novel treatments are not rejected by companies because of the high costs of bringing them to market for a relatively small number of patients. Therefore, we recommend that patient groups, the pharmaceutical industry, other research funders and the regulators discuss together issues relating to the development of personalised medicines and create sustainable frameworks for their successful introduction.

2.2. RESEARCH INTO PREVENTATIVE MEASURES

Most people are now aware, at least in principle, of some of the behaviours that can lead to an increased risk of cancer and other illnesses. Often people know that eating too much, eating certain foods, not taking regular exercise and smoking will have a negative impact on their health. At the same time we know that such behaviours are common and, arguably, some are getting worse. People can show great reluctance to change their lifestyles in response to what is often hard scientific evidence showing that by adopting a healthier lifestyle they are likely to improve the length and quality of their life. There are also many contradictory messages from different sources, which confuse the picture further.
Stimulated by the NCRI in 2004, we applaud the setting up of the Medical Research Council (MRC) National Prevention Research Initiative (NPRI) which covers cancer and other diseases. We welcome the establishment by the MRC of the Centre for Nutritional Epidemiology in Cancer Prevention and Survival (CNC) at the University of Cambridge Department of Public Health and Primary Care. This centre will work with other university and MRC centres, and link with a European initiative, in order to provide scientific evidence to underpin intervention studies and public health advice. **Further such preventative research initiatives are desirable because we need a better evidence-base for prevention measures and also tools to evaluate how effective they are.**

More psychosocial science research is needed into what motivates people to change their lifestyles to prevent disease and into the best ways to deliver health messages effectively. We need to understand which delivery mechanisms work with which groups of people, and to understand more about individuals’ choices about short term pleasures compared with long term effects. There is also a need to devise new economic models to evaluate the costs and longer-term benefits of prevention versus treatment. **We encourage the Economic and Social Research Council (ESRC) and the MRC to continue and expand their programmes for interdisciplinary research which encourage proposals from social scientists, psychologists and clinicians to address issues such as those outlined above. Furthermore, a key part of any new Cancer Reform Strategy should be to spread awareness about evidence-based preventative measures and also to explore why some people find it difficult to change and what sort of incentives might help improve the uptake of evidence based advice.**

We note that these Research Councils plan to fund 20 interdisciplinary research studentships in 2007 and we consider that the number should be increased - perhaps with Department of Health funding since the findings would provide insights into ways to influence individuals’ lifestyle choices, and hence avoid some of the conditions which may predispose or lead to cancer. Related work is done by NICE’s Centre for Public Health Excellence and its Public Health Interventions Advisory Committee which considers and interprets evidence on the effectiveness and cost effectiveness of public health interventions. **The next step should be for the Office for Strategic Coordination of Health Research - proposed in the Cooksey Report "A Review of UK health research funding" - to ensure that these public health and social science issues are given high priority in the Government’s health research strategy.**

In order to assess the cost effectiveness of different treatments some measures have come into widespread use. One measure is the "QALY" – quality adjusted life year: This measure is an attempt to take into account both the quantity and quality of life generated by healthcare interventions by looking at the impact on life expectancy and on the quality of the remaining years. **We recommend that ESRC and NICE should work together to set up imaginative projects to devise new models for assessing the economic value of new treatments and of preventative measures to give a broader assessment of the benefits to put alongside current indicators like the "QALY".**
CHAPTER 3: ENSURING A THRIVING CANCER RESEARCH BASE

UK-based cancer research (conducted at universities, Research Council and cancer charity funded labs, and in biotech and pharmaceutical companies) is some of the best in the world. It contributes to the economy by attracting inward investment and bright people, and by reducing morbidity and contributing to long term improvements in patient care. The importance of the UK remaining a world leader in cancer research in 2025 is fundamental: we need to build on our strengths but also to address our weaknesses in this area.

3.1. FUNDING

Charities fund the majority of UK academic cancer research. Cancer charities are more successful at raising money from the public than many other charities and as a result cancer research funding levels are higher than in many other European countries, but we cannot sit back and relax. Although cancer charities take an increasingly large slice of the charitable donation pie, that pie itself is not increasing, and changes in public opinion could reverse this growth. Furthermore, although good research projects stand a better chance of being funded here than in most European countries, there is still not enough money available to fund all the potentially top-level research projects that come forward from the research community. We are concerned that funds may be taken from cancer research and allocated to other disease research but we hope that both the figures for deaths in people under 65, and the expected increase in cancers in the ageing population, will re-enforce the need for it to continue to be a priority.

We encourage the research community and other relevant stakeholders to continue to highlight the facts and figures about cancer to funders and policy-makers to ensure that cancer research remains a funding priority.

The traditional 'brain drain' to the US is beginning to slow down and even, in some areas, to go into reverse. We must ensure that UK universities and institutes continue to attract the best scientists from around the globe in the face of the increasing international competition for research talent, and the increasing costs of carrying out research. Recently, Full Economic Costing (FEC) was introduced in the case of research grants from the Research Councils requiring these funding bodies to contribute to most of the costs of research, including overheads and the salaries of permanent members of staff. This can double the cost of a project to the funder. European Union Framework grant funding currently falls significantly short of providing FEC and charities are exempt from these increased charges. In the case of charities, however, the Government contributes towards FEC through the Charity Research Support Fund. Without this, those research areas relying most on charities for support will lose out and the most obvious of these is cancer research. It is vital that the Charity Research Support Fund is continued, as without this contribution towards meeting the Full Economic Costs of research, charity-funded projects will become non-cost-effective, in fact they may become financial liabilities for institutions and may come to be discouraged by university managers. Furthermore, the shortfall in overhead funding in EU Framework grants needs to be addressed by the Department for Trade and Industry (DTI) Office of Science and Innovation.
Currently, a great deal of basic research is carried out on three year project grants that provide the salary for one or more scientists plus laboratory running costs and a contribution towards overhead costs. Although there are now a number of funding schemes based on five year project, programme or fellowships grants, (as mentioned below) young researchers who are just beginning their research careers feel that there is still too little long-term research funding available. They are discouraged by seeing senior colleagues spending a lot of time applying for short grants. The constant movement of scientists on a ‘three-year cycle’ makes for a lack of continuity that reduces efficiency and, as a result, the postgraduate and post-doctoral scientists, laboratories and the research all suffer. Furthermore, senior academics who are often the Principal Investigators are distracted from their research by the need to be constantly preparing the next grant application in an increasingly competitive funding environment.

We welcome the recognition that many funding organisations have paid to this concern. We note that many MRC grants are now for five years and that their grants of two years or less are for proof of principle or pilot work only. Wellcome Trust programme grants are for periods up to five years. Cancer Research UK has a number of fellowship schemes which provide funding for six years and some of these provide funding for a small team including post doctoral researchers, a technician and a student. We applaud the range of awards provided by the Royal Society to enable outstanding young researchers to become established by giving them funding for five years. Cancer Research UK has also recognised the need for some programmes to be given secure funding for a long period – up to 10 years. This enables teams to be put in place and data from patients to be integrated with basic research. The progress of these long-term projects is carefully reviewed and recent experience shows that a number are being discontinued when they are reviewed – so projects are not continuing which have gone stale or are non-productive and funds are made available to support promising new areas. We recommend the implementation of five-year project grants as the normal minimum. Where this is not feasible, we suggest an ‘extension’ option, whereby scientists working on successful or promising projects can apply for a two-year extension during the third year of the grant, which is judged via an abridged review process. This would minimise disruption, enable retention of staff and make the successful completion of projects within one grant term a realistic proposition.

STATISTICS

• From 2004 to 2006, 17% of applications for Medical Research Council grants lasting up to 5 years resulted in an award

Source: Medical Research Council http://www.mrc.ac.uk/ApplyingforaGrant/index.htm

In some areas it is becoming increasingly difficult to obtain funding without some preliminary results, yet these results are impossible to obtain without some core funding which can be employed to explore new ideas, develop new projects and establish new teams. The current competitive system used by Higher Education Funding Council for England (HEFCE) for awarding such core funds to universities together with an inadequate quantum of funding works against this. Furthermore, funding bodies declare ‘themes’ that they are keen to support, which are almost always based on existing ‘success’ stories, known technologies and models following ‘safe’ directions. The system discourages researchers from taking the risk of pursuing new ideas or from opening up new fields. We believe that these and other factors mean...
that too little present-day research is truly innovative – hence our knowledge and capabilities advance incrementally rather than in great leaps. Historically, many great advances have come about from core funded research rather than from projects, programmes or research in seemingly disparate areas. **We encourage funding bodies such as the Research Councils, the Royal Society, the Wellcome Trust and the research charities to ensure that a proportion of funding goes to the kind of ‘off the wall’ projects which may well stand a chance of making a jump in understanding or may radically change the approach to treating cancers. This will encourage truly visionary scientists to advance cancer research.**

### 3.2. ENCOURAGING COLLABORATION

Now is a crucial moment in time for the traditional partnership between UK academia and the pharmaceutical industry. Industry is keen to exploit the opportunities afforded by the excellence of research output from UK universities and medical schools in the new molecular and genetic sciences by funding them to carry out basic research, research into their own products and clinical trials. However, many other countries can get patients into trials more quickly and have lower costs. We have seen growth in clinical trials (to good clinical practice standards) in Hungary and other countries over the last few years. There is increasing competition from overseas universities and hospitals that are prepared to accept lower overhead payments to carry out such work. Academia and the pharmaceutical industry in the UK could combat this situation by playing to their respective strengths in clinical research ranks and by ensuring that the opportunities for mutually beneficial relationships between them are not lost. One way to boost the partnership between academia and industry is the establishment of joint research and clinical centres where members of the two sectors work side by side (see case study as an example).

#### CASE STUDY

An example is the Imaging Centre at Imperial College’s Hammersmith hospital campus in West London to which GlaxoSmithKline (GSK) contributed £28 million of the total £76 million. A 10 year research contract has been signed between GSK and Imperial College for the fundamental science that can be done using this facility alongside its clinical use with patients. This work is also expected to lead to development of improved therapy.

An example that could benefit from partnership is the development and validation of translational research tools (see also section below) including surrogate markers of treatment efficacy. **We encourage the DTI Office of Science and Innovation to provide seedcorn funding to encourage the formation of further large scale collaborations in the UK by helping with the costs of feasibility studies, and working out intellectual and operating frameworks to further such projects in basic research of relevance to cancer.**

There is increasing recognition of the efficiencies and advantages of cooperation in the pre-competitive space and a number of initiatives are now in place to facilitate this process. Of note is the EU Framework Programme’s technology platform called the Innovative Medicines Initiative whose goal is to provide faster access to better medicines for European citizens, by engaging all stakeholders (industry, academia, Small
and Medium Enterprises [SMEs], regulatory authorities, healthcare providers and patient organisations). We encourage the DTI to be proactive in helping UK academic and industry researchers to participate in EU and international programmes.

3.3. OVERCOMING BARRIERS TO COLLABORATION

There are a number of barriers that have to be overcome to improve the success rate and speed at which novel medicines, diagnostics and other forms of patient care are introduced in the pre-competitive space, i.e. the research phase. Removing such barriers is beyond the scope of any one individual group, because of the range of issues such as technical difficulties, availability of resources, intellectual property (IP) issues, the investment and time required and/or the need to access assets that are only available through public/private co-operation. Finding solutions to these issues would impact on everyone’s ability to be more successful, thereby decreasing the risks associated with cancer drug discovery and development. We recommend that the public and private sector tackle barriers to collaboration in the pre-competitive space, e.g. intellectual property rights, using best practice developed in existing successful pioneer projects (see case study as an example).

CASE STUDY

An example of such a project is the effective collaborative consortium formed to study kinases (enzymes which play a role in the growth of healthy and cancer cells) based around research at Dundee University to which six major global pharmaceutical companies and the MRC are providing funding. The complex issues surrounding ownership of intellectual property have been resolved and the project provides access to the work of some 170 scientists and to screening facilities. The legal agreements and IP arrangements from this consortium could serve as models for other such large scale collaborations in pre-competitive research where the partners all gain from the scale of the programme that joint funding makes possible.

3.4. KNOWLEDGE TRANSFER PARTNERSHIPS

The Government has long recognised a need to help discoveries move from the lab into products and services and one of the long running successful ways of doing this has been through the movement of people under the Knowledge Transfer Partnerships (KTP) scheme (previously known as the Teaching Company Scheme). This enables companies to have research undertaken on aspects of real relevance to their business and for a PhD student to spend time working and gaining experience in a company rather than at a university. When a project is undertaken which combines basic scientific research, and research of industrial or market relevance, everyone wins from the collaboration. Many of the researchers move to the company for which they have worked on such a project, but the university-based supervisor retains knowledge of the industrial/market setting for the research and can therefore bring commercial relevance to other projects within the participating university. This scheme particularly helps small companies — such as biotech firms — and has also proved valuable in building long lasting links between large pharmaceutical companies and particular university departments. We support the concepts underlying the Knowledge
Transfer Partnerships and would urge both companies and universities to understand their value and seek to engage with each other through it (see case study as an example).

3.5. CAREER MOVEMENT BETWEEN ACADEMIA AND INDUSTRY

Historically, scientists tend to move only one way – into industry, and in particular pharmaceutical companies, and away from academia. Few flow in the opposite direction. One reason for this is that remuneration has tended to be substantially greater in industry where there is also less pressure to publish papers, to bring in funding through seemingly frequent applications for grants and to submit to the Research Assessment Exercise (RAE). However, there is also a common misperception that anyone who has been away from academia for any length of time would be unable to return to the ‘cutting edge’ of research. Significant ‘cutting edge’ research is, in fact, conducted in industrial laboratories. Harmonising career structures between industry and academia to form a common ‘two-pronged’ career ladder may facilitate movement between the two sectors. Scientists at all levels from industry who worked in a university or research institute laboratory for a time would better understand the therapeutic challenge at the patient level and how new therapies come about or how new imaging modalities evolve, while encouraging the widespread acceptance of ‘sabbaticals’ would allow academics to understand what needs to be done to turn their new discoveries into an effective novel cancer treatment or diagnosis. Universities would derive enormous benefit if more of them encouraged industrial scientists to undertake some teaching roles within their institutions. This would give teaching experience to the industrial scientist whilst at the same time bringing the relevance of research to real life contexts. We encourage the development of methods to fuse academic and industrial career structures into a common ‘two-pronged’ career ladder (see case study as an example).

CASE STUDY

A method to create greater movement between sectors could be through the principles underlying the successful industrial studentship schemes and the Co-operative Award in Science and Engineering (CASE) scheme, which relate to undergraduate and doctoral students respectively, and developing a scheme at the postdoctoral or even lecturer level with funding jointly provided by the charity, public and industrial sectors.
3.6. ACADEMIC CAREERS – SCIENTIST OR MANAGER?

Scientists are trained to design, carry out and interpret experiments. However, when a senior scientist is running a large team, he/she must devote a considerable amount of time to supervising junior researchers, applying for grants, writing papers, promoting their work at conferences, administration, staff management and, in the case of many university appointments, teaching. For clinical researchers there is the additional responsibility for patient care. Hence, paradoxically, the more successful a scientist is in academia, the less time they have to do research i.e. what they are good at. Meanwhile, many scientists do not make the best managers, teachers, writers or administrators, and young scientists are discouraged from staying in the profession by seeing their mentors and role models becoming frustrated paper-pushers. One approach to addressing this problem is to follow the example of industry (and to some extent other countries such as the US) where scientific/technical and managerial roles are divided and the worth of both fully recognised. **We recommend that academia puts in place parallel and equally rewarded careers structures so that a scientist may choose whether to remain at the bench, or to become a group leader and manager facilitating and directing the work of others.**

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**CASE STUDY - A VIEW FROM THE LAB-BENCH**

Too many of our young scientists in the UK are asking why anyone would choose a career in academic cancer research. Their feelings are strong ones. What all students know has recently become official – science undergraduates work harder than arts undergraduates. Next comes the PhD – now moving towards four years instead of the traditional three, to bring the UK into line with the rest of Europe. So a budding scientist is, at the earliest, in their mid-20s before beginning their career. They are then expected to work on three-year contracts with no job security for an indefinite period with little prospect of a tenured position. They feel that to stand a chance of one of the few tenured posts at the next level they need to work abroad for several years. Buying a house and/or starting a family must be delayed until well into their 30s. Even when their own position is secure they must then keep their laboratories rolling usually on a three and very occasionally a five-year cycle of grant applications, facing harsh peer review and possible rejection at every stage. Their bright vision is impeded by having to apply for funding where it exists, rather than for their preferred expert area, skewing their research. And all this for a final salary that is a fraction of what a comparable professional – a GP, lawyer or workers in the financial marketplace - might expect to command.

Anonymous Lecturer

The concerns expressed by career scientists will be addressed in a programme run by Newton’s Apple called Newton’s Heirs (see our website www.newtons-apple.org.uk).
CHAPTER 4: FROM THE LAB TO THE CLINIC TO THE PATIENT – FACILITATING THE FLOW OF SCIENCE

It is essential that the transition from the research phase to an actual product which then is delivered to the patient runs smoothly. This chapter examines a number of aspects of this process, which we believe would contribute to the 2025 vision set out in the Foreword.

4.1. TRANSLATIONAL RESEARCH

We are learning a great deal about what cancer is and something of its causation: the challenge now is to turn this knowledge into strategies that will help cancer patients – this is sometimes called translational research. Ideas which look promising in the laboratory - because they have an effect on tumour cells or interfere with biochemical pathways which are important in a cancer - need to be tested in the laboratory to ascertain their effects on a whole organism and to ensure there are no unacceptable side effects. Sometimes, however, it is difficult to find suitable laboratory models to use as surrogates for a patient with a particular cancer. Novel methods are needed which are capable of predicting whether potential new anticancer medicines or treatment modalities look promising enough to justify being taken forward into costly clinical trials with human patients. Some of these should harness the new knowledge we have of the genetic factors underlying the causation and progression of human cancers. Equally important during this research phase is a need to identify in vivo biochemical changes in the patient which can be monitored as indicators of the response of the tumours, the metabolic fate of the drug and the effectiveness of the new drug.

In the past too little funding has gone into the development of tools needed for translational research such as the identification of appropriate biomarkers and rapid cost effective ways for assaying them. Challenges include the development of affordable, easily accessible, non-invasive imaging (e.g. Magnetic Resonance Imaging [MRI], Positron Emission Tomography [PET], etc) to monitor the tumour site during treatment; development of novel assays using cells, plasma, serum and urine that will help define mechanisms of action; and identify those patients most likely to respond, and then monitor their responses. There are biological processes and parameters which can be measured in patients during translational research, but more research is needed to identify those which are most useful in predicting outcomes and may provide useful tools for more routine use in oncology.

The active ingredient of a potential new drug has to be made into an appropriate formulation for delivery to patients – making sure that the active ingredient is not rendered inactive on its way to, or in the tumour. Once the novel drug is being given in clinical trials to patients many measurements of the drug’s effects and the biochemical and physiological changes that it is bringing about have to be studied. There are many new agents in the pipeline for testing in cancer patients; agents that target specific metabolic pathways that are changed from the normal in cancer, and agents that target the interactions of the malignant cell with host cells within the tumour micro-environment. All these new agents have been developed from world-class pre-clinical research, much of it carried out in the UK, and costing millions of pounds to get to trials in patients with advanced cancer. We recommend that laboratory based research continues during clinical trials so that no information is lost - extensive and innovative monitoring of
patient samples and non-invasive imaging of patients during the clinical trials will give further information on mechanisms of action and enable identification of those patients most likely to benefit, as well as developing means to facilitate collecting and processing of samples and data collected via NCRI informatics initiative.

We applaud the fact that Cancer Research UK have set up a company to pull through discoveries into medicines, vaccines and diagnostics and note the mechanisms that MRC has in place for technology transfer. We therefore welcome the support for more translational research in the Cooksey report and the idea of having a translational medicines funding board. We emphasise the importance of translational work on diagnostics and biomarkers, as well as on other treatments and medicines, and we believe that the UK should have a research culture which encourages the movement of scientific ideas and information (and sometimes of researchers themselves) from the laboratory into the clinic, with increased recognition of the need for facilities and funding for translational research.

4.2. COMBINATION TREATMENTS

A patient who is diagnosed with a cancer has various types of treatment during the course of his or her disease – radiotherapy before or after surgery, drugs or antibodies which target the tumour itself or immunotherapy. The idea of combining several different ways to treat the disease is therefore familiar, albeit that they are mostly used sequentially. It is increasingly likely that greatest benefit from many of the new drugs under development, or which are currently in use, will come when drugs of different classes are combined. When both drugs in a proposed combination are new this may be problematical from the regulatory point of view or where the entities are the property of different companies or organisations. We encourage the development of mechanisms for facilitating collaboration between different biotechnology and pharmaceutical companies whose products may be of maximum benefit when they are used together. The sharing of costs, intellectual property and potential income will require difficult negotiations. Appropriate protocols for speedy and accurate pre-clinical studies of combinations of drugs and other treatments need to be developed. Very importantly, companies, the MHRA and NICE should work together to reach consensus about the design and carrying out of clinical trials of combination treatments to identify safe efficacious combinations which are cost-effective.

4.3. CLINICAL TRIALS

The length of clinical trials for investigational drugs can be drawn out due to slow patient accrual. Increasing the percentage of patients enrolling in oncology clinical trials would facilitate progress and bring benefit more speedily to cancer patients. There is still room for improvement on the 14% of patients currently enrolled in trials. Understanding some of the patient-related factors that determine successful enrolment and how to promote them is at the interface between clinical medicine and psychology. Social science research is needed to study patients’ attitudes and concerns. We would like to see the ESRC encourage proposals for work on aspects of patients’ attitudes and concerns about participating in clinical trials.
We applaud the success that the NCRN has had in increasing the involvement of UK patients in clinical trials relating to cancer and the number of trials done in the UK should increase still further. The desired increase in the number of trials will require continuing attention to simplify and streamline the approval process involving ethical committees and others in participating NHS Trusts (the Government has made progress in improving these aspects in recent years). Further investment is needed in specialist centres for clinical trials, training and for the employment of more research nurses and data monitors in order to ensure that data is of sufficient quality and accuracy. Other factors include a better understanding by clinicians undertaking clinical trials of the vital importance of compliance with trial protocols.

We welcome the UK Clinical Research Collaboration which involves research charities, Research Councils, trade associations, the Academy of Medical Sciences, the Wellcome Trust and others. It aims to address all the key issues facing the UK as it tries to become a location of choice for clinical trials namely:

- An effective infrastructure with specialist facilities
- A well-trained and skilled workforce
- Research incentives within the NHS, regulatory and governance issues
- Coordination of clinical trials funding

We welcome the UK Clinical Research Collaboration and would like to encourage more research campuses to develop around specialist cancer hospitals, including Foundation Hospital Trusts.

4.4. ENABLING NHS PROVISION OF NOVEL MEDICINES AND TREATMENTS

The NHS is in the process of major reform on all fronts and, in places, too many things are being altered simultaneously. We welcome the emphasis in recent policy announcements about creating a patient-led NHS with greater patient choice. If all aspects of health services are to reflect patient choices, a step-change in the way services are commissioned will be needed. Provision of best practice in treatments and all aspects of care should be equal across England and Wales under the basic principles of the NHS. NICE guidelines are designed to assist commissioning groups (see next section) to
make cost effective choices. Many commentators and groups have recommended that NICE guidelines should be made mandatory and that they should be enforceable - we support that approach.

One much discussed aspect of cancer treatment is the slow uptake by the NHS of novel medicines and other treatments compared with the US and some other European countries. We note that the Office of Fair Trading has recently published a report on the mechanism used for pricing medicines in the UK – the Pharmaceutical Price Regulation Scheme (PPRS). We encourage the retention of incentives to keep R&D laboratories of the multinational pharmaceutical companies in the UK to maintain the virtuous circle between academic and industry researchers which helps to keep bioscience research in the UK world class and which plays a part in pulling UK discoveries through to the market place and to the patient.

We can see a need for a more flexible approach as to how the value of new drugs is assessed because in cancer treatment some drugs are first introduced for use in late stage patients for whom they may bring just a few months of reasonable quality life. This means that the benefits for patients appear low compared to the cost of the drug in assessments done by NICE. However, many drugs are subsequently shown to be of benefit to patients with early stage cancers, or even to patients with a pre-cancerous condition - they are then prescribed more widely including early in the disease process and consequently the economic picture changes. We think there is scope to factor incentives into pricing and other policy initiatives to encourage companies to conduct clinical trials in the UK, and that this could have advantages for cancer patients.

The NHS has taken a number of steps over the last three years to encourage innovation and now has an Innovation Director and innovation hubs in the regions of England. However these are all focused on identifying ideas which have been developed inside the NHS with a view to turning them into commercialised products or services which are cost effective for the NHS. We recommend that the NHS innovation hubs and the new NHS National Technology Adoption Agency (just being set up in the North West of England) look outside the NHS for cost-effective novel equipment, diagnostic and analytical services of potential value to both clinicians and patients.

It is very important that continued investment by industry in the cancer field is encouraged through the removal of existing barriers to the introduction of new medicines into mainstream practice and by ensuring fair returns from investment into drug discovery and development. We consider that a further crucial factor is the maintenance of adequate funding for the NCRI and the NCRN by all the funding partners. Adequate funding from both the public and private sectors is essential to ensure a flow of novel entities for the early diagnosis and treatment of cancer into the translational phase and also for the creation of an effective infrastructure for efficient clinical trials within the NHS.

4.5.COMMISSIONING

Historically NHS commissioning has been limited to the procurement of services on the principle of ‘how many, for how little’, with quality seen as an expensive add on, rather than integral to the process. The aims of commissioning should be to:
• Improve health and wellbeing and reduce health inequalities
• Secure access to a comprehensive range of services
• Improve quality, effectiveness and efficiency of services
• Increase choice for patients and ensure better experience of care
• Achieve best value within resources available

The commissioners must be able to understand what it is that they are commissioning. Thus commissioning of cancer services should incorporate expertise in all aspects of cancer care - including the research community developing treatments and new diagnostics. In addition to a good understanding of diagnostic services and treatment modalities, such as those referred to above, cancer network commissioning should develop expertise in the introduction of new drugs and technologies, rarer cancers and specialist treatments. The Commissioning Network Team should also include expertise in public health, service design and improvement, and pharmacy and financial acumen. In practice, this range of expertise might be held by one commissioning network which could provide advice to the others. **We believe that the commissioning of cancer services should incorporate expertise in all aspects of cancer care, including the research community, from prevention and screening through diagnosis and treatment to palliative and supportive care.**

### 4.6. EARLY DETECTION & SCREENING

The development and roll out of screening services is very welcome but there are inequalities as shown in the recent report by the National Audit Office. For example, in the case of cervical cancer screening, women in some areas of the UK are screened every three years whilst in others it is every five years, and the age range of those invited for screening also varies. Decisions about the frequency of screening largely depend on funding rather than clinical need. We have seen with the roll out of the proposed screening programme for bowel cancer how important it is to plan, equip and train staff in order to provide a nationwide service. We note that five hubs have now been set up to provide test kits and prepare endoscopy centres for the work.

There are still too many individual cases in which a tumour is growing but biochemical tests are showing no abnormalities, i.e. false negatives. Sometimes it is only when a patient is given a scan using one of the current types of imaging that the scale of the tumour is identified and it can still come as a surprise to experienced consultants against a set of normal parameters in biochemical tests. Research is needed to develop more accurate predictive diagnostic measurements for both common and rare cancers, and additional biomarkers associated with different cancers need to be identified. **We recommend that the Government’s health research strategy should give emphasis to research and development of diagnostic tests and bio-markers and should link this with roll-out plans for investment in diagnostic tests at appropriate levels within the NHS. We recommend the development of novel diagnostic tests for all cancers (including the 46% which are classified as rarer cancers) be made one of the Cooksey report’s priorities.** This is because it is an area which needs clinic driven direction and proactive management to bring ideas from innovative small biotech companies, academic research groups, charity and Wellcome Trust researchers and others together. The ideal will be...
to develop easy to use, accurate, predictive, cost effective test methods which can be used by GPs, screening centres and by specialist consultants. **In addition, we recommend that the DoH Commercial Directorate consider carrying out pilot studies of some cancer diagnostic centres as part of their work on innovation in the NHS. Ideally companies which provide diagnostic equipment and testing services might be partners so that more expensive equipment might be provided on a trial or rental basis and specialist laboratory testing services might be carried out by private companies.**

In the shorter term sources of information for patients and their families need some improvement. We welcome the Government's ideas for having patient information packs as part of its recent thinking on delivering patient choice. **In order to understand the effectiveness of public awareness campaigns designed to encourage people to go for screening or to present early symptoms, we need to establish baseline figures about people's knowledge of cancers in order to identify the gaps and develop appropriate and effective tools for education.**

**STATISTICS**

- 5-year survival rates for colorectal cancer range from 83% for patients where the disease is limited to the bowel wall to 3% for those with disseminated disease.
- Fewer than 20% of women in the West Midlands diagnosed between 1985 and 1989 with advanced (metastasis) breast cancer survived more than 9 years after diagnosis compared to 80% of women diagnosed with early stage breast cancer.

**Sources:** Bain N.S.C. and others (2002) Striking the right balance in colorectal cancer care—a qualitative study of rural and urban patients Family Practice Vol.19, No. 4, 369-374

**4.7. EVIDENCE-BASED PATIENT INFORMATION**

The written information provided to patients, as well as the face-to-face communication with health professionals, needs improvement. Easy to understand, clearly written literature on cancer treatments and services is produced by some charities. Empowering patients is an idea which is emerging in DoH reports and could be part of the information prescription idea. **We recommend the DoH works with patient groups and charities to produce improved evidence-based written information for the use by patients and that Primary Care Trusts keep a stock of existing information leaflets or at least provide patients with contact details of their providers. These considerations should also be taken into account when creating the new NHS Choices website (see case study below).**

The collection, analysis and publication of good quality clinical outcomes data for cancer cases have the potential to become an extremely important tool. Such data could drive improvements in quality of care,
enable informed patient choice, and help to improve commissioning of cancer services, as well as being a valuable source of data for research. Information on clinical outcomes at individual hospitals and care centres should be collected and made available to the public to enable them to make choices about where they would like to be treated. The information should not only include survival data but might usefully also encompass indicators of patients’ experiences. We do, however, recognise that there is a potential downside to provision of outcomes data – it might create a dual-class system between those who can and cannot use the information (due to financial and other constraints). **Extensive research and consultation with all relevant stakeholders could help to develop an effective framework by which continually to assess the success of hospitals and centres. However, the evaluation process should not add to the administrative burden, or create financial disincentives or create unfair geographical distribution of skills and expertise.**

**CASE STUDY**

The NHS Choices website will cost £15 million and is due to be launched in summer 2007. This website will provide both medical information and information about the quality of hospitals, GPs and care homes. It will include guides to common medical procedures and long-term conditions such as diabetes and asthma, and patients will be able to give feedback on their hospital experience. Trained librarians will be able to assist patients without internet access to access this information, including booking online the time, date and place for an operation.

**4.8. END-OF-LIFE RESEARCH AND CARE**

30 years ago, palliative care research focused on developing treatments to relieve physical discomfort and this type of research continues today. As a consequence, the ‘hard science’ problems of managing symptoms such as pain and nausea have been solved for the vast majority of patients. Increasingly, research is now focusing on public health, ethical, demand management and psychosocial problems such as identifying ‘at risk’ families who may suffer mental health problems following bereavement, and to determine the best interventions in these circumstances. This change in the focus of palliative care research - from physical symptom relief to improving quality-of-life - means that research needs to move from the lab into the hospice, the front line of service provision: psychological, ethical and management research is less amenable to abstraction than developing a new drug. This research is essential to understand whether end-of-life care services are meeting patients’ needs.

NHS funding for this type of research is provided from the research funding budget known as ‘Culyer money’ (after the 1994 Culyer Report) and assessed through a RAE-type process which rewards the publishing of papers. However, small voluntary organisations whose main role is providing palliative care often find that the resources needed to access this funding too expensive. Such resources include securing external membership on research committees, acquiring specialist insurance and developing research proposals. In the absence of NHS funding, palliative care charity research is reliant on private sector funding such as trust funds. Front-line palliative care research carried out in hospices and other
voluntary organisations ‘publish or perish’ and top-down organisation and distribution of funding may not provide the best incentives for excellent research. **We recommend that NHS create a funding environment for hospices and other voluntary organisation to carry out research into front-line palliative care, which takes into account the limited resources that hospices have to access NHS funding.**

Funding for end-of-life care and research is predominantly voluntary - Government funding is both limited and geographically patchy. For example, in 2004, local adult charitable hospices in England received an average of 34% of their funding from Government and, whilst 17% of adult hospices received less than 20% of their expenditure from Government, a further 29% received over 40%. **We recommend that the Department of Health’s End of Life Strategy to be published in November 2007 ensures hospices receive the full costs they incur by providing services to the NHS.** The funds released could both enhance hospice services and promote research and development. In addition, the Department of Health should ensure that hospices and facilities for respite care are both provided and funded consistently across the UK.

**STATISTICS**

- Hospices receive £522 million per annum in voluntary contributions, including £130 million of work done by volunteers.
- Legacies make up 21% of adult hospice income compared to 8% for children’s hospices.
- Just under 50% of children’s hospices receive no government funding. Children’s hospices receive only 3% of their income from Government.

5. CONCLUSIONS

In this report we set out a vision for cancer treatments and services in 2025, with an emphasis on how science and technology can underpin the process by which to achieve it. We have made a number of recommendations and there are a handful of specific areas which we would like to highlight here. These are:

I. **Making the patient pathway a scientific pathway**, ensuring that the entire research community is effectively contributing its knowledge and expertise throughout the whole process from the lab to the bedside, helping pull through discoveries to the market and to the patient. Thus we will have a better understanding of the causation of cancers, how to treat them and how to effectively deliver those treatments to patients. This is the responsibility of the research community themselves as much as it is for the regulators, funding bodies, policy makers, the NHS and others to actively engage with them. We – Newton’s Apple – believe that we have made one small contribution towards this goal through the stakeholder consultation event and the production of this report.

II. Collectively creating a framework for the introduction of [personalised medicine](#) by patient groups, the pharmaceutical industry, the research community and the regulators working together to enable its effective introduction.

III. Urgently addressing the negative aspects of career scientists’ (particularly the young) experiences of [funding environment and the career prospects](#) available to them in cancer research. Newton’s Apple, as a neutral platform, will explore ways in which career scientists can engage with funding bodies, policy makers and others on how to improve this situation through our Newton’s Heirs programme.

IV. Enabling effective [translational research](#) to bring research ideas into clinical trials and into products for patients. To achieve this, we need to see the collaboration between academia and industry further strengthening, as well as ensuring that the pharmaceutical industry continues to invest in and contribute to the UK economy.

V. Developing a focus on [better prevention, early detection and tumour classification, through developing better models and measurements techniques](#) such as: biochemical markers to measure the effects of new drugs on tumours; economic and social studies to better understand how to encourage people to take public health advice on preventative measures; broader economic measures for use by NICE and others to assess the long-term cost-effectiveness of preventative measures and of treatments.

VI. Addressing the [future challenges of funding the most effective novel medicines in the NHS](#) through policy research now into areas such as the NICE process, drug pricing and patient and public expectations.

Newton’s Apple wishes to continue working in this area and will continue to engage with stakeholders, including members of the Cancer Reform Strategy, as well as others, to identify how as a neutral inclusive organisation we can continue to contribute to the debate and identify a science pathway which can underpin it.
APPENDIX I: WHO’S WHO @ NEWTON’S APPLE

Patron: Baroness Kennedy

Board Members (also Founding Members)

Sarah Beyrath  Dr Ian Gibson MP (Honorary President)  Professor John Masters
Aisling Burnand  Dr Ben Goldacre  Dame Bridget Ogilvie
Dr Monica Darnbrook  Branwen Hide  Willie Rennie MP
Professor Michael Elves (Chairman)  Dr Brian Iddon MP  Dr Caroline Wallace

Founding Members

Wendy Barnaby  Dr Emma East  Vivienne Parry
Professor Derek Burke  Richard Foxton  Dr Alun Roberts
Professor S J Bell Burnell  Scott Fleming  Sir Richard Sykes
Professor Ann Dowling  Michael Gove MP  Dr Desmond Turner MP
Sarah Doyle  Dr Frances MacGuire  Lord Winston

Director: Mia Nybrant

APPENDIX II: WORKING GROUP MEMBERS

John Appleby, Chief Economist, King’s Fund

Fran Balkwill, Centre Lead Translational Oncology, Queen Mary, University of London and Director of the Centre of the Cell

Charlotte Bevan, Senior Lecturer and Head of the Androgen Signaling Group in the Department of Oncology, Imperial College

Monica Darnbrough, Member of Board of Directors, Newton’s Apple and formerly Director of Bioscience Unit, Department of Trade and Industry

Catherine Foot, Head of Policy Development, Cancer Research UK

Louise Hendry, Oncology Brand Manager, Pfizer

Omar Najim, Senior House Officer in Otolaryngology and Member of the BMA Junior Doctor Committee

Peter Sasieni, Lead Researcher and Professor of Biostatistics and Cancer Epidemiology, Cancer Research UK, Centre for Epidemiology, Mathematics and Statistics and Queen Mary and Westfield College

Karen Zinkewich-Peotti, Head of Oncology, UCB
Appendix III

A Newton’s Apple Stakeholder Consultation Event
in association with
Cancer Research UK, King’s Fund, Pfizer & UCB

A Future Vision of Cancer Treatments & Services
Actions today for effective delivery in 20 years time
17th January 2007 held at the King’s Fund

AGENDA

8.30 Registration and Coffee

9.00 Opening: Professor Michael Elves, Chair of the Board of Newton’s Apple
  Keynote: Professor Mike Richards, National Cancer Director, ‘A Future Vision of Cancer’

9.20 Dialogues: Niall Dickson, Chief Executive, King’s Fund talks to the following personalities about forward thinking on cancer science and policy:
  • Professor Alex Markham, Chief Executive, Cancer Research UK
  • Dr Charlotte Bevan, Senior Lecturer, Imperial College
  • Ms Joanne Rule, Chief Executive, Cancerbackup
  • Dr Richard Tiner, Medical Director, Association of the British Pharmaceutical Industry

10.15 Breakout Groups:
  1. ‘Keeping Cancer Research in the UK: Funding for Basic and Translational Research’
     Moderator: Dr Jane Cope, Administrative Director, National Cancer Research Institute
  2. ‘How will the balance between prevention and cure evolve over the next 20 years?’
     Moderator: Professor John Appleby, Chief Economist, King’s Fund
  3. ‘How will genetics and personalised medicine develop and what implications are there for patients, regulators and for costs?’
     Moderator: Dr Karen Zinkewich-Peotti, Head of Oncology, UCB
  4. ‘What do we want regulators and Government to change in order to deliver better outcomes for patients?’
     Moderator: Vivienne Parry, Writer and Broadcaster

11.30 Leaders of each breakout group report back main findings, followed by Open Discussion led by Niall Dickson

12.45 – 13.00 Conclusions and Next Steps: ‘How can we take today’s findings forward?’ by Dr Ian Gibson MP, Honorary President, Newton’s Apple and Chair of the All Party Parliamentary Group on Cancer
APPENDIX IV: SELECTED BIBLIOGRAPHY

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Cancer Research UK - www.cancerresearchuk.org

Centre for Nutritional Epidemiology in Cancer Prevention and Survival (CNC) - www.srl.cam.ac.uk/cnc/

Department of Health (DoH), Connecting for Health (CfH) - www.connectingforhealth.nhs.uk

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