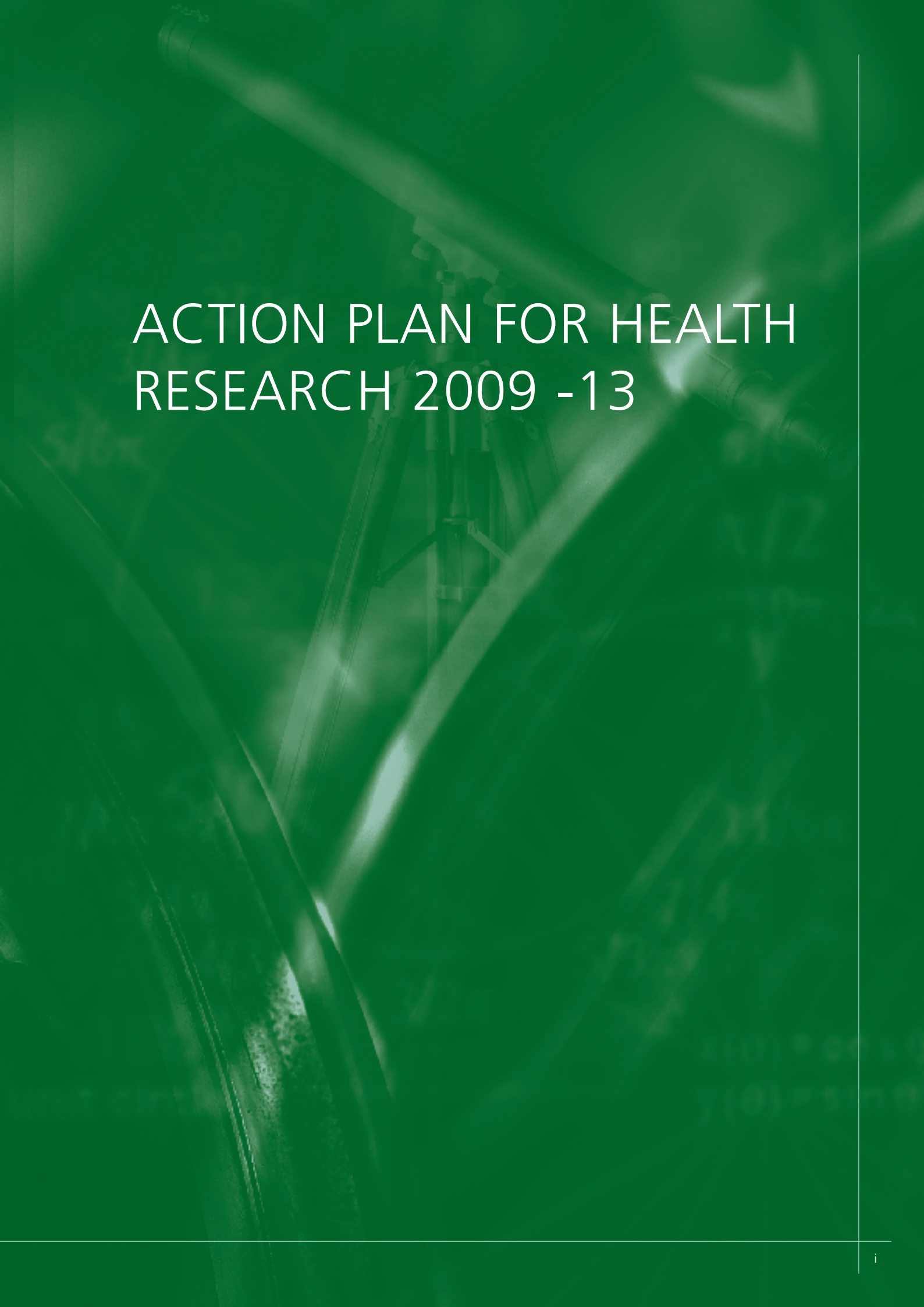

# ACTION PLAN FOR HEALTH RESEARCH 2009 -13

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# FOREWORD

## BY MARY HARNEY TD, MINISTER FOR HEALTH AND CHILDREN

I have always believed in the value of health research. As Minister for Health and Children, I have been acutely aware of the role that health research can and should play in delivering a better healthcare system and in contributing to wider economic gain.

The fundamental principle that underpins all research is that there is a better way, that innovation leads to higher standards of living and well-being. The present economic situation means that we must do everything better, including research. It is a challenge, but one that has advantages and opportunities if we bring inventiveness, focus, drive and ambition to the task.

Health research will provide us with better means to address the challenge to our society of constantly improving health well-being, in areas such as chronic disease management, the ageing of the population, reliance on drugs, lifestyle risk factors and rising costs and the more effective use of resources.

In bringing the latest treatments to patients and supporting evidence-based care, health research can improve our health and the quality of our health services.

Health research also plays a key role in the knowledge economy of our country through its contribution to international competitiveness, R&D investment from the pharmaceutical, biotechnology and medical devices industries, economic growth and hi-tech employment opportunities.

In particular, the Government has made a specific commitment in the Renewed Programme for Government to 'increasing Research and Development in the health sector; making Ireland a leading country for timing, access and relevance of clinical trials; and building on existing research projects, particularly in relation to better health for older people'.

It is especially important that healthcare professionals are actively involved in this health research system as they are, ultimately, the end users of innovative medical technologies. Indeed, their expertise is invaluable to the health research system at all stages of the process from idea generation, technology assessment, new product concept development and through to clinical trials and eventually market uptake and patient treatment. Keeping the healthcare professional at the centre of health research activities will ensure that the patient benefits to the fullest. The Health Service Executive has a critical role to play in supporting the generation and exploitation of knowledge for the purposes of improved population health and health system performance.

It is critical that research is aligned with current and future goals and that is why, in recent years, I have encouraged a significant shift in emphasis in the nature of the health research that is undertaken in Ireland by the Health Research Board as evidenced in the Board's new ***Strategic Business Plan 2010–2014 (The Future of Irish Health Research).***

In an environment that is dynamic and changing, health research in Ireland needs to be positioned to where it can make its greatest contribution for patients, the health system and the economy. The status quo in health research is not sufficient. We must deliver consistently to the best possible standards and demonstrate that the outcomes achieved with limited funds are as good as they can possibly be.

Success will involve the commitment of the Department of Health and Children and the Health Research Board, alongside a whole of government approach supported by all Departments and agencies in the science, technology and innovation areas.

The prize is great and the challenge is not an easy one. Other countries have similar ambitions. However, while there are infrastructural and other issues to be addressed, we also have much to recommend us. This is where the Action Plan is central. It brings structure and integration to what we currently do and what we can do. As a result, it provides a coherent and specific roadmap for positioning Ireland within the top tier of countries in the conduct and application of health research.

# INTRODUCTION
## BY CHAIRMAN, HEALTH RESEARCH GROUP

The Action Plan has been prepared by the broadly-based Health Research Group as per the commitment in **Building Ireland's Smart Economy: A Framework for Sustainable Economic Renewal** (December 2008) that "an Action Plan for Health Research would be developed in order to exploit the opportunities for stronger linkages between our health sciences and related Foreign Direct Investment and indigenous sectors such as medical devices and bio-pharma."

That commitment demonstrates the crucial importance of health research to this country. The major challenge faced by the Group in preparing the Action Plan so as to deliver on the vision was to move from the current position of valuable but fragmented health research activity in Ireland to an integrated and focused health research system. That is the only way to maximise the practical health, social and economic benefits that health research offers.

The Health Research Group was established in 2007 by the Ministers for Health and Children and Enterprise, Trade and Employment under the auspices of the Inter-Departmental Committee for the Strategy for Science, Technology and Innovation. The main purposes of the Group are to ensure that health research in Ireland is co-ordinated, prioritised and focussed and that national policies and strategies for health research are framed strategically in the context of the wider science, technology and innovation agenda. The Group's membership is designed to ensure that all the key statutory stakeholders in health research in Ireland are represented.

Traditionally, the individual statutory bodies involved in health research have had, to a greater or lesser extent, their own individual strategies, programmes and goals. The Action Plan is designed to overcome not just the previous lack of cohesion and to co-ordinate current and future health research efforts but, more importantly, to provide strategic leadership on developing the entire Irish health research system especially in terms of priorities and capacity. This is reflected in the Programme of Actions set out in the Plan.

However, it is not just statutory bodies that are relevant to this process. Health research involves health professionals, the education sector, industry and charitable groups. From the outset, the Group considered it essential in preparing the Action Plan that there should be engagement with stakeholders. Accordingly, a series of meeting were organized with individuals drawn from the various parts of the health research community in Ireland. While the persons involved attended in a personal capacity rather than as formal nominees of any particular sectoral or professional group they represented a cross section of health research interests. On behalf of the Group, I would like to take this opportunity to thank them for their constructive and valuable input.

The Action Plan, which was approved by the Cabinet Committee on Science, Technology and Innovation, now provides the lead on national priorities and resources allocation in health research. It will be judged ultimately by what it delivers. That is reasonable. As we move into the implementation phase, we will continue to work closely with stakeholders to ensure delivery matches the promise.

Jim Breslin,
Assistant Secretary,
Department of Health and Children

PART 1

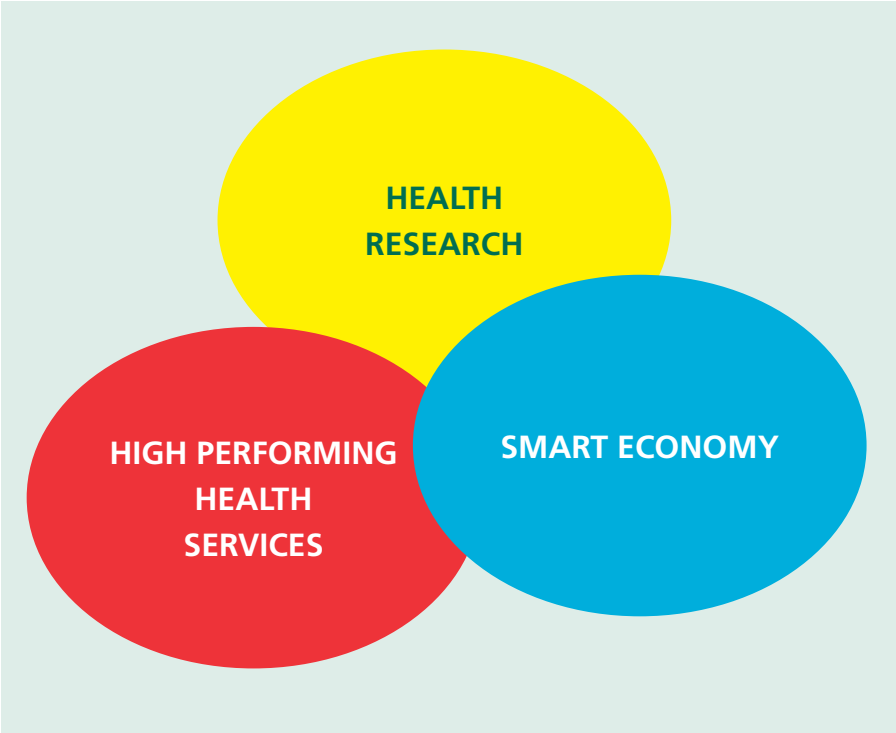
# OVERVIEW OF THE ACTION PLAN

## Health research – examples of real success, improvements in health and economic benefits

Health research in Ireland has brought about real improvements in health, as well as economic benefits. The examples featured in this Action Plan demonstrate some very tangible benefits that have emerged from our investment in health research. In some cases, the outcomes are a direct result of the investment in research. In other cases, that investment has acted as a springboard for additional funding that has resulted in product developments and healthcare improvements that in turn result in a direct benefit to people's health, build Ireland's reputation for research and drive economic benefits.

These examples are also testament to the fact that health research needs to be supported across a spectrum of activity from exploration to application. They also show that funding at one level can be built on and developed to transform a research result into a treatment, product or method of care.

# Part 1: Overview of Action Plan




*Thinking Smart: Seeing the whole picture*

***Quality health services, a vibrant health research system and economic prosperity are inextricably intertwined. The Action Plan has been prepared in full recognition of this integrated perspective.***

## 1.1 Introduction

1.1.1 The purpose of this Overview is to set the scene so as to assist with a fuller understanding of the Action Plan. It begins by outlining the purpose and objectives of the Action Plan. This is followed by the identification of the changes that the Action Plan will bring about over its timeframe. The Overview concludes by elaborating the structure and philosophy of the Action Plan.

## 1.2 Purposes of the Action Plan

1.2.1 The Action Plan has been prepared to prioritise a programme of actions that are essential to creating a health research system which supports outstanding individuals, working in world-class facilities and conducting leading-edge research focused on the needs of patients and the public. Ultimately, a strong health research culture is vital if the health service is to offer the best standards of care to patients across a range of specialities and to provide robust evidence that these standards are being achieved on an ongoing basis.

*The Action Plan is unashamedly task focused. It seeks to build upon previous strategic examinations of the health research environment through the formulation of a prioritised set of actions which tackle the most critical issues.*

1.2.2 The Action Plan builds on the recommendations made in existing strategies and reports –such as the national health research strategy, ***Making Knowledge Work For Health (2001)*** and ***Towards Better Health: Achieving a Step Change in Health Research in Ireland (2006)*** - and, where appropriate, goes beyond them. Continuity is important where existing health research programmes are working well and any unnecessary re-invention is wasteful of scarce resources. At the same time, this Action Plan has provided the opportunity to supersede previously proposed measures that have now been overtaken by time and events. For example, some of the structural recommendations in ***Making Knowledge Work for Health*** relating to new R&D structures have been overtaken by the wider health reform programme, particularly the establishment of the Health Service Executive. The Action Plan has also had careful regard to the research related recommendations in the ***Report of the Commission on Patient Safety and Quality Assurance (2009).*** Most significantly, the Action Plan has been prepared with full regard to the Health Research Board's ***Strategic Business Plan 2010-14.***

*The Action Plan is not a new strategy. Existing health research strategies will be progressed and monitored by means of the Action Plan's implementation processes. Critically, the Action Plan will provide a new focus and dynamism to those strategies and ensure that the key priorities are met.*

1.2.3 Essentially, the purpose of the Action Plan is to ensure that we, as a nation, reap the health, social and economic benefits of our investment in health research. It does this by providing the necessary leadership focus for all those who are involved in health research in Ireland whether as policy-makers, funding agencies, research promoters or actual researchers. Accordingly, the Action Plan is about providing direction, setting targets, monitoring programmes and, most importantly, achieving goals.

## 1.3 Objectives

1.3.1 The specific objectives of the Action Plan are:

(i) to improve the nation's health and wellbeing,
(ii) to enhance the performance of the healthcare system,
(iii) to drive innovation and change by setting the priorities that will make the Irish health research system an internationally recognised centre of research excellence,
(iv) to build the necessary health research capacity to make these priorities realisable,
(v) to focus available resources on these priorities in a co-ordinated manner,
(vi) to translate research activity into tangible health, social and economic returns,
(vii) to increase the country's wealth and prosperity, and
(viii) to provide a mechanism for monitoring and assessing the value of the State's investment in health research.

## Predicting Stroke – 700 patients already treated in innovative research project

A Health Research Board Clinician Scientist, Professor Peter Kelly, is leading a project team at the Mater /UCD Clinical Research Centre that has made a significant impact on the early treatment of stroke patients, improving patient outcomes, and reducing pressure on acute hospital services. The team have set up a same-day, rapid access clinic where they aim to treat people at high risk of a debilitating stroke before it occurs. GPs and A&E consultants send at-risk patients immediately to the FASST (Fast Assessment of Suspected Stroke and TIA) Clinic

The benefits include:

- immediate specialist assessment
- no A&E delays for diagnosis
- no waits for neurology examinations
- freeing up of A&E facilities for other patients

More than 700 patients have been successfully treated to date and feedback from patients, families and GPs is extremely positive. The research project looks at biological and clinical predictors of early stroke such as serum biomarkers and intra-cranial cerebral blood flow using MRI and PET scans.

### 1.4 Deliverables

1.4.1 By 2013, it is intended that the Action Plan will have delivered a high performing health research system that is characterised by:

- A framework for governing and co-ordinating health research at national level and within the health services.
- Agreed national priorities for health research and joint strategies and funding initiatives across agencies to deliver on those priorities.
- A significantly enhanced infrastructure for health research including fully functional and networked clinical research facilities in our main academic teaching hospitals, with a focus on accelerating research advances into benefits for patients and the population.
- Enhanced partnerships between the health system, academia and industry for mutual benefit and to contribute to the 'smart economy' including strategic clusters of academics, healthcare professionals and industry in experimental and translational medicine.
- Increased numbers of clinical trials networks delivering the highest quality outcomes in priority areas.
- Better support for the commercialisation of health research with an increased focus and understanding of intellectual property (IP) issues within the clinical research community.
- A refocusing of the investment in health research towards outcomes and patient-oriented research.
- Increased international funding for health research in Ireland through the European Framework programme and other structures.
- Increased numbers of clinicians and other health professionals engaged in excellent research and innovation.
- An expanded capacity to conduct high quality population science and health services research which can inform the delivery and organisation of health services.
- A streamlined and predictable regulatory environment that addresses bottlenecks and underpins public support for health research.
- Mechanisms to monitor and evaluate the effectiveness and impact of the investment in health research.

## 1.5 Structure of the Action Plan

1.5.1 The Action Plan is structured as follows. This part – **Part 1** – is the overview. **Part 2** looks at the nature and scope of health research and the health research environment in Ireland. **Part 3** provides the background and policy context that informed the preparation of the Plan in terms of health research and the smart economy. Taken together, **Parts 2 and 3** outline the benefits that flow from health research and the health and economic policy goals that are driving such research in Ireland today. Critically, they also identify the main challenges and constraints that must be faced. These factors are especially important in the current economic environment which demands that investment in health research yields the greatest tangible health and economic benefits possible. **Part 4** deals with Funding.

1.5.2 As the Action Plan is part of the programme for economic recovery it is also essential that it is most ambitious in those areas that give us the biggest edge in making the greatest gains in both health excellence and enterprise opportunity. Ireland has advantages that we must exploit.

These include-

- the quality of our healthcare workforce,
- access to patients and a positive public attitude towards research,
- a homogenous and well educated population that is ideal for population based cohort studies,
- a strong third level sector with recognised strengths in health research,
- our developed manufacturing base,
- our expertise in the generation of medical devices and drug development, and
- significant reform and health service modernisation in line with current and emerging international best practice.

1.5.3 When it comes to advantages we must also promote more actively the public benefits of being at the forefront of health research internationally. For example, more can be done to promote public awareness of the real health benefits to Irish people that can arise from having a strong clinical trials industry operating here and through increasing access of Irish patients to such trials. Similarly, the Action Plan also recognises that we must further develop and improve research models that have already proved successful, such as the Irish Co-operative Research Oncology Network (ICORG). Based upon the above advantages and with further improvement we can market Ireland as a leading location for health R&D –"The Health Innovation Island".

1.5.4 However, it is equally important to realise that, given its size, Ireland cannot reasonably expect, in the short term, to be world-class in anything more than a small number of health research areas. Similarly, our advantages, especially those applicable in an international context, must be set against other factors including the attractiveness of lower cost health research locations. Accordingly, there is a critical need to improve our research infrastructure in any way we can and to balance the search for excellence and opportunity with the skills and resources we have, or are likely to have, at our disposal. This is reflected in the Programme of Actions where, for instance, a key priority is to develop a small number of centres of world significance in translational health research, each with strong foundations in both the health services and academia.

1.5.5 Consequently, the Programme of Actions set out in **Part 5** of this Action Plan reflects the most appropriate and ambitious balance possible over the period of the plan and has due regard to both the national and international context. The broad areas to be targeted are:

**THE 5 ACTION AREAS:**

- Leading a National Health Research System
- Developing Research Capacity in the Health Services
- Building Academic and Enterprise Links with the Health Research Sector
- Reforming the Health Research Governance Structure
- Turning Research Outcomes into Health Benefits and Economic Gains

1.5.6 The Action Plan itself is, therefore, best viewed as part of an ongoing planning and evaluation process that pre-empts and responds to a rapidly changing environment rather than as an end in itself that can remain untouched over the next four years. Ensuring a vibrant innovation-driven Irish health research system in the face of complex and dynamic change and a diverse set of interests and institutions is the greatest challenge for this Action Plan and the criterion by which it must be, ultimately, judged. **Part 6** details how the Action Plan will be implemented and reviewed over its life to ensure that its targets are being met and that the document as a whole remains relevant.

1.5.7 Appendix 1 enumerates the membership and functions of the Health Research Group. Appendix 2 provides a brief description of the Irish research framework within which the Group operates. Appendix 3 gives details on health related research funding in 2008.

PART 2

# HEALTH RESEARCH IN IRELAND

## A new product developed to treat Irritable Bowel Disease

A new product to treat Irritable Bowel disease was launched recently by global consumer goods giant Procter & Gamble in America. The product called 'Align' was developed by Cork Campus Company Alimentary Health, a small Irish start-up that has been successful in bringing a product from the bench to clinical trials and to market. The daily dietary supplement Align contains a probiotic strain that was discovered by microbiologists funded by the Health Research Board back in the early-1990s. Enterprise Ireland has also been heavily involved with this project. The work to develop the strain was funded under an Enterprise Ireland project and Enterprise Ireland is a co–owner of the intellectual property.

Further development of this new probiotic strain was then funded by SFI and subsequently Enterprise Ireland to bring the product to market. This is an excellent example of how a health research project can stimulate further research leading to a product that can be brought to market and significantly contribute to better health and wellbeing as well as generate commercial benefits.

# Part 2: Health Research in Ireland

## 2.1 Benefits of Health Research

2.1.1 The benefits that can be achieved from health research can be categorised under the following two headings:

Health and Health Sector Benefits: Improved health, wellbeing and safety, cost reduction in delivering existing services, qualitative improvements in the process of delivery, improved equity in service delivery.

Broader Economic and Social Benefits: Wider economic benefits from commercial exploitation of innovations arising from R&D, economic benefits from a healthy workforce, promoting Ireland as an international competitive centre of excellence in research.

2.1.2 They can be fully realised only if:

- health research has the capacity and resources to undertake the necessary work in an organised and prioritised manner,
- health research is outcome focused, innovation driven and value conscious,
- the linkages exist to translate the knowledge acquired into new diagnostics, therapeutics and other health interventions, and
- innovation and best practice are absorbed into service delivery on a timely basis so that benefits are fully realised.

## 2.2 Nature and scope of health research

2. 2.1 Health research is a broad term that covers a diverse range of activities and applications. The full pathway of health research encompasses the entire journey from the generation of new ideas, through their transformation into something useful, to their implementation. It spans the spectrum of activity from biomedical research, life sciences and new emerging technologies, through to clinical and patient oriented research and onto population health sciences and health services research. It can lead to new and more cost-effective services, products, methods, management practices and policies to improve health outcomes which benefit everyone. It does this best where it is properly supported and targeted. However, it must also be recognised that there is, by definition, a time factor from the funding of a health research project to the successful development and implementation of the outcomes of that research. This indicates the strategic nature of health research and the imperative to ensure that the timestream from research idea to product or service implementation is not delayed by unnecessary obstacles that can and should be removed.

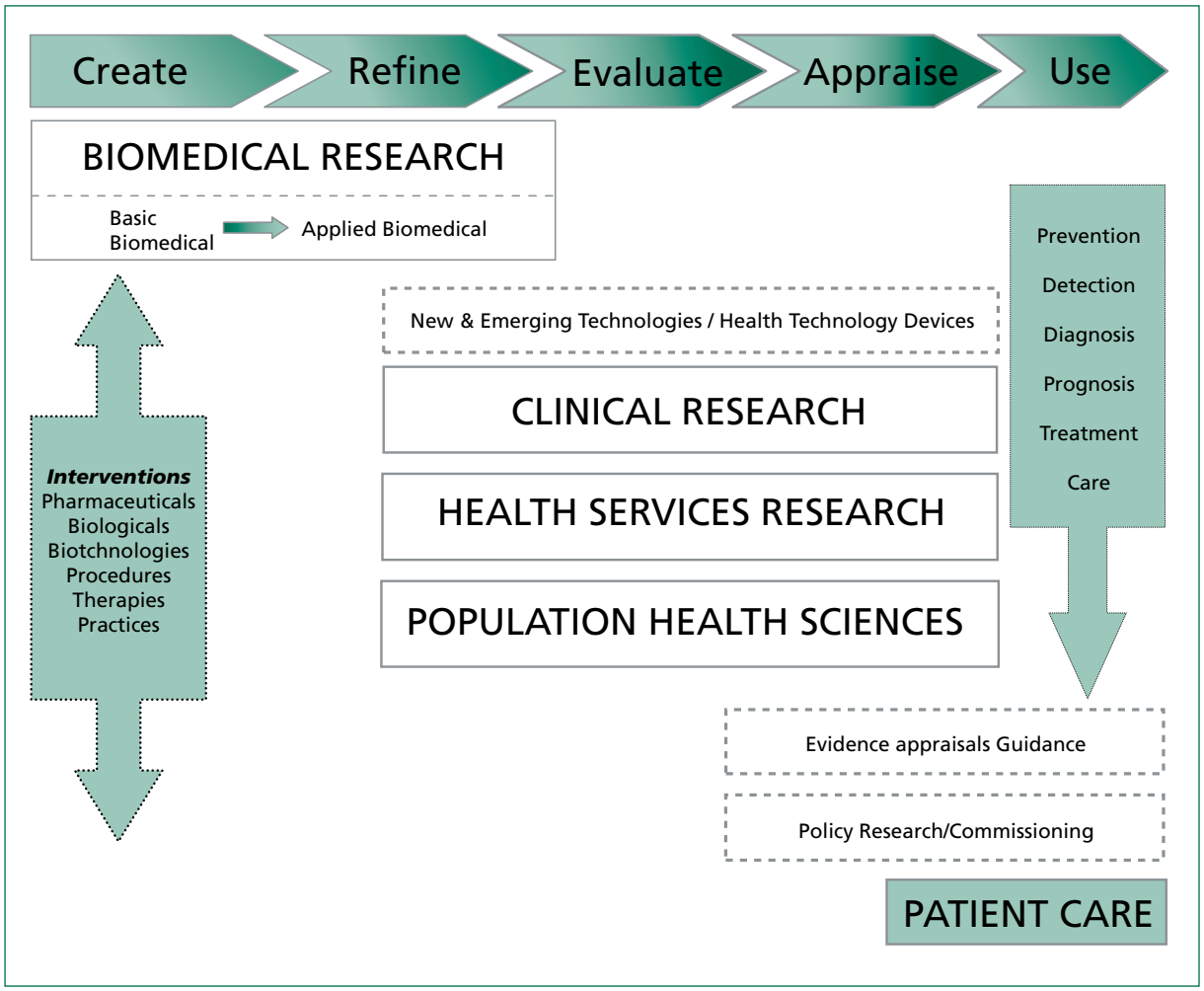



**Fig 1 Health research pathway**

2.2.2 Much of the investment made to date in health research in Ireland has been at the earlier stages of this pathway, namely biomedical research in academic settings. Biomedical research is the broad area of science that involves the investigation of the biologic process and the causes of disease through careful experimentation, observation, laboratory work, analysis and testing. It aims to understand normal and abnormal human functioning at the molecular, cellular, organ system and whole body levels. The Government's investment in biomedical research over the past decade has had a significant impact on the quality and international standing of Irish research with a number of teams in key areas now competing successfully at international level.

### Diabetes – new community care approach brings better quality of life

A study of patients with Type I and II diabetes has shown that patients experience a better quality of life if they are cared for locally by a primary care team, rather than in an acute hospital setting. Diabetes requires a wide range of input from a variety of specialists from cardiac or kidney specialists to dieticians or chiropodists and because it is chronic it means life-long care.

The study of more than 2000 patients looked at three care models (hospital based, primary care based and a joint hospital and primary care team). In short the findings highlighted that the local primary based care model in the HSE Midlands region, which combined GPs, community dieticians, chiropodists and specialist nurses led to the best outcomes. Patients had lower blood sugar levels, lower blood pressure and a better quality of life than counterparts in a mixed care regime.

In addition to the improved health outcomes for patients, they do not need to travel as far for care and this approach also relieves pressure on the acute care system. Given the growing number of new cases of diabetes every year, this is even more important. This project provides strong evidence for the policy to move the care of chronic conditions from the hospital to the community and a number of primary care teams are now modelling themselves on the success and expertise of the HSE Midlands team.

This Study was led by Professor Ivan Perry of University College Cork.

2.2.3 Although support for excellent biomedical research is of fundamental importance, there has been less emphasis on the crucial next steps in the pathway, namely the translation and application of this knowledge to develop new diagnostics, treatments or therapies, to improve patient outcomes or to change the way in which healthcare is practised and delivered. The challenges of translating research into economic and health benefits are not unique to Ireland and a number of countries are developing strategies to address these translational gaps within their own research systems. The effective translation and application of health research requires a fully functioning and coherent health research system and many of the actions identified in the plan address these needs in an Irish context. Such a system includes strategic co-ordination of all aspects of clinical and health services research including networking of facilities, technologies and personnel, a supportive environment for clinician scientists and researchers, centralised provision of advice and support, a co-coordinated approach to study development and portfolios, an increased number of high quality patient-oriented studies and trials (commercial and investigator-led), an increased profile internationally, and ultimately increased benefits for health service users.

2.2.4 While much of health research clearly contributes to economic development through commercialisation, direct cost savings and employment, health research also gives rise to other benefits such as developing the skills of individuals and teams, informing decision-making in health policy and practice and improving public health. In particular, health services research is needed to improve the efficiency and effectiveness of health professionals and the health care system, through changes to practice and policy while population health science improves people's health through a better understanding of the ways in which social, environmental, occupational and economic factors can influence health status.

2.2.5 As a general –but highly significant- point, it is worth noting just how much basic academic research in Ireland is currently health related. For example, over one-third of Science Foundation Ireland's activities are in a research area that can be aligned with health related activity. As such, this research is not only already beginning to have an impact, but is particularly well positioned for the crucial next steps of translation and application.

## 2.3 The Irish Health System, Reform and Transformation of Systems

2.3.1 The Irish health system is undergoing rapid change. It is subject to changes in technology, demography, consumer expectations and considerable growth in patterns of chronic illness found in many developed countries. The past decade has seen very significant increases in public expenditure on health –in both absolute and relative terms. Therefore, it is critical, especially in the current economic context, that we maximise the contribution that health research can make to improving patient services and safety within the resources available.

2.3.2 Since 2003, the Irish health system has been engaged in a major reform process which has seen the creation of the Health Service Executive (HSE) and the Health Information and Quality Authority (HIQA) as well as a modified role for the Department of Health and Children. The principles underlying the institutional and other reforms are: national focus on service delivery and executive management of the health services; a reduction in fragmentation within the system; clearer accountability; improved budgetary and service planning; and, most importantly, improved patient care and safety. It is recognised that there must be a range of ongoing system changes in order for these goals to be achieved. The reform agenda's goals of a modern, integrated, quality-based and patient-centred health system are directly relevant to the health research agenda. In particular, the drive to ensure care pathways are in line with existing and emerging international models of best practice places a premium on the conduct and application of research.

2.3.3 It should therefore be noted that health research is inextricably tied to having a high performing health service especially in the three related areas of:

(i) quality of service and patient safety,

(ii) transformation of systems and

(iii) new models of patient care.

2.3.4 Transformation of systems requires that we look at systems in a more coordinated, integrated way: for example, how we configure primary, community and hospital care to deliver the best results for patients in the most efficient way. Particular models of patient care play a part in this by looking at how best to organise and manage the care of diseases, especially chronic diseases. High quality research is needed to understand better how services and care models impact on the quality of outcomes for patients as well as providing the evidence to inform decisions. Healthcare is one of the most sophisticated and challenging service industries. Research partnerships can assist the health service delivery system in accelerating progress in key reform areas such as health/business intelligence, ICT and e-health, process improvement and resources management.

### Breakthrough technologies developed to diagnose infectious disease in humans

The Enterprise Ireland supported Molecular Diagnostics Group at NUI Galway have developed a novel technology for the diagnosis of a variety of infectious diseases such as sepsis; hospital-acquired infections; and sexually transmitted diseases. The group have recently partnered with global biomedical testing leader Beckman Coulter, in a four year multi-million euro collaborative research initiative, to develop the technology for the global molecular diagnostics market.

Support from both EI and the IDA has helped establish this collaboration which brings together the molecular diagnostic expertise at NUI Galway with clinical instrumentation expertise at Beckman Coulter. The partnership has also led to the establishment of a new Irish start-up company, Beckman Coulter Biomedical Ltd, to develop these assays for commercialisation. The company currently employs four people working collaboratively with a six strong dedicated NUI Galway research team.

## 2.4 The Existing Health Research Environment in Ireland

2.4.1 The importance of health research to the broader national social and economic agenda has been acknowledged in a number of Government strategies; in particular, the National health research strategy, ***Making Knowledge Work For Health*** (2001), the publication, in 2006, of the Advisory Council for Science, Technology and Innovation strategy, ***Towards Better Health: Achieving a Step Change in Health Research in Ireland*** and the 2009 HRB ***Strategic Business Plan 2010-2014***. They all identified health research as a key element of the healthcare system, spanning health services, population health and translational research as well as fundamental medical research. Further, health-related research was also seen as an important component of the wide-ranging ***Strategy for Science Technology and Innovation 2006-2013***.

2.4.2 The abovementioned strategies and plans set out clear programmes for developing health research in Ireland. While progress has been made in implementing their recommendations, it is apparent that the capacity of the health sector, as a whole, to participate as an equal partner in the national research system is not as robust as it should be. Similarly, the absence of a coherent approach to research and development in the health service means the potential benefits of innovation to the health service are not being fully realised.

2.4.3 Health research in Ireland takes place in a variety of settings but collaboration between those in service delivery, academic researchers and industry is generally weak. This is not ideal and reflects a structural deficit. As the Health Research Board points out, "in the health service, research is generally not seen as a front line activity underpinning high quality healthcare". It is acknowledged that the undertaking of in-depth research is not an ongoing role for most professionals whose primary concentration, quite rightly, will be on service delivery. However, very few health professionals have dedicated time set aside for research and there is a shortage of clinician scientists spanning the research and delivery worlds (currently, there are only seven, all funded by the Health Research Board). There is a need for an increase in such research specialists actively engaged in patient care. More broadly, there is a need in a knowledge based service, such as health, for a culture of appreciation and exploitation of research to permeate the service. The infrastructure for health research is also underdeveloped in several respects (for example, research ethics approval structures, lack of a unique patient identifer). There is a pressing need to enhance translational research so that the investment in health research can be turned into improved healthcare

2.4.4 The issues identified in this **Part** have profound implications both for the reform agenda within the health service and for the knowledge economy. First, the focus on quality and transformation of patient care at the core of the current reform agenda in the health service must be underpinned by a strong research culture. Second, the considerable investment being made in biomedical sciences means that while the capacity of the third-level sector to conduct world-class research has increased significantly, the translation of this knowledge into new diagnostic and therapeutic interventions and care processes and ultimately into better healthcare outcomes, can only be achieved through a health service that recognises research as integral to service delivery.

PART 3

# HEALTH RESEARCH AND THE SMART ECONOMY

## An early warning system for Alzheimer's Disease

A Trinity College research team led by Professor Harold Hemple has developed a test which could effectively act as an early warning system for Alzheimer's disease. The test could provide indicators of the disease long before patients show any signs of the condition.

Given that one of the greatest challenges in tackling Alzheimer's is achieving early and accurate diagnosis, this is an incredible breakthrough. The disease causes changes in the structure of the brain and the brain tissues degrade. This causes the slow and irreversible decline in cognitive function. This brain deterioration starts long before the patient shows symptoms.

To date patients have only been receiving the treatment when the illness has advanced. This new test means that we would be in a position to identify and treat the problem early. Considering that there are approximately 38,000 Irish patients with the disease and this costs €474m per year to treat, this discovery has real potential to reduce costs as well as improving the lives of thousands of people.

# Part 3: Health Research And The Smart Economy

**"The challenge for all of us is to innovate and change, to reinvent what we do and how we do it. In this situation, we need to think differently, think smart and to foster a culture of creativity and innovation in everything we do. Put simply, we must get more for less."** An Taoiseach launching ***Building Ireland's Smart Economy: A Framework for Sustainable Economic Renewal*** (December 2008)

## 3.1 Building the Smart Economy in Ireland

3.1.1 The central characteristics of the "smart economy" are that it is dynamic, innovation-driven, and competitive. A successful "smart economy" offers high-value and rewarding jobs, an economy based on clean and efficient energy, strong civic engagement and sustainable social progress. It is also characterised by a modern health system and a strong commitment to research. The current global economic situation has seen most Western economies identify building their own "smart economies" as a means of future prosperity. Ireland was one of the first countries to see the potential of developing a "smart economy" and to understand the nature of the challenges to be faced.

3.1.2 In December 2008, the Government presented its strategy for economic recovery and growth: ***Building Ireland's Smart Economy: A Framework for Sustainable Economic Renewal***. The ***Framework*** acknowledges the severe short term difficulties facing the country while focussing on how we can return to real sustainable growth in the medium term. It charts a pathway forward for the Irish economy designed to impact directly on enterprise and job creation. The net effect will be to transform the Irish economy.

3.1.3 The ***Framework*** is structured around five headings:

- Meeting the short-term challenge – securing the enterprise economy and restoring competitiveness
- Building the IDEAS economy – creating the 'Innovation Island'
- Enhancing the natural environment and securing energy supplies
- Investing in critical infrastructure
- Efficient and effective public services and smart regulation

3.1.4 It has long been accepted that a small open economy like Ireland can only ever achieve the sustained economic growth necessary to underpin long term social progress if it is dynamic, innovative, competitive and thereby attractive to foreign investment. The scale of the global economic crisis simply adds impetus to the high level commercial innovation agenda that the Government had already embarked on as is evidenced in the ***Strategy for Science Technology and Innovation (2006-13), the National Development Plan (2007-13)*** and in the Industrial Development Authority's approach to attracting foreign business and investment into Ireland.

3.1.5 The national ***Strategy for Science, Technology and Innovation*** (SSTI) is driven by the principle that we must, as a country, produce and attract world-class talent and have dynamic firms that use that talent to innovate and compete on world markets with world-class products and services. Its goal is to make Ireland an internationally renowned centre for research and an innovation economy at the forefront in generating and using new knowledge technologies for economic and social progress. The strategy has a strong focus on the role that research and development can play as a provider of innovative, market-led products and services that are essential for economic competitiveness and growth in a rapidly growing knowledge economy. Health research was specifically identified as an area capable of making a considerable contribution to the goals of the Strategy and a series of Key Actions specified.

3.1.6 All of the above are consistent with the ***Framework's*** recognition that Ireland's "smart economy" can only be built with concerted and co-ordinated effort in those areas that offer the greatest potential socioeconomic returns. In that regard, as with SSTI, maximising the contribution of health research was specifically identified as a key action area in the ***Framework*** and this is discussed below. This point is important for the Irish health research system because enterprise agencies like the Industrial Development Authority, Enterprise Ireland and Science Foundation Ireland which have, in recent years, been increasingly turning their attention to the pharmaceutical, biotechnology and medical device industries recognise that attracting such high value industries can only be exploited to its fullest if there is an appropriate research infrastructure and capability within the health sector.

3.1.7 Feedback from industry emphasises that for successful commercialisation, it is especially important that healthcare professionals are actively involved in health research as they are ultimately the end users of innovative medical technologies. Their expertise is invaluable to the health research system at all stages of the process from idea generation, technology assessment, new product concept development and through to clinical trials and eventually market uptake and patient treatment.

Keeping the healthcare professional at the centre of health research activities will ensure a pull towards commercialisation and realisation of benefits to patients.

### 3.2 Health Research in the Smart Economy

3.2.1 Chapter 6 of the ***Framework -Building the Ideas Economy – Creating 'The Innovation Island'***- identifies two specific measures needed to optimise the contribution of health research, namely:

- An Action Plan for Health Research will be developed by June 2009 by the broadly based Health Research Group in order to exploit the opportunities for stronger linkages between our health sciences and related Foreign Direct Investment and indigenous sectors such as medical devices and bio-pharma.
- Concern about delays in the conduct of clinical trials and other research due to the process of ethical approval will be addressed in the Health Information Bill currently being prepared.

3.2.2 The Health Information Bill which is expected to be published by the end of 2009 will not just address the unwieldy research ethics approval structure identified in the ***Framework*** document but also:

- clarify the rules that apply in relation to the collection, use and disclosure of personal health information for research purposes,
- provide the necessary legal base for the introduction of a unique health identifier.

3.2.3 These initiatives are considered critical to ensuring that the Government's major investment in health research in Ireland yields maximum health, social and economic returns. It is implicit, therefore, that this Action Plan will not just co-ordinate current and future health research efforts but, much more importantly, will provide strategic leadership on developing the entire Irish health research system, especially in terms of priorities and capacity.

3.2.4 Accordingly, the Programme of Actions in **Part 5** is designed to ensure that health research contributes fully to the Smart Economy.

PART 4

# FUNDING

## Novel Sensors for Dopamine

In 2004-5, Science Foundation Ireland funded a basic research programme to develop novel sensors for dopamine and other chemicals that are released in the brain and nervous system. Since 2007 this breakthrough project has already begun to generate a significant commercial return and further success is envisaged.

# Part 4: **Funding**

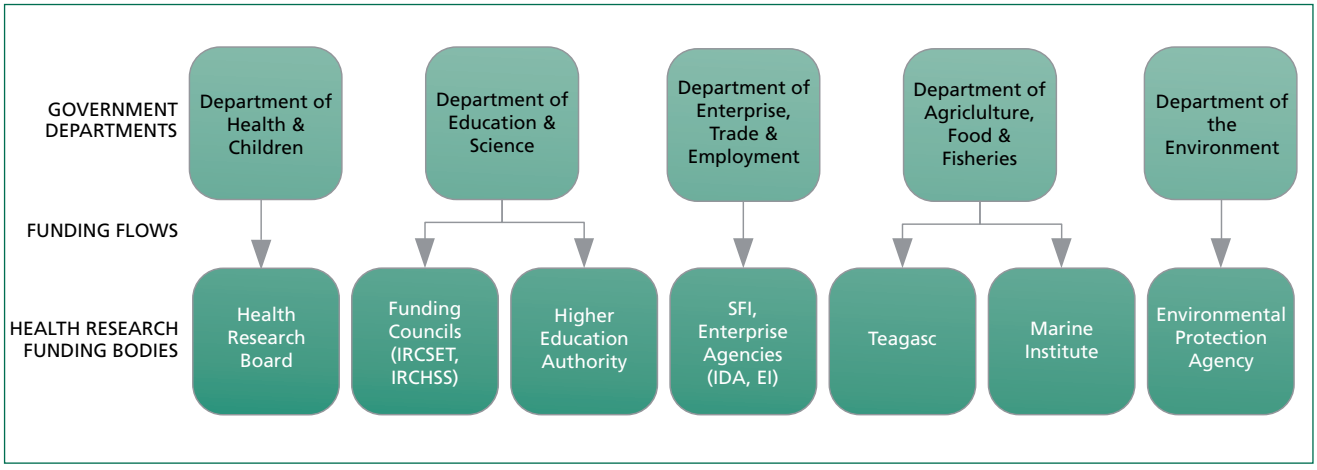
## 4.1 Health Research Public Funding in Ireland

4.1.1 Understanding the research funding context in Ireland is essential to appreciating where we are in 2009, in terms of health research capacity, infrastructure and supports. Health research public funding in Ireland has undergone enormous changes so that funding now exists in a complex multi-funder environment, alongside a new research infrastructure in higher education and a government that is pursuing an R&D agenda. (See Fig. 2 below for details).

4.1.2 All the above bodies are legitimately involved in the health research sector with different mandates and specific interests. However, the number of bodies increases the need for co-ordination and collaboration as does the absence of any agreement on what constitutes 'health' research among the key players in the sector in Ireland. This definitional issue presents significant real challenges for identifying the levels of activity in, and spending on, specific types of health research in Ireland. The Health Research Group provides the means to address these matters.

4.1.3 Ireland's research landscape has changed significantly over the past decade. These changes have been driven by a very substantial increase in public-funded research, coupled with policies aimed at growing the levels of business expenditure on Research, Development and Innovation. The Government's Strategy for Science, Technology and Innovation (SSTI) introduced a level of coherence for research nationally, clearly identifying research areas of strategic importance and establishing the parameters for the level of national investment in Science Technology and Innovation (STI) required up to 2013.

**Figure 2:** Relationship between government departments and funders of health research



4.1.4 In 2008, public expenditure on health research (as per Appendix 3) was €200m. This included: €42.7m provided by the Department of Health and Children through the Health Research Board; approximately €90m provided by the Department of Enterprise, Trade and Employment through SFI, Enterprise Ireland and the IDA; and €60m made available by the Department of Education and Science through the HEA, IRCSET and IRCHSS. (Full details can be found in Appendix 3).

4.1.5 The ***HRB Strategic Business Plan 2010–2014 (The Future of Irish Health Research)*** illustrates that while health research has benefited from the increase in public funding through the SSTI, it nevertheless remains below the Organisation for Economic Co-operation and Development (OECD) average. When spending on health research in Ireland is compared with health research spend in other countries, the latest available figures from the 2007 OECD Science, Technology and Innovation scoreboard show that Ireland is well behind the OECD average of 0.12% in terms of investment in health research as a percentage of GDP. In 2005, Ireland's spend on health research was just 0.06% of GDP. In contrast, during the same period, the equivalent spend for the UK was 0.14%, Sweden 0.16%, and the US 0.26%.

4.1.6 The impact of the current difficult economic situation, particularly the deteriorating fiscal position, has made it impossible to continue the upward trend in health research funding. This is reflected in the funding of the SSTI Programme, in 2009, with a 16% overall reduction on the 2008 spend with consequent implications for health research funding. This highlights the imperative to target our investment in R&D where it can be most rewarding in terms of real gains.

Figure 3: A comparison of health research spend relative to OECD average 2005


4.1.7 Ireland also lags behind in terms of expenditure on health research by the health system as a percentage of the overall health services budget. In Ireland, health research, funded through the HRB, accounts for just 0.25% (€40m) of the overall health services budget (€16bn). In contrast, in England, health research funding though the National Institute of Health Research accounts for 0.8% (£720m) of the overall health services budget (£90bn).

## Creating efficiencies in health care

Research on mental health carried out by Professor Eadbhard O'Callaghan at St. John of God's Hospital led to the establishment of a pilot service (DETECT) demonstrating how providing care at first-episode psychosis leads to reduced symptoms of psychosis and suicidal behaviour. This early intervention leads to both improved health outcomes – on occasion saving lives – and significant savings on later treatment, representing an economic benefit.

Another project led by Professor Hannah McGee at the RCSI researched the time to treatment for acute myocardial infarction (heart attack) and the findings contributed to the first cardiac strategy Building Healthier Hearts and to subsequent service improvements that have reduced mortality from this disease in Ireland, with a drop of nearly 4,000 deaths per annum.

### 4.2 Private Sector Investment in Health Research

4.2.1 In 2007, more than €1.6Bn was spent on research and development activity by enterprises across all business sectors in Ireland with an estimated 14,000 persons engaged in research. It is therefore important to acknowledge the significant level of private sector spending on health research in Ireland even though it is not possible to give a precise figure for such research. It is also worth noting that the existing and future development of Clinical Research Facilities in Dublin and other centres opens up further potential avenues for private sector research funding to be channelled to Irish health researchers and research facilities in a way that is capable of yielding major benefits.

### 4.3 EU Research Funding

4.3.1 The seventh Framework Programme (2007-13) is now in its third year with a total budget for all research of over €50 billion. The main objectives are to stimulate, organise and exploit all forms of co-operation in research, from collaboration in joint projects and networks to the coordination of national research programmes. Ireland has already benefited greatly from previous EU Framework programmes. The Strategy for Science, Technology and Innovation 2006-2013 placed considerable emphasis on Irish researchers securing a higher level of Framework Programme (FP) funding. In 2008, the Cabinet Committee on Science, Technology and Innovation approved the setting of an objective of achieving an increase in the total share of Community funding to be targeted by Ireland over the lifetime of FP7 from €400 million to €600 million.

4.3.2 EU funding for health research is available under the Framework Programme. Health is one of 10 thematic priorities in FP7, and with a total budget of €6.1 billion, it has the second highest budget (after ICT). The 3 "pillars" of this theme are:

- Biotechnology, tools and technologies for human health
- Translating research for human health
- Optimising the delivery of health care to EU citizens (*new to FP7*)

4.3.3 Health is part of the "co-operation" programme of the FP and is meant to address research problems that cannot be adequately addressed by one member state. In the majority of cases a trans-national research consortium is required to submit a project proposal. It is considered imperative that this source of funding be availed of to the maximum and the priorities in this Action Plan are intended to position the health research system to achieve this objective.

### 4.4 Charitable and Philanthropic Investment

4.4.1 Medical research charities are active in Ireland and make a significant contribution to health research. They also provide an important means for the public to become directly involved in health research activity through donations. The Medical Research Charities Group (MRCG) represents 32 charities in Ireland that are committed to investing in patient relevant health research. The level of investment is significant. The MRCG estimates that from 2006 to 2010, its member charities will have invested €59.6m in research. Since 2006, the MRCG and HRB have successfully operated an innovative Joint Funding Scheme which has assisted MRCG members in leveraging philanthropic funding. Other funders of health research include the Wellcome Trust and Atlantic Philanthropies.

### 4.5 Aligning Funding & Strategy

4.5.1 The issue of health research funding is a crucial one. In order to maximise the potential benefits that accrue from health research, it is necessary that the flow of funding to projects supports the overall strategic direction. In the context of the priorities established by this Action Plan, this will require not only greater co-ordination in funding management between the agencies involved but also potentially a re-balancing based upon these new priorities. While many actions in the Action Plan do not carry additional cost, some (e.g. new clinical trials networks, clinical research facilities, etc.) have significant cost implications. In developing this Action Plan against a backdrop of major difficulties in public expenditure, the HRG is realistic in identifying that the first avenue to progress such high value initiatives must be the total quantum of public funding currently supporting health research. Reprioritising within this funding poses challenge, particularly given the diversity of funding sources, but these must be met if the goals of the Action Plan are to be realised. The potential implications for agencies' existing activities and expenditures, including those outside the health research areas, means that this process will require the support and direction of Government Departments. The role of the Office of Science, Technology & Innovation and the Inter-Departmental Committee on Science, Technology and Innovation in providing a framework to address these issues on a whole-of-government basis will be important.

4.5.2 In all of this, it is worth noting that health research systems, like every system that expends public monies, must provide accountability for funds spent and justification for future funding. There is an increasing demand across all public expenditure to demonstrate that public funding provides value for money. The Action Plan seeks to equip the health research system to meet these demands now and into the future.

PART 5

# PROGRAMME OF ACTIONS

## Breast Cancer

Breast cancer continues to affect one woman in ten in the western world and despite phenomenal advances in recent years the mortality rate remains around 35%.

Cutting edge research being carried out by an Irish group of researchers (the Strategic Research Cluster: Molecular Therapeutics for Cancer Ireland) offers great hope of a breakthrough in breast cancer treatment. The group identified biological factors that they believe play an important role in the development of patients resistance to certain life saving hormonal treatments.

They are now developing their investigations (with funding from SFI) using a multiple array of scientific methods to get a better understanding of how these biochemical factors exert their influence. Their innovative approach offers the potential to define new predictive "biomarkers" in those patients likely to develop resistance to drug treatments. This sets the stage for the development of new therapeutic targets for this devastating disease.

# Part 5: **Programme Of Actions**

**Principles**

Responsibility for successfully delivering the programme of actions set out in this plan rests with a diverse range of Government Departments and Agencies. However it is recognised that there are a number of core principles that must inform the approach of everyone with a role to play in developing a national health research system.

These principles are:

### 1. Excellence

The Health Research Group is committed to high quality, ethical research that is funded, managed and conducted to the highest international standards.

### 2. Value for money

In delivering on these actions, departments and agencies will be mindful of the need to achieve value for money and maximise the use of resources.

### 3. Collaboration and co-operation

Many of the actions identified require a high level of cooperation, collaboration and alignment across organisations. Members of the HRG are committed to working in partnership to implement the Action Plan, and agree to take responsibility for the implementation of specific actions where appropriate, on behalf of the wider health research community.

### 4. All Island co-operation

As far as is practical, agencies and departments will work on an all-island basis and encourage North-South co-operation.

### 5. International dimension

Research takes place in an international context. The international dimension of health research and the need to promote international engagement at every level is implicit in all the actions.

### 6. Building on existing knowledge

In developing the Action Plan, it is recognised that a great deal of valuable work has been completed or is in progress that can contribute to the successful delivery of many of these actions. The Action Plan will not replicate this work but will seek to build on, and adapt, existing initiatives wherever possible.

### 7. Focus on outcomes and impact

It is recognised that research and development is a long term activity and that it takes time to see a return on investment. However, the HRG is committed to developing a transparent culture of evaluation in all its actions, and specifically to measuring and reporting on the outputs, outcomes and impact of the actions set out in the Plan.

## ACTION AREA 1: LEADING A NATIONAL HEALTH RESEARCH SYSTEM

This area identifies actions to develop and lead the health research system at national level. A key focus is on the establishment of proper governance, monitoring and oversight structures to support health research at national level.

| | Action | Deliverable | Benefit | Lead | Support | Completion Date |
|---|---|---|---|---|---|---|
| **Leadership and co-ordination** | | | | | | |
| 1.1 | Develop and agree a detailed implementation plan for the Action Plan, with identified leads, work packages and completion dates | Implementation plan developed and agreed with HRG | Clear understanding of responsibilities and timeline; plan in place to allow effective monitoring | DOHC | HRG | 2009 |
| 1.2 | Direct and lead the national health research system through appropriate accountability arrangements with each agency | Action Plan delivery incorporated within the accountability arrangements for each relevant agency | Clarity around roles and responsibilities and proper accountability; Improved co-ordination | DOHC | HRG, DETE, DES | 2010 |
| 1.3 | Prepare an Implementation Plan for research in the health services which clarifies roles and responsibilities at national, regional and local level | Clear roles and responsibilities | Research embedded as a core activity in the health service; research appropriately governed and carried out to highest standards | HSE | DOHC, HRB, HEA | 2010 |
| 1.4 | Agree and implement common standards and systems for coding, classification and terminology in national health information systems through collaboration across relevant organisations | Common standards and systems developed and implemented across national health information systems | Consistent, quality focused approach to collation, dissemination and management of national health information | HIQA | DOHC, HSE, agencies managing national health information systems | 2011 |
| 1.5 | Establish appropriate consultation and co-ordination arrangements between the HRG and the non-statutory health research constituency, for example Medical Research Charities, industry interests and health researchers | Active and positive partnership | More integrated approach to health research for better outcomes | HRG | _ | 2010 |
| 1.6 | Develop and apply an evaluation framework for health research across government departments and agencies to assess the impact and value of publicly funded health research | Evaluation and impact assessment framework in place for health research | Mechanism in place to evaluate performance and investment in research; better understanding of the role of research in health and in economic development | HRB | HRG | 2012 (develop) 2013 (Implement) |

| | Action | Deliverable | Benefit | Lead | Support | Completion Date |
|---|---|---|---|---|---|---|
| **Strategic Direction** | | | | | | |
| 1.7 | Undertake a comprehensive review of health research priorities and research strengths, and identify strategic research and funding priorities for Ireland in health research, building on work completed by HEA and Forfás | Agreed health research priorities | Funding aligned to national priorities; process of agreeing priorities will improve co-ordination | HRG | All | 2011 |
| 1.8 | Develop joint strategies across agencies in targeted areas and co-fund health research initiatives to ensure continuity from basic research to commercialisation or practice change | Joint funding initiatives | Improved co-ordination; increased efficiency | HRG | All | 2011 |
| 1.9 | Establish a benchmark of research activity in the health service | Baseline measurement of research activity in the health service | Baseline assessment against which to identify opportunities, coordinate effort with other interests and evaluate progress | HSE | All | 2010 |
| 1.10 | Design and implement ongoing processes, systems and metrics to capture and measure research activity in the health services at HSE, regional and local level | Process in place to capture research in the health services | Greater understanding of the nature and role of research in the health services; information available to track and evaluate quantity and quality of research in the health services | HSE | All | 2011 |
| **Monitoring** | | | | | | |
| 1.11 | Develop a research investment plan setting out the investment required in key infrastructure to facilitate effective translational and clinical research and the infrastructural investment requirements to address strategic national priorities, including commercialisation | Infrastructure plan in place | Improved environment for clinical research | HRG | All | 2011 |

## ACTION AREA 2: DEVELOPING RESEARCH CAPACITY IN THE HEALTH SERVICES

This area identifies actions that (1) address the need for training, education and skills development, (2) increase the volume of quality research that is relevant to patients, the health of the population and the efficiency and effectiveness of the health services and (3) provide the infrastructure needed for health research

| | Action | Deliverable | Benefit | Lead | Support | Completion Date |
|---|---|---|---|---|---|---|
| **Skills and Training** | | | | | | |
| 2.1 | Establish and implement a research career framework in the health services for health professionals | Research career framework | Greater scope to attract and retain high quality health researchers | HSE | HRB<br>HEA | 2012 |
| 2.2 | Provide health professionals in research leadership positions with appropriate arrangements to support research relevant to the health services | Arrangements in place for health professionals in research leadership positions | Senior health professionals in a position to lead research initiatives | HSE | DOHC, HRB | 2011 |
| 2.3 | Provide fellowship programmes targeted at health professionals to increase the number and diversity of health professionals engaged in research | Research fellowship programmes for health professionals in place | Increased numbers of health professionals engaged in research | HRB | HEA, HSE | 2010 |
| 2.4 | Further develop and support a clinician scientist programme integrating research and clinical training for medical doctors and other health professionals | Integrated programme in place | Research and clinical training integrated; research informed by clinical practice | HRB | HSE | 2009 |
| 2.5 | Develop postgraduate training tracks for academic clinicians | Postgraduate track in place | Career pathway in place makes clinical research a realistic option | HRB | HSE, HEA | 2012 |
| 2.6 | Build capacity within the health research system to address specific skills deficits in health economics, health informatics, epidemiology, health technology assessment and biostatistics. | Wider availability of training in targeted areas | Improved capacity in the health services in health economics, epidemiology, HTA and biostats | HRB | HSE, HIQA, HEA | 2011 |

| | Action | Deliverable | Benefit | Lead | Support | Completion Date |
|---|---|---|---|---|---|---|
| 2.7 | Facilitate arrangements for externally funded research posts within the health services (outside employment ceilings) | Arrangements in place to accommodate externally funded researchers | Research posts not competing with service posts | HSE | DOHC | 2009 |
| 2.8 | Develop processes for training (within the health services) for academics in skills relevant to translational research. | Better equipped academics working in translational research | More efficient and effective collaboration between academics and healthcare professionals engaged in translational research. | HSE<br>HRB<br>SFI | HRG | 2010 |
| **Research Funding** | | | | | | |
| 2.9 | Provide a clear funding stream for outcomes, efficiency and effectiveness research | Funding stream in place for outcomes research | Improved patient outcomes | HRB | HSE | 2010 |
| 2.10 | Increase the proportion of funding assigned to high quality patient focused research projects and programmes and research into evidence-based care | More research funding available for patient focused research; rebalancing of investment in publicly funded research towards health benefits | Research more relevant to patients and the health services | HRB | HSE | 2010 - 2013 |
| 2.11 | Support high quality discovery research in biomedical sciences and ICT to underpin clinical and translational research | Consistent support for excellent discovery research relevant to health | Ireland's reputation for scientific excellence enhanced; increased scope for translational research | SFI | Other funding agencies | 2010 - 2013 |
| 2.12 | Establish research networks between researchers, practitioners and policy makers in priority areas in the health services | Research networks established with a focus on priority areas within the health services | Research targeted at priority issues within the health services; multidisciplinary approach | HRB | HSE, All | 2011 |
| 2.13 | Leverage additional funding for health research under the EU's Seventh Framework Programme for Research 2007 – 2013 and other international programmes | Increased funding for health research in FP7 | Greater diversity of research funding; researchers in Ireland linked into EU networks and programmes | EI<br>HRB | Other funding agencies | Ongoing |
| 2.14 | Leverage additional funding for health research under EIs commercialisation fund | Increased support for health and clinical research projects from commercialisation fund | Increased commercialisation of publicly funded health research | EI | Other funding agencies | Ongoing over period of Plan |

| | Action | Deliverable | Benefit | Lead | Support | Completion Date |
|---|---|---|---|---|---|---|
| **Infrastructure** | | | | | | |
| 2.15 | Establish clinical trials networks in targeted disease areas | New clinical trials networks established | Increase in volume of clinical trials being conducted in Ireland; increased investment | HRB | IDA, EI | 2011 |
| 2.16 | Identify priority biobank and other infrastructural requirements to underpin clinical research | Infrastructure investment plan in place | Improved environment for health and clinical research; competitive advantage internationally | HRG | SFI, HRB, EI, IDA | 2010 |
| 2.17 | Participate in the development and implementation phase of relevant large-scale international research infrastructure which includes Irish hubs under programmes such as ESFRI, and to large-scale single-sited infrastructure abroad where a major investment in Ireland is not justified | Access for Irish researchers to distributed large infrastructures. | Irish researchers use state of the art resources to enhance the quality of their research output and carry out research that would not be possible using only local resources | HEA | Forfás | 2011 |

## ACTION AREA 3: **BUILDING ACADEMIC AND ENTERPRISE LINKS WITH THE HEALTH RESEARCH SECTOR**

This area identifies actions to build the links between the health services, academia and enterprise to speed up the translation of research into real economic and social benefits, to encourage interdisciplinary research and to ensure that intellectual property is appropriately protected and exploited.

| | Action | Deliverable | Benefit | Lead | Support | Completion Date |
|---|---|---|---|---|---|---|
| 3.1 | Further develop strategic research clusters of academics, clinicians and industry investigators in experimental and translational medicine (which are already operating successfully in a variety of sectors, for example the Strategic Research Cluster in Molecular Therapeutics) especially where Ireland has the potential to be internationally competitive | Research clusters in place | High quality translational research programmes; greater potential to commercialise research and translate into economic benefits | SFI | HRB/EI/IDA | 2010 |
| 3.2 | Develop a co-ordinated approach to translational research: identify specific areas of translational research where Ireland can develop a leading position together with the actions required to differentiate Ireland as a location of choice for translational research | Strategy and actions in place to support translational research across agencies | Improved coordination; better integration across sectors; more efficient use of resources | HRB, EI | IDA, SFI, Other funders | 2010 |
| 3.3 | Establish a network of fully functional clinical research facilities in academic teaching hospitals to accelerate the translation of research advances into benefits for patients | Network of clinical research facilities in place in academic teaching hospitals | Increased volume of patient focused research; harmonised activities, systems and procedures; expansion in type of clinical studies that can be supported; focal point for industry | HRB | HSE | 2012 |
| 3.4 | Provide additional technology transfer expertise in health, pharmaceutical and medical technology research to hospitals through the existing university technology transfer infrastructure | Support in place to increase expertise in technology transfer | Better understanding within the health services of commercialisation; better understanding within enterprise sector of potential within health services for innovation | EI | HSE | 2011 |

| | Action | Deliverable | Benefit | Lead | Support | Completion Date |
|---|---|---|---|---|---|---|
| 3.5 | Establish procedures to capture, protect and exploit intellectual property in the health services | Systems in place to identify and protect IP | Increased commercialisation activity; increased awareness of commercial benefits | HSE | EI | 2011 |
| 3.6 | Establish a database/network of research active healthcare professionals to facilitate links to academic and enterprise sectors and competent bodies | Database/network of research active healthcare professionals | Facilitate efficient access to healthcare professionals across all health research stakeholder groups | HSE | All | 2011 |
| 3.7 | Exploit opportunities for research partnerships to facilitate the health service Transformation Programme | HSE supported in high value transformation areas such as care pathways/processes, ICT and e-health, health/business intelligence, resource management, etc., | Improved service delivery within available resources | HSE | HRB, Industry, DOHC | 2010 |

## ACTION AREA 4: REFORMING HEALTH RESEARCH GOVERNANCE STRUCTURES

This area identifies actions to reform and streamline the governance structures needed for a fully functioning health research system including the establishment of appropriate principles of good practice and robust monitoring arrangements.

| | Action | Deliverable | Benefit | Lead | Support | Completion Date |
|---|---|---|---|---|---|---|
| **Research Governance** | | | | | | |
| 4.1 | Develop a research governance framework for research in the health services to include principles and standards of good practice, e.g. ethics, IP, funding, and identifying clear accountability for research standards | Research governance framework in place | Research conducted to highest standards; research recognised as a professional activity underpinned by principles; understanding across the system of the responsibilities of funding, managing and conducting research | HSE | DOHC<br>HRB<br>HEA | 2012 |
| 4.2 | Ensure that organisations funding and conducting research adhere to the principles, requirements and standards of good practice set out in the governance framework | Funding linked to good practice | Publicly funded research conducted to high standards and in institutions that support high standards; research performing organisations incentivised to adhere to standards | DOHC | Agencies | 2013 |
| **Co-ordination and classification** | | | | | | |
| 4.3 | Establish a national co-ordinating framework for new and existing clinical research centres in Ireland to ensure co-ordination across a range of issues including staff, enabling technologies and clinical trials | National co-ordinating framework in place | Harmonised and co-ordinated clinical research infrastructure; ability to participate in multicentre trials, standardised approaches across the country | HRB | HSE<br>IDA,<br>EI | 2012 |
| 4.4 | Devise and implement a common classification system for health research across all funding agencies and government departments | Common classification systems in place and operating across all agencies | Ability at national level to track research activity, evaluate research, identify gaps and overlaps, benchmark Ireland internationally | HRG | All | 2011 |

| | Action | Deliverable | Benefit | Lead | Support | Completion Date |
|---|---|---|---|---|---|---|
| 4.5 | Establish a mechanism for the collation, availability and marketing of information about health research in Ireland to facilitate industry, academic and health service collaboration and other goals. | Mechanism established | Greater ability to market Ireland as a knowledge economy; potential to identify partners more efficiently, knowledge resource | HRG | EI<br>IDA<br>HRB | 2012 |
| **Health Information and Ethics** | | | | | | |
| 4.6 | Provide for the introduction of a unique patient identifier which will be legislatively enabled through the Health Information Bill and implemented over time | Individual Patient Identifier | Major research asset, especially in longitudinal studies | DOHC | HSE, HIQA | 2012 |
| 4.7 | Enable electronic submissions of all applications for clinical trials (and other clinical research studies) approvals with parallel review by the Irish Medicines Board and Ethics Committees as standard practice | Streamlined procedures | Faster decisions | DOHC | All parties | 2011 |
| 4.8 | Streamline and consolidate ethical approval structures through Health Information Bill with standard operating procedures | New national approval structures | Faster and more consistent decisions | DOHC | HRB, HIQA, HSE | 2010 |
| 4.9 | Establish a co-ordination mechanism for the revised Ethics Committee structure | New structure | Faster and more consistent decisions | DOHC | All parties | 2010 |

## ACTION AREA 5: TURNING RESEARCH OUTCOMES INTO HEALTH BENEFITS AND ECONOMIC GAIN

This action area identifies actions to measure and promote the benefits of health research, incentivise the dissemination of research findings for practical benefit and increase the capacity of the health and enterprise sectors to absorb research findings.

| | Action | Deliverable | Benefit | Lead | Support | Completion Date |
|---|---|---|---|---|---|---|
| 5.1 | Promote the value of research in the health system | Higher profile for health research within the health services and enterprise sectors | Increased public understanding of and support for research | HRG | ALL | 2013 |
| 5.2 | Introduce outreach activities to raise awareness of the importance of research in improving health service delivery, patient care and population health and the role of industry in timely translation of research outcomes to innovative products and therapies | Specific outreach activities in place | Increased public understanding of and support for research; better public and industry engagement | HSE | Agencies | 2011 |
| 5.3 | Incentivise the research community to translate the outcomes of publicly funded research into changes in practice and policy, or commercialise the outcomes of research | Specific incentives in place to promote effective translation or commercialisation of research | Greater emphasis on the health and economic benefits of research | HSE, HRB | Agencies | 2010 |
| 5.4 | Develop targeted knowledge transfer and knowledge brokering initiatives to promote the use of evidence to support decision making and to inform the research agenda | Knowledge transfer and brokering initiatives in place | Develop a culture of using research to inform policy and practice; policy and practice informs the research agenda | DOHC/ HSE/HRB | Agencies | 2011 |
| 5.5 | Examine the role of e-health related research in achieving health service goals. | Basis for decision-making on the contribution that e-health can make to the health system and the specific areas in which it is likely to be most effective | Better patient care and safety and more efficient and effective use of resources. | HRG | HSE HIQA | 2011 |
| 5.6 | Further develop ICT related health research and the overall interface between the ICT and health research over a range of economic sectors. | Innovative outcomes in areas such as cryptography, data security, independent living, medical devices and telemedicine. | Better patient care and safety as well as business opportunities from exploiting potential of ICT related research. | SFI HRB | HRG | 2012 |

PART 6

# IMPLEMENTATION AND REVIEW

## Colon cancer –new early prediction test will save lives

Colorectal cancer is a leading cause of death from cancer across Europe. In Ireland, approximately 2,200 new cases of that form of cancer are diagnosed each year and 950 people die annually. However, if detected early, this type of cancer is 97% curable. This makes a compelling case for an effective screening tool. Existing screening methods include a colonoscopy, which is a time consuming, invasive and expensive exercise.

Researchers in Tallaght Hospital have developed a new screening test which uses stool samples to measure the presence of a marker enzyme called Tumour M2 PK. They showed a correlation between levels of Tumour M2 PK and pre cancer and cancer levels. The tests conducted were highly specific (98%) and sensitive.

The introduction of such a new test will encourage more people to participate in the screening process because it is less invasive. It will also save lives because the cancer will be identified earlier and treated before it becomes a life-threatening disease.

In terms of treatment, other researchers in University College Cork have developed "EndoVac". This is a safe and effective medical device technology for treating internal colon & rectal tumours by endoscopic electroporation. Cancerous tissue targeted for treatment is drawn into a chamber in the EndoVac device under vacuum suction. Electrodes within the chamber of the EndoVac then safely deliver voltage pulses, combined with a locally delivered chemotherapeutic agent.

EndoVac is funded by Enterprise Ireland. It has been studied extensively at both fundamental and applied levels, has been developed to prototype stage, has undergone preclinical testing and will be commencing human studies shortly. Those involved in developing the product are currently working closely with Enterprise Ireland to set up a new start up company.

# Part 6: **Implementation and Review**

### 6.1 Implementation of the Action Plan

6.1.1 The Programme of Actions in Part 3 will be carried out over the four year period of the Action Plan. As the Programme of Actions makes clear, individual bodies will lead on specific projects and will work in conjunction with other project participants, as appropriate. While the primary responsibility for achieving any specified action will rest with the leading body, all participating parties bear responsibility for its successful implementation and are expected to contribute to the maximum extent possible.

6.1.2 The Health Research Group recognises that the implementation of the Action Plan in a co-ordinated and cohesive manner represents a major challenge. Having said that, the fragmented nature of the Irish health research system and the need to maximise the health, social and economic benefits associated with public investment in such research provide a real impetus to ensuring the necessary collaborative approach. That collaboration was forthcoming from all the Departments and Agencies participating in the preparation of the Action Plan. The successful implementation of the Programme of Actions now requires that the level of collaboration be taken a step further in terms of monitoring, review and appraisal.

6.1.3 The Action Plan will be advanced in a structured fashion through an Implementation Plan (see Action 1.1) and related thematic workpackages. The Implementation Plan will be more detailed than the Action Plan in terms of how the specific action involved is to be progressed. It will be built around articulated priorities and the fact that certain actions can be advanced in parallel while others will require a sequential approach. The indicative timelines set out for each action will be further refined and broken down in the implementation plan.

6.1.4 The successful implementation of the Action Plan will also be based on the need to ensure that health research actions are aligned as fully as possible with relevant initiatives in other sectors to maximise potential synergies. For example, it is very hard for research in the health sector to exist in isolation from the university sector and this means that alignment with the universities in relation to the development of research

posts and providing facilities for research, including funding, is extremely important. Similarly, postgraduate medical training is dependent on the universities.

6.1.5 The Programme of Actions envisages the Health Service Executive playing a very important role in implementing the Action Plan in a significant number of areas. In line with this it is intended that the Executive will assign responsibility, and appropriate resources, at national level on a clear and identifiable basis to direct the HSE's involvement in health research generally and the achievement of relevant Actions, in particular.

## 6.2 Monitoring, Review and Appraisal

6.2.1 Monitoring, review and appraisal are distinctive and essential elements of ensuring effective implementation of the Action Plan. The monitoring element consists of tracking the implementation of the Programme of Actions and requires the identification and collection of appropriate information. The review component involves analysing the information collected in a systematic manner. The appraisal aspect is concerned with assessing the extent to which the particular programme action is being achieved and the equally important matter of its continued relevance to the overall goals of the Action Plan. Each element is interdependent: appraisal will only be useful where the information was studied in the appropriate way and the value of the study process is directly tied to the nature and quality of the information collected.

6.2.2 To be effective, therefore, the implementation process for the Action Plan must ensure that the necessary structures are in place for the required information to be collected, analysed and evaluated. These are set out in 5.2.4 below.

6.2.3 There is another important issue and that is the need to apply the same critical process to the Action Plan itself to make certain that it remains relevant as a leadership document. In an area like health research, the need to keep the Action Plan relevant is particularly crucial. This means that the successful implementation of the Plan requires not just the collection of information on current activities but also continuous scanning of the national and global health environment for new opportunities and for evidence that the areas we are concentrating on still offer the best prospects for our research investment. Building a world-class health research system for this country requires us to be outward looking in terms of opportunity. If other countries are more successful in areas that we are concentrating on, we need to know how that was achieved and adapt and enhance our model.

6.2.4 The specific processes and procedures considered necessary for implementation, monitoring and review are-

- Buy-in to adhering to the Action Plan is essential. This will be best achieved where Departments and Agencies incorporate the Actions into their Annual Business Plan and Corporate Statements.
- Members of the Health Research Group will provide a progress update at each meeting of the Group relating to Actions for which they have lead responsibility.
- To ensure that the necessary monitoring and review procedures are developed and applied, an Assistant Principal in the Research Unit of the Department of Health and Children will be assigned with specific responsibilities for these matters. The Health Research Group will approve these procedures.

- These procedures will form the basis of a formal review of the Action Plan to be carried out on a six monthly basis with a written report prepared for the Health Research Group. The Health Research Group will take such action as it considers appropriate in response to the report.
- The Health Research Group will make an annual report to the Inter Departmental Committee on Science, Technology and Innovation (IDC) on progress on the Action Plan with recommendations for change where appropriate. Following consideration by the IDC, this will be brought to the attention of the Cabinet Committee on Science, Technology and Innovation for consideration and approval to amend.

### 6.3 Moving Forward

6.3.1 In all of this, it is recognised that the Health Research Group is itself a relatively new body and that this is its first Action Plan. The way the Group approaches its role and carries out its functions is evolving and will continue to do so. The need for imaginative thinking, innovative flexibility and participative leadership at Group level must be linked to collaborative working across the individual stakeholder bodies and the wider health research community. That scenario is the best way to ensure the long term strategic development of health research in Ireland. The successful implementation of the Action Plan will provide the roadmap for making it happen.

# APPENDICES

## APPENDIX 1
## Functions and Membership of the Health Research Group

The functions of the Group are as follows:

to advise the IDC on the formulation and implementation of a comprehensive health research strategy which will include:

- identification of strategic research priorities and specialisms,
- identification of resource requirements and proposals for the development of an appropriate research investment strategy, setting out governance arrangements and investment required in key infrastructure, human resources and support systems to facilitate delivery of the strategic national priorities identified above,
- identification of the specific areas of translational research where Ireland can develop a leading position and the actions required to differentiate Ireland as a location of choice for translational research,
- an outline of priority research needs in population health and health services research and any other appropriate matter which may be referred to it by the IDC,
- a proposed timeframe for the implementation of the strategy,
- ensuring coherence in the delivery of the above among relevant Government Departments and agencies,
- to work closely with appropriate enterprise development agencies and key stakeholders in the health sector in the formulation of its proposals,
- to facilitate a coherent cross-departmental and cross-agency approach on issues relating to health research.

The Group's membership is designed to ensure that all the key statutory stakeholders in health research in Ireland are represented:

- Department of Health & Children -*Chair*
- Department of Enterprise, Trade & Employment – *Deputy Chair*
- Department of Education & Science
- Department of Environment, Heritage & Local Government
- Department of Agriculture, Fisheries & Food
- Enterprise Ireland
- Forfás
- Health Research Board
- Health Service Executive
- Health Information and Quality Authority
- Higher Education Authority
- Industrial Development Authority
- Science Foundation Ireland

The HRG engages with other stakeholder groups such as IMDA (Irish Medical Devices Association), Bioethics Council, METR (the Medical, Education, Training & Research Committee of the HSE), Medical Research Charities Group (MRCG) and with industry interests.

## APPENDIX 2

## Brief description of the organisations involved in guiding and supporting the Irish research system

The structure of the research and development system has changed since the publication of the first White Paper on Science, Technology and Innovation in 1996. The present system was agreed by the Government in June 2004.

It consists of four main policy parties:

1. The **Cabinet Committee on Science and Technology**: The Committee includes the Taoiseach (Prime Minister) and Tanaiste (Deputy Prime Minister) and is composed of ministers whose Departments have a significant research agenda.

2. The **Inter-Departmental Committee on Science, Technology and Innovation (IDC)**: This Committee is chaired by the Department for Enterprise, Trade and Employment and consists of senior civil servants from the main research spending Government Departments and the Chief Scientific Adviser (see 3 below). Its role is to assist in the prioritisation of science, technology and innovation expenditure across Government Departments and to ensure a "joined-up Government" approach to science and technology.

3. The **Chief Scientific Adviser**: This position was created in 2004 and the role of the Chief Scientific Adviser is to provide independent expert advice on any aspect of science as requested by the Government. The Chief Scientific Adviser formally reports, via the IDC, to the Cabinet Committee on Science and Technology.

4. The **Advisory Council for Science, Technology and Innovation**: This twelve member council drawn from industry and academia replaces the former Irish Council for Science, Technology and Innovation and its functions are to act as the primary interface between stakeholders and policymakers in the Science, Technology and Innovation (STI) arena, contributing to the development and delivery of a coherent and effective national strategy on STI and to provide advice to Government on medium and longer-term policy for STI and related matters.

The **Office of Science, Technology and Innovation** within the **Department of Enterprise, Trade and Employment** is responsible for the development, promotion and national co-ordination of science, technology and innovation policy. It is responsible for the science and technology budget, including EU funding, promoting research and technological development in industry and developing and coordinating Ireland's policy in international research activities.

The **Department of Enterprise, Trade and Employment** and the **Department of Education and Science** are major providers of research funds. Other Government Departments with a significant research agenda are the **Department of Agriculture, Fisheries and Food** (which is responsible for food and forestry research), the **Department of Communications, Energy and Natural Resources** and **the Department of Health and Children**.

The **Health Research Board** is the lead agency in Ireland supporting and funding health research. Funding covers all areas of health research from biomedical, translational, clinical and practice-based research, through to population health and health services research.

**Forfás,** the national policy advisory board for enterprise, trade, science, technology and innovation, is legally charged with the promotion and development of indigenous and overseas enterprise and the promotion of science and technology in Ireland. It provides advice and support to the Chief Scientific Adviser.

**Science Foundation Ireland** was established in 2000 to administer Ireland's Technology Foresight investments programme in biotechnology and Information Communications Technology (ICT). It is a major funder of research in the third level sector. The remit of SFI was extended in March 2008 to include the broad thematic areas of sustainable energy and energy efficient technologies.

**Industrial Development Authority** and **Enterprise Ireland** have statutory responsibility respectively for the development of research capabilities in the foreign-owned and indigenous enterprise sectors.

The **Higher Education Authority** (HEA) which is under the aegis of the Department of Education and Science is the funder of the HEA Block Grant which provides the necessary floor for research funding in the third level sector and the Programme for Research in Third Level Institutions (PRTLI) which provides support for institutional strategies, inter-institutional collaboration, large-scale research programmes and infrastructure.

Following on from the **Strategy for Science, Technology and Innovation 2006-2013 (SSTI)**, three groups with particular focus were set up to help ensure the successful implementation of the strategy. The groups (see below) report to the Inter-Departmental Committee on Science and Technology.

1. **Technology Ireland**: this group of senior executives from Enterprise Ireland, IDA Ireland, Science Foundation Ireland and Forfás under the aegis of the Office of Science, Technology and Innovation (OSTI) at the Department of Enterprise, Trade and Employment has been charged with overseeing the implementation of required actions to achieve the targets set for enterprise R&D performance;

2. The **Higher Education Research Group** (HERG) set up to co-ordinate higher education research policy at national level. It is chaired by the Department of Education and Science.

3. The **Health Research Group** whose membership and functions are set out in Appendix 1.

## APPENDIX 3
# Health Related Research Funding (2008)

The HRB research budget in 2008, of over €42M, provided a key support for health research (through funding from the Department of Health and Children), but funding for health research also came from Science Foundation Ireland (SFI), the Higher Education Authority (HEA), two research councils (the Irish Council for Science, Engineering and Technology (IRCSET) and the Irish Research Council for Humanities and Social Sciences (IRCHSS), agencies for development of indigenous and multinational industry (Enterprise Ireland [EI] and the Industrial Development Authority [IDA], respectively), and agencies with remits in environmental research (Environmental Protection Agency [EPA]) and marine research (the Marine Institute). The Department of Agriculture, Fisheries & Food has made investment in health related research directly through its own research programmes: namely, Food Institutional Research Measure (FIRM) and the Research Stimulus Fund. It is through the FIRM Programme that the Food for Health Related Research initiative is managed. The Department also provides a core grant to Teagasc which includes a research element. In addition, significant investment in food and health research has been made through the Programme of Research in Third Level Institutions (PRTLI) Cycle 4 through the Irish Food for Health Research Alliance.

**Funding Table – 2008 expenditure on health-related research projects**

| Research Funding Provider | Total R&D expenditure 2008[1] | Health-related research expenditure 2008[2, 3] | % of total spent on health-related |
|---|---|---|---|
| | €000 | €000 | % |
| Health Research Board | 42,723[4] | 42,723 | 100 |
| Science Foundation Ireland | 160,138 | 53,625 | 33.5[5] |
| Health Service Executive | * | * | * |
| Higher Education Authority | 132,677 | 57,749[6] | 43.5 |
| Environmental Protection Agency | 11,700 | 2,200 | 18.8 |
| Marine Institute | 11,020 | 947 | 8.6 |
| IRCSET | 25,632 | 1,572[7] | 6 |
| IRCHSS | 12,500 | 1,000[7] | 8 |
| Dept. Agriculture, Food & Fisheries | 16,060 | 2,230 | 14 |
| Enterprise Ireland | 127,600 | 10,600[8] | 8.3 |
| Industrial Development Authority | 47,258 | 26,441[9] | 56 |
| **Total** | **579,708** | **199,087** | **34** |

1. Figures describe expenditure on R&D projects in the 2008 calendar year. For each funding provider, project/ programme funding from all sources is included, while the operational costs associated with each funding provider are excluded.
2. 'Health-related' research expenditure is defined broadly as research which benefits the health of an individual, group or population through the prevention, treatment and management of illness. Such direct interventions include the development of diagnostics, pharmaceuticals, vaccines and devices and the preservation of mental and physical well being through the services offered by the medical, nursing, and allied health professions. Health related research may also benefit health through improvement in understanding of the mechanisms underlying ill-health (either physical or mental) or the influences and impact of environment (physical, social, cultural or occupational) and behaviour on health status and outcomes.
3. Scope and focus of research on 'health-related' projects differs by funding provider and reflects their statutory remit.
4. This excludes funding for national health information systems managed by the HRB.
5. Health related primarily medical biotechnology, pharma and medical engineering. No clinical research funded.
6. Large proportion of expenditure is capital/infrastructure development. PRTLI Cycle 3 amount estimated based on the percentage of health-related projects in original approval. Bioscience and Biomedical projects under PRTLI Cycle 4 constituted 32% of the overall Cycle 4 total.
7. Estimate based on relative number of projects that could be considered health-related in its broadest sense.
8. Industrial/commercial R&D including drug development, diagnostics and medical devices, innovation partnerships, SME R&D fund and academic commercialisation fund.
9. Industrial/commercial bio-science projects and TILDA technology programme

*It should be noted that the HSE is the clinical service environment within which most of that type of health research occurs. As such the Executive –or more accurately, its health professionals- receive grants from the various funding agencies listed. In effect, the HSE does not commission large research projects and does not currently have a dedicated research budget but works in partnership with the other agencies.