

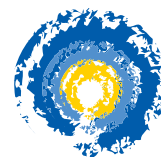


**TOWARDS BETTER HEALTH:
ACHIEVING A STEP CHANGE IN HEALTH RESEARCH IN IRELAND**

November 2006



The National Policy and Advisory Board for Enterprise,
Trade, Science, Technology and Innovation



Advisory Council for Science
Technology and Innovation
An Comhairle Eolaíochta

ADVISORY COUNCIL FOR SCIENCE, TECHNOLOGY AND INNOVATION

The Advisory Council for Science, Technology and Innovation is the Government's high-level advisory body on STI policy issues. It serves as the primary interface between stakeholders and policy policymakers in the STI arena. The Council was established by Government in April 2005 under Forfás legislation, as a successor body to the Irish Council for Science Technology and Innovation.

The Council's remit is to contribute to the development and delivery of a coherent and effective national strategy for STI and to provide advice to Government on medium and long-term policy for STI and related matters.

The Council operates within the context of the arrangements put in place by Government in June 2004 for the Co-ordination and Governance of STI matters, which include the Cabinet Committee and the Inter-Departmental Committee for STI and the Office of the Chief Science Adviser.

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FOREWORD BY MINISTER FOR ENTERPRISE, TRADE AND EMPLOYMENT MICHEÁL MARTIN T.D.



I am delighted to welcome this report of the Advisory Science Council. The Council is a key element of the new coordination and governance structures for STI initiated by the Government in 2004 and 2005. What the Council adds, critically, is the stakeholders' input, without which the range of advice, information and consultation available to Government would be incomplete.

As such, the Council plays a key role in the implementation and monitoring of the Government's new Strategy for STI, which we launched on 18 June this year. Following the launch, the Chair of the Advisory Science Council and I, together with other panel lists, engaged in a presentation on and discussion of the STI Strategy with key stakeholders in enterprise and academia, during which there was a strong commitment to the task ahead in order for us to see Ireland fully realise its objective of becoming a strong, vibrant knowledge economy.

With publication of this important report on health research, we see one of the first outputs of the whole of Government approach to the STI agenda, which we have been promoting. This bodes well for the continued implementation of the strategy and this new 'joined up' approach, which we believe will deliver more coherent and effective STI policies, leading to overall improvement in social and economic well-being.

Health is a clear example of where the Government's sectoral policy objectives and economic objectives are mutually supportive and reinforcing. Major improvements in health care are being, and will be, achieved through advances in science and medicine and through developments in areas such as biotechnology and genetics. Agencies of my Department, namely SFI, EI and IDA, are all working with a range of other bodies in the health-related sector to ensure Ireland captures our full potential in this growing area.

On behalf of the Cabinet Committee on STI, which I chair, and on behalf of the Interdepartmental Committee on STI lead by my Department, I would like to thank the ASC for taking on this critically important work on the potential for Health Research. I know they have engaged in a wide-ranging consultation with industry and the health sector, with patient groups and with enterprise, thereby working to achieve a balance between the objectives of improving the health of the population and repositioning Ireland as a location for the best researchers and the best research, whether in the public or private sectors. There are benefits for all here and I hope that everyone concerned grasps the many opportunities set out in this report, so that these benefits are realised to the full.

A handwritten signature in black ink, reading "Micheál Martin". The script is fluid and cursive, with the first name and last name clearly distinguishable.

Micheál Martin, T.D.

Minister for Enterprise, Trade and Employment

PREFACE BY MINISTER MARY HARNEY T.D., MINISTER FOR HEALTH AND CHILDREN



I wish to thank the Advisory Council for Science, Technology and Innovation for its initiative in conducting this review of health-relation research. In issuing the Strategy for Science, Technology and Innovation earlier in the year the Government recognised the need for a major increase in research activity both to maintain the country's economic competitiveness and to improve the wellbeing of the population and health care is a prime example of the latter.

The Government has recently completed a major structural reform of the health care system with a view to improving health outcomes for the nation. Research also has a major role to play in improving health outcomes but because of other pressures on the system it has not been afforded the priority it deserves. It is a key element of the system spanning population health, services research, translational research as well as fundamental scientific discoveries. The Department of Health and Children is central to developing policy in this area and has been strongly supported by the Health Research Board. The legislation governing the Health Service Executive and the Health Information and Quality Authority now gives these two agencies a clear role in research and this should provide a much needed boost to the health research community.

Health research and development are key elements for the improvement of the health of the population, not just in the context of the insights and discoveries it provides, but also in attracting to the Irish health care system practitioners of the highest calibre and ensuring that we have the quickest possible access to new innovations.

This review is very timely and I am particularly pleased that the task force who prepared it consulted with a range of patient and community groups. It sets out a significant agenda and I and my Department will be working with the other Government Departments and the health agencies to progress the actions outlined.

A handwritten signature in black ink, reading 'Mary Harney'.

Mary Harney, T.D.
Minister for Health and Children



EXECUTIVE SUMMARY

BACKGROUND

As part of its work programme for 2006, the Advisory Council for Science, Technology and Innovation has examined the area of health-related research. The Council adopted a broad definition of health-related research, covering the full spectrum of research from basic/frontier science in a broad range of disciplines and translational research, through clinical research, clinical trials and health services/systems research, to research on the determinants and promotion of health in the population. It also considered health-related research and its application across a range of industry sectors including pharmaceuticals, medical technologies, food and the environment.

During its deliberations, the Council identified a number of issues that need to be resolved in order to ensure that science, technology and innovation make their maximum contribution to the Irish health care system, to the population as a whole, and to health-related industry operating in Ireland. These issues are complex, and do not lend themselves to simple resolution.

THE POTENTIAL OF HEALTH-RELATED RESEARCH: WHAT WE CAN ACHIEVE

The potential benefit of basic biomedical, translation, health services and population research for the country is very significant, specifically leading to improved health outcomes for people. The Council's ambition is to suggest how Ireland might realise that potential.

The Council's vision is to drive a step change in the level and quality of health-related research and innovation in Ireland – both to enhance the health of the Irish population and to capture in Ireland the benefits of effective commercialisation of the intellectual property created.

A key element of this vision is to equip clinicians with the knowledge, experience and environment to deliver the best possible health care, based on the latest therapies and technological developments worldwide. Involvement of the health system in research is one of the most effective means of ensuring that it is open to and is applying the latest developments in health care, management and practice. A secondary benefit will be to increase the numbers of highly trained researchers and technicians who will enhance national competitiveness in attracting health care research industries to Ireland. The goal is to make Ireland the destination of choice when advanced technology for health is being conceived, tested or implemented.

REALISING THE POTENTIAL: HOW WE CAN ACHIEVE IT

This review is the outcome of a rigorous consultation and review process that concentrated on establishing how Ireland's considerable potential for health research might be realised. The report includes a number of recommendations on how the challenges facing the health research sector might be met by policy makers, implementation bodies, hospitals, universities, and enterprise.

National Health Research Policy and Strategy

Ireland needs an integrated, coherent policy on health research, and this needs to be developed into a national strategy that has the support and commitment of Government, the educational system, the research bodies, the hospitals, the medical and health professions and other stakeholders. Increasing the performance and exploitation of health research represents a major opportunity to contribute to the development of the knowledge economy in Ireland. However, the national health research strategy needs to be developed and implemented as a matter of urgency as the window of opportunity is limited.

Up to now there has been a diffusion of responsibility in the area of health research policy. The Council sees great value in consolidating the policy and strategy function to an Assistant Secretary designated as Head of Health Research Policy within the Department of Health and Children to provide leadership in this area.

Other steps towards making policy and strategy more coherent include the establishment by the Department of Health and Children of a cross-departmental/agency Health Research Group under the auspices of the Interdepartmental Committee for Science and Technology (IDC) – to identify and clarify policy priorities in a timely way, to coordinate the work of various government departments in this area and to achieve coherence across the health system in relation to research.

In addition, the Health Research Group should be supported by a time-limited Expert Advisory Group to advise on strategic priorities and funding requirements. A Forum of Stakeholders should also be established, including enterprise and patient groups, to ensure ongoing dialogue with policy makers.



Integrated Governance

International best practice for health research integrates the work of academia and hospitals, and uses the combined resources of both. In this model, research is conducted under the leadership of clinically trained academic scientists who have clinical time in the hospitals. Up to now, such a model has not been widely adopted in Ireland, and there is a disconnect between the universities and the hospitals.

For Ireland to optimise the social and economic returns from research, the Council believes that clearer governance structures need to be developed between hospitals and universities, and that incentives should be offered to reward hospital-university interaction and the integration of research and clinical practice.

Funding

Funding for health-related research comes from a wide range of public and private sources, and the total current expenditure while significant, is low by international comparisons. The Council sees a requirement to ensure that the particular health research needs of the Irish population are addressed by top-quality, adequately-funded research, both through the budget of the Department of Health and Children and under the Government's Strategy for Science, Technology and Innovation, 2006-2013.

Significantly increased investment is needed in health research and this should be coordinated across all funding agencies, including Science Foundation Ireland, the Health Research Board, the Higher Education Authority, and Enterprise Ireland. In particular, excellence, endorsed by peer review, and relevance in terms of contribution to Ireland's population and enterprise priorities must remain the key criteria for the awarding of funding.

Human Capital, Education and Infrastructure

To build critical mass in health research, Ireland needs to recruit increased numbers of clinical researchers with protected time for research and dedicated support staff. Significant investment in research and key infrastructure will help attract the most talented people into research and clinical practice. Attractive career structures and incentives for researchers to stay in the health research system need to be developed.

Change is also required in the way health professionals are educated, with considerably more exposure to research methods and experience for both undergraduates and postgraduates.

Finally, investment is required to address the current infrastructure gaps in translational and clinical research. The introduction of a unique patient identifier and electronic patient records is an essential pre-requisite to harnessing the full potential of research for improved patient care and should be done through a clear and transparent framework.

Innovation, Regulatory Affairs and Translation

Hospitals, historically, have not placed a significant emphasis on research and have not integrated it into their core mission. Consequently, the opportunities for linking with industry and developing and translating intellectual property (IP) into new diagnostics, devices and therapies have not been taken. The Council believes that hospitals need to develop research strategies and to integrate research as a clearly-stated component of their mission. Hospitals should work with the universities' technology transfer offices to develop procedures to ensure IP is effectively captured, protected and exploited.

The approvals process for clinical trials currently operating in Ireland is fragmented, slow and under resourced. The Council recommends that this process should be substantially streamlined and professionalised – in particular through the consolidation and professionalisation of ethics committees and the development of a co-ordination mechanism by the Department of Health and Children. Parallel regulatory and ethical review of clinical trial applications should be standard practice and the provision for electronic submissions should be enabled with immediate effect.

Finally, the Council believes that there are substantial opportunities for Ireland in the area of translational research, as researchers seek to bring new basic research findings to the patient and industry brings new equipment and therapeutics to the market. To develop as a centre of excellence for translational research will require that Ireland has the infrastructure and expertise in place, that approval structures are efficient and transparent, that the mechanisms to translate research to the commercial sector are clear, accessible and effective and that State support and hospital – higher education institutional policies are coordinated. The areas for Ireland to prioritise need to be identified and targeted by IDA Ireland, Enterprise Ireland and the other funding agencies and built into the national strategy for health research.

SUMMARY OF RECOMMENDATIONS

NATIONAL HEALTH RESEARCH POLICY AND STRATEGY

- R1** Designate an Assistant Secretary as Head of Health Research Policy in the Department of Health and Children. The appointed person should be supported by a Principal Officer with responsibility for research and appropriate policy development staff and the expertise of the Health Research Board, Health Service Executive and Health Information & Quality Authority.

Research functions of the Health Research Board, the Health Service Executive and the Health Information & Quality Authority should be accountable to and coherence ensured by this person.

Responsibility: Department of Health and Children

- R2** Establish a Health Research Group under the auspices of the IDC, comprising Department of Enterprise, Trade & Employment (DETE), Department of Education & Science (DES), Department of Environment, Heritage & Local Government (DEHLG), and the Department of Agriculture & Food (DAF), supported by their agencies including the HSE, HRB, HIQA, SFI and EI. The Group should be chaired by the Department of Health and Children. This group should be mandated to formulate in a timely way and oversee implementation of a national health research policy and strategy, including health services research and epidemiology with clearly defined objectives and priorities as a matter of urgency.

An international Expert Advisory Group should be appointed to undertake a comprehensive review of health research priorities, and advise on strategic research and funding priorities for Ireland.

Establish a Health Research Forum of stakeholders to facilitate ongoing dialogue among the health research community and with the Health Research Group.

Responsibility: IDC on STI, Department of Health and Children, HSE

INTEGRATED GOVERNANCE

R3 Develop clear and transparent governance structures between hospitals and universities.

In the case of selected major teaching hospitals, a single governance model between the hospital and its associated university should be explored.

Incentivise and reward interaction between teaching hospitals, other health care and health research settings and associated universities.

Responsibility: HSE, Hospital CEOs, University Presidents, Department of Health and Children

R4 Promote academic leadership of research and the integration of research and clinical practice.

Responsibility: Hospital CEOs, Health Service Executive

FUNDING

- R5 Funding for health research should be increased in line with that in similar benchmarked health systems.
Responsibility: Department of Health and Children, HSE, Health Research Group
-
- R6 Department of Health and Children to develop a transparent, coherent and efficient structure for the promotion, funding and commissioning of health research in between HRB, HSE and HI QA.
Responsibility: Department of Health and Children
-
- R7 Expand the remit of Science Foundation Ireland to include certain aspects of translational research relevant to its funded research.
Responsibility: Science Foundation Ireland
-
- R8 Research funding bodies to further develop joint strategies and hold joint calls and co-fund health research initiatives to ensure continuity of research from bench to bedside. Fully exploit the potential for international networking and leveraging funding for health research under the EU's Seventh Framework Programme for Research, 2007-2013. Actively promote foundation and philanthropy funding for health research.
Responsibility: Health Research Board, Science Foundation Ireland, Enterprise Ireland, IDA, Higher Education Authority, Department of Agriculture & Food, Medical Research Charities
-
- R9 Allocate funding on the basis of excellence, as endorsed by peer review, and relevance.
Responsibility: all funding agencies

HUMAN CAPITAL, INFRASTRUCTURE AND EQUIPMENT

Human Capital

R10 Recruit increased numbers of clinicians with protected time for research.

Recruit increased numbers of nurses, allied health professionals, epidemiologists, social and behavioural scientists with protected time for research. Ensure that other research support staff are available.

Responsibility: Health Service Executive, Hospitals, Universities

R11 Devise a range of incentives, including attractive career structures to attract both clinical and non-clinical staff to pursue research careers. In particular, efforts should be made to attract researchers from abroad in key areas where Ireland is seeking to build a critical mass of excellent research.

Responsibility: Health Service Executive, Hospitals, Universities, Health Research Group

Education of Health Professionals

R12 Undergraduate and postgraduate medical training to include exposure to research methods and experience.

New courses to be introduced including: MB PhD; postgraduate courses in translational research; clinical epidemiology; nursing research methodology; and cross-disciplinary studies.

Medical schools to collaborate in the development of undergraduate and postgraduate courses to ensure delivery to the highest international standards.

International mobility, supported by the Health Service Executive, to be an integral part of these programmes.

Establish a national graduate school in translational medicine linked to a network of clinical research centres.

Responsibility: Medical Schools in conjunction with universities, hospitals and training bodies

R13 Develop postgraduate training tracks for academic clinicians and continuing professional development for physicians.

Responsibility: Medical Schools in conjunction with universities and hospitals

Infrastructure and Facilities

- R14** Develop a research investment plan setting out the immediate additional investment required in key infrastructure to facilitate effective translational research and the infrastructural investment requirements to address strategic national priorities.

Prioritise the introduction of an integrated electronic medical records system and unique patient identifier, based on appropriate public consultation.

Responsibility: Health Research Group

INNOVATION, REGULATORY AFFAIRS AND TRANSLATION

Innovation


- R15** Research to be a clearly stated component of the mission of academic teaching hospitals and of the Health Service Executive.

Each teaching hospital to have a research strategy.

Responsibility: Teaching hospitals, Health Service Executive, Health Research Board

- R16** Institutional ownership of IP arising from publicly funded research to be asserted through hospital policies and consultant contracts.

Responsibility: Employer – Health Service Executive/Hospitals and/or Universities

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- R17 A number of actions are required to promote the commercialisation of health related research. Hospitals to establish procedures to capture, protect and exploit intellectual property.
- Hospitals to work with technology transfer offices in affiliated universities to make best use of available capabilities and to exploit IP optimally.
- Enterprise Ireland to provide additional technology transfer expertise in health, pharmaceutical and medical technology research – to hospitals through the universities.
- A central portal to facilitate industry, academic, hospital collaboration to be established.
- Responsibility: Hospitals with University Technology Transfer offices and Enterprise Ireland*
-
- R18 Foster innovation and excellence in primary care, health services and population health research.
- Responsibility: Health Service Executive*
-
- R19 Outreach initiatives to be introduced 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.
- Responsibility: Health Service Executive, Hospitals, Universities, Health Research Board*

Regulatory Affairs

- R20** Streamline and consolidate ethical approval structures to four regional ethics committees, with professional paid members, sectoral specialists, standard operating procedures and well resourced secretariat.

Department of Health and Children to establish a coordination mechanism for this revised Ethics Committee structure and this should be the first contact point for enterprises and academics wishing to conduct a trial.

Enable electronic submissions of applications for clinical trials approvals with parallel review by the Irish Medicines Board and Ethics Committees as standard practice.

Responsibility: Department of Health and Children, Irish Medicine Board

Promoting and Developing Capability in Translational Research

- R21** Identify 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.

Responsibility: IDA Ireland, Enterprise Ireland, HRB, Health Research Group

1 INTRODUCTION – WHY HEALTH RESEARCH IS IMPORTANT

The potential benefit of health-related research to the social and economic well-being of the population is very significant. The results of health related research play a major role in people living longer and healthier lives; in increased productivity and improved health outcomes; and in reducing the burden of disease on society.

Investment in health-related research can yield returns in a number of ways – for example, through:

- the improved health, wellness and quality of life of the general population and reduced social and economic inequalities in health,
- improved diagnosis, disease prevention, patient care and treatment,
- better trained and educated health-care workers,
- better diagnostic tools, medical devices and more cost-effective treatments, and
- more efficient use of skilled personnel, scientific and clinical infrastructure, and other resources.

Patients, professionals and the healthcare system can be affected positively by involvement in health research. Patient care is optimal when clinical trial activity is present. Patients involved in clinical trials can benefit from access to new treatments in advance of market authorisation and drugs that are in short supply when first manufactured are prioritised to clinical trial sites. If Ireland embraces clinical research, our health service professionals will be trained and supported to bring innovations to Ireland as a first adopter of new ideas. Without this, and, given our small market size, Ireland will not be a priority country for new therapies.

Health Research
Dramatically Improves
Peoples Lives

Patient awareness and involvement in research are therefore critical to establishing a vibrant research environment in Ireland. Central to fostering a willingness of patients to engage in the research process are outreach activities and public communication on past and potential impacts of research, on current and strategic areas of investigation, on emerging research findings and their potential future influence on treatments, and on the role of industry in translating research into clinical practice.

All clinical trials involve some element of risk, and there is a need to have strong and robust ethical and regulatory environments to support a research-oriented health system where risk is minimised. Equally, patients need to have access to clear and unambiguous information to support their choices when considering participation in health research and clinical trials.

Health research can also contribute to the further development of the knowledge society with consequent economic benefits. The domestic healthcare sector is a very significant component of the Irish economy, currently accounting for 10% of jobs.¹ Fourteen of the world's top fifteen pharmaceutical companies and fifteen of the top twenty-five medical technology companies have operations in Ireland. Pharmaceutical exports amounted to €23 billion in 2004. Exports from the medical technologies sector reached €5.5 billion in 2004 with over 23,000 employed. In the same year, Ireland supplied 24 per cent of US imports of biotechnology and 36 per cent of US imports of life sciences products².

Health Related
Research Underpinning
Economic Growth

TABLE 1 SALES, EXPORTS, EMPLOYMENT AND R&D IN HEALTH RELATED SECTORS, 2004

	Sales (€m)	Exports (€m)	Employment	R&D spend (€m)
Chemicals/Pharmaceuticals	23,692.00	23,015.20	25,211	261.40
Medical Devices/Instruments	5,867.40	5,545.30	23,583	100.00

Source: Forfás, Annual Business Survey of Economic Impact (ABSEI) and employment data.

¹ CSO, Database Direct.

² National Science Foundation, National Science Board, Science and Engineering Indicators 2006, Volume 1.

Industry has a critical role to play in translating new research findings into innovative products, processes and techniques and in ensuring that research outcomes are translated into patient benefit and improved health outcomes as quickly and efficiently as possible. A highly competent and efficient regulatory environment is vital to ensure that the application of new knowledge benefits Irish people quickly, while ensuring the safety of new products through the most stringent ethical and safety standards.

Innovation is as important in health services delivery as in any other sector. In addition to improving patient outcomes, it also serves to drive down costs and to increase the productivity of the sector. Evidence from research spanning prevention of ill-health, disease and condition management, patient care, delivery of healthcare and its organisation, as well as public health and social care is essential to underpinning innovation and continuous improvement in the health service.

Health services and patient related research is complex and academic excellence from many disciplines is required to collaborate with practitioners and patients. For example, it is care delivery structures and processes at the condition level that translate new medical knowledge and technology into improved patient outcomes, while also contributing to new knowledge. Harnessing this potential requires close partnership and linkage across the full spectrum of health related research and among all professionals with a role in conducting and enabling health research. In this context, other developed countries are seeking to promote, stimulate and nourish research collaborations that bridge biomedical science, health systems and services, and population health research, incorporating multiple health research perspectives.

2 VISION FOR IRELAND

The Council's vision is to drive a step change in the level and quality of health research, to enhance the health and wellness of the population, and to build an international reputation for Ireland in health research through excellence and innovation.

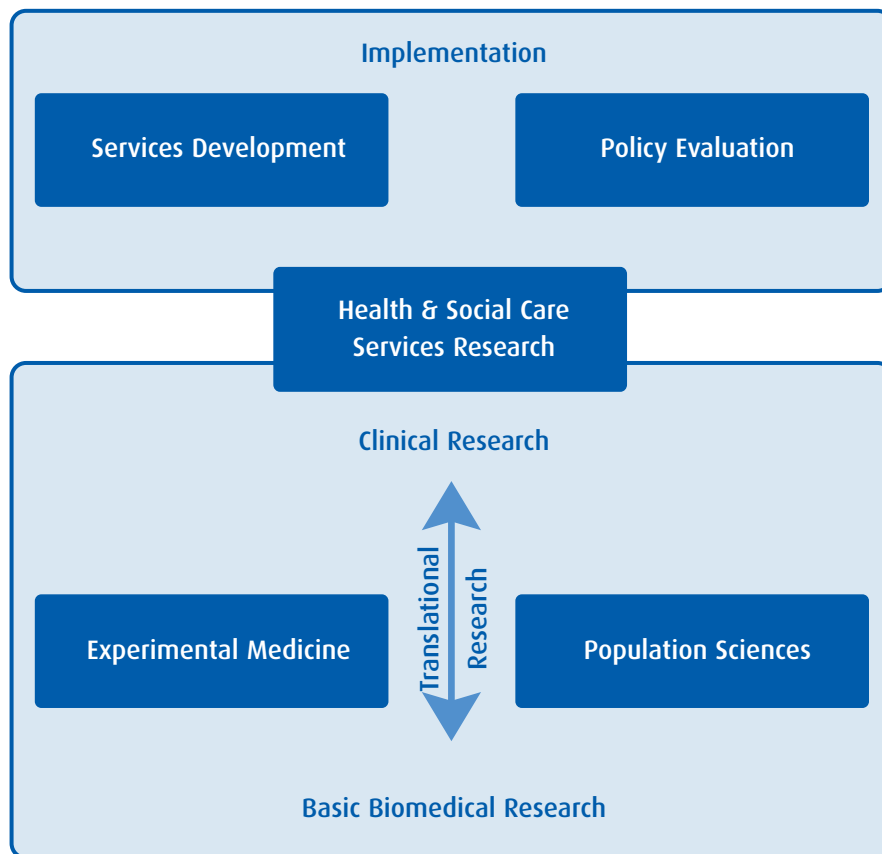
Key elements of the vision are to:

- provide the evidence base for policies to promote positive health in the population and reduce the burden of illness and premature mortality,
- provide the best possible health care for our people by using the latest therapies and technological developments,
- build a well-funded vibrant health research system to attract top-class clinical and biomedical researchers, and
- position Ireland as a leading location for the performance and commercialisation of health research.

Step Change Needed in
Irish Health Research

In conducting its review, the Council adopted a broad definition of health-related research, covering the full spectrum of research from basic/frontier science in a broad range of disciplines and translational research, through clinical research, clinical trials and health services/systems research, to research on the determinants and promotion of health in the population. It also considered health-related research and its application across a range of industry sectors including information and communications technologies (ICT's) pharmaceuticals, medical technologies, food and the environment.

FIGURE 1 RELATIONSHIP BETWEEN DIFFERENT ELEMENTS OF THE HEALTH RESEARCH SYSTEM



Inextricable Links
Between Biomedical,
Population and Health
Services Research

3 KEY CHALLENGES AND RECOMMENDATIONS

3.1 NATIONAL HEALTH RESEARCH POLICY AND STRATEGY

National Health Research Policy and Strategy: Challenges

In 2001, the Department of Health and Children published Making Knowledge Work for Health, a detailed strategy that addressed the lack of coherence and strong leadership in the formulation of health research policy and set out a clear health research agenda. Some progress has been made in implementing the recommendations of the strategy but a number of significant gaps remain as the implementation of the strategy was overtaken by the structural reform of the health service. In addition, the environment for health research in Ireland has changed considerably since the publication of this strategy. There is an increasing willingness among health-related industries to engage in R&D in Ireland; but there is also increasing competition from other countries seeking to develop their health systems as a major resource for research and economic development. Structural changes to the environment for health research include:

- The launch of the Health Reform Programme in 2003.
- The establishment of the Health Services Executive in 2005.
- The impact of Science Foundation Ireland's considerable investment in basic biomedical research and its potential applications in the health area, since its establishment.
- The Government's recently announced *Strategy for Science, Technology and Innovation, 2006-2013*.

Changing
Environment for
Health Research

The Council's review provides an opportunity to build on *Making Knowledge Work for Health*, reinforcing the key messages that remain relevant and making further recommendations to significantly strengthen health research in Ireland. Today in Ireland there are clear and defined mechanisms to review and integrate sectoral strategies such as that outlined in *Making Knowledge Work for Health* into the overall R&D framework for Ireland.

While the Department of Health and Children have overall responsibility for health research policy, and its agencies and the Health Service Executive have specific remits in relation to research, a number of other Government departments are currently involved with health-related research policy and funding, either directly or through their executive bodies and agencies. These include:

- The Department of Education & Science,
- The Department of Enterprise, Trade & Employment, and
- The Department of Agriculture & Food.

Health research also presents opportunities for the Department of Communications, Marine & Natural Resources and the Department of Environment, Heritage & Local Government.

This diffusion of responsibility means that decisions relating to health research are made independently, without strategic direction or reference to agreed national priorities. In this context, efforts may be duplicated – with consequent inefficient use of resources – and areas of specific national need or opportunity might not be addressed.



Although executive agencies play a crucial role in funding and developing health research, there is a need for an overarching policy framework to be developed and agreed at Government level. At present there is no clear leadership at national level, with no dedicated person or 'Champion' with responsibility for achieving coherence and coordinating the national health research agenda which is limiting the potential for health research in Ireland to enhance patient care and lead to economic development. In other countries (such as the United Kingdom and Israel) where health research and services delivery are well integrated, directors for health research have been appointed to lead health research policy development and achieve coherence across government departments.

With the establishment of the Health Services Executive, the Department of Health and Children now focuses on broad policy development, and this presents an opportunity for a significant strengthening of the health research policy capacity of the Department of Health and Children. As the HSE has responsibility for all executive functions it has a key role to play.

Establishing clarity and leadership in health research policy will place Ireland in a better position to connect internationally with leading centres on policy and strategy including an all island dimension. As Northern Ireland is part of the UK system, it has a well structured health research system with many opportunities for joint initiatives to improve health outcomes on the island and build critical mass in research.

Leadership to Integrate Health Research and Services Delivery

International Links

National Health Research Policy and Strategy: Recommendations

Ireland needs a coherent policy on health research that integrates the key elements and strategies of the national innovation system, including the educational system, the research bodies, the hospitals, enterprise, non-governmental organisations, the medical and health professions and other health researchers and that has the support and commitment of Government.

Health research requires clear policy leadership at national level. International best practice is for governments to appoint a director of health research³ in the ministry for health, with ultimate responsibility for providing leadership in the development of health research. Ireland needs to similarly overhaul its approach to developing health research policy and develop the capacity for health research policy formulation.

In Ireland, the Department of Health and Children should continue to have primary responsibility for health research policy and lead in the development of a coherent policy for health research, both within the Department and at a trans-departmental level. This responsibility should be headed at Assistant Secretary level in the Department of Health and Children.

R1 Designate an Assistant Secretary as Head of Health Research Policy in the Department of Health and Children. The appointed person should be supported by a Principal Officer with responsibility for research and appropriate policy development staff and the expertise of the Health Research Board, Health Service Executive and Health Information & Quality Authority.

Research functions of the Health Research Board, the Health Service Executive and the Health Information & Quality Authority should be accountable to and coherence ensured by this person.

Responsibility: Department of Health and Children

Clear Policy
Leadership

³ In the case of the UK the Director of Health Research and Development, Professor Sally Davies is located in the Department of Health, having previously held a position in the NHS.

Health research policy formulation requires coordination across a range of government Departments. The Council recommends that the Department of Health and Children arrange for the establishment of a new inter-departmental/agency Health Research Group to identify and clarify policy priorities in a timely way and to facilitate a coherent cross-departmental and cross-agency approach. As it will have oversight of the activities of a range of Government Departments and agencies it requires to be chaired by the Department of Health and Children.

Co-ordination
Across Government
Departments

The Health Research Group should be charged with formulating and implementing a comprehensive health research strategy.

For this Health Research Group to operate effectively, each department and agency represented on it will need to allocate resources to it, and designate at least one person with competence and capability in the area of health research policy.

National Health
Research Strategy

The Health Research Group should work closely with the development agencies in formulating the strategy and seek input and advice from the new Chief Scientific Advisor on certain issues.

The timeframe for implementation of the strategy is critical. Clearly defined objectives and a defined implementation schedule are imperative. The window of opportunity is limited and Ireland needs to act quickly to remove barriers and build its reputation as a competitive location for health research performance in order to maximise the potential opportunity in the translational research field.

Need for
Urgency

The identification of strategic research priorities and development of an investment plan are key elements of a comprehensive health research strategy. The Council recommends the establishment of an international Expert Group to advise the Health Research Group on research and funding priorities for Ireland.

The Expert Group would meet for a limited period (six to nine months), and would comprise between six and ten active funded international researchers and research managers from industry and academia, across a range of disciplines and different elements of the health research system from fundamental biomedical research to population health, with a chairperson from the Irish health research system. The group should also consider the implications of its recommendations on national skills⁴ and infrastructure requirements. It could be envisaged that subsequent expert groups would be established from time to time by the Health Research Group to advise on key strategic issues as they arise.



Defining Research and
Funding Priorities

⁴ The group should liaise with the Expert Group on Future Skills Needs in this regard.

The ongoing exchange of information amongst the health research community and with health research policy makers is another key requirement for cohesive, informed policy development. The Council recommends the establishment of a health research forum with broad and inclusive representation of stakeholders with an involvement in health research.

The Forum would also provide input to the determination of strategic funding priorities through the Expert Group and contribute to subsequent expert groups as appropriate.

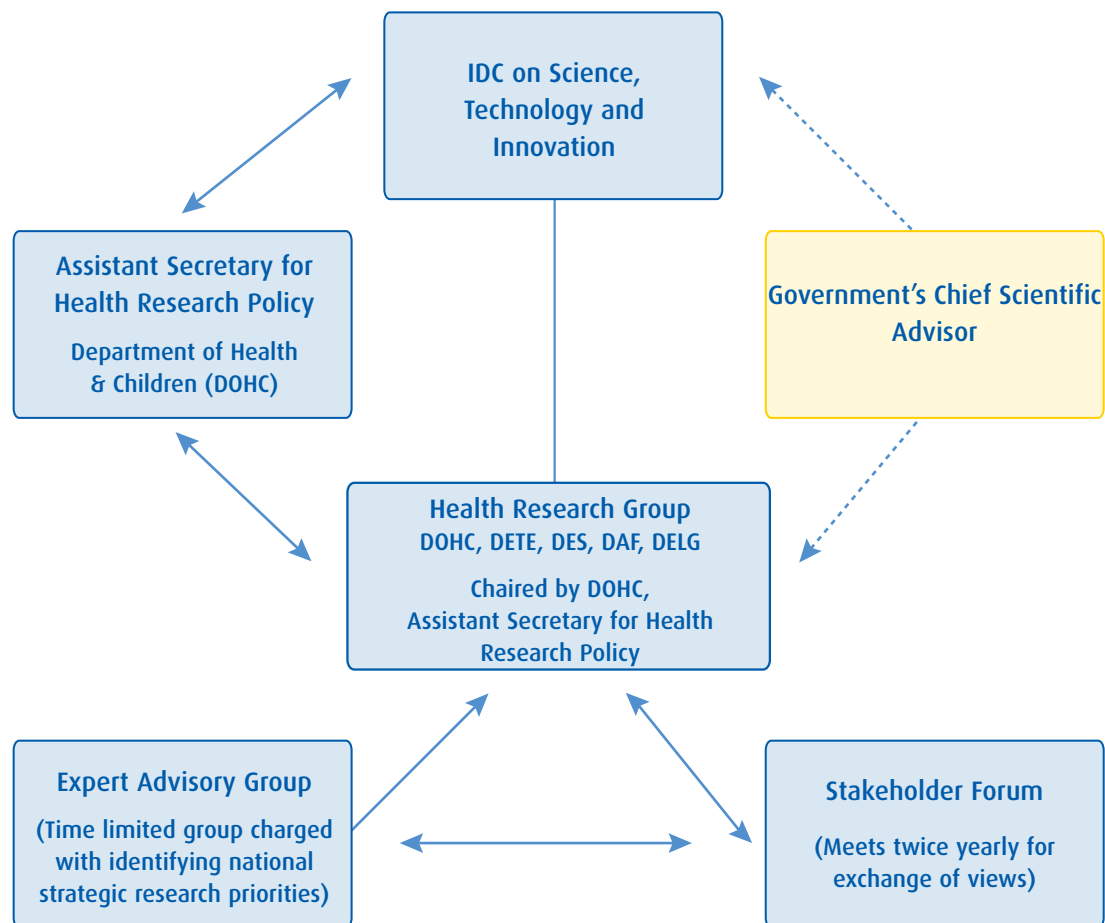
R2 Establish a Health Research Group under the auspices of the IDC, comprising Department of Enterprise, Trade & Employment (DETE), Department of Education & Science (DES), Department of Environment, Heritage & Local Government (DEHLG), and the Department of Agriculture & Food (DAF), supported by their agencies including the HSE, HRB, HIQA, SFI and EI. The Group should be chaired by the Department of Health and Children. This group should be mandated to formulate in a timely way and oversee implementation of a national health research policy and strategy, including health services research and epidemiology with clearly defined objectives and priorities as a matter of urgency.

An international Expert Advisory Group should be appointed to undertake a comprehensive review of health research priorities, and advise on strategic research and funding priorities for Ireland.

Establish a Health Research Forum of stakeholders to facilitate ongoing dialogue among the health research community and with the Health Research Group.

Responsibility: IDC on STI, Department of Health and Children, HSE

FIGURE 2 RECOMMENDED STRUCTURES FOR DEVELOPING HEALTH RESEARCH POLICY AND STRATEGY



3.2 INTEGRATED GOVERNANCE

Integrated Governance: Challenges

International best practice in health research integrates and uses the combined resources of academia, hospitals and other health agencies including those based in the community. In this model, clinical and translational research is conducted under the leadership of clinically trained academic scientists who also have clinical responsibilities in the associated hospitals. Strong and clear links between academic hospitals and universities can serve as an important mechanism for ensuring that the priorities of the health system are reflected in the research agenda, and that new research findings quickly find their way into clinical practice and the education of health professionals. In parts of the United States, for example, the university owns the teaching hospital. This academic leadership and concentration of resources works to the benefit of patients, ensures that the research conducted is relevant to the real needs of patients, and that research results more readily inform clinical practice.

Currently, with a few notable exceptions, connections in Ireland between universities and their associated hospitals are not formalised or achieving their potential. Strengthening and formalising the links between universities and hospitals and across hospital academic and service delivery functions can bring a number of real benefits, including:


- optimising the research focus,
- beginning to harness the impact of research on clinical practice,
- optimising human resource deployment, administration and the use of physical facilities, and
- maximising the impact of new R&D for Irish patients and the healthy population alike.

Integrating and
Combining Resources

Also, given Ireland's small size, to build critical mass in translational and clinical research will require universities, hospitals and clinical research centres to cooperate and function as a single cohesive research unit. Areas for enhanced cooperation on an all-island basis should be explored.

To ensure that leading edge science and the latest research findings impact on healthcare in Ireland and that health research has relevance to the Irish population, it is essential that the academic leadership of medicine is empowered amongst clinicians in hospitals and that the clinical departments become integrated with university-based departments of basic research in driving translational and clinical research. It is such academically appointed healthcare professionals who are best positioned to understand unmet clinical needs and the potential for research to drive developments in diagnostics, therapeutics and ICT which could impact on human health and disease.

Developing the culture of innovation and learning in hospitals is essential in this regard. Research contributes to the development of medicines and therapies which enhance wellness and improve the prevention and treatment of disease globally. It can also contribute to the understanding and treatment of conditions and diseases that are of specific relevance to the Irish population, thereby enhancing quality of life and lessening the burden on the health service. The Council is also aware that a significant proportion of health research occurs at the interface between the hospital and primary/community care and at the interface between the health and social sciences. There is therefore a clear need to develop governance structures that reflect the range and diversity of health research in Ireland.



Developing a
Culture of Innovation
and Learning

Integrated Governance: Recommendations

The Council recommends the establishment of clear and transparent governance structures between hospitals and universities, underpinned by clear and explicit legal agreements which identify and regulate areas such as joint appointments, career structures, budgetary arrangements and mechanisms to manage and exploit intellectual property. The current directorate structures in hospitals should have clear relationships with the academic structures within the universities. Hospitals that implement such structures should be rewarded by an increased budget allocation.

The Council also recommends that, over the longer term, consideration should be given to developing a single governance model for teaching hospitals and their associated universities – a model which may be appropriate for a small number of major academic medical centres in the country.

University Hospital Governance Structures

Collaboration and interaction between universities and associated teaching hospitals should be encouraged. Hospitals should be incentivised financially to actively engage in research and to build their own research capacity, either directly through research overheads or through budgetary structures.

R3 Develop clear and transparent governance structures between hospitals and universities.

In the case of selected major teaching hospitals, a single governance model between the hospital and its associated university should be explored.

Incentivise and reward interaction between teaching hospitals, other health care and health research settings and associated universities.


Responsibility: HSE, Hospital CEOs, University Presidents, Department of Health and Children

The Council recommends promoting academic leadership of research and the integration of research and clinical practice within hospitals and other healthcare settings. The ongoing review of consultants' contracts provides an opportunity for the implementation of changes in the governance structures of academic and service delivery functions that will be necessary to realise this objective.

The review of consultants' contracts also presents the opportunity to populate academic departments in hospitals through which research resources should be channelled.

R4 Promote academic leadership of research and the integration of research and clinical practice.

Responsibility: Hospital CEOs, Health Service Executive



Collaboration and
Interaction

Academic Leadership
of Research

Integrating Research and
Clinical Practice

3.3 FUNDING

Funding: Challenges


The Health Research Board, which is an executive agency of the Department of Health and Children, has statutory responsibility to promote, commission and conduct health research and is the main funder of health research.

However, funding for health-related research comes from a number of additional public and private sources, including the following:

- Science Foundation Ireland (Science Foundation Ireland),
- Enterprise Ireland (EI),
- The Higher Education Authority (HEA), Programme for Research in Third-Level Institutions (PRTL),
- Irish Council for Science, Engineering and Technology (IRCSET),
- Irish Council for Humanities and Social Sciences (IRCHSS),
- The European Union Framework Programme,
- The Medical Research Charities Group (MRCG), and
- The Wellcome Trust.

While the HEA's and SFI's remits are broader than health research, recent significant investment in infrastructure through PRTL and in fundamental bioscience through SFI has been of significant benefit to the health research system.

Stepping up
Translational and
Clinical Research



By investing heavily in fundamental bioscience, SFI has significantly strengthened the capacity in frontier biotechnology research, much of which has potential applications in human health. Through the PRTL and SFI initiatives, the university sector now has world-class infrastructure to conduct research and can attract high calibre internationally renowned researchers. The initial rounds of PRTL have focused heavily on laboratory-based bioscience and biomedicine infrastructure. Indeed, 49 per cent of PRTL expenditure has gone to develop infrastructure in this area which is largely, but not exclusively on university research sites. Now that there is a critical mass of fundamental research, it is appropriate to develop the logical progression of this research portfolio into translational and clinical research.

The challenge is to ensure that both the funding and the infrastructure are in place to ensure that investment in basic research can be translated to improved patient outcomes and increased health of the population and into effective and marketable diagnostics, devices, pharmaceuticals and information technologies. Currently in Ireland, excellent translational science is sometimes truncated at pre-clinical study stage, with consequent loss of opportunity for health and economic benefit. Investment in fundamental research now needs to be complemented by investment in translational and clinical research capability.

Ireland's total expenditure on health research in the Higher Education Sector in 2004 was approximately €90m (Forfás Survey of Research and Development in the Higher Education Sector 2004). While this is a significant sum, it is small when compared with US universities or indeed the research budgets of individual pharmaceutical companies. For example, the University of Pennsylvania spends approximately \$500 million a year on biomedical research; and the annual R&D budgets of the top five pharmaceutical companies range from €1.0bn to €5.5bn. Also, by comparison with other countries with which we compete, health research remains under-funded in Ireland. Research funding accounts for 1.0 per cent⁵ of the €12.5bn total health vote in the estimates for 2006. In the UK, by contrast, funding for health research through the Medical Research Council and through the National Health Service R&D Programme is well in excess of

Competing Demands: Making Choices

⁵ State Expenditure on Science and Technology 2005, Forfás (background data).

£1 billion per annum, at approximately 1.6 per cent of the NHS's total budget. In addition, the British Government announced (in December 2005) a major investment programme in R&D through the NHS over the next five years.

Moreover, the range of scientific and technological disciplines involved in health-related research is very broad, as is the range of new knowledge, techniques and products becoming available. There are competing demands for funds – between meeting the day-to-day needs of the health system and the need to increase funding for health research and other areas.

We need to ensure that the particular health research needs of the Irish population are addressed by top-quality, adequately resourced health-related research in Ireland. And this needs to be complemented by the ability to identify and exploit new knowledge, techniques and products, whatever their source. Strategic research aligned with population needs and the industry base must be supported along with continuing support for bottom-up investigator-driven research.

It is immediately apparent that Ireland – a small country, with limited resources – will have to make choices about how much research to support and in which particular areas. The funding currently being provided is insufficient to remove the infrastructure and human capital deficiencies that are blocking Ireland from harnessing the full potential of health research. Additional funding will need to be prioritised within the health budget and through the securing of required funding under the Government's National Development Plan, 2007-2013 for sectoral research priorities.

There is also a need for the Health Service Executive to proactively encourage, facilitate, commission and provide funding for health research in areas of relevance to the Irish population, the Irish health system and Irish economic development.

The proposed IDC Health Research Group needs to set research and funding priorities and develop a coherent trans-departmental funding strategy. This should cover the full spectrum of health research from fundamental biotechnology, translational and clinical research to health services and population health research; and it should take into account advice provided by the Expert Group.

In addition, the Department of Health and Children, together with the HSE, HRB and HIQA will need to develop an efficient and transparent mechanism for the promotion, funding and commissioning of research from basic biomedical through to health services and epidemiological research and in the context of the activities of other funding agencies such as Science Foundation Ireland and the Higher Education Authority. There are a number of options that can be considered. While a single funding agency for health research in general was considered to have some merits, this was not believed by the Council to be the optimal solution at the current stage of development of health research in Ireland.

However, there is a strong case for a single funding awarding agency for health services research and for science for health research to ensure consistency in assessments of the quality and relevance of research proposals and in terms of expertise and efficiency. The Health Service Executive and the Health Information & Quality Authority need to determine their key research priorities and to decide whether they should develop their own capacity for commissioning research or use the expertise of the Health Research Board, the latter being the option favoured by the Council.



Setting Research and Funding Priorities

Funding: Recommendations

Resources for health research in Ireland need to be significantly increased to build Ireland's reputation for excellence in health research attracting the best people into the health system and the best companies to do research here. To maximise the impact of health research funding on the health system and the economy, the remits and focus of each of the agencies funding health research need to be transparent and a coordinated and coherent funding strategy adopted. Detailed investment requirements and funding priorities are to be defined by the Health Research Group on Health Research based on advice provided by the proposed expert group⁶.

Significant Increase
in Funding

R5 Funding for health research should be increased in line with that in similar benchmarked health systems.

Responsibility: Department of Health and Children, HSE, Health Research Group

There is a need for a transparent and efficient structure to be established by and accountable to the Department of Health and Children for the promotion, funding and commissioning of health research covering all elements from biomedical and population health to translational and health services research, encompassing the roles of the Health Service Executive, the Health Research Board, and the Health Information & Quality Authority.

Transparent and
Efficient Funding
Structures

Within this framework, the Council recommends that the Health Research Board's remit be expanded in the areas of infrastructure and training in addition to translational and clinical research and that its budget be increased substantially⁷ in order to build critical mass in these areas. The composition of the Board of Health Research Board should be reviewed in the context of this expanded remit.

Health Research
Board Budget

⁶ The latest OECD figures on health-related R&D expenditure in government budgets as a % of GDP showed that Ireland spent 0.015% (2002 data), compared with an EU average of 0.043% (2001 data) and an OECD average of 0.121% (2003 data). It is noteworthy that countries like Finland, the UK and the USA which would be regarded as highly successful in terms of health research had % spends of 0.068%, 0.104% and 0.256% respectively. Source: OECD Science, Technology & Innovation Scoreboard 2005.

⁷ Detailed investment plan to be drawn up by the Health Research Group with advice from the Expert Group.

The Council also recommends that the Health Service Executive should encourage, facilitate and support health research with an appropriate level of funding. It recommends that the Health Service Executive and Health Information & Quality Authority define their strategic priority research areas. These should be in line with national funding priorities identified by the IDC Health Research Group with the Expert Advisory Group and that relevant funding programmes be developed and administered by the Health Research Board on their behalf.

R6 Department of Health and Children to develop a transparent, coherent and efficient structure for the promotion, funding and commissioning of health research in between HRB, HSE and HI QA.

Responsibility: Department of Health and Children



HSE and HIQA
Funding Administered
by HRB

The Council recommends that Science Foundation Ireland's remit should expand to include certain aspects of translational research of relevance to its mission and funded projects. Science Foundation Ireland currently funds translational research up to the point where human involvement is required. It is proposed that the Science Foundation Ireland remit be expanded to include funding for the collection of samples and certain invasive human studies.

Expansion of
SFI Remit

R7 Expand the remit of Science Foundation Ireland to include certain aspects of translational research.

Responsibility: Science Foundation Ireland

The Council also strongly recommends that funding agencies develop joint strategies and hold joint calls for proposals in areas of mutual interest, overlap or synergy. It views this as an essential element of a coherent inter-agency approach to providing seamless funding from basic research through to clinical research and implementation.

Joint Strategies
and Joint Calls

Specifically, the Council recommends that Science Foundation Ireland and the Health Research Board jointly fund translational research initiatives, led by hospital-based academic departments in collaboration with relevant university-based basic scientists.

The Council also recommends that agencies currently engaged in joint calls – for example, the Health Research Board with the medical research charities, the Wellcome Trust and the Health Service Executive should be encouraged to continue this practice.

The European Union's new Seventh Framework Programme (FP7) for research will be launched at the end of 2006 and will contain a significant increase in funding for health and health related research. FP7 will provide a valuable mechanism for networking the burgeoning Irish biological and molecular medicine research base with research teams and centres of excellence internationally and also provide a source of additional funding for research in areas of national interest.

In addition, Internationally, foundation and philanthropy funding of health research has made a significant contribution. The Council recommends that such funding be actively promoted.

R8 Research funding bodies to further develop joint strategies and hold joint calls and co-fund health research initiatives to ensure continuity of research from bench to bedside. Fully exploit the potential for international networking and leveraging funding for health research under the EU's Seventh Framework Programme for Research, 2007-2013. Actively promote foundation and philanthropy funding for health research.

Responsibility: Health Research Board, Science Foundation Ireland, Enterprise Ireland, IDA, Higher Education Authority, Department of Agriculture & Food, Medical Research Charities



Foundation and Philanthropy Funding

All funding for health research should be allocated on the basis of excellence and peer review together with relevance to Ireland's population and enterprise priorities. For industrial research and commercially relevant translational research, assessments should be complemented with additional strategic information on IPR, regulatory, marketing and manufacturing reviews as appropriate to ensure that the outcomes of research reach patients in a timely manner.

Criteria for Funding: Excellence and Peer Review

R9 Allocate funding on the basis of excellence, as endorsed by peer review, and relevance.

Responsibility: all funding agencies

3.4 HUMAN CAPITAL, EDUCATION AND INFRASTRUCTURE

Human Capital: Challenges

If the level of translational, clinical and other health research in Ireland is to be increased significantly, the number of researchers will have to increase throughout the health research system. The increase in the number of health researchers needs to be achieved in tandem with an increase in the numbers entering medical training – to ensure the continued output of clinicians and nurses to meet the needs of the health sector. This will require measures and incentives that will make it both possible and attractive for health professionals to pursue research careers – such measures will include adequate training, attractive career structures and protected time for research.

Within the hospitals in particular, there are not enough health professionals engaged in research. This is a key challenge faced by the Health Services Executive. It needs to increase the number of clinical researchers, clinical research nurses, allied health researchers, study coordinators, technical staff, biostatisticians, bioinformaticians, data managers and administrative staff. Capability also needs to be built in key disciplines such as epidemiology, genomics and proteomics. There is a critical need to develop capacity in the social and behavioural sciences including (but not confined to) health psychology, health economics, anthropology and sociology.

The shortage of researchers in hospitals is due, partly to the lack of research policies and strategies, and, in the case of consultants, partly to issues relating to consultant contracts, which do not generally provide protected time for research. In addition, the demands of clinical practice are such that even those with protected time for research often have difficulty using this time exclusively for research.

More Researchers
Needed

Lack of Research
Strategy

Human Capital: Recommendations

In line with the recommended increase in funding for health research, the Council recommends that increased numbers of clinicians be recruited with protected time for research. In the short term, the Council proposes that 30 world class Clinical Scientist-led research teams in health research be hired without delay, across the spectrum of health research – from fundamental biomedical research, translational research and population health. The ramping up of human capital in the health research system should be sustained over the period up to 2013⁸. In the hospital setting, these individuals should have eight protected sessions for research.

Appointments should be made in complementary areas of investigation in line with strategic national priorities. The Council recommends that the academic consultant contract, jointly issued by the hospital and the university, with protected time for research, should be used to engage clinician researchers. The people appointed should have defined appointments in relevant academic departments.

The Council also recommends that the new consultant contract currently under negotiation, should recognise the crucial role of health research, and allow protected sessions for research for fixed periods of time. Protected time for research should be available on a competitive basis to all clinicians as part of hospital human resource strategies. The Council recommends that the university based academic departments of clinical disciplines, such as Medicine, should oversee the research portfolio (including consultant sessions) in teaching hospitals and that productivity and excellence are evaluated and suitably rewarded as intrinsic components of appropriate joint appointments.



Recruit
Researchers Now

⁸ Specific numbers to be developed by the Health Research Group, with advice of the Expert Group, in line with the National Strategy on Science, Technology and Innovation. <http://www.entemp.ie/publications/science/2006/sciencestrategy.pdf>

In addition, the Council recommends that more nurses, allied health professionals and epidemiologists are hired, also with protected time for research. Other research support staff including study coordinators, biostatisticians and bioinformaticians, social and behavioural scientists, data managers and administrative staff also need to be made available to support increased research performance. Where the employment of specialised staff cannot be justified in particular teams, the Council recommends building a centralised pool of resources that can be made available as needed.

Research Support

R10 Recruit increased numbers of clinicians with protected time for research.

Recruit increased numbers of nurses, allied health professionals, epidemiologists, social and behavioural scientists with protected time for research. Ensure that other research support staff are available.

Responsibility: Health Service Executive, Hospitals, Universities

Appointment of additional staff should be of sufficient scale to ensure service delivery is not compromised by affording health professionals protected time for research.

To satisfy the need for additional trained and experienced staff, the Council recommends that the necessary facilities, career structures and other incentives are put in place to make clinical research an attractive option. This will be particularly necessary to attract clinical researchers from other countries to come to Ireland.

Incentivise Research

R11 Devise a range of incentives, including attractive career structures to attract both clinical and non-clinical staff to pursue research careers. In particular, efforts should be made to attract researchers from abroad in key areas where Ireland is seeking to build a critical mass of excellent research.

Responsibility: Health Service Executive, Hospitals, Universities, Health Research Group


Education of Health Professionals: Challenges

The Irish education and training system for medical staff does not adequately prepare medical graduates for a research career or for working with industry – this situation needs to change. As the Health Research Group identifies the priority areas for research, there will be a requirement for adequate numbers of suitably trained staff to work in those areas. Similarly while the majority of medical graduates with aspirations to be consultants have trained abroad as a result of inadequacies in post-graduate training here, this is not part of a structural approach to post-graduate medical training. International mobility should be a central part of Irish post-graduate medical training, in particular to deepen the connections with international health research centres of excellence.

Specifically, the curricula of all phases of medical education need to be revised to incorporate experience in conducting research. Also, a number of postgraduate courses need to be made available to existing medical staff to facilitate the development of research capability.

The recent Buttimer Report on Postgraduate Medical Training⁹ recommends that the training bodies should include research as a core element of all postgraduate medical programmes and engage closely with the university/medical schools in planning and delivering the curriculum for research. The report also recommends that the Health Service Executive fund medical graduates to complete MD or PhD programmes and that the HSE fund the HRB to establish PhD programmes for medical graduates who want to pursue careers as clinician scientists. The primary purpose of the PhD programmes is to develop clinician-scientists with a firm commitment to careers in biomedical research and academic medicine.

The Fottrell Report on Undergraduate Medical Education¹⁰ also emphasises the need to ensure that undergraduate medical training provides graduates with exposure to research methodologies and an understanding of the impact of research on medicine.



Inadequate
Research Exposure

⁹ The Report of the Postgraduate Medical Education and Training Group (2006), chaired by Dr Jane Buttimer.

¹⁰ Report of the Working Group on Undergraduate Medical Education and Training (2006) chaired by Prof Pat Fottrell.

Education of Health Professionals: Recommendations

The Council recommends that, in line with the Buttimer and Fotrell reports, the curricula of all phases of medical education are revised to incorporate experience in conducting research, and postgraduate training should be made available to existing medical staff to facilitate the development of research skills.

Summer research experience, including experience in overseas laboratories, should be an integral part of the medical school curriculum. Awareness raising activities should also be considered at secondary school level, including for example, initiatives where active scientists visit schools to raise awareness of the role and importance of health research.

Specifically, the Council recommends that undergraduate and postgraduate medical training incorporate exposure to research methods and experience conducting research and that a number of new courses be introduced perhaps including a combined MB PhD similar to the US and UK models, postgraduate courses in translational research and clinical epidemiology, nursing research methodology courses and cross-disciplinary programmes. Courses should be provided by universities in association with the professional bodies. The precise repertoire of courses should be considered as part of the strategic approach to research planning outlined above.

The Council also recommends the introduction of dedicated postgraduate academic clinician training tracks and the inclusion of research in continuing professional development programmes for physicians.

Developing Research Skills

The Council recommends that medical schools collaborate in the development of existing and new undergraduate and postgraduate courses to ensure delivery to the highest international standards and that international mobility is an integral part of these programmes.

R12 Undergraduate and postgraduate medical training to include exposure to research methods and experience.

New courses to be introduced including: MB PhD; postgraduate courses in translational research; clinical epidemiology; nursing research methodology; and cross-disciplinary studies.

Medical schools to collaborate in the development of undergraduate and postgraduate courses to ensure delivery to the highest international standards.

International mobility, supported by the Health Service Executive, to be an integral part of these programmes.

Establish a national graduate school in translational medicine linked to a network of clinical research centres.

Responsibility: Medical Schools in conjunction with universities, hospitals and training bodies

R13 Develop postgraduate training tracks for academic clinicians and continuing professional development for physicians.

Responsibility: Medical Schools in conjunction with universities and hospitals

Infrastructure and Facilities: Challenges

The Department of Health and Children's 2001 strategy document, *Making Knowledge Work for Health* identified clinical research centres (CRCs) as a key infrastructure need. There are now four such centres either operational or planned – with Beaumont/RCSI and St. James's having capacity to do clinical trials and those in St. Vincents and Mater hospitals specifically funded to collect and store biological samples. CRCs provide the facilities needed to support patient focused research studies and also contribute to postgraduate research training of health professionals and to the continuing professional education for all health researchers.

However, the deficit in health research infrastructure in Ireland is such that these four centres are unlikely to address all the research infrastructure needs evident within the Irish health system. A more wide ranging investment is required together with a broader definition of the role that CRCs can play in improving healthcare through research. Additional clinical/translational research centres need to be established to position the island of Ireland as a competitive research network. It will therefore be important that research strengths and facilities across all centres are complementary and that operational procedures and information systems are harmonised. In the context of developing their recommendations on Ireland's health research priorities, the proposed Expert Group will need to look at what infrastructure and research competencies are developed in each location.

As well as building a network of clinical/translational research centres, requirements for access to a range of other facilities have also been identified; these include: animal facilities, bio-banks and gene libraries, imaging facilities, databases, bioinformatics and computing capability, a comprehensive index of current clinical research, integrated electronic medical records and a unique patient identifier.

Further Investment
in Clinical Research
Capacity Necessary

Other Infrastructural
Deficits

The development of a unique patient identifier (UPI) could bring enormous potential benefits in the context of health research. A UPI is a means of uniquely identifying individuals across the entire healthcare system, enabling access to patient information from multiple locations, and so ensuring continuity of care. It can also contribute to epidemiological research by assisting in the study of the patterns, causes, and control of disease in populations.

There are, however, some issues around the adoption of a UPI as a standard. While complete and accurate disclosure of information by the patient is critical to quality health care, this must be in the context of appropriate provisions to ensure integrity of the UPI information and to protect against unauthorised uses and disclosures. It is essential for outcomes monitoring and assessment that such information can be used for audit, to evaluate the effectiveness of services and for research, e.g. cancer registration is used to evaluate how good cancer services are.

For these reasons and given the genuine concerns of patients about the use of their personal information for research, extensive consultation with stakeholders and the general public will be necessary before a UPI is introduced.



Development of Unique Patient Identifier for Irish Health Service

Infrastructure and Facilities: Recommendations


Significant investment in infrastructure in Ireland is required to strengthen the capacity of the academic and health system to facilitate increased research of the highest quality by the academic community, to support a critical mass of clinician scientists, to attract industry to conduct collaborative research and to place research at the heart of the training of healthcare professionals.

The Council recommends that the required additional investment needed to fill the physical infrastructure gaps in translational and clinical research including further clinical/translational research centres in major academic hospitals, bio-banking facilities, a gene-library and imaging and animal testing facilities be prioritised by the expert group as part of developing and advising on strategic national research priorities.

The Council recommends that the Health Research Group should determine the requirements for strengthening information and communications technology (ICT) infrastructure throughout the island of Ireland to provide leading edge bioinformatics and computing capability, comprehensive research and data management systems, a database of current clinical research, an integrated electronic medical records system and a UPI.

The Health Research Group should determine the investment in the ICT and health information infrastructure necessary to support internationally competitive health services and population health research.

Investment in
Infrastructure



R14 Develop a research investment plan setting out the immediate additional investment required in key infrastructure to facilitate effective translational research and the infrastructural investment requirements to address strategic national priorities.

Prioritise the introduction of an integrated electronic medical records system and unique patient identifier, based on appropriate public consultation.

Responsibility: Health Research Group

3.5 INNOVATION, REGULATORY AFFAIRS AND TRANSLATION

Innovation: Challenges

Until recently, hospitals regarded research as a fairly minor part of their brief. Even today, few hospitals in Ireland consider research to be core to their mission, and few have a research strategy. As a result, intellectual property (IP) issues are not widely understood by the clinical research community, and hospitals generally do not have systems in place for identifying, protecting and exploiting IP.

Measures need to be taken to ensure that health research produces innovation and that IP is identified, protected and exploited.

There is currently evidence of research projects in the drug and medical device development areas getting to the point where pre-clinical and clinical research needs to be done, but due to obstacles to doing it in Ireland, this further research is being done abroad.

A vibrant health research system depends on the support of the enterprise sector, and commercialisation of research with an industrial partner is often the most efficient way of getting the benefits of health research to the patient -in Ireland and in other countries. Hospital research strategies should therefore focus on establishing clear links with industry to enable commercialisation of innovative and beneficial product ideas. In addition to ensuring that the latest findings are translated to improved human health and to providing the best possible care to patients, commercialisation of research ensures returns to the national economy, providing quality of life and better jobs.

If intellectual property generated in Ireland has application in other countries, there may be significant opportunities for commercialisation. While the financial returns from Ireland – with its relatively small population – may be limited, the returns from the global market could be very substantial.

Research Strategy and
Intellectual Property

Linking with
Industry

Innovation: Recommendations

The Council recommends that research should be a key pillar of hospitals' missions and that each academic teaching hospital should have a research strategy, including ring-fenced funding for research provided by the Health Service Executive.

R15 Research to be a clearly stated component of the mission of academic teaching hospitals and of the Health Service Executive.

Each teaching hospital to have a research strategy.

Responsibility: Teaching hospitals, Health Service Executive, Health Research Board

To promote effective translation of research findings into technologies and treatments for patient benefit, the Council recommends that hospitals develop IP policies and procedures, modelled on those in place in the universities, to deal explicitly with the management of IP and arrangements for exploitation and commercialisation. A key part of an IP policy is to ensure clarity on institutional ownership of IP arising from publicly funded research. Policies should also outline how royalties and equity based commercialisation income will be distributed, including details of incentives for inventors. Post-graduate training in the medical area should also include modules on intellectual property management, best practice in confidentiality, entrepreneurship, etc.

In particular, the Council recommends that the new consultant contract should make it clear that any IP generated by a consultant using public funds is owned by the institution employing the consultant, in line with national policy and as set out in the national codes of practice¹¹. In the case of academic-clinical appointments, where an investigator may have multiple affiliations, clarity on ownership of future IP arising

Research Strategy

IP Policies and
Procedures

¹¹ National Code of Practice for the Managing Intellectual Property from Publicly Funded Research (ICSTI, April 2004) and National Code of Practice for Managing and Commercialising Intellectual Property from Public-Private Collaborative Research (ASC, November 2005).

from a research grant should be established in writing, ideally before the submission of a grant application to the relevant funding agency or agencies. Funding agencies should ensure that their assessment procedures mandate this information on submission.

R16 Institutional ownership of IP arising from publicly funded research to be asserted through hospital policies and consultant contracts.

Responsibility: Employer – Health Service Executive/Hospitals and/or Universities


The Council recommends that, in the short term, research offices be created in the academic hospitals¹², and these should work closely with the technology transfer offices in the universities – which are relatively well established – to ensure that hospital IP is adequately protected and optimally exploited. The HSE and Enterprise Ireland need to agree an approach for the other non-aligned hospitals. Enterprise Ireland can help by providing standard document and guidelines, training and by helping to build necessary connections. A central resource, providing specialised technology transfer expertise in the medical field should be established by Enterprise Ireland and made available to all hospitals through the universities.

Technology Transfer

With regard to maximising the translation of health-related research into new products and services, the Council recommends that Enterprise Ireland also establish a central portal to facilitate industry, academic, hospital collaboration and as a means of brokering links between technology providers and potential commercialisation partners.

Central Portal
for Collaboration

¹² Enterprise Ireland has recently launched a call for proposals to strengthen technology transfer offices in higher education institutes. This call is open to academic teaching hospitals.



R17 A number of actions are required to promote the commercialisation of health related research. Hospitals to establish procedures to capture, protect and exploit intellectual property.

Hospitals to work with technology transfer offices in affiliated universities to make best use of available capabilities and to exploit IP optimally.

Enterprise Ireland to provide additional technology transfer expertise in health, pharmaceutical and medical technology research – to hospitals through the universities.

A central portal to facilitate industry, academic, hospital collaboration to be established.

Responsibility: Hospitals with University Technology Transfer offices and Enterprise Ireland

The Council recognises that the majority of clinical encounters in Ireland occur in primary care. It is also recognised that the health of the Irish population is fundamentally influenced by social and economic factors that operate outside the health system. Thus there is a clear need to develop the infrastructure to sustain a flourishing, innovative and internationally competitive research culture in primary care and population health.

R18 Foster innovation and excellence in primary care, health services and population health research.

Responsibility: Health Service Executive

Research in
Primary Care

While the importance of health research is often recognised by patient groups with particular interests and who can see the benefit of new discoveries, and the Health Research Board has a long standing commitment to raising awareness about health research, the general public is not fully aware of the importance of research in improving health service delivery, patient care and overall wellness of the population. The Council recommends the introduction and resourcing of outreach initiatives to raise awareness of the value of research in addressing short-term issues relating to services delivery and emphasising the longer-term health and well being of the population, importance of the role of industry in the translation of research outcomes into innovative products and therapies. There is also a need to place increased importance on outreach activities under all publicly funded health research and to provide further training for scientists in communication of scientific issues to the general public. Outreach and commercialisation need to be addressed at a project-level, at the hospital-academic level and by funding agencies.

Outreach Activities

R19 Outreach initiatives to be introduced 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.

*Responsibility: Health Service Executive, Hospitals, Universities,
Health Research Board*

Regulatory Affairs: Challenges


Ireland is currently uncompetitive as a location for conducting clinical trials and is losing trials to other countries. A number of factors are taken into consideration when a company selects a location to conduct a clinical trial; the most important of these is the time it takes to get the trial up and running. Currently, establishing clinical trials in Ireland takes too much time, and one of the major causes of this is inefficiency in the ethical approval process.

There are currently thirteen different ethics committees approved by the Department of Health and Children. Each of these has different operating procedures, membership of these committees is voluntary, and no formal training is provided to members. Ireland's relative attractiveness for clinical trials is being eroded as many other countries with which we compete for health-related research used the implementation of the EU Clinical Trials Directive as an opportunity to fundamentally restructure their Ethics Committees.

While the regulations in Ireland do allow researchers to apply in parallel for regulatory approval by the Irish Medicines Board and for approval by the relevant ethics committee, this is not the uniform practice currently. In the case of multi-centre clinical trials, a single Ethics Committee opinion from a recognised Ethics Committee is required, and that opinion prevails at all centres. In practice, there is often an additional step, where the trial sponsor must also obtain permission from each of the individual hospitals. This can further extend the significant delay in starting a trial.

The problem is compounded by the shortage of clinical research nurses, which can result in delays of five to six months. In an industry where timing is critical, this is a major issue.

The regulatory and ethical approval processes need to be reformed to dramatically reduce the time it takes to get a clinical trial up and running. Key aspects of this reform are reducing the number of ethics committees, increasing their operational efficiency. Parallel review by the IMB and relevant ethics committee requires to be standard practice in all cases.



Review of
Clinical Trials

Regulatory Affairs: Recommendations

The Council recommends that the number of ethics committees be streamlined and consolidated to four regional ethics committees, from thirteen currently. Under the EU directive on clinical trials, the Minister and the Department of Health and Children are the designated authority for regulating ethical review of clinical trials in Ireland. The Department of Health and Children should arrange to have a coordination mechanism in place in relation to its functions in this area, that brings together the various ethics approval processes, and ensures that there is clarity, transparency and consistency in the national approach for enterprises and academics wishing to conduct a trial.


The Council advocates that the functioning of the committees should be professionalised and that members should be paid. It also recommends that members receive formal training, that all committees should work to common standard operating procedures and should have a well resourced secretariat.

While the large majority of clinical trials in Ireland tend to be pharmaceutical trials, smaller numbers of trials are also conducted in other sectors including medical diagnostics and devices, nutritional products, drug delivery, combination drug-device products and combination medicines for example. Recognising that these different types of trials may require specialist input into trial design and ethical approval the Council recommends that appropriately trained sector specialists be appointed to the regional ethics committees and that these members be available to serve on other ethics committees as required accommodating the need for additional expertise.

The Council recommends that ethical reviews of protocol applications should be assessed in parallel with reviews by the Irish Medicines Board and that appropriate infrastructure be put in place to enable electronic submissions for regulatory and ethical approval.

Streamlining and Consolidation of Ethics Committees

Electronic Submission and Parallel Review



R20 Streamline and consolidate ethical approval structures to four regional ethics committees, with professional paid members, sectoral specialists, standard operating procedures and well resourced secretariat.

Department of Health and Children to establish a coordination mechanism for this revised Ethics Committee structure and this should be the first contact point for enterprises and academics wishing to conduct a trial.

Enable electronic submissions of applications for clinical trials approvals with parallel review by the Irish Medicines Board and Ethics Committees as standard practice.

Responsibility: Department of Health and Children, Irish Medicine Board

Promoting and Developing Capability in Translational Research: Challenges

The Council has identified an opportunity for Ireland to position itself as a key player in the translational medicine area – that is, at the convergence of fundamental biomedical research and clinical research. Translational medicine has the potential to transform healthcare delivery, with enormous economic and social benefit. As with clinical trials, Ireland is losing out on significant investments due to deficiencies in translational research capabilities.

Ireland has invested heavily in fundamental bioscience, and has significant research activities in several related fields that offer potential health benefits (for example, diagnostics, medical devices, pharmaceuticals, marine resources, agriculture and food). The country also has a significant enterprise base in several of these areas, including foreign-owned multinational corporations and indigenous companies, some of whom are established as world leaders in their particular niches.

The benefits of this investment can only be realised through the translation of the resulting knowledge into new diagnostics and therapeutics, leading to better healthcare. Investment in translational medicine is therefore a logical progression in national strategic development initiatives and has the potential to deliver significant economic benefit to Ireland in terms of strengthening indigenous industry and attracting further foreign direct investment. The establishment of a vibrant translational research environment is a prerequisite to attracting pharmaceutical and medical technology R&D activities to Ireland.

Next generation therapies (monoclonal antibody, stem cell and gene-based) will be extremely expensive. It is clear that Ireland will be unable to exploit these therapies and strategies without being part of a development process through translational research.

Some 30 members of the Irish Bio-Industry Association are already involved in healthcare-related activities, and many of them are interested in gaining access to the facilities or intellectual property that may become available within the health service.

Potential of Translational Medicine

Other countries have already recognised this opportunity – for example, Singapore and Scotland, England and Wales are investing substantial resources in health research and have developed infrastructure for basic and translational research. In the US, the National Institute of Health (NIH), which invests more than \$28 billion annually in medical research, is moving beyond the model of clinical research centres (CRCs) to large-scale, translational research facilities. It has recently issued a call for the establishment of translational research facilities, with a typical budget of \$100 million per centre.



Promoting and Developing Capability in Translational Research: Recommendations

The changes recommended in this report will help to develop a health research system in Ireland where it is efficient and easy to conduct translational research, and will enable Ireland to become a significant player in translational medicine. However, while these actions are necessary as a first step in a process, they are not sufficient to differentiate Ireland as a leading location for conducting translational research.

The Council recommends that IDA Ireland, Enterprise Ireland, and other funding agencies, together with the IDC Health Research Group and the Expert Advisory Group work with their existing and potential clients of other state bodies to examine how best to position Ireland as an attractive location for translational research, and investment and policy requirements, such as animal facilities, clinical research centres, expertise etc.

However, there is significant competition and a limited window of opportunity for Ireland to establish itself as a player in the translational research space. Identification of opportunities to position Ireland as a location of choice for translational research and their incorporation into the national strategy should be pursued as a matter of urgency.

R21 Identify 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.

Responsibility: IDA Ireland, Enterprise Ireland, HRB, Health Research Group

APPENDIX A

ADVISORY COUNCIL FOR SCIENCE, TECHNOLOGY AND INNOVATION HEALTH RESEARCH TASK FORCE MEMBERS

Council Members:

Prof Tim O'Brien (Chairman)

Mr Martin Cronin

Dr Siobhan O'Sullivan

Dr Ena Prosser

Dr Reg Shaw

Invited Members:

Prof Garret FitzGerald, University of Pennsylvania, USA

Dr Colum Gorman, Mayo Clinic, USA

Dr Siobhan Jordan, INTERFACE – The knowledge connection for business, Scotland

Mr John O'Brien, Health Service Executive (former CEO St. James Hospital)

Prof Steve O'Rahilly, Cambridge University, UK

Prof Ivan Perry, University College Cork

Secretariat:

Dr Lucy Cusack, Forfás

Mr Declan Hughes, Forfás

APPENDIX B

ADVISORY COUNCIL FOR SCIENCE, TECHNOLOGY AND INNOVATION MEMBERS

Ms Mary Cryan, Cryan Associates (Chairman)

Dr Leonora Bishop, Manager, Research, Skills and Manufacturing, IDA Ireland

Prof Dolores Cahill, Professor of Translational Science, School of Medicine and Medical Sciences, University College Dublin, Conway Institute

Mr Ian Cahill, Chairman, LM Ericsson Ltd, Director, National Institute of Technology Management, Chairman, NovaUCD

Mr Martin Cronin, Chief Executive, Forfás

Prof Donald Fitzmaurice, Director, ePlanet Ventures

Prof Tom McCarthy, Chief Executive, Irish Management Institute

Prof Anita R Maguire, Prof of Pharmaceutical Chemistry, and Director, Analytical and Biological Chemistry Research Facility, Dept of Chemistry and School of Pharmacy, NUI Cork

Prof Timothy O'Brien, Director, Regenerative Medicine Institute (REMEDI), and Prof of Medicine and Consultant Endocrinologist, NUI Galway and University College Hospital Galway

Dr Siobhán O'Sullivan, Scientific Director, Irish Council for Bioethics

Dr Ena Prosser, Partner, Fountain Healthcare Partners

Dr Reg Shaw, Managing Director, Wyeth BioPharma Campus

APPENDIX C

SUBMISSIONS RECEIVED

An Bord Altranais, Eugene Donoghue, CEO

Ballyheigue Social Economy Enterprise Ltd

Central Services Agency, Prof Robert Stout, Director of R&D for the Health & Personal Social Services
in Northern Ireland

Centre for Research & Development: Older People in Society, IT Tralee, Dr Siobhán Ni Mhaolrúnaigh,
Strategic Research Leader

DIT Faculty of Business, Andy Maguire, Head of Innovation & Industry Services

Dublin Dental School & Hospital, Derek Sullivan PhD FTCD, Director of Research

Dublin Molecular Medicine Centre, Pierre Meulien, Chief Executive

Engineers Ireland

Enterprise Ireland

Environmental Protection Agency

ESRI, Jacqueline O'Reilly, Research Analyst, Health Policy and Information

Health Research Board

HETAC, Dr Peter Cullen, Head of Research and Policy Analysis

Higher Education Authority

Health Service Executive Mid Western Area, Dr Stiofan DeBurca, Director

Health Service Executive South, Care Group Co-ordinator Services for Older People, Hilary Scanlan

Health Service Executive South, Community Work Dept, Kerry Community Services, Caroline Doyle

Health Service Executive Western Area, Diarmuid O'Donovan, Director of Public Health

IDA Ireland

Institute of Physics in Ireland

Institute of Technology, Sligo, Brendan McCormack, PhD, School of Engineering

InterTradeIreland

IPPOSI

Irish BioIndustry Association

Irish College of General Practitioners

Irish Forum for Global Health, Chair, Diarmuid O'Donovan

Irish Mental Patients' Educational and Representative Organisation

Irish Medical Devices Association (IMDA), IBEC

Irish Pharmaceutical Healthcare Association

Irish Universities Association

Kerry Head/Ballyheigue Family Resource Centre

Knocknagoshel Women's Group

Letterkenny Institute of Technology, Dr Ivan Bendezu, Science Dept

Mayo Mental Health Services, Pearse Finegan, Director of Nursing

Mental Health Commission

MRCG, Denise Cremins, Development Executive

National Centre for Geocomputation, Martin Charlton and Prof A Stewart Fotheringham, Science Foundation Ireland
Research Professor and Director

National Council for the Professional Development of Nursing and Midwifery, Sarah Condell, Research
Development Officer

NUI Maynooth, Dr Bernard P Mahon, Dean of Science

NUI Maynooth, Prof Peter Wellstead, Hamilton Institute

NUIG, Prof Laurence J Egan, Professor & Head of Department, Dept of Pharmacology and Therapeutics

Public Health Alliance Ireland, Thomas Quigley, Chair

Rehab Group

Prof Hilary Humphreys, RCSI, Consultant Microbiologist, Beaumont, Professor and Head of Microbiology
(Personal Submission)

School of Nursing, Midwifery & Health Systems, UCD, School of Nursing, DCU and the School of Nursing & Midwifery,
TCD (Joint Submission)

Sligo General Hospital, Research & Education Foundation

South Kerry Development Partnership

St Vincent's University Hospital, Cliona O'Farrelly, Director Research Laboratories

TCD Centre for Health Informatics, Prof Jane Grimson, Director

TCD School of Medicine, Prof Dermot Kelleher, Head of School

Teagasc

The Irish Expert Body on Fluorides & Health

The National Council for Forest Research and Development

The School of Pharmacy and Pharmaceutical Sciences TCD, Dr Martin Henman, Co-ordinator, Centre for the Practice of Pharmacy

The Women's Health Council

Tralee Women's Resource Centre

UCC, Dr Loraine Smith, Research Officer, Faculty of Medicine and Health

UCD School of Medicine & Medical Science, Paul Harkin, Director of Strategic Development

UCD School of Public Health and Population Science, Dr Patricia Fitzpatrick, Senior Lecturer

UCD School of Psychology, Prof Alan Carr, Director of Research

UCD, Patrick Brennan, Head of Diagnostic Imaging/Research Coordinator Diagnostic Imaging

UK Cochrane Centre; Prof Mike Clarke, Director, Professor of Clinical Epidemiology, University of Oxford; Visiting Prof, School of Nursing and Midwifery, TCD

UL, Dr Claire Murphy, Research Scholar, Dept of Personnel and Employment Relations (Personal Submission)

University College Cork, & Cork University Hospital, Dr Liam Fanning, Director, Molecular Virology Diagnostic & Research Laboratory

Waterford Institute of Technology, Dr Larry Stapleton, ISOL Research Group

West Kerry Primary Care Team, Ms Elsie Moore, Assistant Director of Public Health Nursing

Wirefile Health Informatics

WISE, Protection Services for Older People in Kerry, Maureen Chalmers, Senior Social Worker and Chairperson
