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Foreword

Research & Development Strategy

FOR THE NATIONAL HEALTH SERVICE IN SCOTLAND

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Research & Development Strategy

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BY LORD FRASER OF CARMYLLIE
Minister of State at the Scottish Office

Foreword

The objective of this NHS R&D Strategy for Scotland is to ensure that health care in the NHS is informed by the highest possible quality of research. Achieving this objective is essential if the NHS is to benefit, as it should, from the pace of scientific advance and make the most effective use of the resources at its disposal.

That is why this Strategy document seeks to increase the awareness of the need to identify R&D requirements and to ensure that these are known to Health Boards, NHS Trusts, Units, the NHS Management Executive and the Higher Education sector. There is a need to integrate R&D into the agenda of Health Boards, and the business plans of NHS provider units, so that the wider management process in the NHS is more evaluation-orientated. We want to ensure that research undertaken on behalf of the NHS makes the optimum contribution possible.

Central to the Strategy is the need to ensure that expenditure on research is as well-focused as possible to achieve the aims of promoting good health, improving health care and enabling staff to make the most effective contribution to the Health Service. The Strategy also aims to ensure that there is a common understanding at national and local level within the NHS in Scotland about those areas in which research funding is required to achieve the overall objectives of the NHS.

This is an important new opportunity for research to contribute effectively to the improvement of the health of the people of Scotland. This document sets a framework within which we can all work together, but it is only the start of an ongoing strategy to improve the contribution of R&D to the NHS in Scotland. We must always be ready to respond to new priorities in health care and guidance will evolve as this R&D Strategy develops over the next few years.

LORD FRASER OF CARMYLLIE

Research & Development Strategy

FOR THE NATIONAL HEALTH SERVICE IN SCOTLAND

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Preface

This Strategy is about improving the scope, relevance and quality of R&D to inform policy and practice in health care. There is a need for the links between those involved in health care and the research community to be improved, and for the benefits of research to be systematically translated into practice.



The recent moves to base the operation of the NHS on local health strategies, that meet population general or specific health needs, and implement these by a contracting process gives major opportunities to feed research results into these procedures and thereby achieve more effective health care services.

The challenge is to make the very most of the Strategy to bring about improvements in health care. It provides for the first time a well defined basis for decisions about the operational aspects of service delivery as well as to the content of community and hospital based care. We commend the Strategy to all those who will be responsible for its implementation.

PROFESSOR I A D BOUCHIER
Chief Scientist

GEOFFREY SCAIFE
Chief Executive, NHS

Executive Summary

This R&D Strategy seeks to maximise the benefits for health of science and technology and to apply research rigour to the problems confronting the NHS in Scotland.

The Strategy aims for balance between a centrally developed strategic framework with clearly specified R&D priority areas, and local planning and implementation. A key feature is the need to create a strong partnership between NHS staff and the research community. From this will flow a clearer understanding of health issues and the role of R&D in providing solutions. Increasingly NHS staff will be able to articulate research needs and to respond effectively to new knowledge. Steadily, an evaluative culture will develop across the NHS. As the NHS becomes an ever more discriminating user of research and innovative technology so the benefit to patient care will increase.

The Introduction sets out the strategic aims of the Strategy which focus on the need for R&D to contribute to the health policy making cycle and the key components of policy formulation. The need for priority setting is highlighted given the quantity, range and a diversity of NHS activities and the health problems presented to the NHS.

Section 1 sets out the significant Scottish research base that the Strategy can build on and stresses the need for future health research to be better targeted to the needs of the user.

Section 2 gives an overview of investment in R&D in Scotland and outlines the work of one of the major central contributors to the development of health research - the Chief Scientist Office of the Scottish Office Home and Health Department.

Section 3 highlights the current priority areas for R&D; gives an indication of the range of current funding of health services research; and highlights the cultural gap that exists between the research base and the practical exploitation of results from research.

Section 4 lists many of the current strategic initiatives in health research and sets out a national framework for R&D in the Scottish Health Service. This 'list' of priority areas for health research provides a necessary focus for the implementation of the Strategy. The science-driven approach has been productive, and will continue to be so, but there is a need for greater strategic research driven to meet the important burdens of ill-health. There is a particular need for health services research and studies to assess the health status and 'lifestyle' habits of the community, their needs, and responses to services.

Introduction

Section 5 stresses the importance of R&D becoming an integral part of the decision making process. Emphasis is given to the need to better target R&D in value for money terms. Following on from the changes in the NHS, purchasers and providers are focusing on outcomes and measurable benefits which health brings to patients. R&D cannot be exempt from this requirement and the Chief Scientist Office is charged with looking at just what guidance is feasible on value for money in relation to research and development.

Section 6 sets out an initial plan of action for the key players who have to manage the significant change in practice - Health Boards and provider units; the Scottish Office Home and Health Department; and the research community. A Strategy Group will be responsible for monitoring the implementation process.



G R SCAIFE
Chief Executive, NHS

Introduction

Those with the potential to translate research results into action are the purchasers and providers of health care and those who use the service. The Strategy will focus minds on what is to be done but it is up to all those involved to ensure that contracts, protocols and guidelines and advice to patients reflect relevant, high quality research-based information.

R&D has to become an integral part of health care. "Framework for Action" and the "Patient's Charter" set the main goals for the National Health Service (NHS) - (a) to improve health; (b) improve health care; and (c) empower staff. The achievement of these 3 goals requires the application of critical thinking, innovation and the wholehearted commitment of everyone in the Scottish Health Service.

STRATEGIC AIMS

Research provides new knowledge and a range of methodologies which, when adequately assessed and developed, open the way to constructive change that is of direct benefit to everyone using the health care system in Scotland. Like all other forms of resource used, investment in R & D needs to be justified by results. Research is not always concerned with complex high technology issues and is often at its most effective when it yields significant advances in commonplace procedures. There is scope for improvement in the quality and relevance of research effort within the NHS in Scotland. Health research has not been sufficiently focused. There is, therefore, a clear need for all concerned with health care delivery and health research to reappraise their respective roles.

The overall aims of the Strategy are to:-

- contribute to the development of new policies and programmes for improved health promotion and the understanding, treatment and care of the important diseases in Scotland
- inform decision making on implementation options
- evaluate the effectiveness and cost-effectiveness of existing policies and programmes

Research can underpin and help deliver not only these objectives but the full range of objectives of the Health Service and is needed both in their formulation and evaluation. A research Strategy for the NHS in Scotland should reflect the main areas of work within the Health Service. It is an essential pre-



PROFESSOR IAN A D BOUCHIER
Chief Scientist

requisite for achieving a cost effective Health Service responsive to changes in needs as well as to innovation. The 3 strategic aims set out above embrace the policy making process - policy formulation, implementation, and evaluation - used to bring new strategies into practice and good effect, setting, meeting and reviewing clearly identified objectives.

In the White Paper Cm 902 (December 1989) responding to the House of Lords Select Committee on Science and Technology report on "Priorities in Medical Research", the Government agreed that the NHS itself should do more to identify and meet its own research needs. It recognised that much medical research is and must remain science led. However, there is the need for research results to be applied to improve the effectiveness and efficiency of the operations of the health care system.

One of the Government's manifesto commitments, in the context of the NHS in Scotland, is an undertaking to develop a new comprehensive R & D strategy for the NHS. Research and the development and implementation of the results of research are necessary if the NHS is to meet the needs and expectations of patients and clients in the 1990s and beyond; to ensure the development of innovations which will result in clinically cost-effective treatments for patients; and to aid the evolution of more effective preventive services which can also maintain health or achieve health gain.

PRIORITIES

At the heart of our R&D Strategy is the task of setting priorities for NHS R&D. These are established in response to changing patterns of ill health in Scottish society. Research effort has been encouraged in key areas such as for example senile dementia; mental illness/handicap; health care in the community; disability; and misuse of alcohol and drugs. Increasingly, research work is focused on the management and use of resources. This evolving research portfolio reflects the priorities and targets identified as a result of monitoring Scotland's health.

RESOURCES

This national Strategy document focuses on research in key priority areas to ensure that the limited resources available are spent on what the NHS in Scotland needs most in terms of improved health care. R&D activity and funding needs to be properly geared to objectives and priorities, and to improving accountability for the public funds put into R&D.

The Research Base

SCOTLAND & BEYOND

Research and development are undertaken by a range of organisations and groups within the public and private sectors. At one end of the spectrum the scale of operation is worldwide, but here we are concerned with the research base in Scotland, extended through collaboration within the United Kingdom and the European Community. Although the bodies which fund or undertake research have a common goal in helping and treating the people of Scotland, they work to different agenda and priorities. In setting the Strategy for the NHS in Scotland it is essential to recognise these different spheres of operation and focus on what needs to be done to augment relevant research based knowledge that can be gained from these wider resources.

RESEARCHERS

Historically the research community in Scotland has been centred in the Higher Education Institutions (HEIs) and the Research Councils. It is a broad based operation requiring well founded laboratories and opportunities for training in the techniques of research. The research community provides a resource which the Scottish Office Home and Health Department (SOHHD), the NHS, the charities, the pharmaceutical and the medical equipment industries (the consumers) use extensively. From the earliest days the Health Service has benefited from the fact that, for its size, Scotland has a comparatively large group of well qualified medical, dental and health care research workers, based in the medical schools, the pre-clinical school at St Andrew's University and the dental schools. These are also nested within the context of Universities and a number of Colleges of Higher Education some of whose staff contribute substantially to local health research. Importantly, most of the research workers operate from a base within the hospitals and are actively involved in treating patients. The advantage is that not only is high quality, clinically relevant research possible, but also an excellent clinical service is provided for patients within the NHS by these research workers. This arrangement has the added advantage of bringing a wider range of research experience to health policy and the NHS, for example, economists, business schools, and the proposed Management Education Centre for the NHS.

The involvement and support of the research community will be crucial to the setting in place of a strong and effective NHS R&D programme. They understand the literature and the methodology and clinicians have an interest in identifying new developments and new technologies which will be of benefit to their patients. Indeed, such researchers may often be in the best position to identify the opportunities where further research will lead to more effective health care for patients. It is difficult for potential users from different health service disciplines and with different interests to understand the implications of new research findings and this is one of the major barriers to implementation.

Consequently the results of research, particularly health service research, are used most effectively when the research team has planned its study with an appreciation of the potential users.

APPLICATION OF RESEARCH

A great deal of basic research essential to health issues is instigated by intellectual curiosity. The fact that the NHS as an organisation has not commissioned the work, even though much of it is undertaken by research workers from a base within the NHS, need not detract from the potential relevance of the research to policy and objectives. However, there is frequently a lack of awareness of research findings which, combined with the absence of a sense of ownership on the part of the Health Service, inhibits its application to health care.

The potential benefit of research is thus not fully achieved in practice. This applies particularly to health services research which can be defined as scientific activity directed towards the effective and efficient organisation of knowledge, manpower and resources in order to meet the health needs of a population. The problem was highlighted in "Priorities for Medical Research" and is one reason why the Government is committed to improving the management and organisation of health services research as opposed to basic and clinical research.

Attitudes are changing within the NHS and the time is right to develop new working relationships between those who undertake research and those who manage the service. It is the policy makers, providers of health care, and opinion leaders in the NHS who are instrumental in putting research findings to use. Therefore research activities targeted at clearly defined objectives will be accepted more readily as part of everyday activity and the findings used in decision making as a matter of course. For this to happen research workers require to report the output of their studies in formats that relate clearly

to stated priorities and are more useable in practice in the NHS. This will enable an R&D information system for the NHS to be constructed. There is a greater realisation by NHS managers of the tangible benefits flowing from research and an increased awareness by the research community of the needs of the NHS. This Strategy paper aims to close this 'awareness' gap further.



Research Funding in Scotland

FUNDING

The elements of the many UK research programmes which are invested in Scotland have been discussed in more detail in the Chief Scientist Office (CSO) Corporate Plan. These components together with the main local sources - the CSO; the Scottish Hospital Endowments Research Trust (SHERT); and the research component of the Additional Cost of Teaching (ACT) which is NHS funding associated with the hospitals that have a relationship to the medical schools in Scotland - require to interact symbiotically in order to achieve optimum effectiveness.



SCOTTISH HOSPITAL ENDOWMENTS RESEARCH TRUST

SHERT is a non-Departmental Public Body and a registered charity which plays an important role in funding medical research in Scotland. Its funding for research was originally derived from the investment of money endowed to private hospitals for research and transferred to SHERT following the creation of the National Health Service. SHERT also receives donations and legacies from the public. The Trust supports a range of research mainly clinical and biomedical with the aim of encouraging promising young doctors and scientists. Increasingly it is funding special equipment and purpose built laboratories.

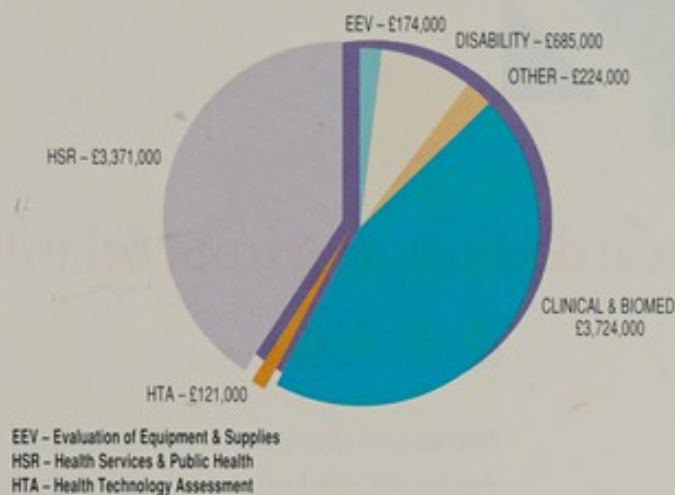
CHIEF SCIENTIST ORGANISATION

CSO is responsible for encouraging, promoting and supporting research and development for the improvement of health and the NHS in Scotland. The CSO was established in 1973 and the first Chief Scientist was appointed in 1974. It is part of the Scottish Office Home and Health Department. CSO manages a R&D programme in which the Health Department, including CSO, is the customer and the research workers, Scottish HEIs, Health Boards and other Institutions are the contractors. The CSO advises the Department on how research can contribute best to policy development and health service efficiency.

CSO funding for research in 1992-93 was £8.2 million. Of this total, 75% is allocated to short term projects, which permits maximum flexibility and allows for new initiatives. These are usually funded for a period of between 1 and 3 years. Over the past 3 years some 300 separate projects have been funded through a rolling programme.

The remaining 25% of the CSO's research budget supports longer term major research programmes usually in the form of core-funded Units. There are 7 such Units: 6 based in the Scottish Universities and one in a Health Board. They provide centres of excellence for research and practice and are able to pursue major Health Service priorities over a longer timescale than would be possible with a research project, and to undertake negotiated research programmes for the Department and the NHS. An

CSO PROJECTED EXPENDITURE ON RESEARCH 1992-1993



important function is to provide a means of training for research workers, particularly Health Services staff who are inexperienced in research. The CSO operates a peer review system which seeks to identify and support high quality research that is both original and feasible, and allows concentration

on particular priorities. The system provides quality assurance because the peer assessment is applied at the outset when the project is evaluated for funding, and again when the results of completed work are presented. The intellectual excellence, timeliness, importance and utility of a project are judged by acknowledged, independent experts working in, or close to, the area of work in which the project is undertaken.

The CSO standing advisory machinery includes a policy committee and currently 5 specialist committees, namely the Health Service and Public Health Research Committee, Acute Healthcare Research Committee, Disability and Continuing Healthcare Research Committee, Committee for Health Assessment of Technology, and the Panel on Evaluation of Medical and Scientific Equipment and Health Services Supplies. In addition, a Committee of pharmaceutical experts advise on all aspects of pharmacy practice research.

The CSO projected expenditure on research for 1992-93 is set out above:-

As can be seen from the figure above, the bulk of project spend is on Health Services and Public Health Research and on Clinical and Biomedical Research. Clinical and biomedical research contributes to an understanding of the mechanism and management of disease while health services research enables more effective health promotion and care delivery to take place. Their respective roles are:-

Health Services & Public Health Research

Strategy

To promote useful high quality public health and health services research, to support such work financially and to encourage the use of research results in clinical practice and service planning.

Programme

The emphasis is on improving the promotion of health and the delivery of health care in Scotland, including cost effective management in the NHS through project and programme grant support. A small grant ("mini project") scheme provides opportunities for new research workers and for piloting work where methodologies may be uncertain or study feasibility in doubt. Activity is stimulated through the Fellowship Scheme and the health services research networks. Multidisciplinary workshops have been used to develop new ideas and to disseminate the results of research to the Health Service.

Research Funding in Scotland *(continued)*

Clinical & Biomedical Research

Strategy

To initiate, to formulate, to assess, to support and to follow-up high quality clinical and biomedical research relevant to health and the Health Service in Scotland; to ensure that the practical applications of such research are disseminated within the NHS in Scotland.

Programme

The focus is on the causes and mechanisms of diseases of relevance to Scotland's people, in particular cancer, AIDS, substance abuse and dependence, cardiovascular disease, psychiatry and mental subnormality and research enabling technologies. Of particular interest are projects which make the most effective use of scarce resources, or research which has local benefits or encourages collaborative work between major Scottish hospitals.

OTHER SOURCES

Government funding for basic and applied research is also channelled through the Higher Education Funding Councils, the Research Councils and the Health Departments, which provide many opportunities for collaboration and rationalisation of research effort. The Research Councils maintain a diversity of forms of support and of approaches to promoting research activity and provide the structure in which purchasers and providers of research can exchange information to practical advantage. They carry out scientific research in areas complementary to universities and promote a special research culture arising from the whole-time, long-term commitment to research. The charities invest a significant amount of money in Scottish research with a particular relationship to those disorders which are an important cause of ill health in Scotland.





Research For Health & Health Services

PLANNING

It is the nature of research that questions tend to be raised and pursued independently by individuals or groups with funding from several sources. There is no conscious effort to plan or fund all health research in Scotland, or the UK, according to an overall research programme. Current arrangements will benefit from a focusing of health research on NHS priorities.

The SOHHD provides a strong lead in setting priorities for research for health and health services and uses its funds to facilitate such activities. Research strategies and priorities are developed by collaborative mechanisms involving many agencies, the CSO committees, other Departments within the Scottish Office, the other Departments of Health, the Medical Research Council (MRC), other Research Councils, SHERT, the major charities, Health Boards and provider units.

PRIORITY AREAS

Strategies outlined in the CSO Corporate Plan focus particularly on major problem areas affecting the health of the people of Scotland as well as the effectiveness and efficiency of the NHS. The priority areas are published by CSO and are:

- ageing and quality of life
- preventing, delaying and coping with dependency
- physical and mental disability assessment
- stroke and related disorders
- community nursing and direct health care services
- nutrition
- drug and substance abuse
- cancer services
- AIDS
- clinical application of biomedical technology
- evaluation of health service provision and developments
- pharmaceutical services to patients with special needs



Most of the projects funded come from applications by research workers based in the HEIs and Health Boards and all are assessed on scientific merit and relevance to NHS priorities. Special efforts are made to fund well-founded projects in the priority areas. The research portfolio includes particularly those illnesses and health impairments which are a heavy burden to the community and areas of activity which consume a considerable proportion of NHS resources in terms of manpower, hospital beds and treatment costs. There are also systems for introducing and monitoring new scientific medical equipment.

Research For Health & Health Services *(continued)*

VALUES OF THE NHS

The R&D Strategy for the NHS in Scotland must serve the purpose and values of the NHS in Scotland:-

The purpose of the NHS in Scotland is

- to promote good health;
- to diagnose and treat those who are ill; and
- to provide health care for those with continuing needs irrespective of the individual's ability to pay, in partnership with people and with other organisations, and within the resources that the country makes available

The values of the NHS in Scotland are

- to provide fair entitlement and access to its services
- to identify and seek to meet people's needs and wishes
- to set and aim to achieve the highest standards possible
- of care and respect for each person
- of results
- of value for money
- to improve standards through research, education, monitoring and review while enabling those who work in the Service
- to achieve its purpose
- to share its values; and
- to feel valued themselves

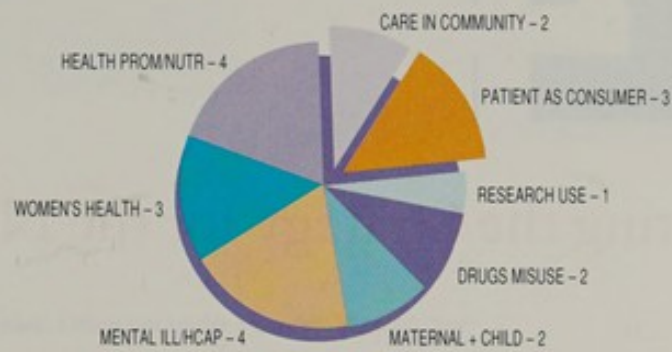
RANGE OF HEALTH SERVICE RESEARCH

The awards made for Health Services and Public Health Research projects in 1992-93 are detailed below and demonstrate very well the range of health service subjects already being addressed (see graphs opposite):-

ADVANCES IN MEDICAL RESEARCH

Advances in medical research provide the means of improving health and the quality of life. Consumer awareness of health developments and expectations of improved treatment have increased, not least through the Government policy statement "Scotland's Health - A Challenge To Us All" and the "Patient's Charter". Inevitably these advances, increased expectations, and the effects of demographic changes in the United Kingdom, are contributing to the increased cost of health care.

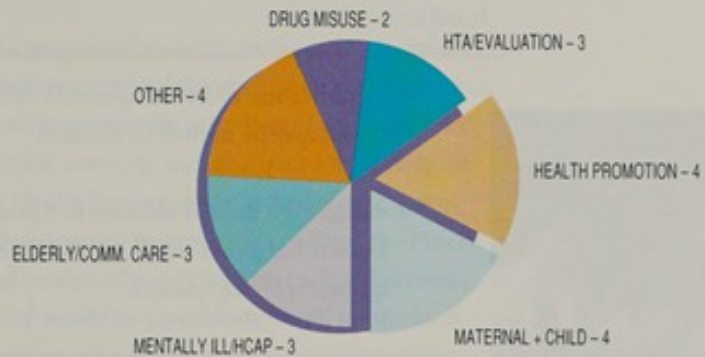
HEALTH SERVICES & PUBLIC HEALTH RESEARCH New Awards by Topic & Number



APPLICATION OF RESEARCH

The recent White Paper "Realising our Potential: A Strategy for Science, Engineering and Technology" and the Advisory Council on Science and Technology (ACOST) report and Government Response "Medical Research and Health" draw attention to the continued serious shortfall in both the application of the results of research and the development of the full potential of innovations. This can be attributed in part to the culture gap that divides the scientific community from the application of their research in the Health Service and industry in the United Kingdom. Most research workers have too often limited the output of their studies only to peer reviewed expert journals. The NHS has, up until now, had a limited understanding of the scientific process and the benefits of applying research findings to the Health Service.

MINI PROJECTS



MAIN PROJECTS

The gulf that exists between the science base and industrial exploitation is a problem which affects UK industry as a whole. It is essential to narrow the gap between research workers and the health care market. The HEIs and Health Boards have created a number of industrial liaison groups to link inventors with commercial developers and to deal with important matters such as intellectual property rights, royalties and marketing. But more needs to be done. The health care industries have an important part to play in the translation of research findings from the laboratory to the market. Exploiting inventions provides benefits to research workers, those who fund them, commercial entrepreneurs, and most important of all, patients.

In developing a Strategy for Scotland, account has to be taken of the strategic aims of the other Health Departments and the MRC. These have been reviewed in the past year and published in the form of a Concordat which seeks to develop and maintain an effective partnership for the promotion, funding and management of medical research in the UK.

Managers as well as clinicians and other health care professionals will need to take into account the valuable information which R&D provides before decisions are made. Managers will equally be in a position to contribute to the identification of areas where R&D might provide the most useful information in the future.

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Setting the Strategy for the NHS

THE STRATEGY

The research and development Strategy for the NHS in Scotland encompasses similar approaches to the recent White Paper on the Strategy for Science, Engineering and Technology and the Government Response to the ACOST report on Medical Research and Health. The R&D Strategy for the NHS is based on:-

- identification and clear statement of the priorities of the NHS and definition of those elements which may be studied by research
- recognition that the solution to a problem may rest with research which has already been performed and published; but in the absence of this, in the commissioning of well-founded, good quality, relevant research
- assurance that the distribution of research funds is focused on objectives with potential health gain, which embraces research on a wide range of issues such as management and quality, and that the impact of these research findings is properly evaluated
- promotion of the results of the research and their implementation where appropriate

INITIATIVES

The R&D Strategy will build on a substantial Scottish R&D base. There are many current and planned health research initiatives. The list of initiatives that follows is not exhaustive but serves to demonstrate the wide range of innovative work underway and proposed in Scotland.

A small group of research projects has been commissioned to help Health Boards make sound assessments of the health status and health needs of their communities and produce local health strategies. Some of these studies are specific to particular patient groups such as the research to model the needs of the elderly within a large Health Board or the project exploring the most efficient form of assessments from a primary care perspective. Additionally, the research initiative of the Scottish Needs Assessment Project has proved to be very useful and relevant to the needs of general managers, directors of planning and consultants in public health medicine. They all benefit collectively throughout Scotland from the research based syntheses of need assessment studies which are being drawn up quickly on priority health care topics. Further research of this type is envisaged and will be developed.

From baselines of needs assessments or health status measures the new contracting processes are seeking measures for the health outcomes of health care. CSO has been providing a wide range of relevant

information about these types of measures for a number of years. Often not under a generic label of health outcomes but on studies relating to clinical risk indices or severity scores, functional measurement scales, quality of life assessments or effectiveness research studies. Some research has focused on general health outcome measures, some on condition or disease specific outcomes, and some studies have included both.

There are Networks for health services research, involving experienced research workers which cover most of Scotland. This initiative introduces into the Health Service the results of research which might be applied in health care practice at a local level. The objectives include the provision of advice and support for potential research workers. When fully operative these networks should attract a wide range of individuals into research who have innovative ideas for the Health Service and help disseminate more effectively the findings of locally relevant research. Consideration will be given to expanding the Health Service Research Networks to enable them to identify local models of good NHS practice and present them as demonstration projects. Additional Network activity would be particularly useful for the local introduction of research findings. There should be an awareness of local opportunities for innovative health care. Appropriate multi-disciplinary meetings could be provided to display the relevant research projects to a cross section of NHS staff who could use the results of research.

Information on current and completed R & D projects is stored in a variety of ways, mainly in library systems. A Health Service Research Register is available. At present it contains only limited information but it will be incorporated within a more comprehensive information system. The emerging computerised information systems in the NHS and its Management Executive should provide a suitable means of making R&D information available to a wider group of potential NHS users and research workers. Better databases and infrastructure for R&D information systems of use to the NHS will be developed. Interaction will be sought with the developing R&D information systems of the other UK Health Departments. In relation to this, consideration will be given to setting up a Research and Intelligence Centre for the Health Service within the Scottish Health Service Management Centre, where it is hoped that this research information resource would be well placed to interact constructively with clinical audit data and further information required for health purchasing.

The present strategy is to increase the range of opportunities for research training and research for health care professionals including managers, nurses, medical doctors, pharmacists, and other graduates and non-graduates, with some post-qualification experience. The object is to provide opportunities for training in research methods by offering supervised research projects on a topic concerned with health care practice, health promotion or the provision of service. While some individuals subsequently pursue a career in research, others are establishing careers in key posts within the NHS where they have the opportunity to deploy their research training, thereby facilitating innovation within the NHS. There will be an expansion of the research training programme. This will fund short modular courses in research awareness for NHS personnel and provide short term secondments and longer term joint

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Setting the Strategy for the NHS *(continued)*

appointments between the NHS and health care research teams. These ventures will encourage improved communication and collaborative activity.

The existing portfolio of short-term research projects on disability will be expanded giving priority to studies of limited mobility, reduced self-care, incontinence, cognitive impairment and communication aids. A research portfolio will be developed focused on community nursing and the relationship and interaction between the various community services. Projects involving care of the mentally and physically frail elderly will define the most effective role of the practice nurse within the current contractual arrangements for primary health care.

Specific research strategies in pharmacy are required to optimise the benefits of medicines, particularly to patients with special needs, which include the elderly and those with a mental handicap. Priority in practice research should concentrate on the hospital and community interface.

A Scottish Cancer Therapy Network has been established to ensure that best clinical practice will be identified and the information widely spread for the benefit of people in Scotland suffering from cancer. It will also allow more widespread opportunity for patients to participate in trials of new therapies and provide a structure to facilitate clinical audit studies.

A specific strategy for research in mental illness is being developed to take account of the topics considered as priorities for research in mental illness by the Department of Health, and the MRC. The strategy will endeavour to help expert research workers in Scotland to play a full role in addressing the UK priorities with funding from UK sources. It will also ensure that attention is devoted to any particular needs for research into special mental illness issues within Scotland.

Cardiovascular diseases are major causes of premature mortality and substantial morbidity and deserve to receive high priority for research within the UK context. Collaborative research projects on cardiovascular disease which will utilise the centres of excellence and specific epidemiological cohorts and databases which have been established in Scotland will be promoted.

There is a need to improve the links between those responsible for research funding and the NHS, particularly the Health Boards, Units and Trusts. There will be work to develop methodologies to facilitate the communication of new research findings to all those working in the Health Service in order to advance health care. Projects will be developed with staff operating from different bases in the NHS who will have links with the CSO and their research units. Issues currently identified for evaluation include: testing new models of service delivery; evolving new methods to monitor the effectiveness of purchaser/provider arrangements; and studying the effect of the NHS internal market on the conduct of R&D.



The CSO core funded health service research units have systems and expertise which enable them to undertake research in specific areas. Consultancies could be attached to some of these units, permitting a rapid response to requests from the Health Service for advice and for option appraisals. In general these Research Units represent a very substantial potential resource which can enable a more evaluative NHS.

Research cannot move forward into NHS practice solely by the "push" from the research base, it also requires the "pull" of forward looking NHS health care practitioners and managers. Validated research findings will be synthesised and translated into a format readily understandable by NHS personnel. Demonstration health care service projects could be piloted as novel service developments.

FRAMEWORK

There is a need for a national framework within which NHS R&D in Scotland will be directed and managed. The starting point is the overall strategy defined by the Patient's Charter and the Framework for Action.

The requirements for research can be grouped under 3 broad headings. First, work designed to enable decisions to be made about how the objectives set for the NHS might best be achieved in practice. This would include literature reviews and surveys as well as formal research. Second, research to monitor the impact of implementing, for example, acute or mental health strategies, which should help to identify whether the strategies are leading to unacceptable consequences for patients and thereby ensure that early action is taken to rectify this. And third, to generate relevant research based knowledge and skills in NHS staff in order to empower them to become more effective in the increasingly evaluative culture of the Health Service.

The priority objectives for the NHS in Scotland - to improve the health status of the population, and the quality of health care - are defined clearly by the Management Executive of the NHS. Priority goals for improving health status are set out in the NHS Management Executive's Management Plan with its clearly defined objectives, action points and targets. The following paragraphs discuss in a little more detail the headings under which research might usefully be conducted by CSO and other agencies:-

Promote Good Health

Improved Screening and Immunisation. Much research has been undertaken already, but research is needed to establish better means of screening for cancer and other diseases and the effectiveness of such screening. There are clear cost-effectiveness issues to be explored, also in relation to immunisation.

Influencing Lifestyle. Work is needed on what society wants and to determine whether current commonly used interventions and methods of health promotion have any impact on health. Research is

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Setting the Strategy for the NHS (continued)

required into the specific determinants of health and how lifestyle could relate to this. For example, what are the links between diet, lifestyle and health?

Improve Treatment

Monitor Outcome Better and Improve Clinical Quality. Research is needed to improve treatment. This is of the highest priority. Research is needed to understand whether a treatment is effective and where there are two treatments which is the better. There is a need for more research and development on the comparative appropriateness, effectiveness, cost-effectiveness and responsiveness of particular interventions, treatments or services. The place of appropriate input from patients in evaluating successful clinical outcome needs to be evaluated. Research may also be appropriate to determine the impact of clinical audit and how the results of clinical audit might be used to improve the clinical quality.

Improve Health Care

Target Services Better to Needs. Research is needed to establish indicators which would allow health boards to monitor the impact of decisions to redirect resources to particular services or client groups. In the long term, research is required to test whether Government policy to focus planning more deliberately on meeting needs achieves the objective of delivering more effective health care within resources available. Research will be needed to develop locality planning.

Improve Service Quality

Development of People Centred Approach. To complement the Scotland-wide annual survey of NHS users' experience of and views about how well the NHS in Scotland is meeting its Patient's Charter commitments on access, waiting times, information, involvement, treatment as an individual and linkages between different aspects of care, regular public surveys are also needed at local level. As wide as possible a range of other mechanisms to consult and involve residents about what is wanted, new ideas, choices and options, as well as input into monitoring service delivery, should also be developed.

Introduce and Monitor Quality Standards. Existing quality standards used in Health Board contracts need to be evaluated for practicality and focus, and improvements in both standard setting and in monitoring arrangements need to be developed on a pilot basis. The extent to which feedback on success or failure to meet quality standards is being utilised in the planning processes of purchasers and providers also requires study.

Reduce Waiting Times. Best practice in individual hospitals which increases efficiency needs to be identified, evaluated and disseminated. The inter-relations between reducing waiting times and improving health outcomes need to be evaluated (in terms of both health status considerations and

cost-effectiveness) to enable conclusions to be drawn on the best use of resources to produce improvements in health care.

Improve Primary Health Care. Research is needed to establish appropriate provision in primary care and what makes for effective delivery. This would cover needs assessment and purchasing; issues of scope and boundaries, quality and accountability, resource allocation and value for money; skill mix and models of care; management models of care; and management models including the primary health care team, management training and support. There is a need for research to look at health promotion and disease prevention in primary care; influences on prescribing patterns; and the evaluation of fundholding both in terms of its impact on patient care and value for money. Research is also needed into the use of information technology in primary care and shared data sets.

Develop Care in the Community. Research is needed to determine what type and levels of care the NHS and local authorities should be aiming to achieve, and what progress has been made in achieving the required pattern. Research is also needed into the costs and effectiveness of various patterns of care and into the role of the NHS in relation to different client groups.

Organisation and Management. Research is needed into the best management structures to address the purchaser/provider arrangements. In addition, more work is needed on how effective the organisational interfaces are between hospital providers, primary care services and other community agencies.

Ensure Staff Development. Research is needed on the effectiveness of current pre-registration training strategies - in particular, project 2000; the role of higher education in educating the professions allied to medicine; the changes in postgraduate medical education expected to flow from the Calman Report; and on the effectiveness of the training strategies of individual employers. The role of the various agencies involved in management development in the NHS, including management development for doctors, should also be examined.

Ensure Staff Empowerment. Research is needed into the extent to which individual staff are being empowered as proposed in Framework for Action. Surveys are also required into the impact on staff morale of changes in the NHS.

Ensure Appropriate Staffing. Research is needed into the adequacy of current central manpower planning arrangements and on whether there are any gaps in the available studies on staffing levels, skill mix and unit labour costs. Studies on the effectiveness of the personnel function; job evaluation; and on the relationship between pay systems (including performance related pay) and staff productivity would also be useful.

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Setting the Strategy for the NHS (continued)

Improve Physical Environment. Research is needed to establish what building materials are appropriate for use in health service premises and how buildings might be constructed most cost effectively.

Improve Cost Effectiveness

Research is needed on possible approaches to improving the delivery of services, and their impact on patients; and on improving cost effectiveness in terms of treatment. This is also of the highest priority to maximise the health gain from finite resources. The rationalisation of acute beds and the contraction of acute hospitals on to fewer sites also need to be evaluated in terms of the impact on quality, outcome and access.

Maintain Financial Control

Research is needed here into expenditure on drugs and to establish the costs of care. It is also needed to inform future decisions on the allocation of resources.

Create a more responsive NHS

Research is needed widely across the NHS to determine how far the moves to improve planning and introduce an internal market are having a beneficial effect on people's health and on the health care that they receive.





Implementation of the Strategy

Research must contribute effectively to the health of the nation. The NHS has, in the past, been a passive partner to the research funding bodies. There has been no clear way of expressing NHS priorities for the purpose of research planning. The key aspect of this strategic development will depend on senior managers and clinicians regarding information from R&D as a contribution to strategic decision making.

Within the NHS partnerships are required between researchers, clinicians and managers. This will ensure that the benefits of R&D are recognised and fully exploited. The research community from universities and elsewhere will play a key role both in the development of the R&D strategy and the implementation of the framework for R&D. It will be necessary to have a well trained workforce to carry out the programme and for more research to be focused on clearly expressed health needs and priorities rather than, as has been the case in the past, most research being driven by the interest of individual researchers without sufficient consideration of overall strategic issues. All those involved have a different, but complementary, part to play in taking this initiative forward and the Strategy will enable all those engaged in research to help set the priorities for R&D in the NHS in Scotland over the coming years.

Drawing on R & D knowledge will make best use of the investment required to produce that knowledge both by the NHS and by others. The process of defining new knowledge requirements continues even after the translation into practice of validated results of R&D. The NHS is committed to improvement, and the knowledge requirements of the Health Service are themselves continually changing as a result of increased consumer expectations, and innovative advances achieved through R & D. The pace of these and other changes affecting health care delivery requires a continually evolving agenda for R&D.

At the moment there is a mismatch between the questions to which managers and clinicians need answers in order to make decisions and the capacity for providing the answers. It is this information 'gap' that has to be bridged by Health Boards developing the capacity to fulfil their R & D role. Developing the capacity to access existing research-based information to assist decision makers' questions will be an important part of the strategy.

The framework for R&D, with its comprehensive list of research needs, demonstrates clearly what remains to be done to develop R&D in the NHS in Scotland. There is clearly an opportunity here to use the NHS R&D Strategy to strengthen collaboration between the NHS, CSO, MRC and other Research Councils, the medical charities, the universities and industry.

It should become accepted practice to rely on high quality research findings both in everyday decision making and in longer term strategic planning. Such a practice will be very much to the benefit of patients and the taxpayer. The challenge is to maximise the potential of this R&D Strategy to bring



Implementation of the Strategy *(continued)*

about significant changes in health care by providing a firm and comprehensive basis for decisions about health care delivery in Scotland.

Over the next 5 years there will be a focus on the main strategic aims so as to respond to Scotland's health needs. This will mean a flexible research infrastructure which can undertake specific work in the light of Government priorities. It will also be necessary to continue to support work on a long-term basis: to develop a Health Service where ideas flourish and where speculative lines of investigation can be pursued.

DEMONSTRATING COST EFFECTIVENESS

A key challenge is to encourage the wide adoption of an evaluative spirit among staff - managers and clinicians - so that a more critical attitude is generated to assessing the costs as well as the benefits of the services delivered. Investing in R&D can involve risk as well as benefit. It is important, therefore, that a demonstration of potential for improving service delivery, leading to better value for money, should be part of the basis for decision-making about investment in R&D for the NHS in Scotland.

The resources devoted to R&D are substantial and there is a crucial need to ensure that R&D is targeted at cost-effective solutions to health problems. This Strategy for R&D in the NHS in Scotland is an important contribution to fostering the necessary infrastructure to target the R&D required for improved patient care.

PATTERNS OF RESOURCE ALLOCATION

As with all policy initiatives, the implementation of the R&D Strategy needs to be monitored and evaluated. It will be necessary to measure the extent to which resources are being allocated, both centrally and locally, towards the strategic aims of the Strategy and the specific priority areas - the objectives - set out in the Strategy.

To measure how the Strategy is developing, it is necessary to establish a 'base case' against which to monitor implementation of the Strategy and the patterns of resource allocation. R&D does not always lend itself to precise outcome measures. Where these are not obtainable, it is necessary to identify indicators which throw light on those aspects which are not easily measurable.

INDICATORS

The funding of R&D should be carefully monitored against the stated priority areas and in terms of the more managerially - and policy - orientated priorities that are now emerging. This is essential if there is to be an understanding of what the Strategy sets out to achieve.

It is important to assess the value for money provided by the funding of research and research projects. This is not an easy task because of the diverse, unpredictable, and long-term nature of some research. But much more R&D funding requires to be stipulated in value for money terms and the CSO will take the lead in offering guidance about the extent to which this is feasible.

There is also a need to measure how much R&D is attributable to NHS:-

- strategy formulation
- implementation of strategy
- evaluation of strategy

The research budget will be regularly scrutinised to determine the balance of funding and shifts in resource allocation among these 3 key objectives for R&D. It is also necessary to put in place mechanisms to monitor the total cost of research being funded within the NHS. This will involve the development of R&D information bases at local and national level.

DISSEMINATION

To capitalise fully on the expenditure on R&D it is essential to disseminate successful results to where it will have the maximum impact. The CSO has already established research networks at local level. These will be further developed to ensure that, over the next 3 years, there is a link between Health Boards, provider units, and the research community and that the research results are widely disseminated to achieve the best possible return and value for money to the benefit of the citizen as taxpayer and patient.

BENEFITS

Examples of the benefit to be gained from the successful implementation of this R&D strategy are:-

- more soundly based policy, clinical and managerial decisions
- improved understanding and communication between the NHS and the SOHHD about what R&D can contribute to improved patient care
- better value for money with properly focused R&D
- more rapid implementation of beneficial change
- a measurable improvement in the health of the population of Scotland

Putting the Strategy to Work

R&D in the NHS is a powerful way to improve health care in Scotland, and this Strategy provides an opportunity for health research to contribute effectively to the health of the nation. The Strategy will also enable those involved in research to facilitate the priorities for R&D in the NHS in the years ahead. An overview of the Strategy will be necessary at local and national level.

HEALTH BOARDS & PROVIDER UNITS

Health Boards and NHS Trusts will need to set their R&D aims and objectives within the national framework and Strategy. How Boards as purchasers and NHS Trusts as providers achieve those objectives will largely be for them to define taking account of local circumstances and demands. To do this it will be necessary to develop and introduce structures and systems, and clearly this will take some time.

As a useful start to developing the R&D Strategy successfully Health Boards and provider units will need to address some key tasks:

- establish what research is being carried out within the Board and NHS Trust
- assess how this research aligns with the national framework and the R&D Strategy
- define the areas where the greatest priority lies for R&D
- encourage proposals to meet the stated priorities
- develop mechanisms to translate the R&D findings into practice
- undertake systematic dissemination of information about R&D

The national R&D Strategy and framework are new and will need to develop over time. Each Health Board, and NHS Trust, is asked to identify a member of staff with specific responsibility for R&D. This R&D manager should undertake the tasks listed above; ensure the service support of appropriate peer reviewed research (from ACT monies or other NHS resources); ensure innovative health services incorporate appropriate evaluations of effectiveness; and report on local research activity which has the potential to improve health services.

In assessing their R&D requirements Health Boards, and NHS Trusts should consider:

- who it is that has R&D needs. For example, purchasers and providers
- how to find out the R&D needs. For example, by seeking expert advice or discussion
- whether work of a similar nature has been done already or has been undertaken elsewhere
- a basis for prioritisation of R&D projects.

Preliminary discussion with general managers has identified that it will help the initial stages of implementation of the R&D Strategy for the NHS to achieve rapid progress if there is some early collective action by an NHS based Implementation Group for the R&D Strategy. Formed primarily from both the purchasing and providing components of the NHS, this Group should determine the best mode of

implementation for the Strategy and carry action forward on early priorities. From 1995-96, Health Boards and NHS Trusts will be required to prepare their own R&D plans. In addition to contributing to the national framework, these plans will include any R&D and related activities which are funded through the Board and NHS Trust. Further, more detailed, guidance on these plans will be produced in due course.

SCOTTISH OFFICE HOME & HEALTH DEPARTMENT

The Health Department funding available will need to facilitate research in the priority areas of the national framework. It will be important to monitor the overall implementation of the national Strategy and evaluate progress. To enable this process there will be, at national level, a SOHHD Strategy Group for R&D in the NHS. This Group will assess progress and advise on what further guidance is needed to take forward the implementation of the national Strategy and framework, including indicators to gauge the extent to which the R&D strategy is working.

The Group will also approve priority areas for research and development. The national framework will require to be modified to meet the ever-changing demands of the NHS and health care. As the Strategy develops, close interaction between the Implementation Group and the Strategy Group will become increasingly important. Central advice from the Strategy Group will give the Strategy, and its framework, consistency of approach and a clear direction.

COMMISSIONING & MANAGEMENT

There are broad principles and practices by which centrally funded health research and development is commissioned and managed and quality assured. These are listed below and similar guidelines apply to R&D commissioned by the NHS.

The main principle governing any Government Department funding of R&D is the Rothschild principle "the customer says what he wants, the contractor does it, if he can, and the customer pays". There are, however, a number of specific guiding principles and practices which apply to health R&D:-



Principles

Policy relevance – Projects should be problem driven; priorities for commissioned R&D should be identified on the basis of their policy relevance; and research commissioned should be in line with the Department's policy objectives.

Quality – Research requirements should be informed by expert advice. R&D projects should follow a well-defined protocol, be subjected to expert peer review, represent value for money and meet agreed targets.

Putting the Strategy to Work *(continued)*

Accessibility – The findings of R&D should be reported so they are accessible and open to critical inspection. The appropriate publication of research results should be encouraged and, where necessary, more detailed dissemination strategies developed and pursued, having regard for the protection and appropriate exploitation of intellectual property. Information on all R&D plans and commissioned projects should be shared to ensure better decision-making on R&D priorities and resource use and to avoid duplication. Details of research should be published.

Accountability – There is a need for expenditure on R&D to be fully accountable, expressed in value for money and clear output terms.

Consistency – The same principles and practices should apply to all R&D and be consistent with wider Government and EC research requirements and policies.

Practices

- expert advice should be fed into the determination of research needs
- a statement of the problem to be addressed and its relevance to policy should be drawn up and research requirements formulated
- projects commissioned should reflect overall research priorities
- research contracts should be open to tender wherever appropriate
- no financial commitments should be made to researchers until formal applications have been received and considered
- research applicants should be required to set out details of the research objectives, methodology, outputs, timetable and resources required in a formal protocol and to a standard format
- research applications should be routinely peer reviewed by suitably qualified referees and their anonymised comments fed back to researchers; revisions to applications, may be considered appropriate
- all costs should be scrutinised and should be in line with Departmental and Government policy on financing research before being finally agreed
- arrangements for project management should be agreed with the researchers from the outset

- researchers are expected to provide progress reports and a final report of their study; other reports and outputs required should be negotiated with researchers
- all final reports should be peer reviewed to assess the scientific quality of the research conducted and to ensure that is sufficiently robust to inform policy
- the appropriate publication of results from research should be encouraged in accordance with standard Departmental terms and conditions of contract.
- arrangements should be made for the protection and appropriate exploitation of intellectual property generated by the research
- agreed support for R&D should be on the basis of a formal contract letter and subject to standard terms and conditions



RESEARCH COMMUNITY

The Strategy offers the research community a new opportunity to work closely with managers and clinicians within the NHS. There is a need to identify existing knowledge within the research base of information which can directly help the service. It will involve researchers from a wide range of disciplines, bringing multi-disciplinary teams together to consider issues from a variety of backgrounds and using a wide range of methodological approaches.

Researchers should work closely with Health Boards and NHS Trusts from the outset of the Strategy providing the advice necessary to produce coherent and practicable plans which address the issues most likely to benefit the patient and patient care.

Research within the national framework and Strategy should be of the highest quality. Quality needs to be judged both in terms of scientific excellence and potential value to the NHS. R&D within the framework and Strategy differs significantly from basic biomedical research where excellence may be the sole criterion. Potential value to the NHS needs to be judged by taking a broad, strategic view.



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