EDUCATION & DEBATE

Filling the lacuna between research and practice: an interview with Michael Peckham

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Professor Michael Peckham is the first director of research and development for the National Health Service

RS: What are the objectives of the NHS research and development programme?

MP: A prime objective is to base decision making at all levels in the health service—clinical decisions, managerial decisions, and the formulation of health policy—on reliable information based on research. Until now there has been a lack of emphasis on the use of research information. There are many examples where research findings have not been used in practice. One of the most striking examples is thrombolytic treatment in patients with myocardial infarction: There was a 12 year delay between the publication of research findings showing that the treatment was effective and experts beginning to recommend it. Even the experts could not handle the mass of published information. Another example is the use of antenatal steroids to reduce the respiratory distress syndrome in prematurely born infants. We know the treatment works but it is being used in only about a fifth of eligible women in Britain. In short, we need to do much better in feeding the results of research into practice.

A second objective is to provide the NHS with a capacity to identify problems that may be appropriate for research. Our approach is to get the research community, NHS staff, and consumers to work together in setting an agenda for research. The emphasis of the programme is to work back from the problem towards the research solution.

A third objective is to improve the relations between the health service and the science base. By this I mean not only medical research but engineering, the

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biological and physical sciences, biotechnology, the social sciences, and economics.

RS: Some people would say that we have been through all this before. Lord Rothschild tried to encourage directed research 20 years ago and that failed. Won't it fail this time? Shouldn't scientists be left to do what they want to do?

MP: I am committed to encouraging scientists engaged in basic research to follow their instincts and judgments so long as their work is innovative and of high quality. The research and development programme is not in conflict with that, but we must think about the balance between research driven by curiosity and research focused on solving problems. We are trying to stimulate activity in a traditionally neglected subject. It is primarily for the research councils to support blue sky research and for the health service to learn and benefit from it when it can. Indeed, we depend on speculative research for major advances in health care: the research and development initiative is complementary to and not in conflict with basic science.

RS: Except of course in terms of resources.

MP: I don't want to see any major shift in resources, but I do want to see NHS resources targeted at issues relevant to the priorities of the health service.

Producing an NHS culture that values and uses research

RS: Would you say that, until now, a lot of decisions in the health service have been made without adequate reference to research information?

MP: Yes. Last year I asked health service managers for examples of decisions made during the preceding year in which they judged that research based information had been inadequate and they would have liked more. We assembled a substantial list. One manager commented, "It isn't so much that we lack research based information but rather that nobody in this health

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authority would have thought that such information could have contributed." This highlighted not only the lack of research based data directly relevant to the NHS but also the cultural issue. I think we have made encouraging headway in securing the necessary cultural shift.

RS: But cultural shifts are harder to achieve than anything else.

MP: Yes, but I believe that the NHS is beginning to understand that research is not a luxury but something that is essential. For instance, the objective of the separation between purchasers and providers to secure the largest volume of appropriate high quality care with the resources available to the NHS can be realised only through research and development.

RS: Do you think that your programme and the purchaser-provider split go together?

MP: The NHS reforms have undoubtedly made the need for information explicit. There is a thirst for information, which points to the need to broaden the scope of research and development. Research and development have been thought of very much in the context of the effectiveness and cost effectiveness of clinical practice, but there is a wider range of research questions about,

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for example, the design of hospitals and different means of delivering care. These are tough problems with important questions for research. I want to get across the concept that research applies to problem solving right across the range of health sector activities.

Developing the programme

RS: How have you set about achieving your objectives?

MP: The aim was to identify NHS research problems, give priority to them, develop an information strategy, find out what research was already going on, and improve relationships with industry and the science base.

So far as the conceptual framework of research and development for the NHS is concerned, I began in 1991 with a blank sheet of paper. The detailed design and interpretation depended, however, on the knowledge and enthusiasm of those who had already perceived the need. Within three months the first draft proposals were presented to the NHS Policy Board. The first decision was that the research and development initiative should not be a centrally driven programme. If the culture of the NHS was to be shifted towards conducting and using research it was essential to devolve the programme. But we needed to balance devolution with a broad national strategic plan or there would be fragmentation, which has bedevilled research.

Initially, I thought that it might be sensible to work with four or five supraregional consortiums, but as I became familiar with NHS management structures it seemed clear that the best aproach was to work with the regions—with each region appointing a director of research and development.

The second component was an advisory body that would bring together the main health interests and begin to set a broad strategic framework. In the autumn of 1991 the Central Research and Development Committee was established. This is a large body that brings together the main interests in health, from consumers to basic scientists.

RS: Surely large heterogeneous groups of people are not good at setting strategies?

MP: It was important to have a broadly based committee but the members are not representatives. Over the past two years, despite the wide range of backgrounds, the committee has become an extremely effective and cohesive body. It is a forum for developing broad concepts and for advising on the issues brought before it. But much of the work is done in small groups—particularly targeted, time limited taskforces. These groups have a specific objective; they work over a short time and are then disbanded. The committee meets four times a year, and the regional directors meet with me once a month. The aim is to encourage local initiatives to develop within a national framework.

Setting priorities

RS: Have you set priorities?

MP: In late 1991 we launched the first systematic process of identifying priority issues that could be addressed by research and development. The first exercise was in mental health. We convened a multi-disciplinary group, which was provided with background information and asked to advise on key issues for the NHS. The groups responsible for setting the agenda for research and development must be broadly based. In the recently completed exercise on physical and complex disabilities, for example, the advisory group included rehabilitation engineers, physicists, professional therapists, public health specialists, social scientists, various specialists, and representatives of the disabled. Often the members of these groups find that they are working for the first time in a truly multidisciplinary group. The membership is not representative: we go for the best people we can find and each chairperson is fully independent. Information is provided on the costs to the NHS and society and on the prevalence of the given problem. A byproduct is the identification of substantial gaps in the information.
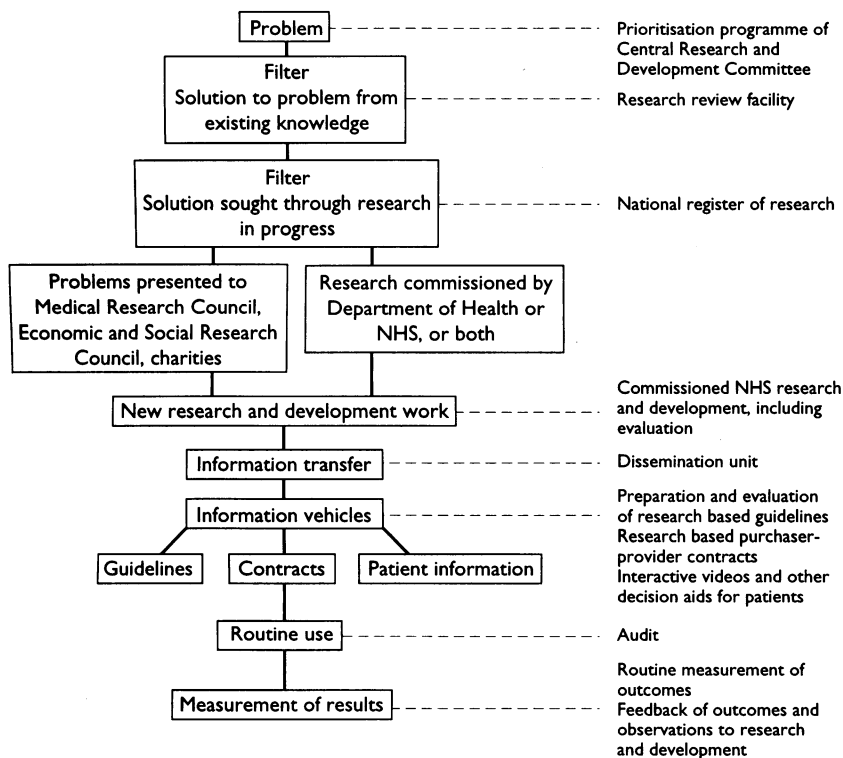

"The NHS is beginning to understand that research is not a luxury but something that is essential."

The groups are asked to take into account the feasibility of research and the likely return from an investment in research.

RS: How do you assess feasibility?

MP: Let's consider Alzheimer's disease as an example. Research that sets out to understand its cause and to develop a treatment based on the cause has an important but tough assignment. But we can feasibly consider how best to manage patients in the community and explore, for example, issues concerning the role of informal carers.

It is important that advisory groups are aware of ongoing research, including the new opportunities likely to arise from basic science. An essential feature is the conduct of an extensive consultation exercise with practitioners, researchers, managers, and relevant organisations. A key aspect of this is to secure input from those who are working with patients on a day to day basis. Details of major problems are derived from written consultation and from regional workshops. The group is then charged with producing a list of priorities that take policy into account—for example, *The Health of the Nation*.

Problem --------------- Prioritisation programme of
Central Research and
Development Committee

Filter
Solution to problem from ----------- Research review facility
existing knowledge

Filter
Solution sought through research ---------- National register of research
in progress

Problems presented to   Research commissioned by
Medical Research Council,   Department of Health or
Economic and Social Research   NHS, or both
Council, charities

New research and development work -------- Commissioned NHS research
and development, including
evaluation

Information transfer ------------ Dissemination unit

Information vehicles ------------ Preparation and evaluation
of research based guidelines

Guidelines   Contracts   Patient information   Research based purchaser-
provider contracts
Interactive videos and other
decision aids for patients

Routine use --------------- Audit

Measurement of results ----------- Routine measurement of
outcomes
Feedback of outcomes and
observations to research
and development

Identifying a problem and seeking a solution: sequence from research to implementing the results and measuring outcome

The identification of a problem should not automatically signal the commissioning of research. We should ask two questions. Firstly, are there existing research findings capable of answering the question? Secondly, is there ongoing research relevant to the problem? If the answer to both questions is no we would invite bids from researchers to tackle the problem and would commission new research. Some of this new work will be supported by the NHS and some by other bodies, particularly the Medical Research Council.

The process of inviting tenders, peer review, and commissioning is devolved to one of the regional directors. For example, Professor Mark Baker in Yorkshire is responsible for the NHS mental health programme and Professor George Alberti in Newcastle for the cardiovascular disease and stroke programme.

RS: How many priorities do you have at the moment?

MP: We are examining the NHS from six overlapping perspectives. The first is by disease—for example, mental health, cardiovascular disease, cancer, and respiratory disease.

The second perspective relates to the management and organisation of services—for example, the interface between primary and secondary care and the provision of information for purchasing. Another perspective relates to client groups and I have already mentioned physical and complex disabilities. We are also looking at consumer issues—a difficult but important area in which we are keen to see progress. A fifth perspective concerns health technology assessment, and the final theme focuses on research methods.

Changing practice and the health service

RS: When will you be able to deliver on all this?

MP: The research and development programme must deliver practical information in the short term. Although we recognise the medium and long term nature of research, it would not be helpful to the NHS to say, "Give us five years and we will be able to help you." Decisions are being made now. That means that we must learn how to make effective use of currently

available research findings. But at the same time we must also emphasise the need to commission research in order to have reliable information in the future. We have established an information strategy to handle existing research data. The first component is the Cochrane Centre, which is concerned with the systematic analysis of clinical trials. We are creating a new centre in York to commission expert research reviews, and the existing *Health Care Effectiveness Bulletins* will be subsumed into this programme. The York unit will also concentrate on the systematic transfer of research information to users. We need to ensure that research findings are used in purchasing contracts, in clinical guidelines, and indeed in any form that transfers valuable new information into routine practice. In this context a range of initiatives is being developed—for example, the GRIP (Getting Research Into Practice) project in Oxford. The York centre will focus on the skills that are needed to ensure that research information is transferred to the point of decision making.

RS: This problem of getting people to change in response to research findings seems to be a major one. At the meeting we held recently on systematic reviews one of the main conclusions was that we are sophisticated about analysing data systematically but naive about what makes people take up the results and change their practice. There seems to be a major disjunction between analysing the results of clinical trials, which belongs to statisticians and doctors, and getting people to change, which is studied in management schools.

MP: I agree, but I believe that the tide is beginning to change. However, we can learn from the experience of other sectors, which is why I invited the director of

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"We go for the best people we can find."

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communications at the Science Museum to join the committee that assessed the bids for the dissemination unit. We are also looking at industrial and marketing models.

RS: But they are good at achieving small changes. For instance, we are quite good at getting people to read the *BMJ*, but journals are not good at getting people to change their practice. Having information and understanding it are not enough in themselves.

MP: Ensuring that the results of research and development penetrate into practice is a crucial challenge.

Lead directorates for managing NHS research and development

Subject	Lead directorate
Mental health	Yorkshire
Cardiovascular disease and stroke	Northern
Cancer	} South Western
Health technology panel on methodologies	
Respiratory disease	} South East Thames
Health technology panel on acute sector	
Purchasing—contracting	Oxford
Accident and emergency	North Western
Elderly	East Anglian
Interface between primary and secondary care	} North East Thames
Health technology panel on chronic, community, primary care	
Health technology panel on pharmaceuticals	Mersey
Health technology panel on screening	North West Thames
Mother and child health	South West Thames
Consumer issues	} Trent
Health technology panel on imaging	
Physical and complex disabilities	Wessex
Medical equipment	West Midlands

Unless research and development are engaged with the cogs of day to day work in the NHS we will not have succeeded. Implementation itself raises substantial issues for research and development, which is why implementation is a priority for the coming year. Encouraging NHS staff to play a part in setting the agenda and when appropriate participating in the conduct of research and development are potent ways of promoting the use of research data.

Regional developments

RS: What is happening now in the regions?

MP: All but one of the regional directors are in post, although some have been there for less than a year. A tremendous amount is happening. The directors are creating a research network by identifying contacts in provider units and purchasing authorities. We are seeing the emergence of a national network of public health staff, managers, clinicians, and many others who are committed to making the research and development initiative work.

Secondly, a substantial number of implementation initiatives are developing. Some are looking at the general mechanisms of implementing research findings and others at specific initiatives—for example, the use of anticoagulants in atrial fibrillation and the role of care attendants for elderly people after discharge from hospital.

RS: Are you coordinating all this?

MP: Coordination is crucial. This is sought through the regular monthly meetings of the regional directors so that staff are aware of what is happening. Each director is supported by a research manager and there is also an active regional research manager's group.

RS: Because these directors are part time?

MP: Not all. Some are part time, but there is a trend for the job to become full time. What the directors are finding is that it is a hugely busy job and becoming busier. As they become familiar with their regions they find more health related research—in universities without medical schools, including the new universities, and in district general hospitals. A national picture of research skills and activities is emerging. Soon this will be complemented by a national register of ongoing research projects.

Another important component of regional activity is education and training, and initiatives range from short courses, including coaching sessions designed to show how problems can be presented as research propositions, up to three year fellowships.

RS: But isn't all this going to be disrupted by the abolition of regions?

MP: No. We see the reorganisation of the regions as an opportunity rather than a threat. The document *Managing the NHS*, which announced the changes, makes several statements about the central importance of the research and development programme to the development of the NHS. What we are doing now is to work out the detailed implications of the changes, and I am meeting regularly with the regional directors. Our aim is to preserve the networks and talents that we have nurtured, and I'm sure that we can do that within the new structure.

RS: But you have 14 regional directors of research and development with staff and now only eight regional outposts?

MP: Yes, but we also need leadership for several nationally important initiatives. Also, the skills possessed by the regional research mangers are in short supply, and we will need to argue the case for more of them not fewer.

Ensuring that the results of research and development penetrate into practice is a crucial challenge. Unless research and development are engaged with the cogs of day to day work in the NHS we will not have succeeded.

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Training, education, and multidisciplinary work

RS: Many people, including myself, wondered at the beginning of all this whether there would be enough people around with the right skills.

MP: We know there is a lot of activity. For example, a snapshot study in 1992 revealed some 6000 health services research projects. Of course we cannot comment on quality or on how many were associated with formal protocols and peer review. When bids were invited for NHS research funds the responses were extremely brisk, with some applications of high standard and others not so good. But there is much enthusiasm and we are working with the research community to develop the requisite skills, particularly when deficiencies are detected.

For example, we are creating a new centre for research and development in primary care with substantial funding—up to £1·5m per year for 10 years. We see training as an important part of the centre's work. The intention is to create a model dynamic centre for health services research.

RS: The rhetoric of this programme is multidisciplinary research and I am sure that that is a good thing. But I am not at all sure that it is easy to make it work. Just because you have the different disciplines within one group doesn't mean that they work well together.

MP: We know of some extremely good examples of multidisciplinary research in which clinical researchers, basic scientists, and researchers interested in community issues are working well and productively together. When you have respect for the skills of others multidisciplinary research is exciting and enhances the collaboration. If the structure and support are right then it is not difficult—although making it work depends ultimately on good leadership

RS: But what about the fact that so many of your regional directors are medically qualified?

MP: That is true, but my contention has been that if we are serious about filling the lacuna between research and the health service we have to bring to bear the experience and commitment of the leaders with good track records in research. I believed that they would become committed to this work, which is what has happened. They are now stimulating a wide range of developments and I don't believe that that would have happened if we didn't have people of their standing active in the programme.

RS: So perhaps not so many of the second or third generation of research directors will be medically qualified?

MP: I think not. We want to see high calibre social scientists, economists, and nurse researchers. At the centre we have laid our multidisciplinary credentials on the line. We have just appointed Gilbert Smith to the new post of deputy director of research and development. He was previously professor of social policy and administration at the University of Hull with a distinguished research record. He was also chairman of East Riding Health Authority. We have also appointed a new chief scientific officer, Peter Greenaway, who is a molecular biologist.

Funding

RS: What about funding—do you have enough?

MP: Firstly, there is the department's research programme, which is about £25m. That is now oriented towards research in public health and social services. Secondly, there are funds from the locally organised research schemes, the research element of SIFTR (Service Increment for Teaching and Research), and support for research and development in the special health authorities, as well as existing research and

As well as being director of research and development for the NHS, Professor Peckham is an accomplished painter, who has exhibited many times. The picture above is his.

development funds within the NHS. We estimate that the total is currently about 1% of the NHS budget. The challenge is to use it in the most creative and effective way.

RS: But you don't control all that money.

MP: Increasingly we plan to do so as we move towards a target expenditure of 1·5% of the NHS budget. In doing so we have to look carefully at how research fits into purchaser-provider arrangements. We are thinking hard about how we conduct research, such as clinical trials, within the new NHS and how we organise research. Research has mainly been conducted in centres in the major cities but purchasers may elect to place contracts locally. We are conscious of the crucial importance of achieving synergy between the patient care market and research and development and of avoiding situations that might distance research from health care just when we are trying to make them work closely together.

Assessment of health technologies

RS: Let's talk more about assessing health technologies.

MP: We envisage two gateways into the NHS for new health practice methods—safety-efficacy and effectiveness-cost effectiveness. We measure the safety and efficacy of drugs but not, for example, the safety and efficacy of surgical procedures. We also need information about the effectiveness and the cost effectiveness of new technologies; with few exceptions these data are currently lacking.

Take, for example, minimally invasive surgery: there are well over 100 procedures in use, and in only a minority is information on cost effectiveness available or being sought in clinical trials. This technology is very fast moving and is largely unevaluated. The challenge is to determine the most appropriate methods for assessing such rapid developments.

We have set up a national standing group on health technology chaired by Miles Irving, professor of surgery in Manchester. This is perhaps the centrepiece of the programme and the coverage is broad—health technology includes measures to promote health, to prevent ill health, and to diagnose and treat established illness. The standing group has six panels: pharmaceuticals, population screening, diagnostic techniques, the acute sector, chronic disease and primary care, and methodology. The methodology panel has an impor-

tant function: to look at the range of methods available, including trials, alternatives to trials, economic measures, and end points such as the quality of life.

This month each panel will have produced a list of high priority technologies. The standing group has the difficult task of collating them to produce a ranked list for the Central Research and Development Committee to consider next month. A significant important departure will be the identification of technologies that should not be diffused through the NHS until they are evaluated—a radical innovation.

The standing group also identifies new developments from science and technology that we need to pay attention to now. To assist in this process we are setting up several groups to look at growth areas in science from the perspective of the health sector. The first, on genetics, has looked at a range of issues, including genome mapping, genetic screening, and gene therapy.

The challenge in assessing health technologies is to sort the wheat from the chaff. The pace of technological advance is extremely rapid and some very exciting innovations are developing. There will doubtless also be a good many developments that will consume a lot of resources for small benefits.

RS: But what control do you have? If you were to decide that laparoscopic surgery was growing too fast what could you do to stop it?

MP: Our approach would be to work closely with NHS staff—in this case the surgeons. We have to strike a balance between stifling innovation and introducing new technologies sensibly. Researchers responsible for

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designing studies to assess new methods should be brought in right from the beginning, not as afterthoughts at the end of the process.

Some of these technologies will prove to be passing fashions while others will prove durably important. For example, soon after I took up this post we convened a meeting on transcervical endometrial ablation with the aim of encouraging a national trial. However, at that time it proved difficult to achieve this because everyone was so enthusiastic about the new techniques. But now we have seen that the issues are more complex.

Finally, we need lively and intelligent purchasing. Given the proliferation of new technologies we also need to work with purchasers to guide them on choices.

RS: You don't want an innovation police.

MP: I don't want any police.

How to judge success

RS: How will you be able to judge whether you have succeeded with the programme?

MP: We need to know whether the investment in research and development is producing the returns we should expect. To begin to explore the issues we have commissioned two pieces of work. We are also setting targets and a timetable for when they should be met. There will be other measures such as the incorporation of research findings into contracts and guidelines. Ultimately, of course, I want to see the impact of the programme as improved health outcomes.

RS: Finally, does this work feel good to you?

MP: I find this extremely exciting, and it has been a privilege to have been given the opportunity to develop this new venture. I have had support centrally, and we've been able to recruit excellent people. The NHS cannot do without research and development.