and the correct application of prosthetic mesh support. After standard open herniorrhaphy (as described by Bassini, McVay, Condon, and Shouldice, for example) the strength of the wound is 70% of that of intact tissue and strong enough to withstand full physical activity.[9] Open prosthetic mesh repair, correctly done, can withstand any degree of stress immediately,[10] and postoperative activity need not be restricted at all.

Patients' motivation is the driving factor in the decision to return to work—and that depends on their confidence in their repair. This in turn depends largely on what they have been told by the attending surgeon or physician. Repeated emphasis that what they do physically will not affect the strength of their repair reassures patients that early return to work is safe and justified.

Our own most highly motivated patients (doctors themselves are the best examples) have returned to work in two days or sooner. Desk workers are back at work in less than a week; manual workers average seven to 10 days. Among 3125 patients whom we observed during a 10 year period recurrence rates were low, under 0·2%.[10]

In Britain a recent patient information booklet produced by the Royal College of Surgeons of England offers the following advice: "take it easy after operation. . . do no heavy lifting for four weeks" and "resume full activity by eight weeks."[11] The American College of Surgeons has recently advised patients that "depending upon your occupation, you can expect a recovery period lasting from one to six weeks."[12] Such caution serves only to engender anxiety and justify the patient's decision to remain off work for a full six weeks, whether necessary or not.

It is contradictory and counterproductive to warn against strenuous activity—a recipe for long disability—and then expect patients to return to work early. Elimination of such iatrogenically induced anxiety can go far to reduce unnecessary time off work—thereby resulting in substantial economic savings.

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Towards a knowledge based health service

Priorities are set for health technology assessment

Few decisions made in health services are made with good evidence.[1] This applies particularly to decisions on how health services are structured and managed but is also true of decisions made every day by doctors and nurses.[2] The failure stems from those who work in health services being unaware of evidence that is available, from the evidence being disorganised and inaccessible,[3] and from the evidence simply not existing. The ambitious mission of the NHS research and development programme is to create a national health service in which decisions are based on evidence,[4] and the publication last week of the report of standing group on health technology was an important step in that direction.[5]

The failure of research to feed through into practice is currently a hot topic,[6,7] and the old model of how doctors were supposed to incorporate the latest research into their practice has had only limited success. The model might be summarised thus: doctors are trained at medical school in the latest scientific thinking; their scientific training continues in their postgraduate years; and they pick up on the latest science by reading journals, attending meetings, and talking to colleagues and then incorporate it into their practice. In fact, training at medical school in scientific methods and critical appraisal of research is minimal; many doctors after graduation do no research and those that do often do it badly[8]; most of what is in the journals or heard at meetings is of doubtful standard scientifically and of dubious relevance[9]; and most doctors know little about how to assess scientific papers critically and know even less about translating what they read into practice. The problems for other health professionals are probably worse.

Another problem—identified by the House of Lords in 1988[10]—is that most medical research until now has proceeded with inadequate input from the NHS. The problems that interested the researchers were rarely the problems that confronted the practitioners. "The use of research methods to measure the benefits—or otherwise—of interventions designed to prevent ill health or to diagnose and treat established illness is of central importance to health services and to public health more generally," writes Michael Peckham, director of research and development in the NHS, in the introduction to last week's report. "Yet this activity has languished as the poor relation of medical research. Remarkably, it has taken 45 years for the NHS to set in place mechanisms to assemble a description of health practice methods and to develop plans and methods for the critical assessment of their usefulness."[5]

Health technology assessment is the largest part of the NHS research and development programme, and its scope is broad. "Health technology" covers any method used by health professionals to promote health, treat disease, or organise care, and "assessment" considers effectiveness, costs, outcomes, and acceptability to patients and society. The research and development programme has a standing

group on health technology, and it has been busy setting priorities on which technologies should be assessed. It consulted widely within the NHS and in just five months received suggestions on 1382 technologies ripe for assessment. The group then set priorities by considering what the benefits might be to patients and the health service from conducting an assessment, how long it might take to do the work, and how important it is to do an early assessment. The priorities, which will be reviewed every year, are shown in rank order in the box. A methodology panel has also set priorities for improving the methods of technology assessment, including "developing the science of critical reviews of the literature."

One priority is assessment of the current methods for total hip replacement, and to illustrate its methods the standing group explains how this became a priority. Currently there is wide variation in outcome from the operation, uncertainty over which is the best prosthesis, and an increasing need to undertake second operations—18% of current expenditure is on revision surgery. The benefits of assessment should be a better outcome for patients and reduction in the £26m spent annually on revision surgery. The cost of funding a study has a good chance of producing value for money.

The NHS research and development programme together with the Medical Research Council will now fund systematic reviews of existing studies and new research related to the priorities. The standing group is also interested to disseminate the results of the assessments that are undertaken and to see that the results are introduced into practice. The methods of getting research into practice range from the benign—like using local opinion leaders and encouraging audit and the use of guidelines—through to the more threatening—like using contracting, the law, or economic incentives.[6,7] These methods themselves need assessing and many guidelines are far from scientific. One factor that may be of central importance in increasing the likelihood that the results of research will be introduced into practice is the relevance of the research. Lomas, one of the pioneers in this subject, has written: "The more the research is relevant to and helpful for the daily decision making of the community practitioner the more likely it is to find its way into community practice."[7]

Many people are suspicious of the NHS research and development programme, and I hear mutterings about empire building, the overuse of management speak, the gap between the rhetoric and the reality, and the dangers of directing research. The programme needs some results to add to its glossy reports. Miles Irving, professor of surgery in Manchester and chair of the standing group, acknowledges some of the doubts by writing in the report: "A new layer of bureaucracy? A brake on progress and innovation? A restriction of clinical freedom? I suppose that to some the vigorous appraisal involved in health technology assessment can be seen as all of these. Were this to be the case I would not have wished to be associated with the exercise." Irving then silences potential critics, many of them traditionally minded, by finding a quotation about John Hunter, who founded scientific surgery over 200 years ago: "In the practice of surgery, where cases occurred in which the operations proved inadequate to their intention, he always investigated the cause of that want of success, and in his way detected many fallacies as well as made some important discoveries in the healing art."

Priorities for health technology assessment in rank order

1 Coronary artery bypass grafting versus angioplasty versus medical management

2 Screening for colorectal cancer

3 Stroke rehabilitation

4 Myocardial ischaemia pre-intervention

5 Screening for stroke through identifying and treating raised blood pressure

6 Near patient testing in hospitals

7 Counselling in primary care for mental health problems

8 Management of mildly or moderately dyskaryotic cervical smears

9 Surgery for low back pain

10 Assessment of methods for preventing thromboembolic disease in patients undergoing total hip replacement or hysterectomy

11 Total hip replacement

12 Effectiveness and cost effectiveness of regionalisation/centralisation of intensive care services for adults, children, and neonates

13 The role of nurse practitioners in primary care

14 Long term outcomes of drug use in asthma

15 Near patient testing in general practice

16 The effectiveness of physiotherapy for musculoskeletal conditions

17 Management of low back pain

18 Menorrhagia

19 Patient information

20 24 hour primary care centres as a model for providing out of hours care

21 Prostatic carcinoma

22 Implementation, evaluation, and monitoring of effective strategies for repeat prescribing

23 Paramedic training

25 Antenatal screening for HIV

26 Evaluation of methods of screening for Down's syndrome

27 Magnetic resonance imaging in district general hospitals

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