What do we mean by appropriate health care?

Report of a working group prepared for the Director of Research and Development of the NHS Management Executive

In everyday life we talk about someone having “behaved inappropriately,” and we all have an understanding of what that means – that in some way the behaviour was not “right” for the circumstances. Health professionals and the lay public alike also talk and write about the appropriateness of health care interventions in the same sense. It is important therefore to attempt to define what is appropriate and to distinguish this from effectiveness and efficiency.

Definitions

Efficacy is the ability of a health care intervention to produce the desired outcome in a defined population under ideal conditions. It should be distinguished from effectiveness, which is the extent to which that outcome is achieved under the usual conditions of care in “real life,” where skills and other resources are different from the experimental conditions. Here, however, we caution that outcomes are complex and multidimensional. If the defined outcome is reassurance, then an intervention that effectively reassures, even if it fails to alter the underlying disease, may well be appropriate. For both efficacy and effectiveness, the technical competence of the providers of care is an important variable.

Care that is appropriate has been defined by workers at the RAND Corporation as follows.

Appropriate (care) means that the expected health benefit (ie increased life expectancy, relief of pain, reduction in anxiety, improved functional capacity) exceeds the expected negative consequences (ie mortality, morbidity, anxiety of anticipating the procedure, pain produced by the procedure, misleading or false diagnoses, time lost from work) by a sufficiently wide margin that the procedure is worth doing.\(^1\)\(^2\)

We feel that two important dimensions of this definition are missing: the individuality of the patient under consideration and the availability of health care resources. We suggest the following definition.

Appropriate care means the selection, from the body of available interventions that have been shown to be efficacious for a disorder, of the intervention that is most likely to produce the outcomes desired by the individual patient.

An intervention can only be appropriate when certain criteria are satisfied. The technical skills and other resources for the intervention must be available so that it can be performed to a sufficiently high standard. The intervention must be performed in a manner that is acceptable to the patient. Patients should be given adequate information about the range of effective interventions. Their preferences are central to the choice of appropriate intervention from those known to be effective. Their preferences will reflect not only the primary outcome that they hope to achieve, but also their perceptions of the potential adverse outcomes that they might encounter. It follows that patients must be fully involved in discussions about the likelihood of different outcomes with and without the intervention, and about the discomfort and other adverse events that they might encounter. The appropriateness of health care interventions must also be considered within the current social and cultural context and with regard to justice of resource allocation.

The use of some of these words may be illustrated by the following example. Coronary bypass surgery is efficacious in reducing mortality over five years in patients with left mainstem coronary disease. In the best prospective studies mortality is as low as 0-9\%.\(^1\)\(^2\) However, in general use operative mortality is higher, so the procedure is not as effective as had been hoped on the basis of the evidence from trials.\(^1\)\(^2\) Larger units can perform operations at lower marginal cost than small units, so they may be more efficient. For an individual patient, however, the operation may be inappropriate because, for example, the patient prefers to take his or her chances with medical treatment, or because of some serious comorbidity, or for some other individual reason.

Different perspectives on appropriate health care

We consider appropriateness from the professional perspective, the lay perspective, and the perspective of society as a whole.

**PROFESSIONAL PERSPECTIVE**

Here we are concerned with the prevailing views within health care professions as to those interventions that most contribute to health gain. By health gain for an individual we mean the net increment in health status over his or her lifetime, after subtracting health loss due to adverse outcomes of the intervention. It is important to consider appropriateness in relation to broad aspects of health care and not just appropriate investigation and treatment by doctors. For example, appropriateness must be considered in relation to nursing practice and in relation to health promotion and preventive medicine.
LAY PERSPECTIVE
Here we are considering two perspectives: the views of healthy people who are not ill and the views of patients. Patients' and professionals' views are congruent insofar as patients expect interventions to be appropriately targeted and delivered with technical competence. However, lay and professional views may differ with regard to, for example, judgements about quality of life, the value and purpose of specialist referral, the need for prescriptions, the purposes of palliative care, and so on. Patients and individuals who are not currently ill may also have different views about the appropriateness of local services that they wish to see provided.

PERSPECTIVE OF SOCIETY AS A WHOLE
Both lay and professional perceptions of appropriateness reflect current but always changing social and cultural values of society as a whole, as well as the effectiveness of the technical intervention. However, appropriateness is ultimately constrained by finite resources. Government is responsible for determining how much of society's resources should be allocated to health care. Within this sector, purchasers are responsible for determining how much to allocate to the prevention of disease and how much to the care of chronic and acute disorders.

There is a distinction between population appropriateness, similar to effectiveness but constrained by societal judgements of the value of different interventions and by available resources, and appropriateness at an individual level, which is effectiveness modified by patient characteristics and patient preference.

Professional perspectives
Many procedures and interventions in current use have not been examined by randomised controlled trials and are unlikely to be in the near future. There is little information about the outcomes of care given by nurses and professions allied to medicine. The considerable variations in rates of procedures that cannot be explained by local variations in morbidity or availability of resources indicate that there are wide variations in what the health professionals take as their working definition of appropriateness. Examples include the striking variations in the rates of certain surgical procedures in Boston and New Haven in the United States. Wennberg et al showed that, even allowing for the different case mix in the two cities, a Bostonian enrolled in the Medicare system had in 1982 more than twice the chances of having had a carotid endarterectomy than a New Haven resident and only half the chances of having had coronary artery bypass surgery. The length of stay for the first procedure was 30% more in Boston than in New Haven.1

There is also considerable published evidence from family practice about variations in referral to hospital. General practitioners with a special interest refer to hospital more patients covered by the topic of their interest than do other general practitioners. Variations in general practitioner referral rates persist when corrected for case mix and demographic factors.2

Much of the cited work on regional variations seems to be in the context that research will disclose inappropriate overuse of interventions. However, it must be remembered that there may well be underuse of many interventions which might well be effective for many individuals who do not have access to them, either owing to their own lack of knowledge of what is available to relieve symptoms or to protect their future, or to lack of knowledge in the health professionals they consult.

MEASUREMENT OF APPROPRIATENESS FROM THE MEDICAL PERSPECTIVE
The best known method of measuring appropriateness is that developed by Brook et al at the RAND Corporation3 and explored in Britain by Scott and Black in relation to cholecystectomy.4 In brief, a list of possible “indications” for a procedure is defined, using as guides a review of the literature. They categorise patients in terms of their symptoms, history, and the result of previous diagnostic tests. The indications are then presented to an informed panel. The panel, not all of whose members are specialists, rates whether it would be appropriate or inappropriate to perform that procedure on a patient with those indications. Discussions among panelists after their initial rating, followed by re-rating, reduces the dispersion of the ratings.

The RAND panels are undoubtedly a valuable technique for sharpening doctors' views on appropriateness. However, research has shown international variation in what is considered to be appropriate. For example, a panel in the United States rated coronary artery bypass surgery appropriate, with a median rating of 7 on a 9 point scale of appropriateness, for a patient with angina occurring on mild exertion (class III), receiving submaximal medical therapy, and with a positive exercise test result, whereas a panel of United Kingdom physicians and cardiologists rated the procedure as clearly inappropriate (median rating 2/9).5 These differences may reflect not only the different cultural values of the societies of the United States and United Kingdom and the values of the panelists but also the fact that the reviews of the published literature submitted to the panels have not used scientific methods to generate the summarised evidence. Original but basically statistically unsound papers may have been given equal or near equal weight as more valid work, and unpublished but sound work resulting in negative observations may not be available for review.

In addition to international differences in what is considered to be appropriate, work by the RAND researchers has uncovered other inconsistencies. For one surgical procedure studied (endarterectomy) the number of operations performed by the surgeon each year...
was the most important predictor of appropriateness. The likelihood of undergoing an appropriate endarterectomy decreased by almost a third for patients treated by a surgeon who performed many such procedures compared with one who performed few. Brook et al showed that this was not because the former group of surgeons operated on desperately ill patients but because they operated on less sick, symptomless patients. Equally challenging is the fact that being managed by a gastroenterologist with a board certification compared with another type of physician decreased significantly the likelihood that an endoscopy would be appropriate as defined by RAND panels.

**Patients' perspectives**

**PATIENTS' PREFERENCES FOR TREATMENT**

Different patients may choose different treatments because their values differ. Two patients with an identical condition who choose different treatments may both be making the correct decision for themselves. For example, some people with prostatic symptoms such as the need to get up at night to pass urine may prefer to tolerate their symptoms rather than risk incontinence or impotence, the occasional adverse outcomes of prostatectomy. The way such values are incorporated in decision making varies. Three methods can be distinguished, ranging from most to least paternalistic.

1. The health professional may make a global decision, taking account of the patient's preferences as he or she understands them, an approach that might be summarised as "doctor knows best." This method has advantages. The professional may have seen the relevant outcomes but the patient knows about them only second hand. The patient does not need to worry about rare outcomes until they actually occur and may therefore be less anxious. He or she may even experience a better clinical course from believing in clinical certainties rather than knowing the professional's doubts. The disadvantages are that the health professional may be wrong about the patient's values and, consciously or unconsciously, may substitute his or her own values. When asked, patients almost always say they want to be more informed.

In some circumstances health care professionals have to act in what they believe to be their patients' best interests – for example, when patients are unconscious.

2. The health professional may offer the patient different options and let the patient make a global decision. This method apparently respects more the patient's autonomy, but again there are difficulties. Patients may make a decision considered unwise by their doctor because of poor understanding of outcomes and faulty manipulations of probabilities. On other occasions, however, particularly in chronic illness, decision making will involve patients who have developed considerable knowledge of their illness.

3. The health professional may explicitly measure the patient's values and combine these with his or her best estimate of the probabilities in order to choose a course of action which maximises expected utility for that patient. This approach adopts more formal principles of decision analysis.

The theme underlying discussions about which course of action to follow should be an exploration of the patient's values. Decisions should be reached by negotiation in an open, equal, and transparent relationship between health professional and patient. The professional understands the disease and the patient the present experience of illness; each, by listening, moves towards an informed understanding of the implications of different courses of action and so to an appropriate choice. Sometimes a carer will need to be involved in these discussions; there are potential conflicts between what may be more appropriate for the partnership of patient and carer than for the patient alone.

Patients will also have views on aspects of appropriateness in relation to the organisation of care, and of the hospital inpatient day. Is it appropriate, for example, for inpatients to be woken at 6:00 am, and for what type of surgical procedures is day surgery more appropriate? 

**MEASUREMENT OF APPROPRIATENESS FROM THE PATIENT'S PERSPECTIVE**

Several methods have been developed to assess the perspectives of patients with regard to appropriateness of clinical interventions. Instruments have been developed with acceptable measurement properties that contribute systematic evidence on a wider range of outcomes that supplement more conventional measures. This new family of instruments is important, given the evidence that health professionals and patients may differ in their judgements about matters such as quality of life. However, there remain various problems, including clinicians' doubts about the meaning and value of such methods. There are also technical problems concerning the interpretation of scores provided by instruments and different ways of describing and eliciting outcomes. Researchers may use as an outcome measure some professionally derived measure of "functional status" to reflect quality of life, and yet an individual may regard autonomy, self esteem, and satisfaction with his or her lot far more meaningful measures. For all these reasons, the measurement instruments are probably of most use at present in clinical trials and evaluative research.

There are, however, some innovations which allow patients to select in advance of the intervention the dimensions of "quality of life" which most concern them. For example, Wennberg shows patients who are considering prostatectomy interactive video recordings of previous patients describing relief of symptoms and various adverse outcomes of the operation.
A patient has to integrate information about effectiveness and his or her own values and expectations when reaching a decision as to which course of treatment is most appropriate. It should be possible in principle to develop measures of appropriateness that combine data on effectiveness and values in ways similar to those used by patients and health care professionals in reaching decisions. Patients also have views on the way in which health care is delivered — for example, the way in which the history is taken and the problem identified, the way in which information is given, the extent to which the patient is actively involved, and the setting in which care is provided. Instruments by which patient satisfaction is measured are available and are being further developed.

**Perspective of society**

Since publication of the white paper *Working for Patients* in 1989 there has been greater emphasis by the government and by providers of health care on giving patients and consumers greater participation in decisions about the choice, standards, and quality of health care. The patient’s charter and “The Health of the Nation” have also underlined the need for greater public involvement in decisions about health care. Consumer organisations and single interest groups representing specific interests of some patients also believe that users of health care should be able to influence the allocation of resources and standards of care.

**MEASUREMENT OF APPROPRIATENESS FROM THE PERSPECTIVE OF SOCIETY**

Several studies have explored public values regarding different health states. Values obtained by such methods must be considered as provisional, partly because of unexplored social and cultural diversity of views and uncertainties as to how the future health benefits should be discounted, and partly because of variations of results obtained by different methods. A major stumbling block is the difficulty of knowing what weight to place on people’s opinions about the value of health states which they themselves have not experienced. Another approach is the exploration of public preferences for different health care interventions through surveys or other forms of public participation. The most famous exercise — the Oregon experiment — involved extensive public consultation, and its methods and results are currently the subject of extensive discussion. There is concern that the results of such surveys should not determine the allocation of resources, which is a political and ethical responsibility of elected government. Little work of this nature has been carried out in the United Kingdom, but “needs assessment” and the provider-purchaser divide may be expected to stimulate these debates. Some general practitioners report they have run patient participation groups within their practices as a means of involving the public in decisions about the provision of health care.

**Allocation of resources**

In the context of limited resources, means must be found for the rational and equitable distribution (“rationing”) of resources. Heginbotham has reviewed some of the issues. The concept of “health gain,” measured on some scale of quality of life or wellbeing, is central in the current debate, but this may not solve all problems. For example, the provision of care that preserves the personal dignity of patients with irremediable brain disorders who are unresponsive to their environment would be seen by most as an appropriate aim of a civilised society; in this example the gain is presumably to society as a whole rather than to the individual recipients of care.

Rationing needs to be considered at two levels: the selection of interventions for a given health problem and the distribution of resources between different health problems. Whatever system of allocation is adopted at a policy level, there are likely to be substantial dissenting minorities of the population. Professionals, patients, and pressure groups may wish individuals to receive interventions that are considered inappropriate, of low priority, or not affordable, even though in some such instances the interventions may be of potential benefit to recipients. Pressures may be brought on purchasers to provide such interventions, and charitable donations may be sought to purchase facilities that the public system fails to make available. The management of conflict arising from such sources is in our view a political rather than a professional responsibility. Public pressure may also arise because of the ability of some patients to purchase in the private sector interventions which are unavailable or restricted in the public sector. Clinically inappropriate interventions should not be available in the private sector since clinicians should presumably be unwilling to offer them and insurers unwilling to fund them.

Decisions about the appropriateness of service provision on a population basis can specify the level of availability of particular interventions, but it will often be necessary to allow some scope for professional judgement about what is appropriate for an individual patient. Moreover, society will wish to ensure that within the provision of effective services a range of variation is offered to accommodate a reasonable degree of individual patient choice.

**Encouraging implementation of effective and more appropriate care**

Effective strategies to change behaviour need to reflect what has been shown empirically to work — namely, that learning is better and behaviour more likely to change if learning is centred on the learner, if information is given in more than one way, and if the information is perceived as having peer approval.

**UNDERGRADUATE EDUCATION**

It is likely that styles of practice are inculcated in medical school. As medical schools are, entirely properly, orientated towards research
as well as teaching, some patients in teaching hospitals may have large numbers of investigations, not all of which are necessarily appropriate outside the context of research. This may influence the subsequent practice of doctors on graduation. Medical schools should therefore raise the level of awareness of appropriateness in practice.

PROVIDING INFORMATION, POSTGRADUATE EDUCATION, AND CLINICAL AUDIT

Some methods of encouraging changing clinical behaviour by information feedback have been subjected to randomised trials, and the evidence of their effectiveness has recently been reviewed. Feedback of information to participating doctors about their behaviour is necessary but not sufficient in the process of maintaining high quality care. Information probably influences clinical practice if it is part of an overall strategy which targets decision makers who have already agreed to review their practice; it is most effective also if "opinion leaders" are involved and if the information is presented close to the time at which decisions are made. It is believed that the introduction of clinical audit will improve access to data on clinical care and its quality, but as Mugford et al remark: "In the NHS, the link between those responsible for routine data collection systems and those concerned with clinical research, audit, and practice review is often tenuous." The NHS Management Executive is funding a project in which is being developed clinical terms which can be used consistently throughout the patient record and used for analysis of process and outcomes.

PRACTICE GUIDELINES

One way in which it is hoped to develop more appropriate clinical practice is the production of guidelines for the management of some common clinical disorders. Guidelines need not only appear in printed form; they can be incorporated into general practice and hospital computer systems and may be extended to include probabilities of different outcomes according to certain patient characteristics - that is, into an algorithmic form. However, practice guidelines have had a variable influence on practice. Their promulgation has been successful in, for example, reducing the rate of inappropriate x-ray examinations but ineffective in reducing the rate of caesarean section. The general view, supported by the research of Kosecoff et al, is that whereas consensus development conferences and the production of practice guidelines are potentially important educational tools, their effects need to be enhanced by focusing on specific aspects of practice that need improving, and by suitable follow up programmes. We also need to make guidelines more accessible and usable to purchasers of health care.

ROLE OF THE PUBLIC IN CHANGING PRACTICE

Public opinion is certainly an important factor in changing medical behaviour. A recent example is the rapid swing away from radical mastectomy in the United Kingdom and the United States, a swing which reflects patient preferences for breast conservation as well as the scientific evidence about the relative effectiveness of the two types of operation. Another example is a change in the rate of hysterectomy after exploration of this form of treatment by the media.

FINANCIAL INCENTIVES

As an example of how money can alter professional practice, there was in Britain a striking increase in the rate of voluntary sterilisation once supplementary payment was introduced. In the United States advertisements in specialist journals for high technology investigative equipment that can be owned by doctors regularly refer to the income that can be generated from it. In such circumstances it is not surprising that many investigations are inappropriate by scientific standards. An example from primary care is the inducement to run health promotion clinics, leading to duplication of care, against the available evidence in favour of opportunistic screening within the consultation.

Financial inducements might be developed to reward those who continually provided only appropriate care.

LEGISLATION

Legislation alters professional practice. Examples of legislative changes to practice include abortion and the care of the mentally ill.

PATIENTS' CONTRIBUTIONS

There is scope for increasing the extent to which patients make appropriate use of health care. Studies have established that patients can be educated by general practitioners to accept advice and reassurance regarding minor self limiting symptoms rather than receive a prescription, resulting in a reduction in inappropriate prescribing. Another study has shown that patients prefer a directive rather than a participative style of consultation. However, the overwhelming conclusion from studies of health professional-patient communication is that most patients are relatively passive in expressing their views and preferences. One study has shown how oral participation by patients in consultations was improved by showing them a video portraying more active patients. Increased participation was also associated with increased medical knowledge and satisfaction. Such evidence suggests broader benefits that may be associated with empowering patients in decision making.

What research is needed?

Common sense suggests that priorities for research in appropriate care should reflect the importance of various disorders as indicated by estimated burdens on our society of mortality, morbidity, and resource cost and the degree to which practice, and therefore resource use, varies. It must, however, be remembered that variations may reflect case
### Topics for future research

- The reasons underlying variations in practice
- The extent to which practice is based on the findings of research into effective health care rather than professional and lay beliefs, habit, and expectations
- The best way of measuring the severity of illness and co-morbidity
- Methods of improving the reliability, sensitivity, and utility of health status measurements
- The value of formal methods of making decisions in increasing appropriate care
- The most effective ways of influencing health care professionals to change their practice behaviour towards more appropriate care
- The most effective ways of determining the information that needs to be communicated to patients and their carers
- The best way of communicating this information to allow people to make informed decisions
- The best ways of eliciting patients' preferences, including those of old people and of cultural, black, and ethnic minority groups
- The best ways of minimising the adverse psychological effects of sharing information about risks
- The ways in which patients reach decisions and the trades off they make
- The variations in the ways that patients discount the future and the underlying reasons for these variations
- The range of outcomes that reflect patient concerns
- The most cost efficient and sensitive ways of determining outcomes
- The best ways of measuring the satisfaction of patients with their care
- The best ways of promoting health so that people do not request care that is ineffective but obtain interventions of proven effectiveness
- The best ways of encouraging appropriate self care
- The variety of roles of organised groups in defining or influencing health care and the consequences of such involvement
- The influence of different methods of purchasing health care
- Whether patients in fundholding practices are more or less likely to have access to particular appropriate interventions (at a given level of severity of illness) than those whose care is purchased by health authorities
- Whether any such differences are attributable to differences in knowledge or to financial incentives or disincentives
- Whether different methods of purchasing health care influence equity of access (for example, between social classes, different ethnic groups, and different age groups) to appropriate care
- The effectiveness and efficiency of interventions by health professionals with different levels of training and in different settings
- The effectiveness of alternative ways of organising care
- With regard to organisation of primary care, the appropriate access for different client groups – for example, the appropriateness of primary care provision at the workplace
- The best way of delivering care to homeless people
- With regard to organisation of inpatient care, the most appropriate way of planning the inpatient day

The value of research into effective health care rather than professional and lay beliefs, habit, and expectations is significant. Whether different methods of purchasing health care influence equity of access (for example, between social classes, different ethnic groups, and different age groups) to appropriate care is an area that needs further investigation. Whether any such differences are attributable to differences in knowledge or to financial incentives or disincentives is also a crucial area for future research.

### Understanding what is going on

The working group believes that further theoretical development is needed of our understanding of the place of the health system in our society, and of relationships between consumers and providers of health services. In many instances qualitative research will be of value in illuminating our ideas about the delivery of health services. Within such an overall core theory, we envisage research in several specific areas (box).

Research among both health professionals and the lay community is necessary to develop understanding of the reasons for practice variations. We also need to develop measures of professional appropriateness based on scientific evidence of effectiveness, and further study into what constitutes appropriate intervention for defined "indications" – that is, various combinations of severity of disorder, comorbidities, etc. We need to take better account of the perspectives of users of health services and to devise better ways of sharing information and incorporating their preferences. Research is required to define a wider range of outcomes which reflect patient concerns and to improve methods of measuring the value that patients attach to different outcomes. We also need to research the usefulness to health professionals and management of patients' valuations of different outcomes. Outcomes valued by patients should be used more widely in randomised controlled trials and evaluative research, alongside traditional biological measures of efficacy. With regard to patient satisfaction, basic research is still needed to establish instruments that are reliable and address the main concerns of patients. We also need ways of encouraging the responsibilities of users of health services.

We need to study the valuations that society places on different sectors of health provision. Research, possibly in the form of action research, is needed in which the role of lay groups is extended – for example, in relation to purchasing and contracts, the development of consensus, or clinical audit. Research is also needed of the organisational aspects of health care, including how best to use the different skills of different health service workers. There is considerable scope for evaluation of general organisation; roles and boundaries within primary care; and roles and boundaries between primary, secondary, and tertiary care.

### Conclusion

The working group believes that there should be a wider public and professional debate about the meaning of appropriate care, and a wide debate also about linking public and professional perspectives of appropriateness. Allocation of resources will depend in part upon this, as well as on evidence of efficacy.
and effectiveness. The working group hopes that funding will be available to explore many of the research issues shown in the box.

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Appendix

This paper is an abbreviated version of a report produced for the Director of Research and Development of the Department of Health.

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