

potential side effect. Inquiring about drug intake during routine examination, and specifically about long term medications like tamoxifen which patients may forget to mention, could also help early diagnosis. We suggest careful assessment with early referral of patients for ophthalmic examination if visual symptoms develop. The picture of advanced tamoxifen retinal toxicity is pathognomonic. However, opacities in the media may not allow a good view of the fundus and hence make the diagnosis more difficult. Particular caution should be exercised where other potential causes of retinopathy, such as diabetes, are present.

Most importantly, every effort should be made to recognise toxicity before the full characteristic picture of tamoxifen retinopathy with its associated significant and possibly irreversible visual impairment is established.

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Leading for Health: responses

Rationing

Chris Heginbotham

This is the fourth in a series of articles responding to the questions raised by the BMA's document, "Leading for Health." The document looks well beyond the coming British election and raises questions about health and health care that will be on the agenda of many countries into the next century.

TABLE I—Proportion of gross domestic product (%) spent on health in various countries in 1980 and 1987

	1980	1987
United States	9.2	11.2
Sweden	9.5	9.0
Canada	7.4	8.6
France	7.6	8.6
Netherlands	8.2	8.5
Austria	7.9	8.4
Germany	7.9	8.2
Iceland	6.4	7.8
Switzerland	7.3	7.7
Luxembourg	6.8	7.5
Norway	6.6	7.5
Finland	6.5	7.4
Belgium	6.6	7.2
Australia	6.5	7.1
Italy	6.8	6.9
New Zealand	7.2	6.9
Japan	6.4	6.8
Portugal	5.9	6.4
United Kingdom	5.8	6.1
Spain	5.9	6.0
Denmark	6.8	6.0
Greece	4.3	5.3
Mean	7.0	7.5

Source: OECD, 1987.

All health services ration health care. This truism hides a variety of forms. The United Kingdom health service rations through non-availability, primary care gate-keeping, and waiting lists. The United States service rations partly by income and partly by insurance companies funding either a core group of services or by placing treatment and lifetime caps on the cost of an individual patient's care.

Social insurance schemes such as that in Germany ration through protocol agreements with doctors and by payment for a basic service to which the individual consumer can add by additional contribution. Central and eastern European countries have until recently rationed according to the degree of "cunning" that the individual consumer was able to bring—the key skill was knowing the way around the system and who to bribe. Although that is now changing, old habits die hard.

These main features of each system appear in every system to some degree. The NHS is not immune to abuse; sometimes access to the best possible care—even any care—is by having the right contacts. What the United Kingdom does not have, at least explicitly, is a constrained group of core services, or some form of treatment or lifetime cap on the amount that can be spent on any individual. And the United Kingdom has avoided the worst excesses of the American system. Latest figures put the number of uninsured people in the United States at between 35 million and 37 million,¹ some of whom, it is true, obtain Medicaid benefit but many of whom do not. Even those who are insured may have significant limits placed on the benefits that they may receive for the premiums that they can afford.

The BMA's document *Leading for Health: a BMA Agenda for Health*² sets out four questions about rationing: Is rationing inevitable? Should rationing be explicit? How might rationing be achieved? Who will make the decisions on rationing? In this article I examine these four questions.

Is rationing inevitable?

The short answer to this first question is yes. Empirical evidence from all health services suggests that rationing takes place either covertly or explicitly and always has done. Beveridge's and Bevan's hope

that comprehensive health care free at the point of delivery funded out of taxation would eventually become self levelling was an unattainable dream.

Improvements in access, pharmaceutical innovations, and high technology medicine have steadily increased the cost of health care at an inflation rate well beyond the retail price index. In all countries in the Organisation for Economic Cooperation and Development the proportion of gross domestic product spent on health has increased steadily, though at a differential rate. The United States now spends 12% of its gross domestic product per capita on health care, and even with cost containment measures that figure is likely to reach at least 15% by the year 2000, possibly sooner.³ Table I shows the wide differentials between countries, though these figures must be compared with those in table II for general purchasing power parities (PPPs) and health care purchasing parities—these show that the United Kingdom is not as far behind the United States or Germany as the broad gross domestic product figures may suggest.

None the less the most striking feature of the health care policy debate, particularly during the late 1980s, has been the desire to find effective cost containment measures. The United States has gone through a series of organisational developments with the introduction of health maintenance organisations, preferred provider organisations, and other forms of "managed care."⁴ Prospective, concurrent, and retrospective utilisation review is now required of provider organisations by many insurance companies. Clinical audit has become a necessity. Worries about escalating costs led to the development of diagnostic related groups, which are now used for the funding of Medicaid and Medicare (for indigent poor and elderly people respectively) by the federal government.

None of these methods seems to be working, perhaps because of the pluralism inherent in the American system, the litigious nature of society, and the demand by American people for the latest diagnostic or technological intervention. Even with some cost containment through reimbursement for diagnostic related groups, many states, of which Oregon is only the most famous, are looking for other methods of resource allocation.

All forecasts of health care expenditure show an ever expanding demand and exponentially increasing cost

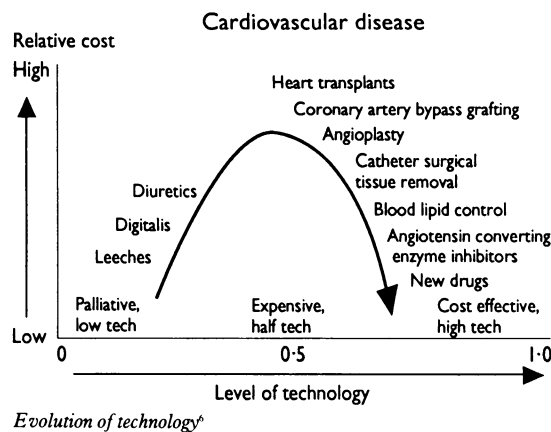
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TABLE II—Health expenditure and gross domestic product per person (\$) for 18 countries in 1980, converted by exchange rates and purchasing power parities^a

Country	Expenditure on health based on:			Gross domestic product based on:	
	Exchange rates	Gross domestic product purchasing power parities	Medical care purchasing power parities	Exchange rates	Purchasing power parities
Austria	722	607	1 119	10 243	8 612
Belgium	747	596	906	11 877	9 486
Canada	788	853	890	10 792	11 692
Denmark	880	668	894	12 932	9 816
Finland	684	564	1 157	10 800	8 912
France	1 040	839	1 267	12 188	9 839
West Germany	1 065	818	1 108	13 221	10 152
Greece	175	211	388	4 163	5 010
Ireland	480	510	684	5 507	5 854
Italy	479	541	854	7 011	7 911
Japan	569	537	1 118	9 101	8 598
Luxembourg	836	707	1 070	12 703	10 738
Netherlands	988	777	1 168	11 959	9 406
Norway	964	773	1 440	14 118	11 322
Portugal	150	237	502	2 483	3 925
Spain	334	376	544	5 665	6 381
United Kingdom	548	484	907	9 482	8 372
United States	1 089	1 089	1 089	11 446	11 446

function. But there are some hopeful signs. Improvements in surgical techniques are bringing down costs, reducing perioperative mortality, and improving the quality of life. Pharmaceutical developments may reduce the need for surgery. Possibly the cost of certain treatments will reduce in real terms (figure). All in all, however, the answer to the question of whether rationing is inevitable must be a qualified yes. Therefore, the sooner society understands the implications and develops workable approaches the better.



Should rationing be explicit?

If rationing is to occur the next question is whether it should be undertaken by health authorities or provider units without recourse to wider public debate, or whether decisions should be taken only explicitly and openly.

This is not as simple a question as it seems at first sight. There are merits and faults with both covert and explicit rationing. As far as possible any decisions, especially those which have societal and ethical implications, should be public. Not every decision will be taken in the full glare of publicity, especially those about an individual's treatment. Clinicians must be given as wide a freedom as possible to choose the best treatment for an individual patient subject to the patient's informed consent. Yet interventions must be undertaken within a context set by public policy, after public debate about the important organisational, ethical, and social principles on which allocation decisions should be made.

In other words there will be two levels at which rationing is undertaken. Firstly, it will be undertaken at a public level, where broad decisions are made on the amount of money to be put into a particular specialty or

subspecialty balanced against the resources available to all other specialties and taking account of health promotion, health prevention, and other methods of achieving health gain in the population. Secondly, it will be undertaken at the level of the allocation of specific resources to individual patients at the point of need by the treating physician. Neither the public, nor health authorities, nor indeed provider managers, can monitor every individual treatment. Insurance companies in the United States are trying to do just that through prospective and concurrent review; but that is in the context of a much more plural and competitive system, which even the reformed NHS is a long way from.

An important development in resource allocation will thus be explicit public policy decision, which narrows clinicians' room for manoeuvre, together with protocols appropriate to certain types of treatment. Both will tighten the boundaries of clinical freedom. Within those boundaries, however, clinicians will retain individual responsibility.

The implications of this are vast. Greater explicitness of the contractual "guidance criteria" may challenge accepted clinical practice or royal college policy and have other unintended consequences also, including an enhanced likelihood of medical negligence litigation.

Rationing is almost certain to become more explicit. The implications of this require a great deal of thought before the more radical health authorities or practitioners open the floodgates to public argument about the resources for every type of illness and the treatment for every individual.

How might rationing be achieved?

Because rationing occurs now and will become more explicit in future attention must be paid to ways in which it can be achieved. A laissez faire attitude will not do. Effective (which includes ethical) priority setting and resource allocation requires: a better understanding of disease and health care needs in the population; a clearer picture of all treatments available and their costs; more detailed information on the effectiveness and outcomes of specific treatments; decisions on the importance to individuals and the population of particular needs being met; and decisions on resource allocation.

These five points raise fundamental ethical, economic, political, social, and organisational concerns. Allocating health care resources is value laden and must incorporate two (sometimes conflicting) concepts: rights to particular forms of care (whether those rights are claimed or are legal entitlements) and utility (the widest benefit for the greatest number in society).

RESOURCE ALLOCATION

Resource allocation is often described as the balance of equity and efficiency. Equity refers to equal access for people of equal needs, and efficiency is concerned with achieving the greatest outputs for given inputs. Effectiveness is also important; loosely defined, it is the ratio of outcomes (outputs) to previously established objectives. Health care objectives clearly incorporate the notion of equity. The United Kingdom does not provide specific rights to health care but only a general entitlement moderated by the decisions of health authorities; but similarly there is no formal utilitarian requirement.

A statement in the Health Services Act 1973 says that health authorities must have due regard for the health requirements of the population. Health authorities (with their advisers and in consultation with provider units) must decide what they believe are the rights to which a local population is entitled, if

anything, and what general provision will be made to maximise overall health, or rather to provide as many relevant disease interventions as possible.

APPROACHES TO RESOURCE ALLOCATION

Several conflicting approaches to resource allocation have been proposed in the past few years. As a generalisation these can be categorised into one of four types:

- (1) Purely private systems which create myriad risk pools with different price bands dependent on the health and financial status of the members of each pool.
- (2) Systems that rely on marginal change to meet apparent shifts of demand where control on access is through primary care gatekeeping or some other form of initial hurdle.
- (3) Managed care or core service groups, whereby conditions treated and treatments available are constrained under insurance or taxation based funding and patients may purchase additional care over and above the basic core group. A special example of these are systems which constrain secondary care to those who have participated in reasonable primary or preventive measures and health promotion activity.
- (4) Quality of life or quality of wellbeing schemes, whereby the allocation of resources is made to a list of treatment and condition pairs ranked according to the ratio of cost to the improvement in quality of life produced by the treatment for that condition.

Categories of care¹¹

Rank	Condition and effects of treatment	Examples
1	Acute fatal, prevents death, full recovery	Appendectomy; treatment for myocarditis
2	Maternity care, including disorders of the newborn	Obstetric care of pregnancy; treatment for low birthweight babies
3	Acute fatal, prevents death, without full recovery	Treatment for bacterial meningitis; reduction of open fracture of joint
4	Preventive care for children	Immunisations; screening for vision or hearing problems
5	Chronic fatal, improves life span and patient's wellbeing	Treatment for diabetes mellitus and asthma; all transplantations
6	Reproductive services	Contraceptive management; vasectomy
5 7	Comfort care	Palliative treatment for conditions in which death is imminent
8	Preventive dental care	Cleaning and fluoride
9	Proved effective preventive care for adults	Mammograms; blood pressure screening
10	Acute non-fatal, treatment causes return to previous health state	Treatment for vaginitis; restorative dental service for dental caries
11	Chronic non-fatal, one time treatment improves quality of life	Hip replacement; treatment for rheumatic fever
12	Acute non-fatal, treatment without return to previous health state	Relocation of dislocated elbow; repair of corneal laceration
13	Chronic non-fatal, repetitive treatment improves quality of life	Treatment for migraine and asthma
14	Acute non-fatal, treatment expedites recovery of self limiting conditions	Treatment for diaper rash and acute conjunctivitis
15	Infertility services	In vitro fertilisation, microsurgery for tubular disease
16	Less effective preventive care for adults	Dipstick urinalysis for haematuria in adults under age 60; sigmoidoscopy for people under age 40
17	Fatal or non-fatal, treatment causes minimal or no improvement in quality of life	Treatment for end stage HIV disease; life support for extremely low birthweight babies (<500 g)

Rationing can be achieved easily. The issue is what is acceptable in a population or culture—ethically, economically, politically, socially, and organisationally. The United Kingdom is unlikely to accept the wholly pluralist approach to health care (as in (1)). Approach (2) is of course exemplified by the NHS. Consequently, if a better system is demanded some variant of approach (3) or (4) is necessary, possibly grafted on to a marginal planning system.

MANAGED CARE OR CORE SERVICE SYSTEMS

Many managed care or core service approaches are based on straightforward a priori allocation systems.⁷ Usually treatments are divided into relatively homogenous service groups, with known costs and fairly clear quality indicators for an existing service and where there is a known demand (or clearly stated current provision). Only those service groups where an overall increase in benefit might be achieved through reallocation are then considered. Some can be immediately discarded because the treatment is considered indispensable or necessary on either political or economic grounds.

The other service groups are then divided into their main components and the effect of reducing or increasing expenditure is considered. Once a simple decision has been made on changes, quality concerns have to be further considered before the effect of the change in one area is considered in relation to all other areas. This process must be iterated many times but if done carefully and straightforwardly offers a way into making difficult preliminary decisions.

Decisions about which treatments are not for debate and which could be changed are a matter for political judgment or consensus panels, for community conferences and participation, or for expert judgment. What may matter most is that where clear ethical issues are thrown up by potentially radical decisions those concerns are in some way referred to the wider community for further debate.

Several examples of this approach have already appeared in the United Kingdom. North East Thames Regional Health Authority has instructed district health authorities not to purchase a small "basket" of services, including in vitro fertilisation and plastic surgery,⁸ which are not clinically indicated.

Sterilisation for men or women is now only patchily available—a victim of health authorities' attempts to reduce the cost of demands that are not life threatening. Because of uncertainties over community care policy some authorities are cutting back on community services, claiming these are not "health" but social care. The danger of this approach is that pure prejudice could influence the choice of conditions and treatment pairs to cut back on.

QALY SYSTEMS

The second approach to allocation is by using quality adjusted life year (QALY) or quality of wellbeing (QWB) systems. Although quality of life criteria form a core component of systems such as that developed in Oregon⁹ (approach (4) above), they can be useful on their own. QALY systems are utilitarian and make judgments about the benefits of treatment in terms of a prospective improvement in quality of life after an intervention compared with the cost of that intervention. The resulting cost per quality adjusted life year can be compared for different treatments for the same condition or various condition and treatment pairs.

QALYs are valuable in providing numerical information (though this might be spurious) to measure different interventions. Leaving aside criticisms of the initial derivation of the Kind-Rosser matrix,¹⁰ the most serious criticism of QALYs is that they cannot and do not compare like with like when different conditions

are concerned. Even within one condition different patients will place varying utilities on similar outcomes. The cost of an additional one year of life, even in substantial pain, may still be a price worth paying for one person (although the cost to the state may be enormous), whereas five years with only moderate pain may not have a high utility for another.

COMPOUND SYSTEMS

The third approach to allocation was developed in Oregon and has been subject to some unfair and uninformed criticism. This method links a quality of wellbeing scale (QWB), which is not dissimilar to the QALY system, with wider public consultation on what treatment and conditions pairs might be funded. Admittedly, in Oregon this was only for the 20% of health care costs funded through the state Medicaid budget, and so far the scale has had no influence on private insurance funding. Indeed, federal approval to the Oregon scheme has still not been given. After public consultation Oregon listed 17 categories of care in rank order based on a grouping of community values (see box). Condition and treatment pairs ranked on cost and health gain criteria were then fitted into the 17 rank framework. Further consultation was undertaken with the community and professional groups and anomalies were ironed out by an expert panel.¹¹

Even with the sophistication of this process mental health, substance misuse, and drug addiction were kept separate owing to the difficulties of handling them in a QALY type system. The QALY and QWB systems are not kind to (or appropriate for) costly long term care for people with continuing and substantial disabilities in comparison with acute interventions for otherwise fatal disorders where treatment prevents death and there is full recovery. Oregon's most recent proposal is to draw the line at number 587 in a list of 709 condition and treatment pairs. As it happens, most of those below 587 are either treatments of very dubious value or conditions that are not life threatening.¹²

The dangers of this system are evident; if funds are reduced the state can draw the line much higher, excluding patients falling within a specific condition and treatment pair. It is strongly utilitarian in that once the decision is made everyone is affected whatever their specific circumstances. But its advantages are equally real. It has forced policy makers to look hard at how they spend scarce dollars; has catalysed a wide public debate; and has provided a model process, if not a final answer.¹³

There is no need for an all out Oregon style approach in the United Kingdom. Most health care is undertaken by the NHS in a culturally very different way to the plural system of the United States. None the less there are those who advocate QALY type rationing

systems. Perhaps the best way forward is, as always, a mixture of political, a priori, and empirical decisions using a simple analytical approach similar to that proposed by Donaldson and Mooney.⁷

Who will make the decisions?

The implications of the preceding discussion require resource allocation decisions to be made by a wider group than previously. Clinicians will still have freedom within more clearly defined boundaries or constraints. Those boundaries will in part be set through protocols agreed between clinicians and provider managements with purchasers and will sometimes be enshrined in a contract. The protocols will reflect public policy decisions taken by purchasers after receiving expert and public advice. Expert advice can be obtained from individuals and through expert panels and consensus conferences. Public opinion can be gauged by opinion polls, surveys, public meetings, media debate, and the participation of local and national groups in decision making forums. Doctors will have to accept a wider involvement in decisions on allocation, especially at the macro level. That will put pressure on the micro level of clinical practice, placing greater emphasis on informed consent and possibly defensive medicine.

But at the end of the day the buck will stop with purchaser health authorities, whose job it is to make decisions on behalf of the community subject to sensible negotiation with providers. The medical profession will have only itself to blame if it does not gather effectiveness data and audit information that it is prepared to share publicly. Lack of debate could mean that decisions are made by default which change clinical practice to the detriment of patient care.

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ANY QUESTIONS

Can the blood removed from patients with a high packed cell volume because of chronic obstructive airways disease be transfused into other patients?

The blood from patients with chronic obstructive airways disease would be intrinsically no safer and no less safe than blood from regular blood donors in terms of its infectivity to recipients. But donors with chronic hypoxaemia complicated by ischaemic heart disease might not be safely bled if short term reductions in their blood volume, impairing venous return, compromised their cardiac output and systemic circulation. It is also clear that an above normal packed cell volume as well as red cell mass facilitates oxygen transport in patients with chronic

hypoxaemia.^{1,2} This compensatory secondary polycythaemia can overshoot, with packed cell volumes ≥ 0.65 ,³ and if it is judged that such patients need therapeutic venesection I see no reason why their blood should be treated differently from donations from other blood donors.—C A J WARDROP, senior lecturer in haematology, Cardiff

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