Self monitoring of glucose by people with diabetes: evidence based practice

Marilyn Gallichan

East Cornwall Hospital, Bodmin, Cornwall PL31 2EN
Marilyn Gallichan, *diabetes specialist nurse*

BMJ 1997;314:964–7

Summary

The inappropriate use of self monitoring of glucose is wasteful of NHS resources and can cause psychological harm. Although a few patients find that self monitoring enables them to understand and take control of their diabetes, many people with diabetes are performing inaccurate or unnecessary tests. There is no convincing evidence that self monitoring improves glycaemic control, nor that blood testing is necessarily better than urine testing. It may be appropriate for some patients not to monitor their own glucose but to rely instead on regular laboratory estimations of glycaemic control. Glucose self monitoring should be performed only when it serves an identified purpose.

It is widely assumed that glucose self monitoring, preferably of blood glucose concentrations, is desirable or even essential for everyone with diabetes. It is common for patients who have previously tested their urine, or have done no glucose monitoring at home, to be taught to measure their blood glucose when they are admitted to hospital. In the community too, patients are often encouraged to monitor their blood glucose, and newly diagnosed patients of all ages are usually taught to measure their blood glucose concentrations. Self monitoring can sometimes be useful, but evidence is mounting that its indiscriminate use is of questionable value. In 1995, £42.6 million was spent on home monitoring of glucose in the United Kingdom (Intercontinental Medical Statistics, personal communication). Is this enormous cost justified? Is blood testing necessarily better than urine testing? Is glucose self monitoring always necessary, or is it sometimes a waste of time and money? Are recommendations for self monitoring based on sound evidence?

Glycaemic control

We now have conclusive evidence that improved control of glycaemia is associated with a significantly lower risk of the complications of diabetes[1], but there is no convincing evidence that glycaemic control is consistently influenced by self monitoring of blood or urine. When it was first introduced, home monitoring of blood glucose was claimed to lead to a sustained improvement in glycaemic control in insulin dependent diabetes.[2 3] However, the absence of control groups in these studies has made it impossible to separate the effects of increased education and medical attention from the effects of the blood testing itself. More recent studies have suggested that regular self monitoring of blood glucose may be a waste of time for many patients receiving insulin. A comparison of two groups of such patients aged over 40 showed that patients who tested their blood did not have better glycaemic control than those who tested their urine,[4] and in a study of young people with insulin dependent diabetes there was no difference in glycaemic control between those who tested their blood frequently and those who did not.[5]

Fig 1 Many gadgets are available to help with self monitoring of glucose, but inappropriate and unhelpful testing is widespread

Even less evidence links self monitoring of glucose with improved glycaemic control in non-insulin dependent diabetes. Randomised comparative trials of self monitoring in non-insulin dependent diabetes have found no difference in glycaemic control between patients who tested their blood and those who tested their urine.[6 7] A comparison of patients with non-insulin dependent diabetes who carried out self monitoring and a matched group who did not,[8] a randomised comparative trial[9], and a retrospective study[10] all found no difference in the control of those who monitored their glucose and patients who did not test their blood or urine at all.

Guilt or empowerment?

Self monitoring of blood glucose enables some patients treated with insulin to take control of their diabetes, allowing them to adjust their insulin dosage or diet in the light of their results, especially in relation to exercise, illness, or dietary changes. For these people, the ability to take an instant measurement of blood glucose and act on the result is enormously helpful. It improves the quality of life and amply justifies both the inconvenience of carrying around the testing equipment and the discomfort of the test itself. However, only 10-15% of diabetic people in Britain have insulin dependent diabetes,[11] and only a relatively small proportion of this group have the need or desire to make frequent adjustments to their insulin dosage.

Most patients do not alter their treatment on the basis of results of their self monitoring but merely collect results that may or may not be useful to their doctor or nurse. For many of these people, self monitoring proves to be counterproductive. Anxiety is often generated when values repeatedly fall outside the desired range, and patients may experience feelings of frustration, helplessness, or guilt.[12] For some people, no matter how hard they try and how rigidly they adhere to their treatment regimen, their blood glucose values continue to fluctuate in an alarming way. Not surprisingly, they may become fearful of the complications of diabetes, and this fear may lead to despair and to the psychological state of learned helplessness, which describes a combination of a loss of motivation, emotional disturbance, and cognitive impairment, induced by repeated exposure to an uncontrollable and unpleasant situation.[13] Some become obsessive in their self monitoring. For example, I recently met a man who became so anxious if he had not tested his blood within the last few hours that he would have to perform a blood test to discover whether his trembling and sweating were due to hypoglycaemia or to his anxiety that he had not tested.

Reliability of tests

Even when patients perform regular blood or urine tests and religiously record the results in their home monitoring diaries, can we rely on the accuracy of these measurements? Despite appropriate training, almost half of patients testing their blood may obtain inaccurate results through poor technique[14] and, although portable blood glucose meters have become much simpler to use, they are not yet foolproof.

As well as technical inaccuracies, deliberate falsification of results is common across all age groups and social classes. By asking patients to use blood glucose meters with a hidden memory, researchers showed that the results recorded in home monitoring diaries were often lower than the actual readings. Patients frequently omitted to record high readings and made up extra results so that it appeared that they had tested more frequently than they had in reality.[15] Colin Dexter, the writer who created Inspector Morse, admits to making a New Year's resolution for 1996 not to invent quite so many satisfactory blood sugar readings when he goes for his diabetic check ups.[16]

Box 1—Purposes of self monitoring of glucose

- To provide patients with information about their day to day glycaemic control, enabling them to make appropriate adjustments to their diet or diabetic medication, especially in relation to illness, strenuous exercise, or potentially dangerous activities such as driving
- To provide the nurse or doctor with information about the patient's day to day glycaemic control, enabling them to give appropriate treatment advice—for example, after a raised measurement for glycosylated haemoglobin
- To detect hypoglycaemia: home monitoring of blood glucose can confirm or rule out hypoglycaemia

Individual self monitoring plans

Many patients abandon self monitoring tests if their purpose is not clear.[17] Home glucose monitoring should be performed only if it serves an identified purpose that is clear to both the patient and the nurse or doctor (box).

Most people with diabetes feel guilty that they do not test often enough.[18] This can be avoided if an individual home monitoring plan is agreed. This should include the method, timing, and frequency of tests and a review date. Regular reviews of the plan will prevent unnecessary testing after the need for tests has passed and will also lessen the guilt experienced by patients who fail to comply with the testing regimen recommended by their nurse or doctor. The patient should be able to perform the test accurately, according to the manufacturer's instructions, and must know what results to expect and what action to take if the results are outside the desired range.The method of monitoring should depend on the purpose of monitoring and the patient's manual dexterity, visual and cognitive ability, and personal preference.

Glucose monitoring methods

Urine testing

Urine testing remains a useful method of monitoring glycaemic control, especially among older patients, when the aim of treatment may not be strict normoglycaemia. Results should ideally show that the urine is free of glucose, indicating that the blood glucose concentration has not risen above the renal threshold.

Most patients use reagent test strips. Diastix (Bayer Diagnostics) require accurate timing of 30 seconds; Diabur-Test 2000 (Boehringer Mannheim) tests take longer, but the timing is less critical. Clinistix (Bayer Diagnostics) test strips are unsuitable for self monitoring as, being designed for screening for glycosuria, they do not show the range of results available from the other methods. Clinitest (Bayer Diagnostics) urine testing kits, with tablets, droppers and test tubes, are still available for patients who prefer this method, and the larger volume of colour in the sample is often helpful for those with poor vision.

Blood testing

Self monitoring of blood glucose is usually the method of choice for younger patients and for most patients treated with insulin. It is particularly useful during pregnancy and for women planning pregnancy and is the only method that can detect hypoglycaemia. BM 1-44 (Boehringer Mannheim), Glucostix (Bayer Diagnostics), and Hypoguard blood glucose test strips can all be read visually, and there is now a wide range of meters which measure blood glucose without the need for visual comparison.

The size of the blood drop, whether it is smeared or dropped, and the preciseness of the timing are some of the many factors that can significantly affect the reliability of blood testing. It is therefore essential to assess the accuracy of patients' tests, either by direct observation of technique or by asking them to complete a blood spot series for laboratory analysis, allowing comparison of the patients' own recorded results with the laboratory measurements on the same samples. Although ideally most blood tests should be within the normal range, the longer term risks of hyperglycaemia must be balanced against the immediate risks of hypoglycaemia, especially in elderly patients, and an appropriate individual target range should be agreed.

No self monitoring

Some patients may prefer not to monitor their glucose levels, choosing rather to rely on regular laboratory estimations of glycaemic control. Concentrations of glycosylated haemoglobin in venous blood samples are reliable measures of average glycaemia in the preceding 50-60 days in both insulin dependent and non-insulin dependent diabetes.[19] In non-insulin dependent diabetes, the fasting plasma glucose value is a reliable indicator of prevailing glucose concentration.[20] It is not only elderly patients who may opt for no self monitoring. In a recent letter to a diabetes journal, a psychologist with insulin dependent diabetes wrote, "I do not worry about my day to day control provided the HbA_1 readings stay good. It is only during periods of illness (eg, a viral infection) that I feel the need for daily blood testing."[21]

Frequency of testing

There are wide variations between individuals and between localities in the method, timing, and frequency of self monitoring tests, and many unhelpful or unnecessary tests are performed.[7] In addition to the unnecessary physical discomfort, inconvenience, and possible adverse psychological effects, every unnecessary urine test wastes 5p, and every unnecessary blood test wastes 28p plus the cost of lancing devices, lancets, blood glucose meters, and cotton wool. With several tests per day by hundreds of thousands of people, the potential waste of scarce NHS resources is phenomenal.

The patient and doctor or nurse should agree on the most appropriate timing and frequency of tests for any individual. Tests before breakfast, mid-morning, and two hours after the main meal are the most useful for assessing hyperglycaemia; hypoglycaemia is most likely before meals or at night, and tests before the main meals and at bedtime are useful in assessing the efficacy of the preceding insulin doses. It is often useful to perform several tests a day during illness or a change of treatment, but when diabetes is stable one of the regimens shown in the box may be appropriate.

Box 2—Self monitoring regimens

Diabetes not treated with insulin:
- Test before breakfast and two hours after the main meal on one or two days each week

Diabetes treated with insulin:
- Test before meals and at bedtime on one or two days each week, or
- Test once a day, varying the timing of the test—for example, before breakfast on Monday, before lunch on Tuesday, and so on
- Occasional tests at 2 am or 3 am may also be useful

Evidence based practice

Existing evidence suggests that self monitoring does not improve glycaemic control, that blood testing is not necessarily better than urine testing, and that it may be appropriate for some patients to perform no self monitoring at all. Research shows that some patients give up self monitoring if they cannot see its purpose, while others feel guilty if they do not comply with the recommended monitoring regimen. Others experience anxiety, frustration, and helplessness in the face of unsatisfactory results which they feel powerless to improve. It has been shown that self monitoring tests are often inaccurate and unreliable and that inappropriate and unhelpful testing is widespread.

If self monitoring is to serve a useful purpose, recommendations must be based on the available evidence. The patient must know why, when, and how to test and how to interpret the results. Avoiding inappropriate and unnecessary tests will result in enormous cost savings to the NHS, as well as increasing the psychological wellbeing of people with diabetes.

Funding: None.
Conflict of interest: None.

1 Diabetes Control and Complications Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* 1993;329:977-86.
2 Sonksen PH, Judd SL, Lowy C. Home monitoring of blood glucose. Method for improving diabetic control. *Lancet* 1978; i:729-32.
3 Walford S, Gale EAM, Allison SP, Tattersall RB. Self-monitoring of blood glucose. Improvement of diabetic control. *Lancet* 1978; i:732-5.
4 Leese G.P, Jung RT, Newton RW. Home glucose monitoring in patients aged over 40 years with diabetes mellitus. *Practical Diabetes* 1994;11: 32-4.
5 Willey KA, Twigg SM, Constantino MI, Yue DK, Turtle JR. Home glucose monitoring: how often? *Practical Diabetes* 1993;10:22-5.
6 Allen BT, DeLong ER, Feussner JR. Impact of glucose self-monitoring on non-insulin treated patients with type II diabetes mellitus. *Diabetes Care* 1990;13:1044-50.
7 Gallichan MJ, Self-monitoring by patients receiving oral hypoglycaemic agents: a survey and a comparative trial. *Practical Diabetes* 1994;11: 28-30.
8 Newman WP, Lacqua D, Engelbrecht D. Impact of glucose self-monitoring on glycohemoglobin values in a veteran population. *Arch Intern Med* 1990;150:107-10.
9 Fontbonne A, Billault M, Acosta M, Percheron C, Varenne P, Besse A, *et al.* Is glucose self-monitoring beneficial in non-insulin treated patients? Results of a randomised comparative trial. *Diabet Metab* 1989;15:255-60.
10 Patrick AW, Gill GV, MacFarlane IA, Cullen A, Power E, Wallymahmed M. Home glucose monitoring in type 2 diabetes: is it a waste of time? *Diabet Med* 1994;11:62-5.
11 British Diabetic Association. *Diabetes in the United Kingdom, 1996.* London: BDA, 1995.
12 Marteau T. The double-edged sword of technology in health care. In: Bradley C, Home P, Christie M, eds. *The technology of diabetes care:converging medical and psychosocial perspectives.* Reading: Harwood, 1991.

13 Dunn SM. Psychological issues in diabetes management: Blood glucose monitoring and learned helplessness. *Practical Diabetes* 1987;4:108-10.
14 Campbell LV, Ashwell SM, Borkman M, Chisholm DJ. White coat hyperglycaemia: disparity between diabetes clinic and home blood glucose concentrations. *BMJ* 1992;305:1194-6.
15 Mazze RS, Shamoon H, Pasmantier R, Lucido D, Murphy J, Hartmann K, *et al.* Reliability of blood glucose monitoring by patients with diabetes mellitus. *Am J Med* 1984;77:211-7.
16 British Diabetic Association. Welcoming in 1996. *Balance* 1995/6 Dec/Jan:21.
17 Fox C, Wade G, Fox A. What makes people with diabetes measure their own blood glucose? *Practical Diabetes* 1994;11:244-6.
18 Fox C, Pickering A. *Diabetes in the real world.* London: Class Publishing, 1995.
19 Tattersall R, Gale E. Measuring control. In: Tattersall RB, Gale EAM, eds. *Diabetes: clinical management.* London: Churchill Livingstone, 1990:69-82.
20 Howe-Davis S, Simpson R, Turner R. Control of maturity-onset diabetes by monitoring fasting blood glucose and body weight. *Diabetes Care* 1980;3:607-10.
21 Potter R. Self-monitoring of blood glucose—who does, and why? *Practical Diabetes International* 1996;13:63.

(Accepted 21 November 1996)

The rationing debate

Central government should have a greater role in rationing decisions

The case for

Jo Lenaghan

The political and administrative centre should have an increased role in making healthcare rationing decisions

Institute for Public Policy Research, London
WC2E 7RA
Jo Lenaghan
Research fellow in health policy

BMJ 1997;314:967–70

Rationing decisions in the NHS have largely been controlled by the medical profession and have tended to be implicit, with little reference to agreed systems or criteria.[1] Central government is responsible for deciding how resources for health care are distributed around Britain and sets the legal context, but should it do more and develop a national framework for rationing health care? A recent spate of reports and articles revealing variations in the provision of and access to healthcare services highlight the urgent need to address this question.

The House of Commons Select Committee on Health surveyed the priority setting practices of 49 health authorities, noting: “We have been struck by the seemingly enormous variation in access across the country.”[2] Redmayne revealed that one in six health authorities are now excluding treatments from public provision,[3] while a recent survey has shown that couples in Scotland are seven times more likely to get NHS in vitro fertilisation than those in the south west region.[4]

Variations in healthcare provision are nothing new, but the purchaser-provider split has made them more explicit, and, more importantly, revealed variations in the criteria used to justify these decisions. For example, in Humberside fertility treatment is provided to women until the age of 40, whereas Liverpool provides it until the age of 35.[2] As New and Le Grand have observed, explicit rationing has not been accompanied by an explicit or shared understanding on how such decisions should be made.[1]

It has been argued that if the government increased the amount of resources available to the NHS, then this would remove the need to ration. However, this ignores the fact that decisions about whether to provide a treatment are not always determined by financial considerations alone. For instance, the new genetic technologies may cause us to question not just whether we can afford to fund particular types of screening but also whether it is appropriate for the NHS to provide certain services at all.[5] Such issues raise fundamental questions about the nature and purpose of our health service, the rights of citizens, and the responsibilities of professionals and are too important to be left to individual health authorities and medical practitioners to resolve alone.

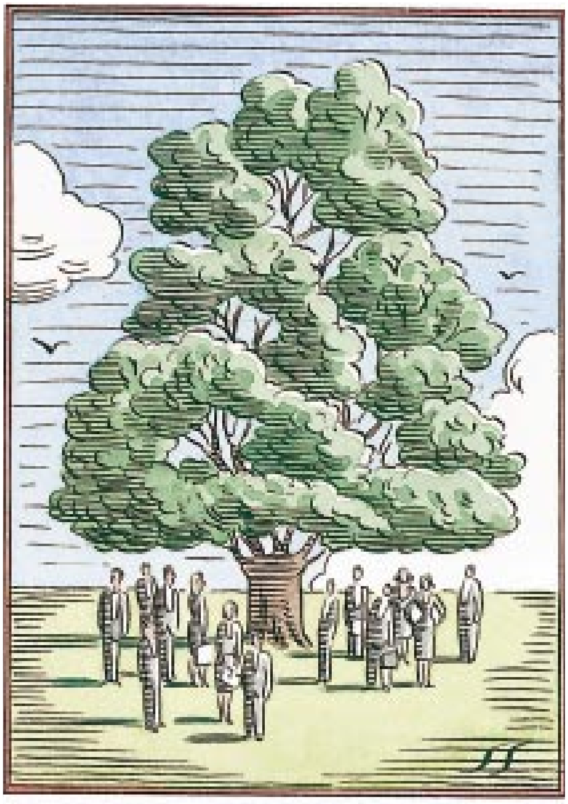
Lack of coherence

From April 1996 each health authority has had an explicit and different working definition of health care (funded by the NHS) and social care (means tested). Definitions of what constitutes a terminal illness, and therefore qualifies for NHS funded palliative care, vary between health authorities, from 2 weeks’ to 12 months’ life expectancy.[6] This unacceptable variation not only causes problems for the individuals concerned but also helps to fuel public fears. What and who is the NHS for? What is an illness? What treatments can we legitimately be expected to receive on the NHS, to which all citizens contribute?

Doctors and health authorities have responded to increased demand and reduced budgets by limiting or delaying the services they provide. This not only makes life difficult for those involved in providing and planning health services, but as the process becomes more transparent it also increases the anxiety and uncertainty of those who use the NHS. Some have argued that rationing decisions, to be responsive and flexible, must be left to the micro level. Rationing, they claim, is essentially a messy business.[7] However, as Kennedy has written, this “ad hocery” means that medical practice lacks an internal coherence and consistency of principle, and therefore the interests of patients, doctors, and the community are not fully served.[8] The challenge is surely to identify what kind of decisions can be taken appropriately at the micro, meso, and macro levels.

Erosion of public confidence

The lack of a coherent vision of what and who the NHS is for is in danger of undermining public confidence. The increased media interest in issues such as Child B



and the withdrawal of NHS provision of long term care has helped fuel anxiety among the public, who fear that the NHS will no longer provide a comprehensive service, free at the point of delivery.[9]

> *"The lack of a coherent vision of what and who the NHS is for is in danger of undermining public confidence"*

Some critics have argued that the creation of an explicit policy on rationing will erode public confidence. This position fails to acknowledge that public confidence is already ebbing. The Institute for Public Policy Research pilot citizens' juries have suggested that the more information you give people, the more confidence they have in the NHS.[10] If left unchecked, health authorities are bound to continue to exclude various treatments. The media and the opposition parties are well aware of the publicity to be gained from such incidents, and the public will be left confused. The private sector is likely to benefit from this increasing uncertainty.

Equity and local flexibility

Inequity of access may have been an unwanted occurrence in the NHS of the past, but it now appears to be built into the current system.[11] The logic of the internal market and the devolving of powers to individual health authorities have made geographical variations in provision of healthcare services not just more common, but inevitable. As argued above, however, it is not just the variations themselves which give cause for concern, but the variations in the criteria used to make such decisions.

In the case of in vitro fertilisation, for example, it is often non-needs based characteristics which can determine whether a woman gains access to treatment. A decision may depend on where she lives, whether she is married, or how old she is, and these criteria vary from region to region. The variations in provision reveal that we do not have equal rights to treatment and care and that finite resources for health care are being distributed according to criteria not solely based on clinical judgment.

The goal of equality is increasingly being sacrificed to the new religion of "local flexibility." This is indeed an important aim, but, as New and Le Grand have argued, the level of service may reasonably vary according to geography, but whether a service should be provided or not should not vary between regions as this may offend our sense of territorial justice.[1]

Others have argued that the responsibility for purchasing health care should lie with local authorities.[12] This idea certainly has merit and the Institute for Public Policy Research has argued that this should be piloted.[13] Nevertheless, as New has pointed out, "this might cause difficulties for a national health strategy, geographic equity and allocating between finance between 'free' health care and means tested social care."[14]

Competence and legitimacy

The House of Commons Select Committee on Health expressed its concern at the variations in competence between different health authorities.[2] The members of health authorities are appointed by the Secretary of State, and as such are not elected or accountable to the public. Rationing decisions are political decisions, as they involve the distribution of public money. These quangos seem to lack both the competence and the legitimacy to make rationing decisions on our behalf.

> *"Whether a service should be provided or not should not vary between regions"*

It is perhaps tempting at this point to retort "leave it to the doctors," but do doctors possess any more legitimacy or competence for rationing decisions than health authorities? Kennedy has argued that the issue of whether a treatment is effective or not is clearly a medical decision, but whether or not a treatment is the best use of public funds is a political decision.[8] Other issues, such as quality of life, involve questions of moral and ethical concern. All of these are involved in a medical decision, but are beyond the competence and legitimacy of a doctor to resolve alone. The medical profession has recognised this for some time and has called on the government to share the burden of these difficult decisions. Converting political problems into medical problems[15] might be convenient for politicians, but it overburdens doctors, excludes the public from debate, and prevents us from holding the decision makers to account.

Others have expressed concern at the prospect of local authorities purchasing health care, for fear that this will "legitimise" unpopular or unfair rationing decisions. Indeed, will the public perceive regional variations in healthcare provision to be legitimate if made by elected bodies? New and Le Grand warn of a "legitimisation crisis" if the NHS is unable to distribute resources fairly or match expectations.[1] As Busse *et al* have observed, for the benefits provided through the welfare system to provide solidarity they must be comprehensive enough for the recipients to value them and provide a clear element of redistribution in order for the nation to appreciate the solidarity.[16]

To argue for a greater role for the centre in rationing decisions does not mean that there will be no room for local flexibility. Indeed a code of practice, developed at the centre, could provide a framework within which local decision making could flourish. The challenge is to develop a policy which enables us to define the limits and extent of local flexibility, rather than allowing it to continue to be used as an excuse for all manner of inappropriate variations.

A greater role for the centre

To increase the coherence and legitimacy of decision making in the NHS, we need to redefine what kind of decisions are appropriate to be taken at which level. We need to define the boundaries within which doctors can be free to exercise their clinical judgment, and create a principled framework within which health authorities and managers can legitimately make their decisions.

The Institute for Public Policy Research has rejected the idea of a defined package of care and instead has proposed a national advisory body to develop appropriate national guidelines, within which the different groups can exercise their particular skills and judgment.[9] A national health commission should be set up to advise parliament on devising guidelines and a code of practice. This would draw on a wide range of experience and skill, involving all interested parties in the process and pooling ideas. Its aim would be to build a broad consensus for the criteria by which decisions about resource allocation for health care can reasonably be made and to keep matters under review. Our recommendations are similar to proposals made by the Royal College of Physicians[17] and are consistent with the findings of a pilot citizens' jury on rationing.[18] Our proposals are based on an assessment of the experience of other countries, which suggests that rationing by exclusion is neither helpful nor desirable and that developing guidelines in order to ensure fair and consistent decision making processes offers a pragmatic way forward.[9 19 20] The exact mechanisms and functions of the proposed commission are discussed in detail in the report, *Rationing and Rights in Health Care*.[9]

"Rationing decisions are political decisions"

Although at the end of the day doctors must actually take the decisions in the surgery, the clinic, and the ward, the criteria they use should conform to standards which are seen to be consensual, legitimate, and consistently applied. More open and fair decisions will help to rebuild public trust and establish new relationships between all the stakeholders.

Possible objections

It has been suggested that any attempt at rational rationing is futile and that it would be impossible for any national body to reach a consensus on the difficult issues it would be asked to resolve. If rationing issues are too difficult to resolve on a national level, involving all the expert and interest groups, then what chance do hard pushed local health authorities have? Surely the recognition that rationing is so difficult merely demonstrates the need for us to pool our knowledge and experiences? Rationing, of course, neither can and never should be reduced to a precise mathematical formula, but it should be possible to develop rationing policies that are socially acceptable and which conform to standards of common justice.

"The future of the health service in the UK is too important to be shaped by default"

Other complaints, such as increasing bureaucracy and costs, limiting clinical freedom, etc, all depend on what kind of policies are created, and with what objectives. They also depend on the level of public involvement and support, and on how much professional confidence such policies can command. None of these legitimate concerns should be dismissed lightly, but potential problems can be overcome by commitment and imagination, and cannot justify inaction. Once we have agreed that the centre does need to have a greater role in rationing decisions, we can then begin to debate the form which such a policy should take, in order to ensure that these concerns are fully addressed.

As New has argued, views about rationing may remain persistently polarised among members in society, thereby increasing the need to develop democratic systems of decision making in order to resolve these conflicts. It is unlikely that different views will ever be entirely reconciled, but it should be possible to build confidence and support for the process by which such decisions are made.[14]

Conclusion

The arguments in favour of a greater role for the centre in rationing decisions must be compared not to some imaginary perfect future but to the poverty of the status quo. New policies always involve risks, but the option of doing nothing is far from risk free. If we fail to tackle rationing in the NHS, if we leave the health authorities to muddle through, the media to seize on the inevitable inequities, and the public to worry about the consequences, then the middle classes may increasingly turn to private insurance in pursuit of peace of mind, eventually reducing the NHS to a safety net service for the poor.

We have a clear choice: either we attempt to shape the future of healthcare provision in the public interest, or we allow it to be shaped for us, by the workings of the internal market, the influence of vested interests, and the ad hoc decisions of individual health authorities. The future of the health service in the UK is too important to be shaped by default. For the NHS to survive and succeed in the next century it must earn the trust of the public, and therefore it must offer services which all citizens value, and allocate its resources in a manner which is seen to be fair. A greater role for the centre in rationing health care may help us to achieve these aims.

1 New B, Le Grand J. *Rationing in the NHS: principles and pragmatism.* London: King's Fund, 1996..
2 House of Commons Health Committee. *Priority setting in the NHS: purchasing.* Vol 1. Annex 1. London: HMSO, 1995.
3 Redmayne S. *Reshaping the NHS: strategies and priorities amid resource allocation.* Birmingham: NAHAT, 1995:51.
4 Report of fourth national survey of NHS funding of infertility services. London: National Institute for Assisted Conception, 1995.
5 McLean SMA. Mapping the human genome: friend or foe. *Soc Sci Med* 1996;39:1221-7.
6 Marwick S. *Eligibility criteria for continuing health care: palliative care.* London: National Council for Hospice and Specialist Palliative Care Services, 1996.
7 Hunter DJ. Rationing health care: the political perspective. *Br Med Bull* 1995;51:876-84.
8 Kennedy I. What is a medical decision? In: Kennedy I, ed. *Treat me right: essays in medical law and ethics.* Oxford: Clarendon Press, 1988.
9 Lenaghan J. *Rationing and rights in health care.* London: IPPR, 1996.
10 Coote A, Lenaghan J. *Citizens' juries. Theory into practice.* London: IPPR (in press).
11 Dickson N. Blood sweat and tears. *Guardian* 1996; 16 Sep.
12 Harrison S. Hunter DJ, Johnston IH, Nicholson N, Thurnhurst C, Wistow G. *Health before health care.* London: IPPR, 1991.
13 Cooper L, Coote A, Davies A, Jackson C. *Voices off.* London: IPPR, 1995.
14 New B on behalf of the Rationing Agenda Group. The rationing agenda in the NHS. *BMJ* 1996;312:1593-1601.
15 Klein R. *The new politics of the NHS.* 3rd ed. London: Longman, 1995:23.
16 Busse R, Howorth C, Schwartz FW. The future development of the rights-based approach to health care in Germany: more rights or fewer? In Lenaghan J, ed. *Hard choices in healtlh care.* London: BMJ Publishing Group, 1996.
17 Royal College of Physicians. *Setting priorities in the NHS: a framework for decision making.* London: RCP, 1995.
18 Lenaghan J, New B, Mitchell E. Setting priorities: is there a role for citizens' juries? *BMJ* 1996;312:1591-3.
19 Ham C. Health care rationing. *BMJ* 1995;310:1483-4.
20 McKee M, Figueras J. Setting priorities: can Britain learn from Sweden? *BMJ* 1996;312:691-4.

The case against

Stephen Harrison

The political and administrative centre should have an increased role in making healthcare rationing decisions

Nuffield Institute for Health, University of Leeds, Leeds
LS2 9PL
Stephen Harrison
Reader in health policy and politics

BMJ 1997;314:970–3

As components of democracy, the health authorities currently responsible for the local governance of the NHS are a nonsense. As Regan and Stewart pointed out 25 years ago,[1] their quasi-independent statutory existence precludes clear accountability on the part of the political centre yet without (as in the old nationalised industries) providing a clearly delegated management role, and without providing local democratic accountability. Health authorities, especially given recent suspicions surrounding the closed nature of the appointments process, are truly examples of Stewart's "new magistracy"[2]: unelected, unaccountable, and tacitly assumed to refrain from challenging the status quo.

The rationing of health care is inevitable in any system of third party payment for health care,[3,4] and where the system is publicly or quasipublicly financed rationing decisions are political decisions in the sense both of requiring accountability for public funds and of involving the allocation of resources which may significantly affect people's life chances. This remains so whether or not they are taken on party political lines and whether or not they involve substantial technical input (about, for instance, the efficacy of specific health care interventions).

It follows that health authorities are not appropriate bodies to be making such decisions. As Regan and Stewart noted more generally, the consequences of the present arrangements are threefold.[1] Firstly, the centralisation of electoral accountability means that in practice there is none. The centre does not have "the time or resources to provide more than partial, selective and spasmodic accountability." Secondly, the attempt even to provide that much leads to administrative and political congestion. Thirdly, these arrangements leave a highly unsatisfactory role for the people who are appointed as authority members. If all this is so, reform in relation to healthcare rationing might logically take one of two directions.

A stronger role for the centre?

One is to posit an increased role for the centre. There are strong temptations to opt for such a solution, especially when faced with the difficult questions that can arise in relation to healthcare rationing. After all, the United Kingdom is a small country with predominantly national news media with a strong tendency to report regional differences in public provision as problematic by definition. This increasingly national focus on politics has been enthusiastically reinforced by government policy—for example, through its use of performance indicators in health and education, and its erosion of local democracy by reducing local authority functions and autonomy (for instance by capping local taxes). In the specific case of the NHS the use of the term "national" provides ready rhetoric against the development or even continuation of local diversity. Not surprisingly, therefore, the appearance of painful local political questions about how to ration health care leads to calls for the political and administrative centre to take an enhanced role.

Such a central approach to healthcare rationing is not indefensible, and various schemes have been proposed. These range from the enactment of procedural rights as proposed by Lenaghan[5] to the development of a national package of permitted treatments for specified clinical conditions, defined either in terms of some rough cost-utility criteria (as in the Oregon formula) or by some other criterion such as Dworkin's prudent insurance principle.[6]

A pragmatic proposition

However, such approaches are not the only practicable solution and I want to show that the alternative approach is feasible: increased involvement for the political and administrative locality. In so arguing, I make what is essentially a pragmatic proposition, based on the possibility of adapting an existing institution, local government, to perform a rationing function in health care in a way which conforms to some principles which I presume to be widely held (democracy and transparent accountability) and which offers an enhanced opportunity for the pursuit of equity of health outcome, an objective which may not be so widely approved.

I need to set out some preliminary points. Firstly, nothing in this essay is intended to undermine the present role of the political centre in the geographical allocation of resources for the NHS through the capitation formula or some improvement in it. Indeed, such an arrangement is a crucial underpinning of the proposal. Secondly, nothing in this essay is intended to diminish the case for public services to be the subject of consultation with their users[7]; although I am concerned here with public participation in a broader sense, user consultation remains an important component.

Thirdly, this essay is about the explicit rationing of health care. Of course defensible cases for implicit rationing exist,[8-10] and it is also possible to infer from opinion poll data a public preference for rationing to be effected implicitly through clinical decisions.[11 12] However, adherents to such a position do not argue for an increased central role (either procedural or substantive) since such a role itself implies explicitness, and the terms of the particular debate to which this essay is a contribution therefore exclude consideration of the general merits of explicitness. I would add, though, that implicitness precludes the possibilities of democracy and transparency.

"Centralisation of electoral accountability means that in practice there is none"

Fourthly, I do not subscribe to the view that healthcare rationing can be neatly divided into questions of what treatments are to be available and of which patients are to receive these treatments. One reason for this is that while British clinicians have substantial autonomy in relation to the latter (and my own opinion is that this is desirable) such autonomy is not inevitable, as anyone who has observed the managed care practices of US health insurers will be aware. The other, more important, reason is that treatment and patient are logically inseparable in the context of rationing (the Oregon formula employed treatment-condition pairs). It is not a question of deciding that treatment T is available, but of deciding that it is available for diagnosis X, the latter term perhaps including some assessment of severity. An obvious example is antibiotics; no one would argue that the NHS should not provide these at all, but a case could be made for withholding them from patients whose immune systems could be expected quickly to overcome the infection unaided. In other words, rationing cannot entirely be separated from clinical thresholds even though clinicians may be able to manipulate these.

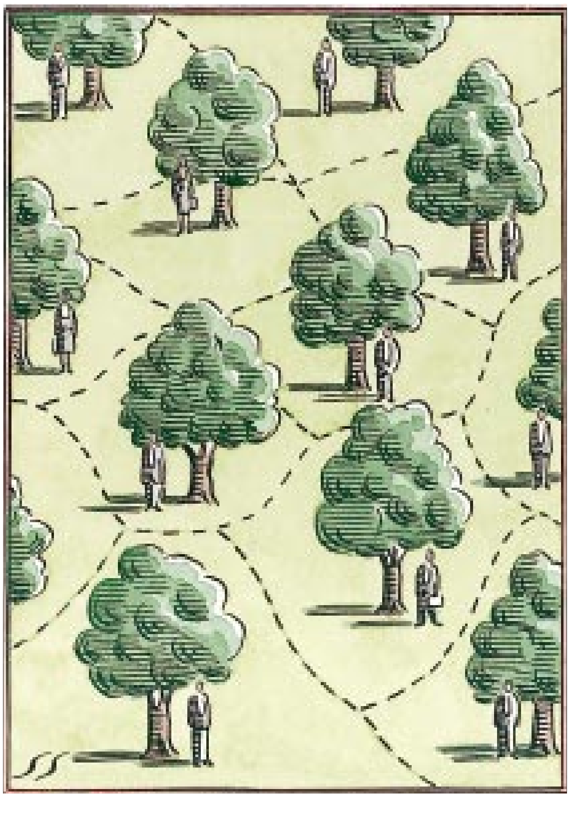
Finally, the case that I am seeking to advance is a general one in favour of a greater local political role in NHS rationing, rather than a detailed organisational prescription. I have therefore not considered such practicalities as current local government reorganisation, the deprivation factors to be included in the capitation formula, or the structure and ownership of NHS trusts.

Local authorities as healthcare purchasers

Though local authorities had a substantial role in the provision of health care before 1948, the first post-NHS proposal for them to run the service was made by Regan and Stewart in 1982.[1] Revived in the subsequent context of the purchaser-provider split by Harrison *et al*,[6] it has also been supported by the Association of Metropolitan Authorities.[13] Essentially, the proposal is for local authorities to become responsible for the purchasing, and therefore the rationing, of health care for their resident populations. Care would continue to be provided by NHS trusts (which might themselves need to be democratised) and occasionally by the private sector. This proposal is underpinned by both a logic of democracy (with which this essay is mainly concerned) and a logic of equity.

The logic of democracy

A service which aims to serve a local community must be responsive to both the needs of that community and local values and priorities; indeed, these are hardly separable from each other. Despite current political rhetoric which claims that local political decision making has been superseded by a market which responds to individuals' needs, this is not so. As Bogdanor points out, the market in public services is an artificial one, created and regulated by government[14]; it cannot therefore be defended as if it were the impersonal outcome of individuals' interactions, and the NHS must do more than just respond to the preferences of its "con-



sumers." It follows that local differences in priorities and provision should occur.

Elected local government provides a means of taking rationing decisions which are democratically legitimate, especially when accompanied by other mechanisms to enhance accountability, such as consultation with the public and user groups. In this way local differences will almost certainly occur; for instance, some might choose to establish specific healthcare rights for local residents, while others might prefer to establish broader objectives and to use waiting lists and clinical priority as a means of dispensing rough justice.[15] These differences should not be seen as a political problem provided that two conditions are met.

The first condition is that such differences can be legitimised, and the fact of local election provides one key element in such legitimisation and hence the basis for independent action. Local authorities already have experience of explicit rationing both in the sense of deciding what needs to meet and of determining priorities between individuals; housing points systems and social care needs are obvious examples. As Hunter has noted, however, this is not a sufficient condition of legitimacy, but needs to be supplemented by ongoing consultation with the local public,[16] perhaps by such discursive means as citizens' juries[17] or by more reactive means such as the "talkback panel" shared by local and health authorities in Calderdale and Kirklees in west Yorkshire. It needs also to be supplemented by consultation with service user groups. The role of local government in the political life of the United Kingdom has been steadily undermined over the last two decades; to give it responsibility for purchasing health services would potentially offer a boost to popular perceptions of its importance.

"Local differences in priorities and provision should occur"

The second condition is that resources are seen to be distributed and used equitably. There are several strands to this, in each of which the political centre does have a role.

Firstly, NHS resources must be equitably distributed between local authorities, so that local differences are differences only of priority, rather than differences in total resource relative to need. If this is achieved, what may be called "healthcare migration" (that is individuals moving to an area where their treatment is a priority, rather as they might currently seek the schools that they prefer for their children) would not be a problem since a particular set of priorities would necessarily imply a set of non-priorities. Such equity might be achieved either by central distribution of resources along the lines of the present capitation formula or (in the unlikely event of a radical extension of local taxation powers) by a centrally determined needs adjustment factor.

Secondly, there should be no use of purely social judgments (about lifestyle, for instance) in establishing entitlement to services or treatments; as Doyal and Gough have noted, people have an ongoing need for health even if they have genuinely contributed to their present ill health.[18] This requirement not to discriminate might be the subject of legislation. Thirdly, local authorities should be encouraged, again perhaps via legislation, to use their control over a range of health related policy areas (rather than just health services) to pursue broad equity of health outcome in such terms as life expectancy, disability, and longstanding illness. It seems unlikely that detailed legislation is appropriate for this; rather, a general statutory duty might be established, to be used as an audit criterion in Audit Commission evaluations of local authorities. The policy means by which authorities might pursue such equity are briefly discussed in the next section.

"The transfer to local government of the purchasing of health care offers a democratic input to its rationing"

Suggestions, such as that made above, for the NHS to be democratised via local government have tended to produce rather contradictory criticisms, often from the same sources. Thus local government is typically portrayed as being not really democratic at all, but as both overbureaucratised and overpoliticised, with important decisions made by councillors and a correspondingly reduced role for managers.[19] Leaving aside the dubious inference that British central government is a paragon of democracy, it is hard to see in them much other than a generalised hostility to local government. The scheme proposed above would help to relegitimise and reinvigorate local government.

The logic of equity

A key pragmatic advantage of local authority responsibility for health service purchasing would be the latter's co-location with policy responsibility for other local services which affect health. The most obvious examples are social services, public housing, environmental health, and local planning of roads and buildings. Such co-location would permit an integrated policy approach to health in place of the present rather artificial arrangement whereby health and health services are often treated as synonymous. Integrated policies would not, of course, be guaranteed,[20] though the proposal for a statutory duty to pursue equity of health outcome ought to provide an important incentive.

Unlike the arguments for local democracy, the arguments for local integration have had a good press.[21] However, recent central government policies which have had the effect of extending the means testing of social care pose an obvious difficulty for a fully integrated local health and social care service. To achieve such a service means that either means testing must be extended to health care, or abolished; neither seems politically feasible at present. Nevertheless, the responsibility of a single organisation for both services should help to undermine some of the incentives for cost shifting that currently exist.

Concluding remarks

My main purpose has been to argue that increasing the role of central government in healthcare rationing is not the only approach to tackling the present somewhat chaotic situation. Increasing the role of local government in a way which is underpinned by strategic, centrally determined rules is a feasible, and indeed preferable, alternative which should not simply be rubbished because it encounters long held prejudices of interested parties. The transfer to local government of the purchasing of health care offers a democratic input to its rationing and the possibility of a more integrated approach to health policy, enabling what I have called the logics of democracy and of equity to be reconciled.

1 Regan DE, Stewart J. An essay in the local government of health: the case for local authority control. *Social Policy and Administration* 1982;16:19-43.
2 Stewart JD. *Accountability to the public.* London: European Policy Forum, 1992.
3 Donaldson C, Gerard K. *Economics of health care financing: the visible hand.* London: Macmillan, 1993.
4 Harrison S, Hunter DJ. *Rationing health care.* London: Institute for Public Policy Research, 1994.
5 Lenaghan J. *Rationing and rights in health care.* London: Institute for Public Policy Research, 1996.
6 Harrison S, Hunter DJ, Johnston IH, Nicholson N, Thurnhurst C, Wistow G. *Health before health care.* London: Institute for Public Policy Research, 1991.
7 Knox C, McAlister D. Policy evaluation: incorporating users' views. *Public Administration* 1995;73:413-36.
8 Mechanic D. Professional judgement and the rationing of medical care. *University of Pennsylvania Law Review* 1992;140:1713-54.
9 Hoffenberg R. Rationing. *BMJ* 1992;304:182.
10 Hunter DJ. Rationing and health gain. *Critical Public Health* 1993;4:27-32.
11 Heginbotham C. Health care priority setting: a survey of doctors, managers and the general public. In: *Rationing in action.* London, BMJ Publishing Group, 1993.
12 Bowling A. Health care rationing: the public's debate. *BMJ* 1996;312:670-4.
13 Association of Metropolitan Authorities. *Local authorities and health services: a future role for local authorities in the purchasing of health services: a scoping paper.* London: AMA, 1993.
14 Bogdanor V. Local voices cry out in the quango wilderness. *Observer* 1994; 20 Mar:4.
15 Boyd KM, ed. *The ethics of resource allocation in health care.* Edinburgh: University of Edinburgh Press, 1979.
16 Hunter DJ. The case for closer co-operation between local authorities and the NHS. *BMJ* 1995;310:587-9.
17 Stewart J, Kendall E, Coote A. *Citizens' juries.* London: Institute for Public Policy Research, 1994.
18 Doyal L, Gough I. *A theory of human need.* Basingstoke: Macmillan, 1991.
19 National Association of Health Authorities and Trusts. *Securing effective public accountability in the NHS: a discussion paper.* Birmingham: NAHAT, 1993.
20 Mays N. What are the effects of integration in the NI health and personal social services? *Critical Public Health* 1993;4:43-8.
21 Editorial. *Financial Times* 1991; 6 Jun.

WHEN I USE A WORD . . .

A time to be born . . .

There is a widespread myth that births occur more commonly at around the time of a full moon. It is certainly true that time has always been associated with reproduction in one way or another. The earliest known word for time (see *Gegenbaurs Morph Jahrb* 1982;128:257-89) was probably the Acadian word ittum, which originally meant a momentous event, such as an eclipse of the moon or a monstrous birth. This itself gave birth to the Hebrew word for time, eht, the Etruscan word for the time of the full moon, itus, and hence the Greek εἰδοι (eidoi) and the Latin Idus, words for the day of the month (the Ides) that fell near the full moon. And in modern Hungarian, time is idö.

Other words for time, however, developed along different lines, suggesting that the concept of time was a relatively late one. For example, the Old Indian word kalah (destiny, occasion, the opportune moment) came from an Indo-European root, KEL, meaning to urge on, from which we have celerity (Latin celer, swift). The Latin word tempus came from an Indo-European root, TEN, connected with tendo, I stretch (Greek τεινω, teino; German dehnen), giving us tendon, tension, and tense. The word time itself (German Zeit) may have come from the Indo-European DI, which had the notion of division; whence the Greek word δημος (demos), a tribe or race. In Hittite, time was mehur (Indo-European ME), with the idea of measurement, giving the Greek μην (men) and Latin mensis, whence moon, month, menstruation, catamenia (another word for the menses), and emmenagogue (an abortifacient), which brings us back to reproduction.

In Latin the future tense was marked by the ending -bo (amo, I love, amabo, I shall love), which came from a form of the verb to be, fuo. This gave futurus, that which will be, and the verb that expressed the ultimate sensation of being, futuere, to be with a woman. Its counterpart in Greek, φυω (phuo) meant to bring forth or beget; φυσας (phusas) was a father, φυς (phus) a son, φυστις (phustis) progeny, and φυτον (phuton) a plant.

It is disappointing therefore that the purported link between the time to be born and the full moon is not supported by evidence. Of 27 studies published since 1938 (reviewed in *Psychol Rep* 1988;63:923-34 and 1994;75:507-11), most have shown no relation between birth rate and the time of the month, and in those that have, the relation was weak and inconsistent. In the largest study (of over 12 million births in France during the 15 years 1968-82) the ratio between maximum and minimum birth rates ordered by time of the month was 1.01.

In contrast, it has consistently been shown that birth rate is related to time of day, time of week, and time of year. About 60% of births occur during the 12 hours between 0600 and 1800. Births are also more frequent during weekdays than at weekends: in the French study the peak ratio (Tuesday:Sunday) was 1.13. And the peak ratio of births by month (May:November) in the same study was even higher, at 1.22.

So Cupid's arrow and time's arrow may after all have been forged by the same fletcher.

Jeff Aronson *is a clinical pharmacologist in Oxford*

We welcome filler articles of up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake,* or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk.