this criterion. Firstly, the more challenging cases, such as cases of bilateral clefts, occur so rarely that surgeons seeing five or 10 cases of cleft lip annually might operate on this subtype only once every two years. Secondly, occasional operators tend to be supported by an incomplete network of other inexperienced professionals.¹ Thirdly, cleft lip and palate is expressed with considerable heterogeneity, and the homogeneity of 40 unilateral cases is necessary for statistical discrimination of clinically relevant variation in surgical performance.³ For surgeons seeing only five new patients annually, 28 years would have to elapse before audit could be performed. Finally, previous research has been hindered by small samples and dependence on weak design.⁴ Peter Ward Booth refers to a form of repair whose early results "show great promise,"² but such hopes litter the history of care in cleft lip and palate, and systematic reviewing according to the protocols of the Cochrane Collaboration shows that randomised trials have been used rarely (J F C Tulloch, American Cleft Palate Association meeting, Tampa, Florida, April 1995). Thus rationalisation of services is a prerequisite for worthwhile research.

The steering group has not assumed that surgeons from any particular discipline have a natural right to perform primary surgery, bone grafting, or osteotomy of the jaw and will consider instead training pathways for future specialists. It also proposes the instigation of national audit and accreditation of centres by peer review.

Concentration of cases into the hands of high volume operators provides no guarantees but establishes the optimum conditions for best practice and monitoring. Given the overhaul of services now required, the heroes of the hour may be not the clinicians who step forward but those who step back.

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- 1 Williams AC, Shaw WC, Devlin HB. Provision of services for cleft lip and palate in England and Wales. *BMJ* 1994;309:1552.
- 2 Services for cleft lip and palate [letters]. *BMJ* 1995;310:1006 (15 April), 1406 (27 May).
- 3 Shaw WC, Asher-McDade C, Brattstrom V, Dahl E, Mars M, McWilliam J, et al. A six-centre international study of treatment outcome in patients with clefts of the lip and palate. Part 5. General discussion and conclusions. *Cleft Palate Craniofac J* 1992;29:413-8.
- 4 Roberts CT, Semb G, Shaw WC. Strategies for the advancement of surgical methods in cleft lip and palate. *Cleft Palate Journal* 1991;28:141-9.

Health care rationing

Implicit rationing should take place within a framework

EDITOR,—Though I agree with David Mechanic that all health care systems should use a mixture of rationing mechanisms, I have some reservations about placing too much reliance on the discretion of professionals to determine the clinical allocation of services.¹ I have no doubt that many carry out this function in a rational and well informed manner with due regard for budgetary restraint, and as a result the NHS is an efficient health care system. Unbridled implicit rationing, however, allows clinical freedom to foster vested interests and to breed inefficiency. For example, the drug treatment of intermittent claudication costs the health service over £25m a year, but the consensus is that this form of treatment is ineffective.²

Professionals have a clear responsibility of virtue and duty to individual patients, which will often

conflict with a broader social ethic. The nettle of explicit allocation of resources has to be grasped by central government and purchasing authorities to allow professionals to practise implicit rationing within a well defined framework.

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- 1 Mechanic D. Dilemmas in rationing health care services: the case for implicit rationing. *BMJ* 1995;310:1655-9. (24 June.)
- 2 Consumers' Association. Do drugs help intermittent claudication? *Drug Ther Bull* 1990;28(1):1-2.

Implicit rationing is not open to public scrutiny

EDITOR,—David Mechanic invokes the Royal Bank of Sweden's prize in economics given in memory of Alfred Nobel to underpin Herbert Simon's apparent favouring of implicit as opposed to explicit rationing.¹ Other well known recipients of this prize (endowed in 1968) include F A Hayek and M Friedman. At about the same time as Simon was writing, Hayek identified rationing as a problem that would face nationalised health care systems and concluded that the most dangerous aspect of this was that "a system that gives the indispensable helper of the individual, who is at the same time an agent of the state, an insight into the other's most intimate concerns and creates conditions in which he must reveal this knowledge to a superior and use it for the purposes determined by authority opens frightening prospects."²

Explicit rationing is a form of open government. As Mechanic points out, it runs the risk of being buffeted by conflicting pressure groups. Implicit rationing is ruling in secrecy. It requires government inquiries and commissions to police it. Mechanic cannot really believe that his sentence "I suspect that the rich and powerful if sufficiently motivated will always find ways to circumvent explicit criteria" does not apply to implicit rationing too: it applies even more so. Likewise, had the investigation into how to dispose of the Brent Spar oil platform been done openly, the platform would probably now be resting on the seabed rather than being dismantled. Indeed, the strength of open decisions is that it is easier to take remedial action, as illustrated in Sweden, where all 14 directors of its Medical Research Council were recently made to resign.

In 1863 Lincoln expounded the United States constitution for all time.³ He finished with the phrase "that government of the people, by the people, for the people, should not perish from the earth." Surely it is in this spirit of responsibility and accountability that we should reform the NHS.

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- 1 Mechanic D. Dilemmas in rationing health care services: the case for implicit rationing. *BMJ* 1995;310:1655-9. (24 June.)
- 2 Hayek FA. *The constitution of liberty*. London: Routledge and Kegan Paul, 1960.
- 3 Wills G. *Lincoln at Gettysburg: the words that remade America*. New York: Simon and Schuster, 1992.

Muddling through leaves matters to chance

EDITOR,—David Mechanic concludes his article on rationing in health care services by saying that at the micro level this must be "left for doctors and patients to work out among themselves" and that "once the boundaries are set, more is gained by muddling through rather than by trying to establish all the rules beforehand."¹ He uses the example of access to haemodialysis, for which

acceptance rates in the United Kingdom have lagged behind those in most of western Europe and in North America over the past two decades, particularly among elderly people and those with diabetes.² Unfortunately, there is considerable evidence of inequitable distribution of dialysis resources in the United Kingdom.³

Extremely difficult life or death decisions have too often depended on individuality and chance; there has been minimal medical training on how to discuss these issues with the patient openly and honestly. Is the current structure for this sort of decision making appropriate? Use should be made of multidisciplinary teams to reduce individual bias, particularly because increased caseloads mean that modern renal physicians are unlikely to know their patients as well as in previous decades. Guidelines on the process of the decision making would be useful to ensure that all aspects are considered and to protect patients' autonomy. Careful documentation of that process would facilitate audit.

However health care is funded, it will not be possible to provide all the care available to all those who might benefit. Those responsible for making decisions about the allocation of scarce resources must be publicly accountable and sensitive to the ethical dimensions of their judgments. We can do better than muddle through.

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- 1 Mechanic D. Dilemmas in rationing health care services: the case for implicit rationing. *BMJ* 1995;310:1655-9. (24 June.)
- 2 Wing AJ. A different view from different countries: United Kingdom. In: Kjellstrand CM, Dossater JB. *Ethical problems in dialysis and transplantation*. Dordrecht: Kluwer Academic, 1992:201-26.
- 3 Halper T. *The misfortunes of others: end stage renal disease in the United Kingdom*. Cambridge: Cambridge University Press, 1989:24.

Bone densitometry in clinical practice

Clinical uses of densitometry are not yet proved

EDITOR,—J E Compston and colleagues review the indications for bone densitometry in clinical practice.¹ They agree with the conclusions of the *Effective Health Care* bulletin that there is insufficient evidence to justify screening women at the menopause.² Several of their other recommendations, however, do not seem to be supported by the evidence.

The authors propose that bone densitometry should be used, for example, for people with strong clinical risk factors. This is justified only if the information provided by the test can influence decision making in a way that improves the effectiveness or cost effectiveness of treatment.³ However, no evidence is cited to show that decision making is improved as a result of bone densitometry in people at increased risk of fracture due to accelerated bone loss. Since the presence of multiple risk factors is more important than the result of bone densitometry in predicting hip fracture in older white women⁴ it is important to show the extra value of densitometry. No data are presented to support the view that management decisions that take into account the results of densitometry improve outcomes or reduce costs when compared with decisions that do not take into account these results.

This lack of evidence also applies to other recommended uses, such as the monitoring of treatment. The precision of measurements of bone density in routine settings is not well documented and is likely to be lower even than that reported by the manufacturers. On the basis of the figures

quoted, repeat measurements obtained at least three years apart to monitor the effectiveness of treatment are likely to be of little clinical use.

Compston and colleagues conclude that the United Kingdom does not have enough bone densitometry machines, with 1.6 dual energy x ray absorptiometry machines per million people compared with 2.9 in the United States and 13.5 in Greece. This conclusion is not supported by their data. They estimate that 175 bone density scans are needed per 100 000 population. If we assume that a machine is used for 50 weeks a year, five days a week, and with a throughput of 10 scans a day (a conservative estimate) then one machine could provide 2500 scans a year. This is enough for a population of $2500 \times 10^6 / 1750 = 1.43$ million people. On the basis of their figures the United Kingdom would therefore require 0.7 machines per million people to meet the needs identified in the paper. It seems that we have more than an adequate supply.

The fact that the per capita supply of dual energy x ray absorptiometry machines in the United Kingdom is lower than that in most other countries possibly reflects the greater ability in the NHS to control the diffusion of health technologies and to control costs. The United States has eight times the number of magnetic resonance imaging scanners and Japan 12 times the number of computed tomography scanners and eight times the number of extracorporeal shockwave lithotripsy machines per million population as does the United Kingdom.¹ I hope that the authors would not interpret such variation as implying that the number of machines in the United Kingdom should rise to similar levels. The purchase and use of health technology need to be part of a planned service based on the assessment of cost effectiveness and need and should not be driven by commercial interest, clinical enthusiasm, or naive international comparisons.

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- 1 Compston JE, Cooper C, Kanis JA. Bone densitometry in clinical practice. *BMJ* 1995;310:1507-10. (10 June.)
- 2 Screening for osteoporosis to prevent fractures. *Effective Health Care* 1992;No 1.
- 3 Sackett DL, Haynes RB, Gyatt GH, Tugwell P. *Clinical epidemiology: a basic science for clinical medicine*. 2nd ed. Boston: Little, Brown, 1991:51-170.
- 4 Cummings SR, Nevitt MC, Browner WS, Store K, Fox KM, Ensrud KE, et al. Risk factors for hip fracture in white women. *N Engl J Med* 1994;332:767-73.
- 5 Lázaro P, Fitch K. The distribution of "big ticket" medical technologies in OECD countries. *International Journal of Technology Assessment in Health Care* (in press).

Is indicated after long term treatment with heparin

EDITOR,—There is an important omission from the clinical indications for bone densitometry listed in J E Compston and colleagues' review article¹—namely, long term treatment with heparin, which causes osteoporosis.² The most common indication for long term heparin is thromboprophylaxis in pregnant women. It is our policy to treat women at high risk of thromboembolism (those with a history of recurrent thromboembolism and those with thrombophilia or antiphospholipid antibodies) with subcutaneous heparin throughout pregnancy and the puerperium. In some units even women at lower risk of recurrent thromboembolism (for example, those who have had only a single thromboembolic event) may receive heparin throughout pregnancy.

Part of the problem is that pregnancy itself may cause a reduction in bone density. In a prospective study of bone mineral density in pregnancy Dahlman *et al* used single photon absorptiometry and found a 5% reduction in trabecular bone

(equivalent to two years' postmenopausal loss) immediately postpartum compared with the value at 12 weeks' gestation in women receiving prophylaxis with heparin.³ The same group found an incidence of osteoporotic vertebral fractures of 2.2% in 184 women given subcutaneous heparin for antenatal thromboprophylaxis.⁴

Our current practice is to offer dual x ray absorptiometry post partum to any woman who has received heparin for more than 12 weeks during pregnancy. Four of 13 such patients had osteopenia (bone density > 1 SD below the mean for non-pregnant women matched for age) when studied one to 10 months after delivery. Current evidence suggests that the effects of pregnancy and heparin on bone density are reversible. Since women who require prophylaxis with heparin in one pregnancy usually require it in subsequent pregnancies, assessment of bone density is clinically important. For example, women found to have osteopenia are advised to delay further pregnancy pending the result of repeat bone densitometry after six to 12 months.

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- 1 Compston JE, Cooper C, Kanis JA. Bone densitometry in clinical practice. *BMJ* 1995;310:1507-10. (10 June.)
- 2 De Swiet M, Dorrington Ward P, Fidler J, Horsman A, Katz D, Letsky E, et al. Prolonged heparin therapy in pregnancy causes bone demineralization. *Br J Obstet Gynaecol* 1983;90:1129-34.
- 3 Dahlman T, Sjöberg HE, Ringertz H. Bone mineral density during long-term prophylaxis with heparin in pregnancy. *Am J Obstet Gynecol* 1994;170:1315-20.
- 4 Dahlman T. Osteoporotic fractures and recurrence of thromboembolism during pregnancy and puerperium in 184 women on thromboprophylaxis with heparin. *Am J Obstet Gynecol* 1993; 168:1265.

Author's reply

EDITOR,—Catherine Nelson-Piercy and Michael de Swiet are right to draw attention to long term heparin treatment as another important, if relatively rare, risk factor for osteoporosis.

I welcome the opportunity to respond to Trevor Sheldon's views. Contrary to the implication in his letter, the conclusion that mass screening of perimenopausal women is not justifiable was reached by several experts^{1,2} before publication of the *Effective Health Care* bulletin, the conclusions of which were fortuitously correct although based on inadequate and selective information.³

In our review we emphasised that bone densitometry could be justified only if the result influenced management; it has been shown that the finding of low bone mineral density improves compliance with treatment and changes in lifestyle.⁴ Furthermore, Sheldon is incorrect in stating that multiple risk factors in elderly women are more important than low bone mineral density in predicting hip fractures. In the study quoted the two were shown to be complementary, the rate of hip fracture in women with multiple risk factors being nearly three times higher in those in the lowest than those in the highest third of bone density.⁵

Sheldon does not provide evidence to support his assertion that the precision of measurements of bone density in routine settings is poorly documented. Many centres have reported precision of $\leq 1\%$ and 1-3% for spinal and femoral measurements respectively. As with all treatments, responses in patients with osteoporosis are heterogeneous, and repeated estimates of bone mineral density at appropriate time intervals provide the only means by which responses may be monitored.

With regard to Sheldon's repeated references to cost effectiveness we estimate that the introduction of a clinical bone densitometry service would result in an annual reduction of about 14 vertebral

fractures, three forearm fractures, and one hip fracture for the average health authority, with a cost per fracture averted of £1391 and a cost per life year saved of £22558. We agree that cost effectiveness is important but cannot accept the implication that this should drive the provision of health care. Those of us responsible for the care of individual patients recognise that the benefits of clinical practice cannot be wholly captured by such a conceptually simplistic notion, which is itself an inexact science. Improvements in medical care require a balanced and rational approach to the assessment of new technologies; the negative attitude and tunnel vision exhibited by Sheldon are not constructive in this respect.

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- 1 Cummings SR, Black D. Should perimenopausal women be screened for osteoporosis? *Ann Intern Med* 1986;104:817-23.
- 2 Raffle AE, Cooper C. Bone density screening for osteoporosis. *Lancet* 1990;336:242.
- 3 Rubin SM, Cummings SR. Results of bone densitometry affect women's decisions about taking measures to prevent fracture. *Ann Intern Med* 1992;116:990-5.
- 4 Stevenson JC, Kanis JA, Christiansen C. Bone-density measurement. *Lancet* 1992;339:370-1.
- 5 Cummings SR, Nevitt MC, Browner WS, Stone K, Fox KM, Ensrud KE, et al. Risk factors for hip fractures in white women. *N Engl J Med* 1995;332:767-73.

Publishers' copyright policy

EDITOR,—In my retirement I have completed a bibliography of research on infant feeding for distribution to doctors and others professionally interested in the subject. The bibliography is on a floppy disk and contains about 3200 references, with their published abstracts in most cases, together with built in software for making computer searches and for adding users' own references. My intention is that it should be distributed at nominal charge to cover postage and packing etc, especially to colleagues out of reach of library services, including those working in underprivileged communities around the world. I have a commercial sponsor, which has defrayed most of the expense, but neither the sponsor nor I will make any money out of it, and that has not been our intention.

To be able to include the abstracts, I wrote to the roughly 160 publishers of the journals involved, explaining my intentions and requesting their permission to include the abstracts. All but about five readily accepted, including the BMJ Publishing Group, with many of them expressing approval and interest and some even offering to collaborate.

Sadly, however, three publishers of prominent journals in my subject refused or (in the case of the *New England Journal of Medicine*) imposed conditions that were impossible to accept and ignored my subsequent appeals. They were the Massachusetts Medical Society (*New England Journal of Medicine*), Raven Press (*Journal of Pediatric Gastroenterology and Nutrition*), and Scandinavian University Press (*Acta Paediatrica Scandinavica* and related journals), which account for about 320 of my 3200 citations.

From this experience it is clear there is no uniform attitude among publishers. In the course of the many hours I spent deleting the 320 abstracts, I reflected on the great loss not only to users but also to the authors of the papers concerned. In the days when I wrote papers I would not have offered them to any publisher that, for no obvious reason, was going to deprive me of readers of merely my abstracts, my signposts to the scientific community.

My two reasons for writing are, firstly, to alert today's authors to this small minority of publishers