ment is important. If the treatment is inexpensive and safe then the test must be relatively cheap and very accurate to justify treatment not being given to everyone.

Measurement of blood pressure, although a relatively inaccurate predictor of risk for an individual,² is used cost effectively to guide decisions about treatment.³ This is because it is cheap and because the subsequent treatment (for example, with thiazide) is effective and inexpensive, while the averted disease is expensive and serious.

With regard to the prevention of osteoporosis, although the test is more expensive than measurement of blood pressure, many of the treatments are much more expensive. For example, alendronate costs about £335 per patient per year, whereas a thiazide costs less than £10. If Sheldon and colleagues' arguments were followed bone physicians could prescribe alendronate or a similar compound to women with other, weaker risk factors for fracture, such as a family history or early menopause. This, however, might result in more women taking relatively expensive pharmaceutical products. Using a bone scan to target the use of alendronate or other compounds might reduce the overall cost of treatment by preventing the treatment of some women who have clinical risk factors but high bone density.

Finally, the Aberdeen trial of screening for osteoporosis did not lead to the recommendation that half of postmenopausal women should take hormone replacement therapy. It found that half of the postmenopausal women with low bone density were taking such therapy one year after screening.⁴

DAVID J TORGERSON
Research fellow

National Primary Care Research and Development Centre,
Centre for Health Economics,
University of York,
York YO1 5DD

- 1 Sheldon TA, Raffle A, Watt I, Barlow D, Cooper C, Reeve J, et al. Department of Health shoots itself in the hip. *BMJ* 1996;312:296-8. (3 February.)
- 2 Fowler G. Prevention of cardiovascular disease. In: Fowler G, Gray M, Anderson P, eds. *Prevention in general practice*. 2nd ed. Oxford: Oxford University Press, 1993.
- 3 Johannesson M. The cost-effectiveness of the switch towards more expensive antihypertensive drugs. *Health Policy* 1994;28:1-13.
- 4 Torgerson DJ, Donaldson C, Russell IT, Reid DM. Hormone replacement therapy: compliance and cost after screening for osteoporosis. *Eur J Obstet Gynecol Reprod Biol* 1995;59:57-60.

High potency parenteral B complex vitamin preparation is still available

EDITOR,—H Seehra and colleagues report that they successfully treated Wernicke's encephalopathy after vertical banded gastroplasty for morbid obesity by giving the patient intravenous Parentrovite.¹ Unfortunately, this product was withdrawn (and subsequently discontinued worldwide) in November 1992 as a result of manufacturing difficulties. Its withdrawal (and lack of awareness of the availability of a high potency replacement parenteral B complex vitamin preparation) has led to a considerable increase in the use of oral B complex vitamins in cases in which parenteral treatment is considered to be essential—that is, in actual or suspected Wernicke's encephalopathy, malnourished patients with alcohol dependence, and patients undergoing alcohol detoxification in hospital.^{2,3}

Clinicians should be aware that oral and parenteral B complex vitamins are not substitutable for each other in these patients as oral vitamin absorption is low and variable.⁴ In addition, a high gradient between plasma and central nervous system vitamin concentrations is required to restore B vitamin concentrations in the central

nervous system as rapidly as possible and to prevent irreversible organic brain damage.⁵

PHILIP HALLWOOD
Medical director

Link Pharmaceuticals,
Codicote,
Hertfordshire SG4 8TR

- 1 Seehra H, MacDermott N, Lascelles RG, Taylor TV. Wernicke's encephalopathy after vertical banded gastroplasty for morbid obesity. *BMJ* 1996;312:434. (17 February.)
- 2 Taylor D, Marshall J. Effect of withdrawing Parentrovite: a national survey of parenteral thiamine use. *Psychiatric Bulletin* (in press).
- 3 O'Brien P. Parenteral vitamin therapy in alcoholics. *Psychiatric Bulletin* 1995;19:788.
- 4 Thomson AD, Baker H, Leevy CH. Patterns of 35 S-thiamine hydrochloride absorption in the malnourished alcoholic patient. *J Lab Clin Med* 1970;76:34-45.
- 5 Thomson AD, Heap LC, Shaw GK. Alcoholic brain damage. *J R Soc Med* 1994;87:725-6.

Managing the increased workload in anticoagulant clinics

Computerised decision support is valuable

EDITOR,—F C Taylor and colleagues describe a method of managing the increasing number of patients seen in anticoagulant clinics by reducing the number of contacts with medical staff by using a screening process.¹ They show no improvements in clinical care in terms of the percentage of time for which patients' international normalised ratio is within the target range yet conclude that this is "a suitable method for managing the increasing numbers of patients without incurring additional costs, such as buying computer dosing systems or by shifting anticoagulant services to primary care."

As it has been shown that the percentage of time for which patients' international normalised ratio is within the therapeutic range can be consistently improved by use of computer dosage support^{2,3} it could be argued that improved control resulting in fewer attendances at the clinic would be a cheaper and more effective method of managing the increasing number of patients. Computer dosing also allows rapid identification of patients whose condition is poorly controlled and whose treatment requires medical input. For example, the 50 patients with the worst results identified by computer in south Warwickshire included 15 with recurrent deep vein thrombosis, 14 of whom were taking warfarin at the time of the recurrence. Such valuable clinical information would not be routinely available to anticoagulant clinics that did not use computer support.

A multicentre study is currently being undertaken in Birmingham to assess the usefulness of computerised decision support in association with near patient testing to manage patients being treated with warfarin. Far from leading to an increase in costs as suggested by Taylor and colleagues, this method of management could lead to a considerable cost saving, and it is much preferred by patients. Taylor and colleagues suggest that adequate clinical control can be achieved with reduced medical contact. The logical conclusion from this is that clinical control can be achieved with minimal if any medical contact, and, indeed, in south Birmingham patients attending the hospital based anticoagulant clinic see a doctor only on their first visit.

Several models of care will need to be available for patients receiving warfarin, and these will include traditional hospital based clinics, computerised decision support, and primary care clinics incorporating new technologies. It is important that these services are developed in partnership so that patients can receive person-

alised care that is suitable to both their physical health and their social environment.

D A FITZMAURICE
Lecturer in general practice
P E ROSE
Consultant haematologist
M GILBERT
Medical audit officer

Department of General Practice,
Medical School,
University of Birmingham,
Birmingham B15 2TT

- 1 Taylor FC, Ramsey ME, Renton A, Cohen H. Methods for managing the increased workload in anticoagulant clinics. *BMJ* 1996;312:286. (3 February.)
- 2 Ryan P, Gilbert M, Rose P E. Computer controlled anticoagulant dose of therapeutic range. *BMJ* 1989;299:1207-9.
- 3 Polar L, Wright D, Rowlands A. Prospective comparative study of computer programmes used for management of warfarin. *J Clin Pathol* 1993;46:299-303.

Clinics led by nurse practitioners can work well

EDITOR,—F C Taylor and colleagues' solution to managing the considerable increase in workload that all anticoagulant clinics have experienced over the past few years is not radical enough.¹ Most district general hospitals do not have sufficient medical staff to contemplate consultant led or registrar led anticoagulant clinics, and the use of junior medical staff is inappropriate.²

Seven years ago we introduced a similar system to the authors', with health care assistants using a form to document changes in patients' circumstances, but we also introduced a computer system for dosing the patients. This allowed the follow up clinics to become postal clinics, which considerably reduced the medical hours required. Computerisation can work well for most patients taking warfarin. The proportion of our patients whose international normalised ratio was in the appropriate target range after these changes was 96.5%, the average interval for patients between clinics was 44 days, and only 2% of patients needed to see the clinical assistant; these figures compare favourably with those reported by Taylor and colleagues.

Two years ago the rate of referral of new patients (up to 15 a week) became impossible to cope with within existing resources. We trained nurse practitioners to manage the clinics, and doubled the number of clinics for new and problem cases, within existing financial constraints. The plan was to remove routine medical input from the clinics, except for advice on particular problem patients.

With the benefit of 18 months' experience and audit, the nurse practitioners have been an unqualified success, greatly improving the standard of service to the patients. The average interval between visits for new as well as follow up patients has improved further to 56 days, while the high percentage of patients whose international normalised ratio is within the target range has been maintained. The nurse practitioner now sees up to 20 new referrals every week and, additionally, assesses and gives guidance to some elderly patients before they leave hospital. The nurse specialists find the anticoagulant clinics rewarding³ because they are in charge of their own clinic, seeking medical advice only for problems outside their experience. With training, nurse specialists can run anticoagulant clinics as well as haematologists can.

J VAN DE PETTE
Consultant haematologist
CLAIRE MACKIE
Anticoagulant nurse specialist

Department of Haematology,
Frimley Park Hospital,
Frimley,
Surrey GU16 5UJ

- 1 Taylor FC, Ramsey ME, Renton A, Cohen N. Methods for managing increased workload in anticoagulant clinics. *BMJ* 1996;312:286. (3 February.)