Letters

Self monitoring of glucose by people with diabetes

Urine testing provides only historical information

EDITOR—Marilyn Gallichan raised some important issues concerning self monitoring of blood glucose concentrations but greatly underestimated its benefits in terms of health, safety, and quality of life to patients taking insulin.[1] The hypoglycaemic potential of insulin is a constant worry to all patients with insulin dependent diabetes, but hypoglycaemia can be confirmed only if blood is tested. Urine testing will not help.

The comparison between the merits of testing blood glucose with those of testing urine glucose missed the point that the two tests provide quite different information and should not be regarded as old versus new or accurate versus inaccurate. Urine tests are relatively cheap and easy to use, but their interpretation for patients with insulin dependent diabetes requiring tight control is difficult because glucose can often be found in the urine at the same time as the patient has hypoglycaemia.

While urine testing can be helpful, patients need to be taught that it provides historical information. Thus data from urine tests on one day can be used to predict the next day's treatment and dietary and activity schedules but should never be used to determine current action.

Blood testing is of benefit not only when unexpected variations occur but also for those patients who are prepared to perform tests in order to "see" and thus learn about how their metabolism deals with individual meals and activities. Exercise has profound effects, particularly on those patients who are taking insulin. Blood testing before and after sport is essential if hypoglycaemia is to be avoided.

Gallichan quotes a patient who said "I do not worry about my day to day control provided the [haemoglobin A_1] readings stay good"; this is a flawed philosophy. Many patients have only annual measurements of haemoglobin A_1. Is it acceptable for patients to tolerate poor control (which may have been present for a year) when they could have been alerted much earlier if blood testing had been started?

Gallichan also says that "only a relatively small proportion of [patients with insulin dependent diabetes] have the need or desire to make frequent adjustments to their insulin dosage." This population numbers about 170 000, so a small proportion may number many thousands. It would be a shame to see a decrease in self monitoring of blood glucose as a consequence of misconceptions.

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1 Gallichan M. Self monitoring of glucose by people with diabetes: evidence based practice. BMJ 1997;314:964-7. (29 March.)

Self monitoring improves quality of life and prognosis of people with diabetes

EDITOR—Marilyn Gallichan discusses self monitoring of blood glucose concentrations by people with diabetes.[1] Through discussions with people with insulin dependent diabetes we have arrived at four recommendations for monitoring blood glucose.

- Measure your blood glucose if knowing it will help you to solve a specific problem—for example, when suspecting hypoglycaemia, when ill, or before driving.
- Many patients find it useful to measure blood glucose once or twice daily, especially during holidays, during and after exercise, during and after alcohol intake, etc. If receiving intensive treatment, you will find that measuring blood glucose before every meal to adjust the insulin dose gives freedom in eating and excellent glycaemic control.
- When your regimen is being changed because the haemoglobin A_{1c} concentration is high or because of changes in your lifestyle, frequent blood glucose monitoring is advisable.
- In women with diabetes, frequent monitoring before and during pregnancy is essential to achieve normoglycaemia.

It is essential that blood glucose monitoring is done because the person with diabetes wants to know the results and not because the doctor has asked him or her to do it. Glucose monitoring will alert patients when the treatment is not effective, and our guidelines often also apply to patients with non-insulin dependent diabetes who are treated with insulin. One of us has lived with insulin dependent diabetes for almost 45 years and enjoys a life free from complications.

Gallichan informs us that, in 1995, £42.6m was spent on home monitoring in Britain. If a price of 25p a test is assumed, this sum paid for 170 million glucose strips. In Britain at least 600 000 people have diabetes, which means that 283 tests could be performed per person with diabetes each year, or one test every one to two days. If the fifth of patients with diabetes who are insulin dependent are the only ones who should test their blood glucose this would mean that around 1400 tests a year could be performed, or three to four tests daily. These numbers of tests are not too far from the recommendations given by Gallichan.

Home blood glucose monitoring is a cost effective, simple, and relatively cheap tool for improving the quality of life and the prognosis of all people with insulin dependent diabetes and many with non-insulin dependent diabetes. All controlled trials showing the beneficial effects of near normalisation of glycated haemoglobin concentrations have used self monitoring as an important tool.[2-4] It is for the sceptics to prove that tight glycaemic control maintained over years can be achieved by other means.

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Advice to authors

We receive more letters than we can publish: we can currently accept only about one third. We prefer short letters that relate to articles published within the past four weeks. We also publish some "out of the blue" letters, which usually relate to matters of public policy.

When deciding which letters to publish we favour originality, assertions supported by data or by citation, and a clear prose style. Letters should have fewer than 400 words (please give a word count) and no more than five references (including one to the BMJ article to which they relate); references should be in the Vancouver style. We welcome pictures.

Letters, whether typed or sent by email, should give each author's current appointment and full address. Letters sent by email should give a telephone and fax number when possible. We encourage you to declare any conflict of interest. Please send a stamped addressed envelope if you would like to know whether your letter has been accepted or rejected.

We may post some letters submitted to us on the world wide web before we decide on publication in the paper version. We will assume that correspondents consent to this unless they specifically say no.

Letters will be edited and may be shortened.

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Self monitoring is vital for people with impaired awareness of hypoglycaemia

EDITOR—In her article questioning the value of self monitoring of blood glucose for diabetic management, Marilyn Gallichan states that "newly diagnosed patients of all ages are usually taught to measure their blood glucose concentrations."[1] This presumably describes her local clinic policy and is unlikely to represent national practice. In our clinic, patients are generally taught routine blood glucose testing only if they have insulin treated diabetes or are likely to require treatment with insulin in the foreseeable future. Most patients with non-insulin dependent diabetes monitor urine glucose tests, which suffice when glycaemic control is stable. However, the main premise of Gallichan's article, which is based on a few, limited, clinical studies, is that self monitoring of blood glucose is not superior to urine testing because it does not improve glycaemic control and incurs unnecessary cost. This undervalues one of the principal tenets of blood glucose testing—namely, the early detection, and confirmation, of hypoglycaemia.

Hypoglycaemia is the side effect of insulin treatment that patients fear most and is the main factor limiting the maintenance of good glycaemic control. The diabetes control and complications trial showed an inverse correlation between glycated haemoglobin concentration and the frequency of severe hypoglycaemia.[2] Strict glycaemic control and long duration of insulin dependent diabetes are both associated with the development of impaired awareness of hypoglycaemia, causing a sixfold increase in the frequency of severe hypoglycaemia.[3] It is vital for people with impaired awareness of hypoglycaemia to monitor blood glucose frequently to detect asymptomatic biochemical hypoglycaemia and so take appropriate action.

The risk of nocturnal hypoglycaemia, which is often asymptomatic, is greatly increased when blood glucose at bedtime is <6.0 mmol/l.[4] All patients treated with insulin should therefore be encouraged to estimate their blood glucose before going to sleep. Furthermore, a knowledge of the prevailing blood glucose concentration is important in everyday situations where hypoglycaemia could be dangerous, such as driving, and during some employment and sporting activities.

Blood glucose monitoring is essential in children with diabetes, in whom daily carbohydrate intake and physical exertion often vary considerably and the development of hypoglycaemia may be unpredictable. It is only by frequent monitoring of blood glucose that parents can determine an appropriate daily dose of insulin and avoid low blood glucose concentrations.

We agree that diabetic patients should not be taught self monitoring of blood glucose indiscriminately, but its prophylactic value in avoiding severe hypoglycaemia is fundamental to the management of insulin treated diabetes.

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Patients with non-insulin dependent diabetes should monitor urine rather than blood glucose

EDITOR—Marilyn Gallichan's article about abuses of blood glucose self monitoring was overdue.[1] We face the same problem in Germany. Polls and Boehringer Mannheim's sales figures indicate that in one year (1994) about 305 million blood glucose strips were prescribed, costing about DM 450m (£169m); this was paid by the sick funds. About half of these strips were prescribed to patients with non-insulin dependent diabetes (table), and this proportion is increasing.

We have followed up 97 patients with non-insulin dependent diabetes, who had to be changed from tablet to insulin treatment and who had participated in a teaching programme emphasising self monitoring of blood glucose.[2] After two years their haemoglobin A_{1c} concentration was around 9%, which is equivalent to an average blood glucose concentration at the renal threshold of about 8-12 mmol/l. Eighty seven of the patients continued monitoring their blood glucose once or twice daily during the week before follow up examination, but only 29 had ever adjusted their insulin dose themselves. Thus self monitoring of blood glucose is neither mandatory for insulin treatment in non-insulin dependent diabetes patients nor helpful.[3]

We agree with Gallichan that self monitoring of glycosuria is more appropriate in patients with non-insulin dependent diabetes and much less costly. We dispute, however, that strips for testing urine glucose that do not indicate urine glucose concentration quantitatively are "unsuitable." By aiming at blood glucose concentrations below the renal threshold of glucose, many patients with non-insulin dependent diabetes can achieve fasting blood glucose concentrations of <15 mmol/l or freedom from hyperglycaemic symptoms.[4] Strips that indicate that the renal threshold of glucose has been passed by showing traces (0.1%) of glycosuria (Glucose P/N strips (Macherey and Nagel) or Clinistix (Bayer Diagnostics)) would thus be suitable for this large group of patients. Such strips can be extremely cheap (about 0.03 DM (1p) each[5]).

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1 Gallichan M. Self monitoring of glucose by people with diabetes: evidence based practice. *BMJ* 1997;314:964-7. (29 March.)
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5 Chantelau E. Diabetes treatment in developing countries. *Lancet* 1993;342:620.

Author's reply

EDITOR—In general I agree with the points made by the authors, and would differ only in my emphasis. I acknowledge the various well known benefits of blood glucose monitoring, but the main purpose of my paper was to highlight the problems that can arise when it is assumed that these benefits apply to the entire diabetic population. The inappropriate use of blood testing wastes resources and can cause psychological harm. To achieve the maximum benefit from self monitoring of glucose, better education of people with diabetes and their professional carers is needed.

Ernst Chantelau and Stefan Nowicki point out that Clinistix (Bayer Diagnostics) may sometimes be an adequate monitoring method if the aim is simply to detect the presence or absence of glycosuria. In Britain, however, both Diastix (Bayer Diagnostics) and Diabur-Test 5000 (Boehringer Mannheim), at 4.5p per strip, are slightly cheaper than Clinistix, at 5.5p per strip. It is therefore cheaper to perform a urine test, which offers a wider range of results.

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Estimated use of self monitoring of blood glucose in Germany, 1994

Type of diabetes	Total No of patients	% Of patients using self monitoring	No of tests/week
Insulin dependent	200 000	85	16
Non-insulin dependent, treated with insulin	620 000	53	7
Non-insulin dependent, treated without insulin	2 950 000	19	1-2

Multiple myeloma

Surgery is often more effective than analgesia for mechanical pain

EDITOR—Charles R J Singer's recent discussion of multiple myeloma and related conditions in the ABC of clinical haematology includes a radiograph of a vertebral crush fracture due to myeloma with a caption saying: "Bone pain from mechanical effects ... often necessitates long term treatment with strong analgesia."[1] It is well recognised by surgeons regularly treating such patients that the most effective solution for mechanical pain may be a mechanical one—that is, surgery. My colleagues and I have shown that this is a good option in many patients with vertebral metastases.[2] We appeal to all physicians to refer any patient with vertebral metastases to a spinal surgeon, at least for an opinion.

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1 Singer CRJ. Multiple myeloma and related conditions. *BMJ* 1997;314:960-3. (29 March.)
2 Krikler SJ, Marks DS, Thompson AG, Merriam WF, Spooner D. Surgical management of vertebral neoplasia: who, when, how and why. *Eur J Spin Surg* 1994;3:342-6.

Surgical stabilisation often provides good pain relief

EDITOR—There are two aspects to the management of multiple myeloma: treatment of the disorder and palliative management of secondary complications such as pathological fracture or spinal instability. This second topic has not been fully covered in the article by Charles R J Singer.[1]

It is not possible to advise on treatment purely from looking at radiographs since there might be other factors which influence treatment. However, the patient with multiple fractures of the humerus shown in the first radiograph might have received better and more rapid pain control from internal stabilisation of the entire humerus, provided that he or she was otherwise fit. The patient with severe back pain, whose radiograph of the spine was shown second in the article, probably would have obtained more rapid and better pain relief from spinal stabilisation. It was noted in the caption that the bone pain necessitated "long term treatment with strong analgesia despite response to chemotherapy."[1] Surgical stabilisation of such lesions often gives the patient total pain relief and may obviate the need for analgesics.

O'Donoghue et al reviewed 269 women with breast cancer who had developed bone metastases.[2] They identified 82 episodes of structurally significant bone destruction in 47 women. The radiographs shown in the review by Singer are of lesions which show structurally significant bone destruction, and the same principles apply to the management of such lesions in patients with myeloma as those in patients with skeletal metastases from breast cancer.

O'Donoghue et al concluded that a clinical review by an orthopaedic surgeon would have been appropriate in 89% of episodes but was sought in only 46%.[2] Surgery would have been feasible for 65% of the episodes of structurally significant bone destruction but was carried out in only 31%. Bracing would have been appropriate in 40% of cases but was provided in only 18%. They also found that there was a significantly longer symptom free survival in patients whose lesions were treated with surgery plus radiotherapy compared with those whose lesions were treated with radiotherapy alone, as well as a significantly lower incidence of symptom recurrence and a greater survival.

Much has been written about the orthopaedic management of pathological fractures and spinal instability, including chapters in the *Oxford Textbook of Oncology*[3] and the *Oxford Textbook of Palliative Medicine,*[4] yet patients are still being inadequately treated. Why has oncological education failed so miserably with respect to the optimum management of patients with structurally significant bone destruction secondary to malignant disease?

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1 Singer CRJ. Multiple myeloma and related conditions. *BMJ* 1997;314:960-3. (29 March.)
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Catheters smaller than 24 French gauge can be used for chest drains

EDITOR—It is a pity that, in their editorial on reducing morbidity from chest drains, Jonathan Hyde and colleagues have perpetuated another medical myth.[1] Their contention that a 24 French gauge catheter is adequate for air or low viscosity effusions seems to ignore much of the evidence that pleural collections, including empyemas, can be successfully drained with much smaller catheters.[2 3] It is my experience that low viscosity fluid drains adequately through 8 French catheters. Although I am not aware of any study showing that smaller catheters are associated with reduced morbidity, such catheters are more comfortable for patients and better tolerated. Perhaps the authors do not refer to the use of smaller catheters because many of the reports of their use appear in the radiological literature. In this context the authors also failed to acknowledge the value of ultrasonography when the site is selected for placement of the drain. Although not a prerequisite for the insertion of drainage catheters, ultrasonography can identify loculation within cavities, differentiate pleural thickening from fluid, detect underlying pleural masses, and localise the hemidiaphragm. This information will aid the safe insertion of chest drains, which was the aim of the editorial.

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Screening for prostate cancer

Randomised trials of treatment in early disease are important

EDITOR—The debate about the desirability of screening for prostate cancer as outlined in the editorial by Steven H Woolf has centred on the ability to detect, and then cure, localised disease.[1] Early detection is certainly possible, albeit at a cost. Whether early radical treatment can cure the cancer remains to be seen.

Cure is not the only objective of cancer care, however. Prolongation of life and improvement in the quality of life in the absence of cure are also valuable. In the case of prostate cancer, improving the quality of life translates into delaying the appearance of metastases and local symptoms and avoiding iatrogenic morbidity. Radical surgery or radiotherapy may delay metastatic spread and retard localised disease but we do not yet know. Since the recent publication of a randomised trial by the Medical Research Council in the *British Journal of Urology*,[2] however, the statement that there is no evidence that early detection improves outcome needs to be expanded on.

Early androgen deprivation improves outcomes for patients with locally advanced (T2-4) or metastatic disease. The Medical Research Council trial found improvements in all cause mortality, disease specific mortality, rate of local and metastatic progression, and catastrophic complications (spinal cord compression, ureteric obstruction, and pathological fracture). Benefits were measurably greater for patients with locally advanced disease who did not have demonstrable metastases than for those with established metastases. Similar results had been suggested but not established conclusively by earlier work.[3 4]

The possibility now arises that screening might be justified by the early detection of non-curable disease. Hypothetically, the reason for wanting to detect localised prostate cancer might be to watch it until it becomes advanced (when an intervention of proved effectiveness is available), rather than to attempt a cure by radical prostatectomy or radiotherapy (neither of which has good evidence to support it). The problem of psychological morbidity resulting from early

diagnosis followed by inaction would remain. There would also be problems with iatrogenic morbidity caused by androgen deprivation if this were instituted very early and maintained for many years. Both of these things would offset the benefits of slowing disease progression and lengthening life. Caution will also be necessary in interpreting the results of randomised trials of screening currently under way in the United States and Europe; these include aggressive, mainly surgical, treatment for localised disease. A potential alternative explanation for a positive result might be the earlier institution of adjuvant or palliative hormonal treatment. The case for randomised trials of treatment in early disease remains strong, despite opposition from many urologists.

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1 Woolf SH. Should we screen for prostate cancer? *BMJ* 1997;314:989-90. (5 April.)
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Early screening is important despite lack of data from trials

EDITOR—In his editorial Steven H Woolf states (*a*) that routine screening for prostate cancer is unwarranted because there is no good evidence that treatment improves outcome, (*b*) that the complications of treatment may offset the potential benefits, and (*c*) that the decision to screen requires an assessment of the benefits and harms to society.[1]

However, the balance of evidence is shifting to indicate that early detection and treatment of prostate cancer improves outcome. The National Cancer Institute recently reported a 6.3% overall decline in mortality from prostate cancer from 1991 to 1995.[2] White men showed greater decline in mortality than did black men, who less frequently seek screening and treatment. These decreases are almost certainly due to screening on the basis of prostate specific antigen and to effective treatment.

A recent population based analysis of 59 876 men treated for localised disease (from 1983 to 1992) showed that 10 year survival rates were higher in men with intermediate or high grade cancer who were treated by prostatectomy than in those who were treated with radiotherapy or managed conservatively.[3] This strongly suggests that prostatectomy improves survival.

Recent studies show that, although patients actively treated for cancer detected by screening for prostate specific antigen had more sexual dysfunction than untreated patients, there were no differences in urinary dysfunction, general health, emotional well-being, or satisfaction with treatment.[4] The overall quality of life of surgically treated patients was comparable to that of the general population.

The evidence based approach considers screening from the societal perspective rather than the perspective of the patient destined to develop prostate cancer. Hard-line insistence on the proof of the benefits of screening unrealistically and callously sets the bar too high for the interests of patients with prostate cancer and the doctors responsible for their health care. Not screening would result in unnecessary suffering and a painful death for countless men before the evidence to convince hardliners that early detection is beneficial is in hand. Current randomised clinical trials are fatally flawed, and they are unlikely to provide definitive data.

Early detection and treatment remain goals in the approach to most cancers even though the benefits have not been formally established for many cancers. Given the magnitude of the problem, doctors should offer screening to men who may benefit from the opportunity for cure. A balanced assessment of the evidence suggests that in appropriately selected men screening will allow curative treatment of presymptomatic cancers that otherwise would cause substantial morbidity and mortality.

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Trials of streptokinase in stroke depend on early, accurate diagnosis

EDITOR—Paul Dorman and Peter Sandercock's survey of access to computed tomography provides scant reassurance to those with experience of trials of streptokinase in acute stroke.[1] Randomised controlled trials (involving over 1200 patients) have provided ample evidence of the hazard of streptokinase in stroke. The availability of computed tomography is only a minor factor in the safe conduct of further trials. Despite computed tomography being carried out before treatment, intracerebral haemorrhage induced by streptokinase caused 50 additional early deaths per 1000 patients in three recent randomised controlled trials. While survivors benefited, one may question whether doctors' duty to individual patients is compatible with risking a repeat of this experience in larger numbers.

How useful is computed tomography in hyperacute stroke? It excludes intracerebral haemorrhage but is not a diagnostic test for ischaemic stroke. Many scans are normal within six hours. Unlike with electrocardiography in chest pain, no widely available substitute exists for clinical diagnosis. Diagnosis is incorrect, however, in a fifth of patients seen in hospital emergency rooms[2] and even higher among patients seen by paramedical staff or in primary care. Giving streptokinase to patients who have not had a stroke can be avoided only if staff experienced in diagnosing stroke are immediately available.

The thrombolysis in acute stroke pooling project and others have identified the risk of haemorrhage induced by treatment as being greatest when subtle computed tomographic signs of extensive cerebral infarction are evident at presentation.[3 4] These signs are not yet recognised widely, and substantial disagreement on the interpretation of early computed tomograms has occurred even among specifically trained neuroradiologists in trials.[4] Few British centres have staff with experience of interpreting computed tomograms in hyperacute ischaemic stroke.

The wide availability of computed tomography and the reported willingness to use it are welcome but are inadequate for further trials. Many issues regarding streptokinase in stroke remain unresolved, but further trials cannot be justified unless they avoid the known dangers. A prerequisite is acute stroke services whose infrastructure includes the 24 hour availability not just of computed tomography but of stroke physicians and radiologists with diagnostic skills in hyperacute stroke.

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1 Dorman P, Sandercock P. Access to computed tomography in British accident and emergency departments. *BMJ* 1997;314:440-1. (8 February.)
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Tuberculosis treatment is expensive for patients in developing countries

EDITOR—I was disappointed to read of the attitude of the World Health Organisation and others to the use of directly observed treatment short course (DOTS) for tuberculosis.[1] Such treatment is described as a cheap and effective public health breakthrough. The failure of the method is blamed on doctors explicitly by Sir John Crofton and implicitly by the director of the World Health Organisation.

Tuberculosis is a major health problem in Kenya. Of the 70 medical beds currently under my care, over one fifth are occupied by patients with this disease. Patients are

more likely to complete treatment for economic reasons than for any other reason. Jessica Westall quotes the cost of directly observed treatment short course at $11 (£6.90) per patient for a six month supply of medicines (rough current cost in Kenya).[1] This ignores other costs that patients must meet: that of inpatient care if required at $4 daily, travel to a designated centre at $1 daily, and the cost of syringes and needles for streptomycin at $10 monthly. For patients who are subsistence farmers, or unskilled labourers earning $2 daily, these amounts are not minimal.

The epidemic of tuberculosis in the developing world cannot be blamed on "ignorance and complacency." Tuberculosis affects the least affluent people in society: those who have the least resources to seek and complete treatment. Directly observed treatment short course in developing countries already uses drugs and protocols that are unlicensed and unacceptable in developed countries. Few individuals would be so ignorant that they would not accept the best medical care if it were available and affordable.

If the world's developed countries cannot give financial support to low income countries for tuberculosis treatment from motives of compassion and justice, perhaps fear of a worldwide epidemic might move governments and non-government organisations to act.

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1 Westall J. Tuberculosis levelling off worldwide. *BMJ* 1997;314:921. (29 March.)

Alcohol consumption may influence onset of the menopause

Editor—Patrick McElduff and Annette J Dobson have shown an apparent protective effect of alcohol consumption on coronary events.[1] We have reported two studies which seem to show that alcohol consumption is associated with a delay in menopausal development.[2 3] In a cross sectional survey of 2240 women aged between 45 and 49 we found a significant association between alcohol consumption and current menopausal status (defined as six months of amenorrhoea): women who consumed the least alcohol were more likely to be postmenopausal.[2] Controlling for possible confounding factors, such as social class or smoking status, did not materially alter the association. Two years later we followed up all the premenopausal women, and we noted that those women who drank the least alcohol were more likely to have become postmenopausal.[3] Again, this association remained after adjustment for potential confounding factors. The table summarises the results of the univariate analyses.

Our data suggest that alcohol may have a role in menopausal development and that this association merits further research; it may be a cofactor involved in the protective effect of alcohol on cardiovascular risk in women.

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1 McElduff P, Dobson AJ. How much alcohol and how often? Population based case-control study of alcohol consumption and risk of a major coronary event. *BMJ* 1997;314:1159-64. (19 April.)
2 Torgerson DJ, Avenell A, Russell IT, Reid DM. Factors associated with the onset of menopause in women aged 45-49. *Maturitas* 1994;19:83-92.
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Association between alcohol consumption and onset of the menopause

	% (No) of postmenopausal women	
Amount of alcohol consumed	**Cross sectional study[2]**	**Prospective study[3]**
At least one drink a day	12% (12)	6% (3)
One drink most days but not every day	17% (16)	9% (5)
One drink 2 or 3 days a week	14% (67)	18% (48)
One drink 2 or 3 times a month	16% (49)	22% (35)
One drink about once a month	17% (25)	19% (17)
Only on special occasions (eg Christmas)	13% (41)	25% (23)
Never	27% (48)	25% (21)
Multivariate odds ratio* (95% CI)	0.86 (0.79 to 0.94)	0.91 (0.84 to 0.98)

*Adjusted for smoking, social class, parity, and age; reference group = those who never drank.

Chronic venous ulcer

Some references may be misleading

Editor—Niren Angle and John J Bergan are to be congratulated in their stated pursuit of evidence based information in the treatment of chronic venous ulcer.[1] However, in what is necessarily a brief summary of the topic, I must take issue with their choice of reference in the paragraph on excision and skin grafting.[2] Their only reference illustrating the success in covering venous ulcers using split thickness skin grafting is a retrospective review of 26 patients treated over three years. In only 10 of these patients was the aetiology thought to be venous insufficiency. Despite the small number of patients, healing rates are given in percentages and a rate of only 20% was achieved for venous ulcers. This study neither fulfils the criteria described in the methods section of the review nor provides evidence to support the use of skin grafting in the treatment of chronic venous ulcer.

The next paragraph talks about excision and free flap coverage. An unreferenced statement indicates that a free tissue transfer provides its own venous system containing "hundreds of competent valves." In a free tissue transfer where the venae comitantes of the flap are used for the microvenous anastomosis, the ability of small valves in a vein of 2-3 mm diameter to withstand the pressure generated by a column of blood from the right atrium through the abdominal and pelvic veins down to the dysfunctional limb veins is questionable.

Finally, with regard to maintaining the healing of chronic leg ulcers (whether achieved by conservative or surgical means), even in a study reporting one of the best healing rates in published reports, the recurrence rate in 111 compliant patients with healed ulcers using compression stockings was 22% at one year.[3] The rate of recurrence of ulceration in non-compliant patients with healed ulcers was 45%.

Even though no clinical review can be comprehensive by definition, I think that the above points should be drawn to the attention of anyone reading this review.

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1 Angle N, Bergan JJ. Chronic venous ulcer. *BMJ* 1997;314:1019-23. (5 April.)
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Hyperbaric oxygen treatment is a cost effective option

Editor—We were surprised at the dismissal of hyperbaric oxygen treatment by Niren Angle and John J Bergan in their clinical review article on chronic venous ulceration.[1] They referred to a review article by Tibbles and Edelsberg,[2] which quoted a study by Hammarlund and Sundberg on the healing of chronic leg ulcers.[3] This study found a significant improvement when chronic leg ulcers were treated with hyperbaric oxygen.

The mechanism for ulceration is described as the distal adherence, trapping, and activation of leucocytes which causes tissue destruction. In an earlier editorial Kindwall stated that hyperbaric oxygen treatment reduces white cell adhesion to capillary walls after ischaemic insult.[4] Kindwall also described how hyperbaric oxygen stops lipid peroxidation—by sparing cell membranes; reducing oedema in post-ischaemic muscle through the preservation of adenosine triphosphate; increasing red cell flexibility and improving white cell killing of aerobic bacteria; and, probably more importantly, stimulating capillary and collagen formation. This explains the effec-

tiveness of hyperbaric oxygen as treatment for chronic venous ulceration.

We recognise that chronic leg ulceration has different causes and that treatment needs to be focused on the cause. However, whatever the cause, at the cellular level the mechanism of tissue damage is the same and is related to reduced oxygen delivery.

In the double blinded study by Hammarlund and Sundberg, patients with chronic leg ulcers but without diabetes or large vessel arterial disease showed a 36% reduction in ulcer size at six weeks after a course of hyperbaric oxygen compared with a 3% reduction in the control group treated with hyperbaric air.[3]

Treatment of leg ulcers is expensive. It costs an estimated £5000 per patient for three months of conventional treatment.[5] Augmentation of conventional treatment with hyperbaric oxygen reduces ulcer healing time and should allow earlier, successful skin grafting of clean wounds. A course of 30 treatments of hyperbaric oxygen in the adjunctive management of chronic venous ulcer in the United States would cost about $9000.[2] In British treatment units we estimate, using our own business plan, that these costs could be reduced by as much as half.

We believe that the use of hyperbaric oxygen treatment as an adjunct in the treatment of chronic venous ulceration is cost efficient. It is denied patients because of a lack of medical hyperbaric oxygen facilities and an ignorance of its value by medical practitioners.

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1 Angle N, Bergan JJ. Chronic venous ulcer. *BMJ* 1997;314:1019-23. (5 April.)
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Causes are often multifactorial and a holistic approach is required

EDITOR—Niren Angle and John J Bergan do a great service in underlining the importance of early surgical intervention in venous ulcers, an approach we wholeheartedly endorse.[1] All too often referral to surgeons takes place when long term conservative treatment has failed or when ulceration recurs, as happens in nearly all conservatively treated ulcers.[2] The result is an intractable and often large ulcer embedded in a cuirass of chronic granulation tissue, which makes any form of treatment difficult.

We wish to qualify some aspects of the management of chronic venous ulcer outlined by Angle and Bergan in relation to experience and practice in the United Kingdom, using the population of patients in south east and central Scotland as an example.

Venous disease is but one, albeit the largest, component of a range of diseases associated with chronic leg ulcers. Arterial insufficiency occurs in 20% of the population aged over 60.[3] Rheumatoid disease, diabetes, and many other chronic problems are common.[2 4 5] Chronic leg ulcers, including the venous variety, therefore have multifactorial causes in nearly all cases. Particularly important are disorders which interfere with venous function by their impact on the calf pump mechanisms. A high proportion of patients with leg ulcer attending our clinics are obese or have gait disorders, arthropathies, neuropathies, foot deformities, and are frail; furthermore, they have various physical, social, and psychological factors contributing to chronic limb dependency or the inability to walk enough to activate the calf pump mechanism.

The conclusions that we draw from this experience are that a holistic approach to the treatment of patients with chronic leg ulcer is necessary; that every patient should be referred at an early stage in the disorder for diagnostic screening in a specialist centre; that associated problems should be corrected as far as possible; and that venous insufficiency should be corrected promptly when it is a predominant factor, as advocated by Angle and Bergan.

We believe, however, that the indications for and benefits of certain surgical techniques—including perforator interruption—need to be evaluated in controlled trials.

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Authors' reply

EDITOR—We were pleased by the response to our article on chronic venous ulcer.

R P Cole is quite correct that our reference was an unfortunate choice. However, at the University of Massachusetts, Worcester, Dunn et al have proved convincingly that free flap transfer to a well prepared bed which includes wide excision of scar tissue, down to and including fascia, does indeed convert that area of the leg to normal venous physiology while the remainder of the leg continues to have severe venous dysfunction.[1] Cole makes our point that simple healing of venous ulcer is not the ultimate goal. Prevention of recurrence should be the objective of treatment of severe venous insufficiency.

While we appreciate the point made by Andrew W McEwen and Mark B Smith about the use of hyperbaric oxygen, we are sure that they would agree that this modality of ulcer treatment has made virtually no impact either in the United Kingdom or in the United States. Regardless of the findings of their interesting reference, it is clear that doctors treating venous ulceration have found little use for hyperbaric oxygenation unless they are involved with an institution that supports such an expensive treatment.

Finally, we greatly appreciate the view expressed by the Edinburgh surgeons C V Ruckley, A W Bradbury, and W Stuart. We continue to look to them for leadership in the diagnosis and treatment of severe venous insufficiency.[2] Their plea for controlled trials, if heeded, will provide doctors caring for patients with venous insufficiency with Level 1 evidence based information, which will greatly improve the care of patients with terribly disabling venous problems.

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1 Dunn RM, Fudem GM, Walton RL, Anderson FA Jr, Malhotra R. Free flap valvular transplantation for refractory venous ulceration. *J Vasc Surg* 1994;19:525-31.
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Counselling should be provided before parents are told of presence of ultrasonographic "soft markers" of fetal abnormality

EDITOR—Martin Whittle alluded to the anxiety caused to parents after the disclosure of a "soft marker"—that is, "a minor ... structural change which may indicate a risk of serious fetal anomaly but ... is probably inconsequential"—following a routine ultrasound scan.[1] The anxiety caused can be both considerable and long lasting, as shown by the following case.

A couple were referred for amniocentesis during the wife's second pregnancy on the grounds of maternal age (35 years) and anxiety. Their 3 year old son played happily during the consultation. When his wife and son had left the room after the procedure the husband confided that they had opted for amniocentesis to avoid having another "brain damaged" child. On questioning it became apparent that an ultrasound examination before their son's birth had shown a choroid plexus cyst. Despite having a healthy child, the husband remained convinced that this cyst would cause his son to be disabled.

The psychological sequelae of false positive results of routine prenatal or neonatal screening tests are considerable; numerous studies have reported high levels of parental anxiety and worry even after

subsequent normal test results.[2] Worries have been reported up to 12 months after false positive results of screening.[3]

In the case of ultrasound screening, these psychological costs may be exacerbated by the visual imagery which is an integral part of the procedure.[4] It is not easy to convey to couples the idea that an indicator of abnormality that can be visualised is probably inconsequential. Women whose fetuses are deemed to be at an increased risk of chromosomal abnormality on the basis of an ultrasound examination might interpret this result quite differently to those receiving a report of a similar risk as a result of maternal serum screening. We suggest that specialist counselling methods need to be developed, and we support the report of the Royal College of Obstetricians and Gynaecologists highlighting the fact that further research is needed into methods of prescreening counselling.[5]

The case above not only highlights a failure of counselling at the appropriate time but also raises the question of how often the disclosure of the presence of a soft marker does more harm than good. Such cases have led us to stop reporting isolated choroid plexus cysts in the fetuses of younger women as we believe that the anxiety caused to these women far outweighs the potential gain.

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Harm resulting from screening is likely to be high where prevalence of breast cancer is low

Editor—Matti Hakama and colleagues evaluated an organised programme of screening for breast cancer in Finland.[1] They report a 24% reduction in mortality from breast cancer due to screening, which, as they point out, is close to the protective effect reported in the early randomised controlled trials. In their conclusions they imply that having a breast cancer screening programme is worth while and a good use of health service resources.

Such a conclusion must, however, be treated with caution. In this study the authors calculate that about 200 000 women were screened to prevent 20 deaths from breast cancer. They also quote other benefits of screening but make no mention of the well documented disadvantages.[2] The most serious potential harm is that attributable to a false positive result, which can occur in about 14% of those screened.[3] Thus the 20 deaths prevented must be balanced against the anxiety, trauma, and potential operative complications encountered by an estimated 28 000 women with a false positive result. To this can be added the cost to the health service of the investigations that these women will have had.

Hong Kong does not yet have an organised mammography screening programme. Since the prevalence of breast cancer is relatively low compared with that in other countries,[4] the harm resulting from screening is likely to be high. This factor must also be considered when a public health decision is made on whether to introduce a screening programme.

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1 Hakama M, Pukkala E, Heikkila M, Kallio M. Effectiveness of the public health policy for breast cancer screening in Finland: population based cohort study. *BMJ* 1997;314:864-7. (22 March.)
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Minimising factitious hyperkalaemia

Samples should be centrifuged after collection in general practices

Editor—The advice given by J D Johnston and S W Hawthorne on how to minimise factitious hyperkalaemia in blood samples from patients in general practice is misleading and potentially dangerous.[1] We agree that samples should never be refrigerated, but it is not safe to assume that plasma potassium concentrations will remain unchanged when samples are left at room temperature. One of us (PWM) showed that in hot weather potassium concentrations may be falsely low in the first few hours after collection if blood samples are not separated.[2] Large differences in changes in potassium concentrations during storage can occur, depending on time and temperature.[2 3] It is almost impossible to be sure that any potassium concentration measured in a blood sample from a general practice is correct unless the sample is separated within one hour. Though it is easy to disregard abnormal results—some of which will actually be correct—the main problem is pseudonormokalaemia in patients who truly have abnormally high or low potassium concentrations. This is more than "an annoying trait"[1] —it is potentially dangerous. Unless samples remain at a constant 23°C the only satisfactory way to ensure correct results in samples from patients in general practice is to centrifuge samples in gel separator tubes.[2] This has been implemented in Wakefield, where all practices served by the laboratory at Pinderfields General Hospital have been equipped with a benchtop centrifuge costing about £500 and staff have received appropriate training. We believe that the initial capital outlay is justified by the improved quality of results and, therefore, patient care.

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1 Johnston JD, Hawthorne SW. How to minimise factitious hyperkalaemia in blood samples from general practice. *BMJ* 1997;314:1200-1. (19 April.)
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Centrifuging samples may help prevent false readings

Editor—After reading J D Johnston and S W Hawthorne's letter on problems with factitious hyperkalaemia in blood samples received from general practices,[1] our practice audited serum potassium concentrations in samples analysed during the past calendar year. We found that in 74/82 (90%) of samples potassium concentration was below 5.0 mmol/l (normal range 3.5-5.0 mmol/l); and in 8/82 (10%) of samples potassium concentration was raised, seven of these (87%) falling into the 5.0-5.5 mmol/l range.

There is a difference between our figures and the figures quoted in Johnston and Hawthorne's letter, although this may not be significant because of the different base numbers. It remains of interest, however, given that our mean transport time to the laboratory was about 34 hours. The reason for the improvement over the London results is that, like many rural doctors, we centrifuge our own samples on site. This normally happens within 45 minutes of taking the blood. If laboratories have legitimate concerns about false hyperkalaemia readings they should consider helping practices invest in centrifuges.

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1 Johnston J, Hawthorne S. How to minimise factitious hyperkalaemia in blood samples from general practice. *BMJ* 1997;314:1200-1. (19 April.)

HIV positive doctors deserve support

Editor—We were disturbed by the reports that Dr Patrick Ngosa had been struck off the medical register for refusing to take an HIV test and continuing to work after learning that his former lover was HIV positive.[1-3] We would like to raise two points of concern. Firstly, was Dr Ngosa treated in a reasonable way? He was portrayed as an irresponsible doctor who put his own interests before the safety of his patients. Is that really the case, or did he react as many of us would have done in

the same circumstances? None of the articles examined the support and counselling available to Dr Ngosa or other HIV positive doctors. Are such services available? Do they consider issues such as job security, retraining opportunities, and confidentiality?

Secondly, did the General Medical Council respond in a rational or emotional manner? What exactly is the risk posed to patients by an HIV positive surgeon? How does the risk compare with other risks unrelated to HIV infection? Is it safer to be operated on by a competent HIV positive surgeon or by an incompetent HIV negative one? The response of the General Medical Council seems to have been a vain attempt to appease the hostile, tabloid press. Patients' safety could have been ensured without removing Dr Ngosa's name from the medical register.

We agree with Richard Smith that we need to move from a culture that encourages doctors to hide distress and difficulties to one in which we learn to share them and ask for help. We wonder if this ruling is a step in the right direction.

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Support and treatment of serious comorbidity also improve survival in breast cancer

Editor—In their analysis of the prognosis of breast cancer diagnosed between 1982 and 1989 Diane Stockton and colleagues found a significant improvement in overall survival, which disappeared when adjustments were made for stage.[1] Because of the minor stage-specific improvement they concluded that the better overall survival over time was mainly owing to earlier detection, with better treatment having only a small impact. They state that similar results, showing no improvement in prognosis with increased use of treatment modalities, were found in the south east Netherlands.[2] This, however, is a misinterpretation of the results of our study, reporting the survival of patients with breast cancer diagnosed between 1970 and 1984 in south east Netherlands.

In that study we compared the relative survival rates of women with breast cancer diagnosed in 1970-4, 1975-9, and 1980-4. In multivariate analysis we adjusted for age (five groups) and stage (four groups). Relative survival greatly improved overall, and also after adjustment for age and stage. In non-metastatic disease, five year relative survival (adjusted for age and stage) improved by 30% (95% confidence interval 20% to 40%) for diagnoses made in 1975-9 versus 1970-4 or in 1980-4 versus 1975-9. This improvement was present in all age groups (adjusted for stage) and in stages I, II, and III (adjusted for age); it was not significantly different between the age or stage groups. Only in stage IV disease was there no change in prognosis.

In our region an improvement in stage specific survival from breast cancer has been observed since 1955,[3] although before 1970 we could differentiate between only three stage groups. During 1955-74, diagnosis every five years later (1960-4 *v* 1955-9, 1965-9 *v* 1960-4, or 1970-4 *v* 1965-9) improved five year relative survival (adjusted for age) in localised disease by 28% (14% to 42%), in regional disease by 7% (−1% to 15%), and in distant disease by 22% (6% to 36%).

We agree that a large part of the improvement in overall survival in both regions was owing to earlier detection of tumours and that only a small effect of tamoxifen or chemotherapy was likely.[4] However, better supportive care (including prevention of complications such as thrombosis and infections) and better treatment of serious comorbidity (present in about half of the patients) may also have improved the prognosis. Furthermore, a change in the malignancy of the tumours over time—that is, a relatively large increase in less aggressive tumours—cannot be ruled out.[5]

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1 Stockton D, Davies T, Day N, McCann J. Retrospective study of reasons for improved survival in patients with breast cancer in East Anglia: earlier diagnosis or better treatment? *BMJ* 1997;314:472-5. (15 February.)
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How widespread is prejudice against sick doctors by self help groups?

Editor—The self help group movement is flourishing: there are thousands of groups active in the United Kingdom and their numbers are increasing. The suspicions of doctors towards self help groups have been discussed,[1-4] and they are understandable, though perhaps misinformed. However, I can find no published work on the attitudes of self help groups towards sick doctors who wish to join such groups.

Two years ago I was diagnosed as having a major psychiatric disorder; I was ill for a time but made a good recovery. I had never been seriously ill before, let alone been an inpatient in a psychiatric hospital. I became motivated to share experiences with other people with the same problem rather than just reading about them in textbooks. I joined a well known charity dedicated to people with my condition and decided to set up a self help group in my area. I contacted the head office and was told that the charity did not allow doctors to run self help groups, especially those practising psychiatry. I protested at this discrimination and was eventually given its blessing. However, the organisation's "how to set up a self help group" package mysteriously vanished in the post a number of times. After I had had numerous, increasingly frustrating telephone calls with the organisation it finally arrived two months later. The group is now flourishing, and all of the members think that I am an asset because of my psychiatric knowledge, particularly when questions about technical issues such as drug treatment arise.

A colleague who was due to give birth had a similar experience with a national charity for pregnant women. She was practising obstetrics at the time and was told bluntly by a self help group leader that she would not be welcome to join the group. She was left in floods of tears. I wonder how many other doctors have experienced similar problems. I am interested to know how widespread such practices are. If you have had a similar problem please write to me giving details of the illness, the charity, and how you felt about their attitudes towards you. I will deal confidentially with information about your illness, although you can of course write anonymously.

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1 Black ME. Self help groups and professionals—what is the relationship? *BMJ* 1988;296:1485-6.
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Man's fractured sternum was probably due to snake's weight when it fell

Editor—B F Moran and W J Newman briefly reported on a man with a sternal fracture after a snake fell from the tree underneath which he was sleeping.[1] I was surprised that they attributed the fracture to the snakebite. Surely it was more likely to be due to the direct blow that the man received when the snake landed on him. The snake was described as large and so possibly weighed several kilograms. Thus, depending on the height of its fall, it could have imparted enough kinetic energy to break the man's sternum. A bite alone is unlikely to have the necessary energy to break a bone.

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