incidence of breast cancer in the United States,² it is impossible to draw any conclusions about the effectiveness of screening from studying simple incidence and mortality data. Only analysis of randomised controlled trials can assess whether mammography is an effective method of reducing mortality from this disease. Recently published overview data from the combined Swedish trials show a 29% reduction in mortality from breast cancer in screened women aged between 50 and 69.⁴ Barmus also criticises screening for the large number of patients having unnecessary investigations and surgery. While this may be true for the United States, in Scotland 126 867 women were screened during April 1991 to March 1992 and 794 underwent biopsy after breast screening. Of these, 570 were subsequently shown to have breast cancer, a ratio of malignant to benign biopsies of 2.5:1.⁵ The number of patients undergoing unnecessary surgery is therefore small.

Hewitt states the commonly held view that women who have breast cancer detected by screening have a decreased quality of life, but a recent study of long term survivors with breast cancer detected by screening found that psychological morbidity was less than in aged matched women without breast cancer.³ A recent consensus statement by the European Society of Mastology, which has considered all available data on breast screening, concludes that breast screening should be available for all women aged 50 or over throughout Europe.³ All efforts should be directed to achieving this rather than expounding viewpoints that do not have a sound scientific basis.

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Screening programme not cost effective

EDITOR,—Examination of the data from the United Kingdom's breast screening programme from March 1991 to April 1992¹ reported by J Chamberlain and colleagues allows some tentative conclusions to be drawn about the costs and potential benefits. Altogether 1 028 984 women accepted an invitation for mammographic screening. With a recall rate of 6.2% there would have been an extra 63 797 tests, making a total of 1 092 781 tests. It is reported that 6605 cancers were detected. Of these, 1465 (22%) were palpable. It follows that 78% of cancers could in principle have been detected by clinical examination and at a much lower cost, especially if the examinations were performed by the women's general practitioner. MacEwan estimated the cost of a mammogram at \$C59,² so the cost of this screening round would be about \$C64m.

Chamberlain and colleagues attach great importance to the number of palpable lesions, stating, "A more important indication of screening performance is the rate at which small invasive cancers were detected, shown as 1.4/1000 screened in the first round." Thus mammography was used primarily to detect the 1465 palpable cancers at a cost of \$C44 010 per cancer. But not all these women will benefit. Skrabanek pointed out that when a tumour reaches 10 mm it has been growing for an average of 8-12 years and will probably have metastasised.³ He also pointed out that there are

many small lesions whose natural course is not well established. Other authors agree that more research is needed to evaluate the natural course of minimal lesions, some of which may never become life threatening. If all minimal lesions are treated there will be overtreatment; if not, the purpose of screening will be defeated. Skrabanek has questioned the benefits accruing from the Swedish screening trial, whose results were adduced to show the feasibility of obtaining a 30% reduction in mortality from breast cancer.⁴

Mammography has been criticised as an unsuitable screening test. The wisdom of compressing malignant tumours, as is now customary with this imaging process, has been questioned.⁵ There have been reports of cysts rupturing during mammographic compression. This gives credence to the view that mechanical squeezing of a breast containing a neoplasm may disseminate cancer cells and cancer cell emboli. Certainly, manipulation of tumours can increase the number of metastases in experimental animals. The lack of a clinical examination before mammographic investigation in the screening service in the United Kingdom means that tumours of all sizes are subjected to compression, whether essential or not.

In view of the high cost of screening and the small reported reductions in mortality, we believe it might be wiser to redirect these funds to target research into the biology of cancer and into new strategies for its treatment.

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Management of trauma

EDITOR,—The impression gained by Jon Nicholl and colleagues—"that the trauma centre is showing promising results is founded on the results put out by the trauma centre itself"—is correct.¹ We work in the north west midlands trauma system and believe that we have a duty to audit our work and that the results of our internal audit should not be secret. We are obviously pleased that "early results are promising," and we emphasise that these are our early results. At the North Staffordshire Hospital there has been a decrease in mortality with a corresponding decrease in hospital stay for severely injured patients, and analysis of outcome with the combined trauma and injury severity score has shown a continuing improvement as the number of unexpected deaths has fallen. The study being undertaken by the Medical Care Research Unit at the University of Sheffield is separate from our audit. We must emphasise, however, that the study, though commissioned by the Department of Health and clearly important to the department, cannot be the sole arbiter on this important matter.

We are looking forward to the results of the study by the University of Sheffield, which, unfortunately, will not be published until a year after the project has finished. It is because we believe that new forms of health care should not be offered within the NHS until their effects have been assessed that we have had to look to our own data to help us plan for the immediate future.

The trauma centre evaluation project started in July 1991, and it may be several more years before

all that we have planned over the past two years finally bears fruit. In the meantime we and others must collect and publish as much information as possible to continue to inform the debate to ensure that we develop the best system of trauma care for severely injured patients in Britain.

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Clinical ecology

EDITOR,—Keith Mumby claims to be "at the leading edge," but I cannot find his "pioneer clinical observations" in any journal.¹ The references in his article are highly selective, in contrast to those in the reports on clinical ecology by committees of the Royal College of Physicians and the American College of Physicians.² Those committees concluded—as have many others—that the claims of clinical ecologists are not supported by valid objective evidence.

The emphasis on allergy rather than conventional diagnoses often leads to failure to offer proved treatment. I have seen a wide range of serious physical conditions left untreated for months to years. Clinical ecology particularly blames allergy as the cause of psychiatric symptoms. This is often grasped gratefully by patients terrified of the perceived stigma of psychological illness. These patients commonly get worse rather than better while receiving ecology treatment.^{3,4} In avoiding putative environmental triggers they often adopt more and more restricted, bizarre lifestyles.⁴

Even in psychologically normal subjects the provocation-neutralisation technique, which is commonly coupled with strong suggestion from a highly personable operator, can lead to conditioned phobic responses. Physical symptoms are then often mediated by hyperventilation. I often see patients in whom progressive food avoidance has produced malnutrition.

Orthodox medicine has already looked fairly at the claims of clinical ecology and considers them unproved. Surely it cannot therefore be appropriate to continue to use them, except possibly as part of a controlled clinical trial to assess their validity, and to which each subject gives informed consent.

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Designing a questionnaire

Send a personal covering letter

EDITOR,—In writing about designing a questionnaire D H Stone only briefly mentions a covering letter for postal questionnaires.¹ The importance of such letters has been debated: one experiment found no significant difference in response rate between a sample of people sent a relatively impersonal letter and a sample sent a relatively

personal letter.² Another study found that the response rate to a questionnaire was significantly higher when the covering letter was written by the patient's general practitioner than when it was written by a doctor in a research unit.³ It seems sensible to devote attention to the covering letter, making it personal and attractive and stating the purposes and sponsorship of the study and why the respondent's views are particularly sought. Clear instructions and examples should be given, and a statement about confidentiality should be included.⁴

Cartwright has written of the problems of writing about the design of questionnaires without stating the obvious,⁵ yet poorly designed questionnaires are common, create irritation, and waste resources. Departmental audit of questionnaires can be educational and can be used to set standards and devise a quick checklist against which new questionnaires can be compared and audited.

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Inform responders of your results

EDITOR,—On the basis of our practical experience we would suggest two additions to D H Stone's guide to designing questionnaires.¹ Firstly, offer to supply the results of the study to respondents. Having filled in questionnaires on many interesting topics, we have been disappointed not to see the results if, for example, they are not published. Providing a copy of the results is not only courteous but would, we suspect, increase response rates. Secondly, think about anonymity. Respondents should be told what degree of anonymity is being offered as this may colour responses; it should then be mentioned in any published report.

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Prophylaxis with anti-D immunoglobulin

EDITOR,—D Lee, writing on behalf of the National Blood Transfusion Service's Immunoglobulin Working Party,¹ advocates the continued use of a standard dose of 500 IU anti-D immunoglobulin for postnatal prophylaxis in Rh D negative women who give birth to Rh D positive babies so long as this is combined with routine use of the Kleihauer test to detect patients for whom this dose is insufficient.² This supposes that the Kleihauer test accurately measures the size of any transplacental haemorrhage.

In a recent survey among transfusion departments in hospitals in the Yorkshire region we found that methods of performing the Kleihauer test and interpreting the results varied considerably among laboratories: one laboratory may issue up to four times the amount of anti-D immunoglobulin as another on seeing the same number of fetal cells in the test. This confusion probably

arises because of variations in published interpretations of the original Kleihauer method.^{3,4}

For optimal use of anti-D immunoglobulin as postnatal prophylaxis the use of the Kleihauer test should be standardised. If this can be achieved the introduction of a national quality control scheme will be of value.

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Management of acute symptomatic hyponatraemia

EDITOR,—During transurethral resection of the prostate intravascular absorption of urological irrigation fluid (1.5% glycine) may reduce the serum sodium concentration to <115 mmol/l in under 15 minutes (a reduction of more than 80 mmol/l/h), and patients may need inotropic support or ventilation, or both (transurethral resection syndrome). Alan Arieff has suggested that such hyponatraemia should be corrected at rates of only 1-2 (SD 1.7) mmol/l/h,¹ even though he has stated that "the rate of correction is not a factor in the genesis of hyponatraemic brain injury." These rates of correction would allow hyponatraemia after transurethral resection of prostate to persist for hours. Robinson and Ravalia suggested rapid correction of such hyponatraemia with 30% sodium chloride solution²—as used by Worthley and Thomas for hyponatraemic seizures.⁴ We have recently had three cases in which this was done (table).

When the transurethral resection syndrome was suspected we measured serum sodium concentration with a blood gas analyser (type IL1400), introduced an internal jugular line, infused 20 g mannitol for diuresis, and gave 20 ml of 30% sodium chloride solution for 5-10 minutes via the internal jugular line. We remeasured serum sodium concentration, infused a further 10 ml 30%

sodium chloride, and checked that the sodium concentration was above 125 mmol/l. In such cases patients typically present near the end of surgery with confusion and hypotension that is resistant to fluids. Diagnosis is often delayed, and patients are often seriously ill for one or two days during correction of the hyponatraemia. The worst of our three cases was managed without inotropic drugs or ventilation and was relatively mild.

We conclude that the syndrome was corrected by bringing the serum sodium concentration above 125 mmol/l and normalisation of sodium concentration was unnecessary. Correction over five minutes was not associated with any neurological damage and the fast recovery seen after fast correction of the sodium concentration alone suggests that glycine metabolites such as ammonia do not materially contribute to the development of the syndrome. In two of our cases speedy correction obviated the need for intensive care, and the patients went straight to the surgical ward (the third was hyponatraemic for longer and recovered more slowly). Overcorrection of the sodium concentration was easily avoided by frequent measurement with a sodium electrode.

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Deprivation and health

Deprivation contributes to chronic illness

EDITOR,—Margaret Eames and colleagues report that social deprivation and premature mortality are strongly linked.¹ We recently examined the relation between deprivation and the prevalence of limiting longstanding illness (standardised for age and sex) among 0-64 year olds for electoral wards in Worcester and District Health Authority. We used

Details of three cases of hyponatraemia after transurethral resection of prostate

Case No	Age of patient (years)	American Society of Anesthesiologists grade	Presentation	Serum sodium (mmol/l)			Outcome
				Minimum	After first bolus*	After second bolus*	
1	74	II†	Postoperative abdominal pain; confusion; blood pressure fell from 170/100 to 90/60 mm Hg; sweaty and pale	112	123	128	30 Min after infusions felt well; 60 min after looked well and pink; blood pressure 160/100 mm Hg, cooperative; discharged to surgical ward at 2 h and home at normal time
2	74	I	Intraoperative confusion and nausea; breath ethanol rose from <10 to 45‡	115	124	129	10 Min after end of infusions lucid and well; discharged to ward and home as above
3	69	I	Sweaty and unwell at end of operation; blood pressure fell; diagnosis of possible myocardial infarction; managed with analgesia, oxygen, ECG (no change) and enzymes (no rise); at 2 h blood pressure fell to 85 mm Hg systolic in spite of intravenous fluids	114	124	§	After first bolus blood pressure rose to 130 mm Hg systolic; 10ml bolus given; remained unwell and confused; sent to intensive therapy unit overnight and ward in morning; discharged home at normal time

*First bolus of 20 ml, second bolus of 30 ml 30% sodium chloride solution.

†Grade II because of controlled asymptomatic hypertension.

‡Irrigation fluid 1.5% glycine and 1% ethanol to allow monitoring of absorption of fluid with breath alcometer.⁵

§Value lost.

ECG=electrocardiography.