Optometrists are fully trained and have the facilities to screen for eye disease. Abolishing charges for eye tests for elderly people and encouraging them to attend an optometrist regularly seem to be the most sensible methods of effectively screening this at risk population.

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Authors' reply

EDITOR,—Louis Clearkin doubts the value of treatment for glaucoma. In line with most ophthalmologists we favour it: plenty of good quality research has proved that treatment of chronic glaucoma slows or halts its natural progression over many years to blindness.[1 2] Clearkin supports his argument with reference to two studies. The first found that only one of 200 patients who underwent surgery for glaucoma became blind before death or during the 20 years of follow up[3]; we interpret this as successful preservation of vision. The second was a randomised controlled trial comparing medical treatment with no treatment in 15 patients followed up for between 12 and 36 months. In relation to the natural course of untreated chronic glaucoma[1] the size and follow up in this trial were balefully inadequate; additionally, the trial's statistical ability to detect a difference (power) was vanishingly small. Anything other than a negative result was therefore unlikely.

John M Gardner, Graham P Kirkby, and K D Phillips each suggest that the referral data for 1988 should have been omitted from our analysis. In doing so they make a fundamental mistake of scientific logic. Any time series is bound to fluctuate around the underlying trend, and omitting a year from such a series cannot be justified unless that year has first been shown to have been exceptional; the authors did not test this hypothesis.

We did test this hypothesis and showed that, in terms of the numbers of referrals to Bristol Eye Hospital, 1988 was not an exceptional year, regardless of the number of sight tests being performed in the community. Having established this, we included 1988 in our predictions. Excluding the data for 1988 roughly doubles the confidence intervals for the predicted number of referrals from 1989 onwards, which artificially and unjustifiably leads to a fallacious interpretation of the available data as not significant. The same arguments apply to the omission of the data for 1987 and 1988 from trend predictions, which Janet Pooley and colleagues proposed.

Peter J Gray and K W Pullum conjecture about the possible aetiologies of the proportionally equal reduction that we observed in both the total number of referrals and the number of true positive glaucoma referrals to Bristol Eye Hospital from 1989 onwards. Any appreciable improvement in optometric screening should have maintained the number of true positives while allowing the total number of referrals to fall. We clearly showed that both total referrals and the number of true positives fell in equal proportion, thereby disproving these authors' hypothesis. Gray also suggests that general practitioners may have referred patients elsewhere from 1989 onwards, but in Bristol there are few practical alternatives to the eye hospital.

Finally, Gray contends that screening for glaucoma is required only in the population aged over 40 with a family history of the disease. This is both incorrect and misleading; if implemented such a policy would miss two thirds of people with glaucoma.[4]

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Many people cannot afford to pay fees for NHS services

EDITOR,—D A H Laidlaw and colleagues report that the introduction of the sight test fee has reduced ophthalmology referrals and the rate of glaucoma detection.[1] I understand that the Department of Health has since denied that there has been a reduction in the number of sight tests since the introduction of charges.

This community health council recently undertook two suveys which included questions on the take up of services for which a fee is charged: sight tests and spectacles, dental checks and treatment, and drug prescriptions. The results confirm that many people are discouraged or prevented from using these services because of the charges.

The first survey obtained the views of the community health council's Health Watch Panel. The panel is a group of about 500 local people who are representative of the population of Warrington and have agreed to give their views from time to time on health care issues of topical concern. The general survey, which included a section on the take up of services where a fee is charged, is the fourth health watch project survey; the response rate was 72% (348/485).[2]

An average of 39% (111/284) of the panel said that NHS charges discouraged them from using the services, and 17% (47/276) said that charges prevented them from using the services. The highest percentages were for sight tests (37% (111/304) were discouraged and 16% (45/291) were prevented from having tests) and new spectacles (46% (138/298) were discouraged and 23% (66/291) were prevented from buying them).[2]

The second survey was carried out in a small district of Warrington (Sankey Bridges). A total of 315 households responded (62% response rate (315/506)). The table shows how many households were discouraged from having dental check ups and eye tests and redeeming prescriptions.

These surveys confirm that, in Warrington at least, many people are denied access to NHS services for which a charge is made because they cannot afford to pay for them. I think it extremely unlikely that Warrington is unique in this respect.

Numbers of households answering yes to the question, "Does the cost of any of the following discourage you from using the service?"

Service	No of households (n=315)
Dental check ups	125
Eye tests	122
Prescription charges	93

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Serum screening for Down's syndrome

Private patients may receive less counselling

EDITOR,—I support the conclusions of two recent papers on antenatal biochemical screening for Down's syndrome, which emphasise the importance of counselling before and after blood is drawn.[1 2] Deana K Smith and colleagues describe the state of knowledge of women when the test is offered in districts that have introduced testing on the NHS. The situation is much worse in districts where testing is available only privately. Many women (about a third of pregnant women aged over 35 in this hospital) pay to have the test done by laboratories offering it privately. Some receive appropriate counselling but many do not. This unit has seen several women who assumed that a positive result of screening meant that the fetus had Down's syndrome, many with a negative result who insisted on amniocentesis, and some with a positive result who decided not to proceed to amniocentesis; some of them have stated that if they had been fully informed about the test they would not have had it.

The test should be introduced in all areas and to women of all ages. Adequate resources must be provided so that women can discuss the test with knowledgeable professionals both before deciding to have it and if the result is positive. Those in the primary care team and antenatal clinics need help in understanding the test so that they can provide women with the information they need to make an informed decision on whether to have it. This must include the chance for an important minority, for whom the test is inappropriate, to opt out.

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National policy would ensure consistency

EDITOR,—The first routine NHS screening programme for Down's syndrome was set up in Wales, and in our report on its first year we stated that increased provision for counselling was necessary.[1] Recent reports suggest that little progress has been made anywhere in Britain.[2 3] Thus counselling is currently being given by consultant obstetricians, which is inefficient because midwives could provide the same information at much lower cost, but it is superior to counselling by a senior house officer with no experience of screening for the syndrome.

In counselling before screening, discussions about the concept of risk are unnecessary. Women need to know that any pregnancy can result in a child with Down's syndrome, that screening can

detect some cases, and that a positive result indicates a further investigation. This information should be provided in a booklet, which could be standardised nationally, before attendance at the antenatal clinic. Such advance information might stop women buying commercial screening tests[4] in addition to having tests provided locally: this causes considerable problems when the results are discordant.

In counselling after the test we believe that over-interpretation is often a problem. In some centres the risk derived from serum testing is compared with the risk derived from the woman's age to determine whether amniocentesis is advisable: women over 35 are dissuaded from having amniocentesis, despite their risk derived from serum testing being greater than the cut off value, because this risk is lower than the risk derived from their age, and the opposite occurs in younger women. Both of these are inappropriate and lead to increased complexity for the counsellor because the meaning of risk—a concept that few of us can comprehend—has to be explained. Counselling after the test would be simplified if laboratory results were reported as either "amniocentesis indicated" or "amniocentesis not indicated."

Anxiety in women given false positive results on screening is difficult to reduce. When screening for neural tube defects based on the α-fetoprotein concentration was introduced, however, it caused extreme anxiety.[5] Screening for Down's syndrome is still relatively new, and in a few years we will probably wonder what the problem was. Furthermore, while anxiety is induced in a few women, a much greater number are reassured.

The biggest problem is the choice of the cut off value for the risk. Should it be close to the risk for a 35 year old woman (1 in 300), to maintain an unchanged rate of amniocentesis? Should it be close to the risk of miscarriage due to amniocentesis (1 in 150)? This choice is currently a local whim, but a national policy would ensure consistency and reduce the risk of litigation in cases in which one centre would refuse amniocentesis but another would offer it.

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Counselling should emphasise possible outcomes of screening

EDITOR,—Sanjay Vyas states[1] that the report of the Royal College of Obstetricians and Gynaecologists on serum screening for Down's syndrome[2] has "defined the essential components of best practice."[2] I suggest, however, that the report's recommendations regarding counselling before the test should be revised to focus initially on the outcomes of screening rather than the process involved.

If a pregnant woman chooses to have a serum test for Down's syndrome she stands to alter her risks of two important outcomes of pregnancy: she can reduce her risk of having a baby with the syndrome but only at the cost of increasing her risk of miscarrying a healthy fetus during mid-pregnancy. Women and their partners vary in the importance they attach to these two outcomes. Some would wish to avoid having a baby with the syndrome at all costs, while others would not wish to prejudice a healthy pregnancy in any way. Most probably fall between these extremes. When deciding whether to be screened women should know how the risks of these two outcomes would be altered by screening. They could use this information, interpreted through the values they attach to avoiding having a baby with the syndrome and avoiding a miscarriage, to make a properly informed choice about serum testing.

Among unscreened women 7 per 1000 miscarry after 16 weeks[3] and 1·3 per 1000 give birth to a baby with Down's syndrome.[1] If one assumes that 4% of screened women proceed to amniocentesis, 60% of fetuses with the syndrome are diagnosed, and the rate of miscarriage attributable to amniocentesis is 1%[3] then among screened women 7·4 per 1000 will miscarry after 16 weeks and 0·5 per 1000 will give birth to a baby with the syndrome. Put more simply, for every two women who avoid giving birth to a baby with the syndrome through screening, one will miscarry a healthy fetus during mid-pregnancy.

I doubt that any centre currently offering serum testing provides women with clear information about outcomes. The report by the Royal College of Obstetricians and Gynaecologists concentrates on aspects of the process of screening, such as the meaning of positive and negative results. Such information is relevant only to women who have already decided, on the basis of information about the outcomes of pregnancy, that they wish to be screened. No other screening programme involves such a fine balance between harm and benefit. Women should be made aware of this before deciding whether to accept serum screening.

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Keeping the concept of risk simple

EDITOR,—Sanjay Vyas's editorial highlights a problem commonly experienced by those at the front line of providing biochemical screening for Down's syndrome—namely, that this is a complicated test that women find difficult to understand, a sentiment shared by obstetricians, midwives, and general practitioners.[1] It is unrealistic to expect health care professionals to provide adequate counselling across a rapidly expanding range of antenatal screening tests. A recent study in Leicester showed that 40% of midwives do not feel confident about counselling antenatal patients about serum screening for Down's syndrome.[2]

Given the complexities of this test, alternative strategies can be adopted to lessen the impact of providing counselling for large numbers of women designated high risk on serum screening. In Leicestershire serum screening was introduced in 1992 with a cut off risk of 1 in 100 instead of the more commonly used 1 in 250. With this method of screening we experienced a false positive rate of only 3·7% yet still achieved adequate detection of Down's syndrome prenatally, with a 40% detection rate. This contrasts well with other programmes in which a greater percentage of women are designated positive on screening[3] and require appreciable support during their pregnancy to allay the anxiety thus engendered.

The advantage of our policy has been to provide a logical explanation that is more comprehensible to patients. Most lay people and, it seems, many professionals have great difficulty in understanding the meaning of such terms as risk, chance, and probability. The cut off risk of 1 in 100 that we adopted permits an explanation to be given to patients in which the perceived risk of an invasive investigation can be equated with the chance of the mother having a baby with Down's syndrome. We acknowledge that the risk of amniocentesis may not be 1%, but it is a currently accepted and understood figure that is not complicated by the introduction of risk levels inherent in other screening programmes—that is, 1 in 200, 1 in 250, or 1 in 350.

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Screening for secondary causes of hyperlipidaemia in general practice

Correct diagnosis needs to be established

EDITOR,—Screening implies a commitment to appropriate treatment. Philip Evans and Denis Pereira Gray's short paper on the value of screening for secondary causes of hyperlipidaemia raises several issues regarding the diagnosis and correct treatment of hyperlipidaemias.[1] In screening for hyperlipidaemia, maximising the efficiency of yield and minimising costs depend on the selection of appropriate tests and the clinical selection of patients. The only initial screening data quoted are cholesterol concentrations, and no data are presented on whether patients were also screened initially for diabetes or thyroid disease, which are relevant to the development of hyperlipidaemia. Even so, the overall yield of disease detected was 20·6% (66/321 patients) with extended secondary screening consisting of measurement of cholesterol concentration, thyroid function profile, and measurement of creatinine and γ-glutamyltransferase. This seems an efficient use of resources.

We have several further concerns with this study. Firstly, the population studied seems to have been heterogeneous, and the cholesterol concentration at which action is necessary would have varied among the population (for example, among women, patients with established vascular disease, and patients with strong family histories); the population also included patients in whom screening for hyperlipidaemia is considered to be of little benefit or controversial (elderly people). Clinically, adding measurement of the triglyceride concentration to screening for hyperlipidaemia has minimal cost implications while identifying patients in whom secondary hyperlipidaemia may occur. However, measurement of the high density lipoprotein cholesterol concentration, which is needed for the correct interpretation of total cholesterol concentrations, adds appreciable extra costs.[2,3]

Secondly, the authors identified six patients with clinical disease and another six requiring further investigation. Thus the yield from screening was 3·8%. Fifty four of the 321 patients screened, however, had established secondary