while the lymph nodes are not affected. This is the key to the eventual reduction in mortality. The rate of positive nodes in incidence screens in Edinburgh, where the films were read by non-radiologist doctors,³ was 10% higher than that in the Ostergotland component of the two county study. Differences in radiological sensitivity are probably major influences on all these issues. The current figures relating to size and nodal spread (unpublished) for the south east Scotland screening programme reflect an improved sensitivity.

The mortality in the study group after 10 years in the Edinburgh trial was between 14% and 21% lower than that in controls, depending on the precise definition of the end point.³ To achieve a reduction equivalent to or greater than this by the year 2000 in Britain is ambitious but will be best served by maximising compliance⁶ as well as radiological sensitivity. Mechanisms to promote these need urgent support.

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Informed consent may increase non-attendance rate

EDITOR,—The *Health of the Nation* aims at reducing deaths from breast cancer in women invited for screening by a quarter by 2000. This target is unlikely to be met as there are only five years to go; judging by the current rates of interval breast cancer, we are probably only half way to that target.¹ If there is any reduction in mortality from breast cancer by 2000 it is just as likely to be attributable to the improvements in treatment since the publication of the world overview on adjuvant systemic treatment in 1992.² So what remedial actions should be taken?

S Field and colleagues suggest that the United Kingdom Coordinating Committee on Cancer Research trial of the frequency of breast screening will identify the optimum interval between screens.³ This trial, however, compares only one year with three years. It is hard to believe that the one year interval will not improve on the results of the three years interval, but if we do not have enough trained professionals to implement even a two year interval how can we afford a one year interval?

The suggestion that general practitioners should coerce women into joining the programme makes me feel uncomfortable. The target for acceptance in the NHS screening programme was 70%, and this has more or less been reached in most centres. Yet Paul A Creighton suggests that there should be financial inducements for general practitioners to encourage women to come forward for screening

and that this encouragement should be based on "information and counselling."⁴ It has to be remembered that women who fail to accept an invitation could be doing so for rational reasons. In absolute terms less than 1% of women who are invited for screening will benefit from it, whereas a greater percentage will have to face the problems of false alarms, unnecessary surgery, unnecessary labelling as having cancer, and a lead time in the diagnosis of cancers whose natural course is unaffected by "earlier detection."⁵ In other words, true informed consent for an invitation to screening might reduce rather than increase acceptance.

The NHS breast cancer screening programme has undoubtedly raised standards in the diagnosis and management of this disease, but many tough questions remain to be answered. These questions should be addressed in scientific terms outside the political arena, and the unsolicited targets in the *Health of the Nation* that have been imposed on the medical profession should be treated with the scepticism they deserve.

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British women are being offered a cheap deal

EDITOR,—It was encouraging to read Ciaran B J Woodman and colleagues' paper on breast screening¹ and, in the national press, that the Department of Health is taking an interest in the results. Mammographic radiologists will recall with regret that the requirements for adequate breast screening were known to the committee that issued the recommendations for screening in 1986.² This committee, which was heavy on the department's accountants and light on radiologists (whose recommendations were ignored), came to the extraordinary conclusion that the screening should be carried out by one radiologist, that one radiographic view should be obtained, and that the screening should be done only every three years. All the evidence from the Continent was that two initial views, read by two radiologists, every year or at most every two years were required. The excuse for not responding to the evidence was cost effectiveness, which everyone recognised as a euphemism for "cheaper."

After the publication of the recommendations some of us complained loudly that British women were being offered a cheap deal. Unfortunately, we had no effect. It is to be hoped that the programme will now be corrected, and perhaps radiologists who know about screening will be consulted. The profession must make sure that this most shameful of the government's underfunding exercises is improved.

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- 2 Breast cancer screening. Report to the health ministers of England, Scotland and Northern Ireland by a working group chaired by Sir Patrick Forrest. London: HMSO, 1986.

Technicians could be trained to interpret screening mammograms

EDITOR,—S Field and colleagues' editorial on interval breast cancers implies a need to quadruple the amount of radiological time devoted to the interpretation of screening mammograms.¹ I am unclear why this job must be the exclusive role of radiologists. Cervical cytology screening is entrusted to supervised technicians, and the tasks seem to be similar. Use of technicians would free radiologists from the presumably tedious task of examining hundreds of similar films for the more rewarding jobs involving direct clinical contact, such as ultrasonography and needle aspiration of breast lumps. I wonder what radiologists think about this.

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Diagnostic performance of radiographers can be improved

EDITOR,—A move to a two year screening interval would help reduce the rate of interval cancers noted in the NHS breast screening programme. S Field and colleagues argue, however, that this is prohibited, at least in part, by the limited numbers of trained radiologists able to interpret the additional mammograms that would be necessary.¹

One possible means of overcoming this shortage would be to employ radiographers who have received additional training in interpreting screening mammograms. This has previously been suggested as a way of developing the radiographers' role.² I have shown in another area—fracture radiographs in the accident department—that the diagnostic performance of radiographers can be improved provided they receive supplementary training.³ It has long been standard practice for cytological screening to be routinely undertaken by skilled medical laboratory scientific officers with rigorous quality assurance checks by pathologists. Similar models could, perhaps, be introduced into breast screening units employing skilled radiographers, with comparable quality assurance checks by radiologists.

The reduced cost of a programme in which radiographers figured more in the screening process would presumably offset the costs anticipated if the programme was undertaken by radiologists and might make a two year screening interval more feasible.

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Two views mean twice the dose of radiation

EDITOR,—In their paper on breast screening and interval cancers Ciaran B J Woodman and colleagues state that "interval cancers may occur as a result of the failure to detect an abnormality at the time of screening (false interval cancers) or may occur as a new event after a negative screen (true interval cancers)."¹ They do not seem to consider the possibility that the screening process itself may have sparked off some of these "new events." To

recommend, as S Field and colleagues do in their editorial,² that two views should be taken instead of one and that the screening interval should be reduced from three to two years, without even considering the possible adverse effects of repeated exposure to low doses of ionising radiation,³ strikes me as foolhardy.

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2 Field S, Michell MJ, Wallis MGW, Wilson ARM. What should be done about interval breast cancers? *BMJ* 1995;310:203-4. (28 January.)

Has increased the workload for primary care teams

EDITOR,—In his editorial on breast screening Paul A Creighton highlights the tendency of the government to raise patients' expectations but to expect those delivering care to absorb any extra work without complaint or extra resources.¹ The Cumbria Practice Research Group sought to document the extra workload for primary care teams that resulted from the national breast screening programme in the first few months after its introduction. Practice receptionists, nurses, and general practitioners completed time sheets.

The data collected showed that up to five hours of work in total was generated per 1000 patients on a general practitioner's list. Most of the time was spent on administrative tasks such as checking the prior notification list and filing results, but general practitioners reported extra consultations for counselling patients and inquiries related to different aspects of the screening process. These figures were almost certainly underestimates as the long period of the survey resulted in staff forgetting to record data.

We believe that if we are to provide new services to our patients the extra work entailed must be taken into account and costed appropriately. In this particular instance, as Creighton suggests, extra reimbursement for appropriately trained administrative staff and practice nurses should be made available.

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Uptake of breast screening

Accurate addresses will improve uptake rates

EDITOR,—R Rudiman and colleagues report no significant correlation between uptakes of breast screening and cervical screening in Grampian, which is an area with less deprivation than other Scottish health boards and high uptakes of screening.¹ We have compared uptakes of breast screening and cervical screening in 156 practices in east London, a highly deprived inner city area, in contract with City and East London Family Health Services Authority. The tables shows the data. Like Rudiman and colleagues, we found that the uptake of breast screening was consistently lower than the uptake of cervical screening. Unlike them, however, we did find a significant positive correlation between the two rates ($r=0.51$ (95% confidence interval 0.38 to 0.62), $P<0.01$).

Comparison of uptake of breast screening in prevalence round completed in 1992 and uptake of cervical screening in the 5.5 years before 30 June 1993 in 156 practices in east London. Figures are percentages

	Breast screening	Cervical screening
Mean (SD) uptake	44.1 (9.66)	63.0 (20.73)
Interquartile range	37.9-51.7	46.2-82.2
Minimum-maximum	7.1-64.0	2.2-98.8

East London is an area of high mobility. Practices with high rates of cervical screening have probably achieved these in part by more thorough completion of prior notification lists, correcting wrong addresses known to the practice and deleting patients no longer attending the practice. If the accuracy of the addresses are improved the uptakes of both cervical and breast screening will be improved. Practices in east London also have much greater variations in their uptakes of cervical screening (SD 20.73% compared with 4.20% in Grampian). These differences between Grampian and east London may explain why a correlation between uptakes of cervical and breast screening was found in east London but not in Grampian.

The more centralised delivery of mammography compared with cervical cytology screening argues against the introduction of target payments to general practitioners for breast screening. Extra payments for thorough completion of prior notification lists should, however, be evaluated in inner city areas with high mobility among patients.

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May be influenced by practice specific factors

EDITOR,—R Rudiman and colleagues suggest that a financial incentive may be required to increase the participation of primary care staff in the management of breast screening.¹ Data from a study undertaken in 1990-1 of part of the prevalence round of breast screening in a health district in the then Northern region support this.

Almost 3500 women aged 50-64 who were registered with six general practices were invited

for breast screening between 1 October 1990 and 31 January 1991. The overall uptake among these women was 75.8%. Decreasing age and increasing affluence, as determined by the Townsend score for ward of residence, were significantly associated with increasing uptake of the invitation ($P<0.001$, $\chi^2=19.7$, $df=2$ and $P<0.001$, $\chi^2=46.8$, $df=3$, respectively).² Uptake varied significantly among the practices, ranging from 65.3% to 81.0% ($P<0.001$, $\chi^2=22.78$, $df=5$). The distribution of age and ward of residence of the women, however, only partly explained the differences (table).

The uptakes of cervical cytology screening during the year ending 31 March 1991 among women aged 50-64 registered with the six practices were almost consistently higher than the uptakes of breast screening and ranged from 72.6% to 90.3%. The rank orders for the uptakes of cervical cytology and breast screening were similar from the six practices (table).

These data suggest that factors specific to the practices, such as willingness or ability to participate in population screening programmes without appropriate financial reward, in addition to population factors may have accounted for the differences in the uptake of breast screening among the practices.

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2 Townsend P, Phillimore P, Beattie A. *Inequalities in health in the Northern region: an interim report*. Newcastle upon Tyne and Bristol: Northern Regional Health Authority and University of Bristol, 1986.

Non-responders can be encouraged to attend

EDITOR,—As a general practitioner, I was particularly interested in R Rudiman and colleagues' comparison of uptake of breast screening, cervical screening, and immunisation in the Grampian region.¹ I have studied the uptake of breast screening in my practice (11 000 patients), where the response rate is 78% overall and 92% at my branch surgery. These rates exceed the target of 70% set in the Forrest report.

We are notified of women who do not respond, whose notes are then flagged so that the subject can be raised at subsequent consultations. Fears can be aired and education and reassurance given. Our nurses and attached staff are involved as well, and we have periodic poster campaigns. In this way we have encouraged about a third of women who did not respond initially to attend; these are in addition to the percentages given above.

In a study of women who did not respond I

Factors affecting uptake of breast screening and of cervical cytology screening by general practice in an English district, 1990-1. Figures are numbers (percentages) except where stated otherwise

	General practice					
	1	2	3	4	5	6
No of women	182	823	617	807	118	715
Distribution of age of target population:						
50-54	69 (37.9)	285 (34.6)	216 (35.0)	269 (33.3)	48 (40.7)	240 (33.6)
55-59	62 (34.1)	263 (32.0)	199 (32.3)	263 (32.6)	32 (27.1)	216 (30.2)
60-64	51 (28.0)	275 (33.4)	202 (32.7)	275 (34.1)	38 (32.2)	259 (36.2)
Distribution of ward of residence of target population:						
Group A	20 (11.0)	105 (12.8)	81 (13.1)	118 (14.6)	27 (22.9)	436 (61.0)
Group B	48 (26.4)	192 (23.3)	168 (27.2)	288 (35.7)	22 (18.6)	88 (12.3)
Group C	57 (31.3)	278 (33.8)	140 (22.7)	212 (26.3)	38 (32.2)	84 (11.7)
Group D	57 (31.3)	246 (29.9)	228 (37.0)	188 (23.3)	31 (26.3)	105 (14.7)
Uptake	138 (75.8)	596 (72.4)	470 (76.2)	612 (75.8)	77 (65.3)	579 (81.0)
Rank order of uptake	2	5	4	2	6	1
Cervical cytology screening						
Uptake (%)	90.3	79	83.5	72.6	74.3	86.8
Rank order of uptake	1	4	3	6	5	2

Group A=most affluent wards.