increase in either the number of medical graduates or the length of their postgraduate training.

These are controversial matters with financial and professional implications. Junior doctors have been campaigning against their long working hours, and the BMA has been negotiating with the health departments to reduce these hours (p 937). But unless the NHS comes up with a solution soon consumer opinion will force one on them—as has already happened in the United States (p 938).[17] After all, would you like to put your well being in the hands of a pilot who has been working without rest for 30 hours or more?

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The views expressed in this article are those of the author only and should not be assumed to reflect the opinions of either the Ministry of Defence (Army) or the Royal Air Force Institute of Aviation Medicine.

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Controversy over mammography screening

It should save lives

In 1987 amid much political activity the government accepted the recommendations of the Forrest committee and announced that all women between 50 and 64 would be offered mammography every three years in a national screening campaign.[1] Doubts have since surfaced about the programme, and on p 971 Skrabanek outlines his case against national screening. What might be considered to be the establishment view is put forward by Warren on p 969.

Modern mammography detects breast cancer long before it may be palpated by the surgeon. The impetus to screen for breast cancer with mammography came from two large retrospective, randomised, and controlled trials published in the early 1980s. These studies from Sweden[2] and the United States[3] showed that screening produced a 30% reduction in mortality that was significant in women aged 50-65. Others have suggested that the benefit in both trials may be even greater.[4,5] In the American trial the screened group included a third of women who were offered screening but did not take it up as well as others who dropped out. Women in the American trial were offered mammography with two views and clinical examination yearly. The Swedish trial differed in that only one view was offered every two to three years and there was no clinical examination. This regimen is comparable with that recommended by the Forrest report. Skrabanek questions the conclusions from these trials and argues that the Forrest report is a consensus document that does not mention the arguments of the dissenting minority. If this is true then the dissenters have been notable by their silence elsewhere. One exception quoted by Skrabanek is Wright, a Canadian surgeon who criticised the evidence from the original American trial.[6] He claimed that there were 6% more deaths from all causes in screened women compared with those in the controls. In the correspondence that followed he admitted, however, that this was not the case and that he had made a miscalculation.[4,7,8] The question of the "slightly higher" overall mortality in the Swedish trial remains unanswered; Skrabanek gives no figure, but Wright after communicating with one of the original authors states that it is only 1%.[8] Most experts think that the evidence from these trials is strong despite there being anomalies when small subgroups are examined.[9] Feig recently reviewed the data from the five main trials of mammography screening[2,3,10-12] and concluded that yearly two view mammography with a physical examination in women from 40 onwards could reduce mortality by at least 40% and possibly by as much as 50%.[5] Skrabanek's statement that the yearly benefit would be one death for every 15 000 women does not match up with the figures from the trials.[6]

The critics of mammography will think that their case is supported by a third prospective and randomised trial published today (p 943). This study from Malmö in Sweden offered women over 45 five rounds of screening at intervals of 18 to 24 months. When the trial ended—after nearly nine years— there had been no overall fall in mortality in the group offered screening. But among women over 55 mortality fell by a fifth in women who were screened despite a lower rate of acceptance among the older women than the younger women. Furthermore, mortality fell in the final years of the trial and just after it ended in both the whole group offered screening and those over 55. Women under 55 did not show any fall.

For every 1000 women screened for the first time about five to seven will be shown to have cancer. Although modern mammography has a sensitivity of about 80% and a specificity of about 95%, of much greater importance is the positive predictive value—true positive results divided by true positive and false positive results.[13] Warren, Skrabanek, and Wright[6] are concerned about the positive predictive value, but it is not even mentioned in the Forrest report. Skrabanek cites the Canadian national breast screening study,[14] in which the average positive predictive value from five centres was 8·6%—that is, after mammography it had nearly 11 false positive results for every true positive result. In an American study the

positive predictive value was 10%[10]—for every cancer found nine women had a positive result on screening, of whom seven had a biopsy taken. Warren quotes European studies with positive predictive values of 30-60% and suggests that 25% is an acceptable standard. In the Forrest report a ratio of benign to malignant of two to one on biopsy is cited as appropriate, suggesting a positive predictive value of 33%—but there is no further discussion.

Kopans and Swann have focused on this discrepancy between the North American and European studies[15] and suggested that in Europe there is a greater acceptance of a "wait and see" follow up with repeated mammography, whereas in the United States there is more pressure from patients and doctors for immediate biopsy even when malignancy does not look likely. It is not known what the optimal positive predictive value should be, but the 33% of the Forrest report seems too high, and the 5-10% quoted by Skrabanek is too low. A value that is too high means that some cancers will be missed whereas a low value means that many women will have unnecessary biopsy. Wright suggested that mammography screening should be reserved for women with high risk factors,[6] but three quarters of all cancers occur in women with no risk factors.

Present evidence suggests that mammography screening saves lives and that the risks from radiation are negligible or non-existent.[16] British screening policy has targeted only those most at risk, and, as Warren points out, the programme offers less frequent screenings to fewer women than the programmes in other European countries. The economy of a single view examination will clearly mean more recalls than with a two view examination.

Establishment of even this limited national screening service is going to be costly. If many more positive results are produced from screening than Forrest anticipated and if the screening is extended to younger women and incorporates more frequent examination the costs are going to be greater. It remains to be seen how busy radiologists, surgeons, pathologists, and their support staff in general hospitals cope with the extra workload that the programme is certain to produce.

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Temporal artery biopsy

More important the less classic the presentation

To miss the diagnosis of giant cell arteritis may be disastrous. Yet its treatment is usually rewarding. Opinions differ on the usefulness of biopsy of the temporal artery because a negative result cannot exclude arteritis. Some suggest that biopsy should be reserved for patients failing to respond promptly to corticosteroids.[1] Others assiduously seek histological confirmation of their diagnosis by removing several centimetres of superficial temporal artery and, if this does not produce a result, performing a biopsy of the contralateral artery.[2,3]

There is no disagreement that an elderly patient with a recent onset of headache, jaw claudication, and a tender or thickened temporal artery requires prompt treatment with corticosteroids to prevent blindness.[4] The combined presence of these features predicts a positive finding on biopsy in all but about 5% of cases.[5] A negative result will not alter management in straightforward cases, and biopsy is not essential.

More commonly patients present with recent headache and muscle symptoms. In such patients a raised erythrocyte sedimentation rate is a useful pointer but cannot be totally relied on to screen for patients requiring biopsy. Visual loss may develop in patients with symptoms of giant cell arteritis and a normal or minimally raised erythrocyte sedimentation rate.[6] The message is that superficial headache of recent onset occurring daily for two weeks or more in a patient over 55 should always be taken seriously—a biopsy of the temporal artery should be considered. Routine biopsy is probably not required for patients presenting with just polymyalgia rheumatica unless symptoms suggestive of arteritis emerge on direct questioning or follow up.

Biopsy of the temporal artery may be particularly valuable in elderly patients presenting with fever of undetermined origin,[7,8] obscure anaemia,[9] or anorexia and weight loss[10] but without the classic symptoms of giant cell arteritis. Such patients may be subjected to many investigations for occult malignancy or infection.[11] The need for these investigations is obviated if giant cell arteritis is considered and the finding on biopsy is positive.

If biopsy is to be performed in patients already receiving corticosteroids it should be done within a week of their starting treatment. The diagnostic yield declines if the biopsy is delayed beyond one week,[12] and the changes of healed arteritis may be difficult to distinguish from arteriosclerosis.[13] Healed arteritis has characteristic histological features,[14] but these are found only occasionally.[12] Preoperative flow studies using Doppler ultrasonography may help to pinpoint affected segments of artery[15] but are unlikely to be an important advance because temporal arteriography has proved disappointing.[16]

To increase the diagnostic yield of biopsy both arteries should be palpated for areas of tenderness or thickening and the course of the artery marked before local anaesthesia is given. The aim is to remove at least 2 cm of artery without