A random sample of 151 patients (83 female) was given a questionnaire, and the current international normalised ratio was noted in addition. The mean (SD) age was 63.7 (10.7) years (range 24-93). Most of the patients (126) had a cardiac diagnosis (valve replacement, valvular disease, etc), while the rest had deep venous thrombosis and pulmonary embolism.

Strength of warfarin tablets—Warfarin tablets are available in three strengths (1, 3, and 5 mg). Only seven patients used the 5 mg tablet. Since only five patients were taking 9 mg or more daily, we suggest that all patients could be simply and perhaps more safely treated with the 1 and 3 mg tablets only. We suggest that the 5 mg tablet be abandoned.

Playing safe and computerisation—With increasing numbers of patients being treated, computerisation of the dose is being considered. The official target for the international normalised ratio was 2.0-3.0. Our results showed a peak in the lower half of the target zone, presumably because the doctors were playing safe: the ratio was 1.0-1.4 in 11 patients, 1.5-1.9 in 37, 2.0-2.4 in 45, 2.5-2.9 in 38, 3.0-3.4 in 16, 3.5-3.9 in three, and 4.0-4.4 in one. The low incidence of side effects (only one patient required admission to hospital) reflects this caution. A transfer to computerised control, aiming for the middle of the official target zone, would shift the distribution to the right, possibly increasing the rate of complications.

Communication with patients—Patients were aware of their dose of warfarin ($n=148$), knew the reason for taking it (143), and were meticulous in their compliance (149 took it at same time each day, and 138 knew not to take a double dose to compensate for forgetting a dose). Ninety five, however, did not know the desirable international normalised ratio, and only three knew that the abbreviation INR stood for international normalised ratio. With patients being encouraged to have more involvement in their treatment, it is important for them to have a better of understanding of the goals of treatment and the terms used to monitor it.

The information was collected by Miss Belinda Teh as part of a master's degree in medical science; the study was approved by the faculty of medicine's research ethics committee.

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Difficulties of routine treatment are exaggerated

EDITOR—C M Sudlow and colleagues, and K G Sweeney and colleagues' commentary on their article, exaggerate the difficulties in acting on the research evidence on the use of anticoagulants in atrial fibrillation.¹ They point to the risk of bleeding, the need for data on prevalence, and patients' preferences as areas of uncertainty.

Much of the evidence on the incidence of bleeding as a side effect of anticoagulant treatment derives from data recorded in the 1980s and earlier, since when the technology of monitoring has improved. Nevertheless, bleeds are a reason to consider stopping treatment, on the grounds that patients' quality of life may be adversely affected by continued anticoagulation.² Fortunately, results from controlled trials have been corroborated by experience of anticoagulant treatment in clinical practice from a large health maintenance organisation in Boston. Treatment of 65% of those with atrial fibrillation was achieved in a population with higher levels of comorbidity than those seen in trials. The incidence of strokes and major and minor bleeds (14% annually in the latter case) was similar in practice to that in the treatment arms of the trials.³

Using data on prevalence from the Framingham study, I have estimated the number of strokes occurring in people with atrial fibrillation in Northamptonshire. At 18% of all first strokes, my estimate agrees closely with figures in community studies of stroke (17% in the Oxfordshire community stroke project), suggesting that the prevalence of atrial fibrillation in Northamptonshire is similar to that in the Framingham study.

If we accept the results of meta-analysis of the controlled trials a further 52 strokes would be avoided annually in Northamptonshire district if 65% of patients aged 65 to 84 were treated instead of current levels of coverage (estimated in an audit as 7.5%). This would mean 1900 more people taking warfarin. Five additional episodes of major bleeding would be expected. Additional monitoring costs would not exceed £90 000 and drug costs £20 000. Overall, treating 40 people at a cost of under £2400 would avert one outcome event. Even if start up and diagnostic costs doubled this figure the treatment would remain worth while. With a 14% annual drop out rate, fewer people would be treated but the cost of avoiding a stroke would remain the same (unpublished MSc thesis).

We know who will benefit and by how much—current evidence suggests all those over 65 with atrial fibrillation and those under 65 with any of three additional risk factors (previous transient ischaemic attack or stroke, diabetes, and hypertension). We know roughly how many will benefit. We know roughly how much such treatment will cost the health service. It has been shown to work elsewhere. Given this knowledge, it is hard to agree that the need for more research is greater than the need for action. As for patients' autonomy, how is this served if we do not offer the choice?

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Cardioversion should be attempted

EDITOR—C M Sudlow and colleagues introduce the concept of packages of care in atrial fibrillation.¹ Full packages of care for patients with atrial fibrillation will involve much more than the provision of anticoagulant treatment. Atrial fibrillation causes not only an increased risk of embolism but also important symptoms in itself, especially when the ventricular rate is poorly controlled, and it is an inefficient cardiac rhythm. The aim of treatment should therefore be not only to minimise the risk of embolism but also to achieve good control of the ventricular rate and to restore sinus rhythm when possible. Cardioversion to sinus rhythm improves functional capacity² and, if maintained, removes the need for long term anticoagulant treatment.

Attempted direct current cardioversion of atrial fibrillation inevitably necessitates referral to secondary care, and patients need anticoagulant treatment before the attempt. This includes young

patients with "lone" atrial fibrillation, in whom cardioversion is most likely to be successful. Even if sinus rhythm is not restored, anticoagulants may be stopped later in such patients. Nevertheless, this shows that good management of atrial fibrillation has considerable cost implications, and packages of care are likely to include use of secondary care facilities as well as echocardiography and anticoagulant treatment.

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In Finland anticoagulant treatment is monitored by general practitioners

EDITOR—C M Sudlow and colleagues emphasise the importance of an understanding of "the whole package of care" when new research evidence concerning the effect of anticoagulant treatment in preventing strokes in patients with atrial fibrillation is applied to everyday work.¹ In their commentary on the article K G Sweeney and colleagues are worried about complications of the treatment and about underanticoagulation.²

In Finland anticoagulant treatment is monitored by general practitioners in primary health care. In some cases they also start the treatment. The country thus has a system that Sweeney *et al* and Pell *et al* might view as ideal.³

In 1992 we carried out a study of the prevalence of anticoagulant treatment in Finland. We also recorded the main and secondary indications for anticoagulant treatment and the most recent measurement of the prothrombin time. Among the total population of 182 091 patients in eight ordinary health centres we found (from laboratory records) that 1255 (0.69%) were receiving anticoagulant treatment. Altogether 590 of these patients—0.32% of the total population—had atrial fibrillation as the main or a secondary indication. The prevalence of patients with atrial fibrillation who were receiving anticoagulant treatment was 0.9% (169/17 793) among people aged 60-69, 1.8% (123/6654) among those aged 70-74, and 1.4% (32/2314) among those aged over 85. As the prevalence of atrial fibrillation in Finland is 3.4%, 6.1%, and 18.0% in these age groups, respectively,⁴ we can estimate that about one third of patients with atrial fibrillation receive anticoagulant treatment.

The most recent prothrombin time was available for 589 patients with atrial fibrillation who had been treated for more than one month. Values were within the recommended range in 497, below the lower limit of the range in nine, and above the upper limit of the range in 74. The distribution of values was the same in all age groups.

Follow up data at one year were available on 1131 patients from seven health centres. Altogether 522 had atrial fibrillation, of whom 414 were still receiving treatment; only 13 had stopped the treatment because of complications. Sixteen patients with atrial fibrillation had developed bleeding that necessitated admission to hospital, while 38 had developed minor bleeding (for example, epistaxis). One of the 522 patients had died of subarachnoid bleeding possibly connected with the treatment, and four had died of a thromboembolism that had not been prevented.

Our data reflect the ordinary "package of care" in eight health centres in Finland. The prevalence of anticoagulant treatment and the proportion of patients receiving such treatment because of atrial fibrillation seem to be high compared

with international figures. General practitioners in Finland know their patients' diseases, drug treatment, and home circumstances. They and their team take responsibility for monitoring their patients' anticoagulant treatment and accept this division of work, as do specialists and the patients.

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Telephone interpreting service is available

EDITOR,—I am surprised that Michael Phelan and Sue Parkman's article on working with an interpreter¹ does not mention telephone interpreting: a unique service was pioneered in Britain by Language Line in 1990. After a trial at the Royal London Hospital, Language Line's telephone interpreting service is now used daily in 15% of NHS trusts nationwide, including major teaching hospitals such as King's College Hospital as well as specialist centres such as Great Ormond Street Hospital. Health care providers using this service are increasing rapidly.

Phelan and Parkman's article outlines many areas in which the four types of interpreting identified (that by bilingual health workers, trained interpreters, friends and relatives, and untrained volunteers) often fail to meet basic needs. A scarcity of the first two types of interpreting means that professional resources are often not available when and where needed. Use of the last two types leads to the risk of partiality and lack of confidentiality.

Telephone interpreting services provide solutions to these problems. Firstly, they are immediate and accessible. Our trained interpreters, who are fluent in more than 140 languages, can be on line in around 90 seconds, day and night. Thus, whatever the location, interpreters can be reached quickly and easily, which saves vital time and resources. Immediacy relieves stress for both the medical professional and the person who does not speak English. Communication is therefore possible in situations in which the professional is unable to plan ahead. Secondly, telephone interpreting services offer impartiality and confidentiality. Our telephone interpreters abide by a strict code of ethics, which emphasises accuracy, impartiality, and confidentiality. Furthermore, the anonymity of our interpreter often facilitates a freer exchange of information, especially where personal, embarrassing, or sensitive matters are concerned.

While a telephone interview conducted through our interpreter is structured in much the same way as a face to face interview, health care professionals should be advised that as there is no visual contact with the patient they must provide information orally.

Telephone interpreting is not a replacement for the vital work done by bilingual health workers and face to face interpreters, but it fills in the gaps when these resources are not available. It also means that those who provide services never need to use inadequate, ad hoc resources. Language Line's unique, nationwide telephone interpreting service therefore merits inclusion in the appendix of useful addresses at the end of Phelan and Parkman's article.

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Cancer among airline cabin attendants

Risk due to active and passive smoking should have been mentioned

EDITOR,—In their comprehensive study Eero Pukkala and colleagues found that Finnish airline cabin attendants had a significantly increased risk of breast and bone cancer and a non-significant trend (too few cases?) towards some other cancers.¹ The analysis included exposure to radiation, some lifestyle factors, and reproductive history. For some reason the authors omitted cigarette smoking, both active and passive, which may have a role in their findings.

It is well known that smoking increases the risk of cancer in various organs.^{2,3} An association between smoking and breast cancer has been considered not to exist or to be weakly positive, but it may be fairly considerable.⁴ Most non-smoking travellers have noticed the nuisance of cigarette smoke in aircraft, especially in the rear, where the seats are usually reserved for smokers. In many aircraft the kitchens are also in the rear, and consequently the flight attendants have to spend a lot of flight time in an area polluted with smoke.

The magnitude of the risk of cancer caused by passive smoking is not known but may be proportional to the amount of smoke inhaled.⁵ Although measuring the amount of smoke inhaled is difficult, if not impossible, the risk of cancer caused by both active and passive smoking should at least have been mentioned.

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Interpretation of study minimises occupational hazards

EDITOR,—Eero Pukkala and colleagues report a standardised incidence ratio of 10.7 for breast cancer and 3.57 for leukaemia among Finnish airline cabin attendants.¹ Most other ratios reported are also raised beyond unity. Yet the study makes no correction for the healthy worker effect, which can halve the incidence of morbidity in a given population. The interpretation therefore minimises what seem to be significant occupational hazards. The researchers note, even so, that the

observed risk ratios are much higher than would be expected on the basis of present estimates of health hazards based on studies of survivors of the atomic bombs. I have conducted a study showing that these studies are far from robust,² and we do ourselves a disservice by continuing to depend on them 40 years on.

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Authors' reply

EDITOR,—Rainer Fogelholm suggests that exposure to environmental tobacco smoke might explain the increased risk of breast cancer that we found among Finnish flight attendants. The possible effect of passive smoking was one of the concerns among flight attendants that prompted us to conduct the study. We considered passive smoking mainly as a risk factor for lung cancer. The fact that no clear increase was observed in the incidence of lung cancer and other cancers related to smoking (although the confidence intervals were relatively wide) suggests that the cabin crew did not smoke more than average and that passive smoking is not a major problem in this cohort.

Smoking is the leading cause of cancer in industrialised countries.¹ We did not, however, consider passive smoking to be a potential explanation for the increased risk of breast cancer because the evidence regarding cigarette smoking as a risk factor for breast cancer is weak and inconsistent. Most reliable evidence on the subject is available from large cohort studies with detailed smoking histories obtained before the occurrence of the disease. Studies such as the nurses' health study and the Framingham heart study have failed to show any association between cigarette smoking and breast cancer.^{2,3} Furthermore, a reduction in the risk of breast cancer among smokers has been reported in cohort studies as frequently as an increase.⁴ There are also several case-control studies on the subject, but they have generally not shown an increased risk of breast cancer among smokers.⁴

We are aware of only one study directly assessing the effect of passive smoking on the risk of breast cancer.⁵ Its results do not show any increase in risk. Two previous reports were based on breast cancer among women married to smokers but did not assess exposure in detail.⁶ With scarce evidence for the effect of active smoking, the relation between passive smoking and breast cancer is unlikely to be the subject of intense research.

In summary, we find it unlikely that exposure to tobacco smoke could account for the increased risk of breast cancer among Finnish flight attendants. We agree with Fogelholm, however, that several factors might explain the excess risk. The aim of our study was to detect a possible increase in risk. More detailed analyses are needed to identify the causal factors.

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