whether these compounds accumulate during low or high ozone episodes and, if they do, whether they are of clinical relevance.

Jon G Ayres is concerned that there was insufficient adjustment for other confounding meteorological factors and critically black smoke or particulate matter. In fact, relative humidity, wind speed, barometric pressure, and sunshine hours were examined in the statistical models, but for reasons of editorial brevity these data were not included in the paper. The effect of ozone was not appreciably altered.

Fig 1—Unadjusted Lowess smoothing averages for incidence of wheeze and 24 hour average ozone for two sites in London

Graham Benthall and Peter Brimblecombe comment on the unexpectedly high ozone levels recorded in October and November. We have now repeated the analysis using pollutant data derived from the fixed point monitor in London Bloomsbury for the same time period as the study (courtesy of AEA Technology, National Environmental Technology Centre, Abingdon). The monitor is located some 20 km east of the Heathrow OPSIS monitor. For ozone, sulphur dioxide, and nitrogen dioxide the mean differences between the Bloomsbury and OPSIS monitors were +17, -11, and -10 µg/m³ respectively with 95% confidence intervals not exceeding 5 µg/m³ for any of these pollutants, although for the period 13 October to 15 November the OPSIS site gave significantly higher levels of ozone. Despite these differences, Poisson regression analysis using the pollutant data from Bloomsbury adjusted for season, temperature, and wind speed revealed a similar U shaped relation between wheezy incidence and ozone (fig 1). Additional adjustment using data on particles less than 10 microns in size (PM10), which was available from the Bloomsbury site, had no significant effect on this relation.

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Metabolic effects of hormone replacement preparations

EDITOR.—The recent article by the Medical Research Council's General Practice Research

Framework examined the metabolic effects of an oestrogen only and a combined hormone replacement preparation (containing norgestrel) in women with hysterectomy and concluded that the possibly beneficial and adverse effects of the two regimens were fairly evenly balanced on lipids and coagulability.¹ We believe that a greater emphasis should have been placed on the results for high density lipoprotein cholesterol, which is a potent independent risk factor for coronary heart disease in women of that age. In the lipid research clinics prevalence study, high density lipoprotein cholesterol was second only to age as a predictor of coronary heart disease in women, more so than low density lipoprotein cholesterol.² From the Framingham data³ we calculated that for a similar group of women the difference in high density lipoprotein cholesterol concentration observed at 12 months between oestrogen only and the combined preparation would translate into a 33% lower risk of a non-fatal myocardial event with the oestrogen only preparation. In contrast, the significance of a moderate increase in factor VIIc (probably related to the increase in triglyceride) in terms of risk of coronary heart disease is not known as there have been no studies to date examining factor VIIc as a marker of cardiovascular risk in women. The observed rise in high density lipoprotein cholesterol may be more important as a marker and outweigh the concomitant increment in factor VIIc in terms of coronary heart disease risk.

The difference in high density lipoprotein cholesterol concentrations between regimens is likely to be due to increased hepatic lipase mediated catabolism with the combined preparation. Oestrogens lower and progestogens increase hepatic lipase activity in proportion to their degree of androgenicity. The point here is that preparations containing androgenic progestogens may be associated with a more atherogenic lipoprotein profile, since it has recently been shown that in women hepatic lipase is also involved in perturbing the low density lipoprotein subfraction profile towards a smaller, denser, more atherogenic pattern.⁴

Finally, this study did not incorporate measures of insulin sensitivity, nor was any comment made on the potential disparity in the effects of the two regimens on carbohydrate metabolism. Oestrogen only preparations have been shown to improve insulin sensitivity, whereas added progestogens seem to oppose this beneficial effect in proportion to their androgenicity.⁵ As a result, the choice of hormone replacement preparations may be an especially important consideration for women with abnormal glucose tolerance, and in these women the addition of a relatively non-androgenic progestogen may be advantageous.

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1 Medical Research Council's General Practice Research Framework. Randomised comparison of oestrogen versus oestrogen plus progestogen hormone replacement therapy in women with hysterectomy. *BMJ* 1996;312:473-8. (24 February.)

2 Jacobs DR, Meban IL, Bangiwa SI, Criqui MH, Tyroler HA. High density lipoprotein cholesterol as a predictor of cardiovascular disease in men and women: the follow-up study of the Lipid Research Clinics Prevalence Study. *Am J Epidemiol* 1990;131:3247.

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Chickenpox and steroid cards

Patients need information

EDITOR.—We agree with M D Feher and colleagues that there is a need to reinforce verbal advice regarding the potential risk of the development of severe chickenpox in patients taking oral corticosteroids who do not have a previous positive history of chickenpox.¹

We recruited 121 consecutive patients (65 men, 56 women, age range 26-93 years) either through outpatient medical clinics or before discharge from the medical wards at our centre. All the patients had been prescribed oral corticosteroids for purposes other than replacement. We assessed, through a simple questionnaire completed by either the patient alone or with help from a doctor or member of the pharmacy staff, the information patients received regarding their treatment, the risks perceived regarding the development of severe chickenpox, and how each individual patient would respond if exposed to chickenpox or herpes zoster.

A total of 68 patients (56%) had had chickenpox or shingles in the past, 31 (26%) said they had not, and 22 (18%) were unsure. Only four patients (3%) had previously received information about what to do on contact with a person with chickenpox or shingles, three verbally from their general practitioner and one verbally from a hospital pharmacist. Of those who had not received such information, 66 (55%) had had at least one course of oral corticosteroids in the preceding 12 months and 35 (30%) had had three or more courses or continuous treatment. Of the 53 patients without a positive history of chickenpox or shingles, 49 (92%) had also not received any information on what to do on contact with a person with either disease.

There was confusion among patients as a consequence of this lack of information. On contact with chickenpox, 19 (28%) of the 68 patients with a positive history of chickenpox or shingles said they would contact their general practitioner; 29 (55%) of the 53 patients with no history or an uncertain history of chickenpox or shingles would not contact their general practitioner.

As a consequence of the above work, we, like Feher and colleagues, have developed our own corticosteroid warning card. We suggest that prescribers and pharmacists consider the information requirements of their own patients.

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1 Feher MD, Simms JP, Lant AF. History of chickenpox and steroid cards: a new warning. *BMJ* 1996;312:542-3. (2 March.)

Amended card is used in Oxford

EDITOR.—We applaud the initiative of the Chelsea and Westminster Hospital, presented by Feher and colleagues, in producing a leaflet that warns patients of the dangers of chickenpox if they are taking corticosteroids and which it issues with the standard national steroid card.

In Oxfordshire there has been an enhanced awareness of this hazard of corticosteroid taking since the death in 1992 from chickenpox of a 9 year old child who had received high dose corticosteroids for an eye condition. When it became clear that there was likely to be a considerable delay before the national steroid card was amended to incorporate a warning about chickenpox, the Oxford

Radcliffe Hospital and Oxfordshire Health Authorities decided to collaborate in producing their own card. This is now in wide use throughout the county, having replaced the national card not only at the Oxford Radcliffe Hospital but also, more importantly in numerical terms, in all general practice surgeries and community pharmacies. It has also been offered to the other trusts in the county to use if they wish.

The card was approved by the Royal Pharmaceutical Society before the substitution was made. The Department of Health was also given notice of our intentions and raised no objection.

A further concern arose about the need for guidance as to when the card should and should not be issued. A double sided, A4 sized advice sheet was therefore produced, using the best available evidence, and sent to all general practitioners and community pharmacists with the first batch of the new steroid cards. Part of its intention is to rationalise the issuing of the steroid cards. They are not, for instance, recommended for patients receiving low doses of inhaled corticosteroids, in whom there is no increased risk from chickenpox.

The same guidance sheet also includes locally tailored advice as to what should be done if a patient at risk who is receiving corticosteroids does come into contact with chickenpox or shingles.

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1 Feher MD, Simms JP, Lant AF. History of chickenpox and steroid cards: a new warning? *BMJ* 1996;312:542-3. (2 March.)

Doctors Reform Society in Australia defends its reputation

EDITOR,—Events since the publication of Simon Chapman's Focus article from Sydney have shown the shallow analysis of his report.¹ His attempt to tarnish the Doctors Reform Society by saying that it is obedient to a political party requires a response.

The society has always been concerned with a better health system and is jealous of its independent reputation and professionalism. In 23 years of medical politics it has stood firm against moves by both the main political parties to whittle away the universality and accessibility of Medicare. All political views are represented among current members of its executive, who are united in their commitment to the best ideals of medicine. The society has a fine reputation in Australia, and I hope that readers will not have been misled.

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1 Chapman S. Health versus personality in Australian politics. *BMJ* 1996;312:334. (10 February.)

Evaluation of a primary care anticoagulant clinic

Authors did not present enough data

EDITOR,—Sheena H Macgregor and colleagues' report on the evaluation of a primary care anticoagulant clinic managed by a pharmacist is

so lacking in methodological detail and supporting data that it is difficult to see how they can justify many of their conclusions.¹ No description of the study setting or study population is given. The potential for selection bias cannot therefore be determined, and it would be inappropriate to generalise the results beyond this particular general practice.

The authors chose to report only the proportion of the total number of measurements of the international normalised ratio that fell outside the target range, but it would be useful to know how many patients had abnormal ratios at any time during the study: did a small number of "difficult" patients contribute all the abnormal values or did most patients have an abnormal ratio at some time during the study? In addition, the subsequent course of those subjects with abnormal ratios is not reported.

No details are given as to how patients' knowledge was measured other than "by questionnaire," and no data are provided to substantiate the claim that counselling in hospital was unsatisfactory but subsequent counselling in the clinic improved patients' knowledge.

Despite the stated aims of the study, no costings are provided that might allow readers to assess the validity of the financial conclusion reached. The study cannot provide evidence that a pharmacist led clinic reduces the risks of toxicity and failure of treatment: it is not of an appropriate design to do so. Finally, only in the statement on funding does it become apparent that the study may have taken place in a fundholding practice. Given the nature of the study and the current climate of encouraging competition between health care providers, it is arguable that this amounts to a conflict of interest, although none is disclosed.

If the provision of health care in Britain is to improve, policymakers must surely be able to base decisions on evidence of a higher quality than this.

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1 Macgregor SH, Hamley JG, Dunbar JA, Dodd TRP, Cromarty JA. Evaluation of a primary care anticoagulant clinic managed by a pharmacist. *BMJ* 1996;312:560. (2 March.)

Issue of quality control was not addressed

EDITOR,—Sheena H Macgregor and colleagues conclude that "good therapeutic control" and a "cost effective" anticoagulant service can be provided in the general practice surgery.¹ Near patient testing of the international normalised ratio is certainly an attractive means of providing an anticoagulant monitoring service. The authors' paper fails, however, to address the central issue of quality control and does not quantify the surgery costs.

Optimal patient care requires that near patient testing services meet the same standards of quality control that are required of accredited laboratories. Calibration of a coagulometer does not ensure that the measurements of the international normalised ratio produced on a day to day basis are either accurate or reproducible. The Joint Working Group on Quality Assurance² and the British Committee for Standards in Haematology³ recommend that near patient testing schemes should be subject to a regular, properly documented, quality control process administered in cooperation with an accredited laboratory. This is particularly important for those portable coagulometers (such as the Biotrack 512 used in the study) that analyse uncitrated blood and consequently cannot be entered into national external quality assurance

schemes. Without quality control data, comparison of international normalised ratios produced by different analytical systems, as in this study, cannot be meaningful.

Macgregor and colleagues refer only to the marginal costs of their clinic and do not quantify these. They draw a comparison with the hospital clinic's charge of £35. This is inappropriate, particularly as the hospital clinic has been available to fundholding general practitioners in Dundee free of charge.

Purchasers require detailed information about the quality, acceptability, and cost of different systems for monitoring anticoagulant treatment. The studies necessary to generate useful comparative data require cooperation rather than competition between primary and secondary care. In Dundee one such study involving four general practices and the haematology department is currently in progress.

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- Joint Working Group on Quality Assurance. Appendix: guidelines on the control of near-patient tests and procedures performed on patients by non-pathology staff. In: Wood K, ed. *Standard haematology practice* 2. Oxford: Blackwell Science, 1994:278-9.
- England JM, Hyde K, Lewis SM, Mackie IJ, Rowan RM. Guidelines for near patient testing: haematology. *Clin Lab Haematol* 1995;17:301-10.

Reporting of results should be standardised

EDITOR,—Sheena H Macgregor and colleagues report that primary care anticoagulant clinics run by a pharmacist achieve substantially better results than previously reported.¹ However, they give no indications of the patients' clinical conditions, no data on adverse events or quality of life, no information on how patients' preference was identified, and unhelpful data on costs.

A further major problem is their decision to report the proportion of measurements of the international normalised ratio that were within the target range as $\pm 10\%$ of the British Society for Haematology's guidelines. (We also have to assume that control was assessed against the desired range for the clinical indications for warfarin, although this is not stated.) This means that patients for whom the recommended reference range is 3.0-4.5 could have had actual values of between 2.7 and 4.95. This is a very wide therapeutic window, and it is therefore not surprising that 84-90% of patients achieved it. This study highlights the need for standardisation in reporting results from anticoagulant clinics.

While such point prevalence data are of value, the percentage of time spent within the target range is a more discriminating assessment of therapeutic quality control.² One method of assessing the degree of therapeutic control, which we have reported, is to give the mean (± 1 SD) international normalised ratio for the clinic.³ Such analysis allows direct comparison between different environments—for example, primary care and hospital based clinics—and could be applied to the different therapeutic ref-