

enormous increases in asthma drug use since 1973, there have been no published reports of a decrease in morbidity.²

The fact that 29 of the 53 general practitioners who were invited agreed to take part in our study suggests to us that general practitioners in Croydon are highly motivated in the care of asthma and are remarkable in wanting to take such steps to improve their own management. The response rate of patients in our study to the questionnaire never fell below 82% despite having to complete six questionnaires over two and a half years, and the 338 patients who completed the last questionnaire represent 74% of the 454 patients who entered the study. Higher targets are rarely reached.

Our study suggests that the power of small group discussion to change our behaviour in the absence of directly elicited information about patient morbidity should not be overestimated. We are not aware of any small groups which currently use surveys of patient morbidity as a basis for their discussions and we have not seen any controlled trials of the effectiveness of educational interventions with doctors in the care of asthma.

PATRICK T. WHITE

Kings College School of Medicine and
Dentistry
London SE5 8AX

CATHERINA A. PHAROAH

Policy Studies Institute
London NW1 3SR

H. ROSS ANDERSON
PAUL FREELING

St Georges Hospital Medical School
London SW17 0RE

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Sir,

We read the study by Dr White and colleagues (*May Journal*, p.182) with interest. However, the analysis suffers from statistical weaknesses which are all the more important for being quite common.

The results of 54 separate significance tests are reported. There is a one in 20 chance of obtaining a *P* value less than 0.05 and so rejecting the null hypothesis when it is true. Repeated testing seriously increases the risk of such type I errors.¹ While not influencing the conclusions of this study, it is poor practice and should not be copied. If there had been a different pattern of significant tests in-

correct inferences might have been drawn.

Table 5 of the paper gives the results of analysis of variance between the two intervention groups and the control group for every morbidity measure and for each of the six times that the patients were questioned. This form of analysis (univariate) assumes that the results in each period are independent of the next. However, this assumption does not appear to have been tested. The measures of asthma morbidity in one period are likely to be related to those obtained six months earlier. Analysis which ignores the relationship between repeated measures and uses univariate when multivariate analysis² is more appropriate will tend to overlook significant trends and differences and thus miss important results.

As the patients' results are subsumed under their respective general practitioner's score some trends among patients over time may have been missed. Thus, the analysis should explicitly acknowledge that the data are from patients who are 'nested' within general practitioners who are in turn 'nested' in groups (intervention or control).

With the availability of microcomputers and better training, general practitioners should increasingly come to regard themselves as clinician researchers. It will be a shame if the potential blossoming of research activity in general practice is not accompanied by a comparable growth in statistical understanding.

TREVOR A. SHELDON

PHILIP MONK

Department of Community Health
University of Leicester
Leicester Royal Infirmary
PO Box 65
Leicester LE2 7LX

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Comparison of the workload of a trainer and trainee

Sir,

We were interested to read the paper by Pearson and Goss (*August Journal*, p.320). We carried out a similar, although smaller, audit halfway through one training year.

The practice is situated in an inner city area and at least 6% of the patients are of Asian or Arabic origin. The practice is atypical since 40% of the population

registered are aged between 15 and 24 years. The principals are all lecturers in general practice fulfilling research and teaching as well as clinical commitments. The trainee was the only woman in the practice at the time of the audit. The practice list size is approximately 7500 and lists are shared.

Consultations carried out by the trainer (C.R.W.) and trainee (C.C.) in January/February 1989 were audited. Each consultation was coded according to type — newly registered patient (first consultation in the practice), new problem, review of new problem, chronic disease or chronic problem — and a summary of the main problem dealt with was recorded.

Over seven weeks the trainee saw 526 patients and in six weeks the trainer saw 330 patients — 58% of the trainer's consultations were with female patients compared with 80% of the trainee's. This confirmed the trainee's suspicions of her workload but contrasts with the results of Pearson and Goss.

Twenty per cent of the trainee's consultations were with newly registered patients compared with 4% of the trainer's. This reflects the high turnover of patients within the practice and indicates that the trainer's surgeries were usually well booked in advance so that any gaps which existed were in the trainee's surgeries and were filled with 'extras', often new patients.

Eighteen per cent of the trainee's consultations were for review of recently presented problems, compared with less than 3% of the trainer's. No record was made of whether these were doctor or patient initiated consultations but if they were the former they indicate the trainee's greater uncertainty and need to monitor the natural history of self-limiting disease.

Consultations for chronic problems comprised approximately 40% of trainee and 45% of trainer workload. Analysis of the type of problem seen revealed that nearly 10% of both the trainer's and trainee's consultations were for chronic psychosocial, drug or alcohol problems. This contrasts with Pearson and Goss's study where 6.4% of the trainees consultations and 11.3% of the trainer's were with patients with mental and social problems. The percentages of consultations for other chronic problems, such as diabetes and asthma, were similar to those of Pearson and Goss for the trainer but were lower for the trainee, supporting other studies which draw attention to this deficit in training.¹

The percentages of consultations that were for gynaecological problems were much higher in our study than in that of Pearson and Goss. Thus 18% of the