by following the Blennerhassett recommendation that we should adopt the procedure, used in Northern Ireland for the past nine years, of screening with a reasonably accurate breath device and allowing the accused to plead guilty to the result if he wished or to have a blood test if he did not. Provided a breath test was taken at the same time as the blood, the real operational reliability of breath tests would very soon be established. Judging by the experience in Northern Ireland⁶ this procedure would save 90% of the time and labour at present devoted to blood analysis in forensic laboratories, so there should be plenty of time and labour available to investigate the source of variation between breath and blood. The UWIST studies have already indicated that the main source lies in the fact that, owing to its high solubility and low concentration, there is a large "physiological" dead space for alcohol in the upper respiratory tract and that it is variations in this dead space that are mainly responsible for variations in the breath: blood ratio. What is now needed is a study of the factors influencing the properties of the dead space.

If, after due consideration, it is decided to accept the errors of breath analysis I hope that its potentialities will be fully exploited. A number of not very accurate breath tests may well give a better picture of the tissue alcohol level than an analysis, however accurate, of a single blood sample. But to replace one blood sample with one breath sample, which seems to be the practice in Australia and other countries where blood has been abandoned, however convenient for lawyers and police, is much worse than substituting an SD of 10 mg/100 ml for one of 2 mg/100 ml. The precision of blood analysis is known and ensured because the analysis is duplicated, but the precision of a single breath sample cannot be determined and no statistician would be content with data based on such an observation.

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¹ Enticknap, J E, and Wright, B M, *Proceedings of the 4th International Conference on Alcohol and Traffic Safety*, p 161. Bloomington, Indiana, Indiana University, 1966.

² Jones, A W, Wright, B M, and Jones, T P, *Proceedings of the 6th International Conference on Alcohol and Traffic Safety*, p 509. Toronto, Addiction Research Foundation, 1975.

³ Dubowski, K M, *Clinical Chemistry*, 1974, 20, 294.

⁴ Department of the Environment, *Drinking and Driving, Report of the Departmental Committee*. London, HMSO, 1976.

⁵ Klein, D, *Human Factors*, 1976, 18, 211.

⁶ Howard, A L, and Morgan, W H D, *Proceedings of the 5th International Conference on Alcohol and Traffic Safety*, p 53. Freiburg. Schulz Verlag, 1969.

Night visiting by general practitioners

SIR,—The article by Mr M J Buxton and others (26 March, p 827) raises some interesting questions. As the section "Implications for policy" demonstrates, this paper has a political intent. Before attempting to influence policy it is important to examine the quality of the evidence presented.

The authors have tended to dismiss much published evidence on the grounds that it may be "misleading, atypical information based on the experience of a handful of practices." Instead they have attempted to infer the rate of night visits from data on the number of fees claimed. How valid are their assumptions? In Table I they infer that there

has been an increase of approximately 135% in the night-visiting rate per 1000 patients between 1967-8 and 1975-6. This figure depends on their assumption that there are as many visits between 2300 and 2400 as there are in any other hourly period during the night. This is a surprising assumption, as the authors quote in their paper and in the source document¹ setting out their reasoning more fully the work of Brotherston *et al*² and Crowe *et al*.³ Both these papers show a higher number of visits between 2300 and 2400 than in hourly periods in the early morning. Indeed, in their source document Mr Buxton and his colleagues present the implied night visiting rates per 1000 patients assuming that the findings of Crowe *et al* on the timing of calls are valid across the country. Using these assumptions, the implied night-visiting rates increased between 1967-8 and 1975-6 by 60%. One can only speculate why the authors chose to present the figures they did in the article as they provide no reasons for their preference in the article or in their source document. As the authors acknowledge in their paper, interpretation of this apparent increase requires caution. We do not know if night-visiting rates are increasing or if a greater percentage of claims are now being submitted.

Having gathered data one must be careful in their interpretation, as assumptions at this stage may be equally invalid. In the concluding paragraphs, Mr Buxton and his colleagues write: "If the rate of night visiting is seen as a measure of the care provided to the patient then the continuation of deputising services would improve performance in terms of this indicator." This may be so. An alternative explanation could be that any increase in night-visiting rates could be accounted for by patients summoning an "emergency doctor" to deal with a problem which has existed for some time because for one reason or another it has not been dealt with earlier, perhaps because the patient was unable to make an appointment with his own doctor. In this case an increase in night-visiting rates would indicate a decreased performance of medical services.

The authors have provided much food for thought and for this they deserve congratulations. Their article underlines the necessity for further studies on this fascinating topic, which one hopes will be better designed and validated. If and when this is done there will be a firmer basis for discussions on policy.

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¹ Buxton, M J, and Sayers, J, *An Analysis of GP Night Visiting Rates*. London, Centre for Studies in Social Policy, 1976.

² Brotherston, J H F, *et al*, *British Medical Journal*, 1959, 2, 1169.

³ Crowe, M G F, Hurwood, D S, and Taylor, R W, *British Medical Journal*, 1976, 1, 1582.

*.*Dr Gilchrist sent a copy of this letter to Mr Buxton and his colleagues, whose reply is printed below.—ED, *BMJ*.

SIR,—Dr Gilchrist's comments rightly emphasise that the change over time in the implied night-visiting rates depends on a variety of assumptions. It is precisely because we agree with him that our paper stressed the upward trend rather than a particular figure; there is an upward trend whatever the assumptions made. Indeed, given that—as we stressed in the paper—nothing is known about changes in

the propensity to claim, it would have been extremely foolish to make any point that relied on a particular percentage increase.

Permutating the various assumptions involved in calculating the implied visiting rates produces estimated increases, as our background paper shows, between approximately 60% and 135%. The difference between these two figures reflects alternative assumptions not only about the correction for the extension of eligible hours but also about the effects of delays in making payments. The figures given in the published table, from which Dr. Gilchrist has derived the 135%, were chosen for two reasons. Firstly, the assumption about shorter delays in payments yielded a relatively smooth upward curve, rather than an implausible hiccup in the first year. Secondly, the assumption about the pro-rata effect of the extension of eligible hours seemed reasonable to us, given that changing the hours may well have altered the pattern of visiting. We would indeed welcome more evidence as to the validity of these assumptions, but it must be stressed that no adjustments were necessary for the 1973-4 figures used in the main analysis of geographical variations.

With respect to Dr Gilchrist's interpretation of the evidence, he may well be right in his suggestion that patients now find it easier to get a home visit from an "emergency doctor" than from their general practitioner. But if so, then surely the deputising services are performing a useful role; from the patient's point of view, better a night visit than no visit at all.

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New strategies for drug monitoring

SIR,—Your leading article on this subject (2 April, p 861), highlights some problems associated with recent proposals, in particular the choice of suitable controls to compare with index patients on new drugs and difficulties in interpreting the incidence rates of a particular condition among users of a drug without knowing the incidence measured by the same methods among similar people who had not received the drug. Another problem is the establishment of similar data about drugs already in common use and not those coming into use for the first time.

The potential already exists for selected testing of a suspected association of morbidity with a specific drug in the disease indexes,¹ maintained by over 100 general practitioners. These disease indexes now contain approximately two million patient years of records of total morbidity—that is, some three million episodes of illness.² The indexes can be used for investigating any adverse effect which is included consistently in the disease classification used.³ This approach was used in a study to establish whether women recorded as suffering from thromboembolic phenomena were more likely than other women to be using oral contraceptives.^{4 5} In that study a relationship between the use of oral contraceptives and venous thromboembolism was established at a statistically significant level. Other surveys carried out retrospectively from disease indexes have included linking the use of isoprenaline inhalers with a raised mortality rate in asthma. A major advantage of hypothesis testing in this way is that the studies are carried out retro-

spectively on data recorded in a prospective mode in the first instance, before the suspected relationship between the morbidity and the drug had been identified at all. The rest of the patients of the recording practices who are not suffering from the morbidity act as a source for suitable controls. The total morbidity for all patients is available as a standardised baseline. This method for retrospective control studies avoids the need for costly exercises in linking records with prescribing data from other sources.

The Birmingham Research Unit of the Royal College of General Practitioners is at present organising a programme for testing certain suspected morbid associations with commonly used drugs, but the system could be available for wider use as a component in any integrated programme for hypothesis testing of this kind.

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¹ Research Unit, *Journal of the College of General Practitioners*, 1971, 21, 609.

² Crombie, D L, *Journal of the Royal College of General Practitioners*, 1975, 25, 337.

³ Research Unit, *Journal of the College of General Practitioners*, 1959, 2, 140.

⁴ Research Unit, *Journal of the College of General Practitioners*, 1967, 13, 267.

⁵ MRC Working Group, *British Medical Journal*, 1967, 2, 355.

Cutting the drug bill

SIR,—We have recently completed a four-week project which may be of interest to our general practitioner colleagues. With the assistance of a local pharmacist we selected a group of nine commonly prescribed expensive drugs and on every FP10 issued we used only their generic names. The drugs chosen, together with their most familiar proprietary names were as follows: diazepam (Valium), frusemide (Lasix), phenylbutazone (Butazolidin), amitriptyline (Tryptizol), indomethacin (Indocid), ampicillin (Penbritin), imipramine (Tofranil), methylodopa (Aldomet), and nitrazepam (Mogadon). The list did not include other commonly prescribed products such as penicillin, oxytetracycline, antacids, etc because it has been our usual practice to use generic names in these cases. The patients were informed that we were now using the "chemical" names in their prescriptions "similar to those used by the hospital." Some patients were initially confused but soon readily accepted the new name. In no case did we have any objection on clinical or therapeutic grounds.

At the end of the four-week period we costed the alternatives and found we had saved approximately £120. This would mean a saving of approximately £1500 per year in our 4500 two-man practice. If this were repeated over the country as a whole it would save in the region of £15m to the NHS.

In times of stringent financial economy when the hospital and community services throughout the country are being asked to skimp and save we feel that it behoves our GP colleagues to scrutinise their prescribing habits. We find that this scheme had no detrimental effect on direct patient care and was a rewarding exercise in self-audit.

We would also like to see the Department of Health and Social Security take a far more active advisory role in promoting that excellent publication the *British National Formulary*.

We are besieged by drug-firm representatives competing for our custom. We are "bribed" with luncheons, dinners, gifts, samples, etc, and it is not surprising that this continual barrage of proprietary drug advertisement produces a less discriminatory approach to prescribing. We feel that the Department could arrange for GPs to be visited regularly—say, every six months or so—by well-informed, well-briefed doctors and pharmacists, who have a wealth of experience. Many retired professional colleagues would no doubt be delighted to accept part-time work on such a worthwhile project. The savings effected by this scheme would far exceed the cost.

MONTE LUBEL

A K SINHA

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Staffing in the medical laboratory service

SIR,—In responding to your leading article (2 April, p 866) entitled "The pathologist must control the laboratory" we are fully in agreement with the conclusion expressed in the title for the very excellent reasons which you give. The success of clinical pathology as we have known it (some of us for 30 years or more) has been due in large measure to the harmonious symbiotic relationship between the medical and technological staff working in it, in which each side knew the other's skills and responsibilities and respected them. This situation must continue if the peculiar art of the laboratory-based doctor is to be available to the patients of his area.

It is our opinion that certain aspects of the policy advocated by the Institute of Medical Laboratory Sciences in their evidence to the Royal Commission bring out very clearly a division between us which is beginning to appear and which carries with it a very real danger of disrupting the necessary happy relationship we have enjoyed until now. It seems to us that war may develop in the clouds of institutes, colleges, and associations above our heads, but resulting in destruction at the laboratory level of harmony which is essential for the proper maintenance of a patient service. If a technologist-versus-pathologist situation, aided by a scientist wedge between the two, is allowed to develop the good will amongst us all which sustains the service that we try to give may well suffer considerable damage. If we retain and develop a proper appreciation of each other's contribution there is no need for this to happen.

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SIR,—We would like to support the comments made by Professor L G Whitby and others (26 March, p 833) about the role of graduate scientists in the laboratory services. We too are unable to accept the Institute of Medical Laboratory Sciences policy statement¹ and their subsequent document presenting evidence to the Royal Commission² and are very concerned about the apparent total lack of insight by the IMLS into the contributions made by graduate scientists.

The role that should be made by graduate

scientists in the laboratory services is complementary to that of technical staff and we wholly endorse Professor Whitby's comments on this matter. If functions such as research and development, clinical liaison, and interpretation of data are not fulfilled laboratories will become little more than factories, perhaps efficient ones, but performing useless tests. As laboratory services inevitably become more specialised it is the responsibility of the laboratory to educate the users of the service so that the best, in terms of service to the patient, can be obtained from the apparently diminishing resources available. Many of those who advocate merging the role of the graduate scientist with that of the technician appear to be making a dangerous assumption that the present role of the graduate can be readily undertaken by the clinician, and regrettably this view is also shared by a minority of the medical profession. Consideration of the fact that many science graduates spend five or six years learning at university, quite analogous to the training of the medical graduate, and take higher qualifications such as the MCB or MRCPPath should soon dispel this idea. We believe that the team approach to providing a medical laboratory service, with medical staff, graduate scientists, and technicians each providing part of the total service, is the only way of ensuring a balanced acceptable service.

Finally, we wish to make it clear that we are not opposed to, and indeed would support, an integrated staffing structure so that all individuals can progress along a path appropriate to their qualifications, training, and experience, provided that the role of the graduate is recognised at all levels. If graduate scientists become unable to fulfill their proper role and maintain their status then they will cease to enter the NHS and as a result we predict that the laboratory service will succumb to the grey tide of mediocrity sweeping all sectors of our society, producing yet another retrograde step in patient care.

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¹ Institute of Medical Laboratory Sciences, *Future Staffing in the Medical Laboratory Service. A Policy Statement*. London, IMLS, 1976.

² Institute of Medical Laboratory Sciences, *Evidence to the Royal Commission on the National Health Service*. London, IMLS, 1977.

Experiments with computers

SIR,—We write as two individuals directly concerned with the evaluation of computer projects within the Department of Health and Social Security's experimental programme. We would like to point out that in your summary (12 February, p 404) of the Public Accounts Committee report¹ you have reproduced some of the factual errors and misleading statements. For example, the London Hospital has not dropped any stages of its bed-state system—phase I has been operating across the whole hospital since April 1973 and phase II since August 1975. The statement that Stoke has spent £1.7m saving five minutes per patient is totally misleading. The Stoke project has of course achieved far more than savings in