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Because we receive many more letters than we have room to publish we may shorten those that we do publish to allow readers as wide a selection as possible. In particular, when we receive several letters on the same topic we reserve the right to abridge individual letters. Our usual policy is to reserve our correspondence columns for letters commenting on issues discussed recently (within six weeks) in the BMJ.

Letters critical of a paper may be sent to the authors of the paper so that their reply may appear in the same issue. We may also forward letters that we decide not to publish to the authors of the paper on which they comment.

Letters should not exceed 400 words and should be typed double spaced and signed by all authors, who should include their main degree.

Are problem drinkers dangerous drivers?

SIR,—The findings of Dr James A Dunbar and others (16 March, p 827) that many of those convicted of driving under the influence of alcohol appear to have significant drinking problems should come as no surprise to those of us with an interest in this problem. Their fears that "the Department of Transport criteria [may] be missing a large proportion of drinking and driving offenders with alcohol problems and should be reviewed" are surely justified. Indeed, the incidence of problem drinking among their subjects is almost certainly higher than their results indicate. First of all, the evidence suggests that biochemical and haematological tests are a relatively inefficient way of identifying problem drinkers and that questionnaires give a much higher rate of identification. Even so, I am surprised that they did not measure the mean corpuscular volume of their subjects since in practice one encounters many patients in whom the mean corpuscular volume is raised even when liver function values are normal, and vice versa. Drunk driving accounts for considerably more deaths each year than the total number of homicides for the entire United Kingdom (including that part of it in which a miniature civil war is taking place), and many of the dead and injured, whether pedestrians, passengers, or drivers, are the sober and innocent victims of the most lethal antisocial activity which our society has ever produced. In the face of this perennial blood bath the response of the Department of Transport, the police, and, most particularly, parliament is really quite supine.

This results not only in failure to prevent a number of preventable deaths on the roads but also in the failure to point some of these offenders towards treatment for their drinking problems, which experience elsewhere suggests at least some of them will accept with

beneficial consequences to themselves and their families. In several states in the USA, all those convicted of driving under the influence of alcohol undergo mandatory screening for drinking problems, which they themselves have to pay for. Those who seem likely to have a problem (as opposed to an isolated instance of carelessness or bad luck, depending on one's point of view) have to undergo a further mandatory course of alcoholism education and treatment, which generally includes a period of probation-supervised disulfiram. These measures are being carefully monitored and the evidence so far is that they reduce both the incidence of recidivism and the size of the prison population. Since offenders also have to pay for their own treatment, the system is self supporting and in at least one city even makes a small profit. The cost of treatment represents a further deterrent. Surely this is a more promising approach than the present timid attempts to "assess" only those whose drinking problems are so obvious that they hardly need assessing.

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Serum fructosamine concentration as measure of blood glucose control in insulin dependent diabetes

SIR,—Dr John R Baker and his colleagues described significant correlations between fructosamine and the integrated plasma glucose concentration as well as between fructosamine and glycosylated haemoglobin (HbA_{1c}) drawn from patients on the same day (2 February, p 352). They stated that in their experience

the fructosamine concentrations had been useful for monitoring short term control (3-6 weeks). Based on the correlations found they concluded that this index would be useful for evaluating diabetic control.

The data in fig 1 reveal that there is too wide a scatter among the fructosamine concentrations to make them a reliable index of diabetic control. In fig 3 two subjects (case 1 and case 2) were excluded from their calculations, but these two cases were included in the statistical analyses given for fig 1. We are also interested to know the correlation coefficient between the fasting glucose value and the mean glucose value as well as reviewing the scattergrams for the correlations given in table II.

Many variables have long been known to be abnormal in uncontrolled diabetes. These include growth hormone, aminoacids, creatinine, and lipids. All these variables have either improved or become normal with the control of the diabetic state.

Fig 1 also shows that in those diabetic subjects whose fructosamine values were <2.5 mmol/l (63 mg/100 ml), who constituted over 85% of the group, no correlation was likely to be found between the fructosamine value and HbA_{1c} even when cases 1 and 2 were included. Interestingly six subjects (14%) in fig 1 had raised fructosamine values when compared with the controls despite their normal HbA_{1c}.

In conclusion, we feel that the data presented simply suggest that fructosamine values are raised in subjects with diabetes mellitus, including those with normal HbA_{1c}. If the authors wish to use fructosamine concentration as an index of control we would suggest that they correlate it with integrated plasma glucose values at variable antecedent time intervals. Their object should be to show the linear relation and the variances between fructosamine and indices of control within the diabetic subjects rather than attempting

to exaggerate the "r" and "p" values by selective exclusion of certain subjects or incorporating non-diabetics in their statistical calculations. The fact that six diabetic subjects with normal HbA_{1c} had high fructosamine values emphasises the inherent differences between the two populations.

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*Dr Baker replies below.—ED, *BMJ*.

SIR,—We compared serum fructosamine with glycosylated haemoglobin (HbA_{1c}) measurements in normal and diabetic individuals (fig 1) to demonstrate both the relative sensitivity of each test and the linear trend in values from normal subjects through insulinopenic individuals to patients with complete endogenous insulin deficiency. Inspection of the data suggests a linear association between these two tests, confirmed by the highly significant correlation coefficient ($r=0.82$, $p<0.001$).

Some scatter of results in fig 1 was not unexpected since fructosamine and HbA_{1c} are different indices that reflect average blood glucose values over different time intervals—that is, three weeks and six weeks respectively. Moreover, fructosamine (glycosylated serum protein) measurements appear to be more sensitive than HbA_{1c} in detecting individuals with a recent episode of poor blood glucose control, accounting for the six diabetic patients with raised fructosamine but normal HbA_{1c} values. This observation has been corroborated by others using different assay techniques to measure glycosylated serum protein concentrations.¹ Increased diagnostic sensitivity is attributed to the faster glycosylation and shorter half life of serum proteins compared with haemoglobin.¹

Rank statistical outliers (points that are more than 3 standard deviations from the regression line) were excluded from the calculation of Pearson's correlation coefficient in fig 3 because such points had a disproportionate influence on the statistical analysis in question. Outliers may represent either gross analytical errors or, in this comparison, individuals who were not truly representative of the population under investigation (see results). The conclusion was not affected since Pearson's correlation coefficient calculated with the 2 patients included ($r=-0.74$) remained highly significant ($p<0.001$).

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1 Schleicher E, Gerbitz K, Dolhoffer R, et al. Clinical utility of nonenzymatically glycosylated blood proteins as an index of glucose control. *Diabetes Care* 1984;7:548-56.

The rapid transit system for patients with fractures of the proximal femur

SIR,—Professor J M Sikorski and colleagues address a major problem facing physicians and surgeons concerned with managing the increasing numbers of elderly patients (9 February, p 439). Currently patients with fractures

of the proximal femur in Australia each year spend over 634 bed years in public hospitals alone at a cost of over A\$50m.

Innovative, active forms of management are required if the outcome for this group of elderly patients is to be improved. It must be emphasised, however, that Professor Sikorski's results apply to a group of relatively "low risk patients," as shown by the low mortality (7%), mean age 71 years, and exclusion of those with unstable trochanteric fractures and those with mental incompetence. The outcome of patients with fracture of the proximal femur depends chiefly on the individual's social function before the fracture, which, as Professor Sikorski has shown, can be assessed on admission. It is therefore misleading to suggest that a total of 1390 bed days would be saved for the whole year when the yearly admissions are likely to include more dependent patients with fracture of the proximal femur. If the improvement in outcome is to be extended to the more dependent groups of patients with poor social function before the fracture there must be close cooperation between orthopaedic surgeons and physicians in geriatric medicine from the time patients arrive in casualty—a situation which operated in 1980-1 at Sir Charles Gairdner Hospital (Wame RW, Nade S, paper delivered at 17th annual conference of Australian Association of Gerontology, 1981). By identifying groups at risk plans of management aimed at achieving improved outcome for both high and low risk cases can be effected. Patients with proximal femoral fracture in Western Australia have a shorter duration of admission (mean 25 days) than other states of Australia. Australia-wide the mean is 29.58 days, ranging from 22.5 days for South Australia to 32.88 days in New South Wales, which is chiefly the result of a plentiful supply of nursing home accommodation, a feature of old age in the sun which has not gone unnoticed.³

Professor Sikorski is to be commended, however, for his enthusiastic approach to this group of elderly patients unpopular with attending staff and frequently devoid of all rights and hope.

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- 1 Warne RW. Incidence and outcome of proximal femoral fracture in Australia. University of Melbourne, 1984. (MMed Thesis.)
- 2 Jensen JS, Tondevold E, Solensen PH. Social rehabilitation following hip fractures. *Acta Orthop Scand* 1979;50:777-85.
- 3 Smith T. Old age in the sun. *Br Med J* 1984;288:1515-7.

Children with asthma: will nebulised salbutamol reduce hospital admissions?

SIR,—I am beginning to think that nebulisers may be causing as many problems as they are solving. The article by Drs John L Pearce and Helen M M Wesley (23 February, p 595) includes some very valuable observations but does nothing to clear the muddled thinking about nebulisers that affects many doctors and most patients. The authors do not consider the fact that as well as preventing admissions (which they demonstrate) they might be the cause of some, because many doctors and patients think that a nebuliser is the only satisfactory way of giving a bronchodilator in acute severe asthma and that unless one is immediately available from their general practitioner hospital admission is required.

The main virtue of a nebuliser is that it delivers a large quantity of drug. So the question the authors actually answered was: "Do adequate doses of topical bronchodilator reduce hospital admissions?" The fact that in 63% of their group of over 6 year olds they do requires an answer to what is, I suggest, a more important question: "Why have so many children admitted to hospital received inadequate doses of bronchodilator?" The general practitioner cannot easily be blamed since more than half of the patients were self referred clinic attenders. What instructions had been given to these patients about bronchodilator dosage during a deteriorating episode of wheezing? Were they told to increase the dose or its frequency, or both, and to inform their general practitioner if pre-agreed limits were exceeded so that alternative managements could be considered?

In my surgery I frequently see children with severe wheezing whose mothers have slavishly, but understandably, been giving an inhaler six hourly. Three to four Rotacaps, or six to eight puffs of aerosol, often dispel the wheeze within two or three minutes, usually to the surprise of both. I usually advise them to repeat a normal dose thereafter as soon as the previous one starts to wear off and explain the procedure to be followed if it does not work. Most of these children rapidly improve but it is this group that the authors would see some time later and then discharge after a dose or two on the nebuliser.

To avoid these unnecessary admissions it might be better to teach patients about proper escalation of bronchodilator dosage, up to, for example, the usual quantity two hourly, having informed the responsible practitioner at the three hourly stage, and also to encourage general practitioners to get nebulisers. The message has to be got over to patients and doctors that a nebuliser is often little more than an expensive and impressive way of giving an adequate dose of topical bronchodilator. For hospitals to encourage self referral without ensuring that their patients understand how to make optimum use of their regular inhaler is in part causing the very problem that the authors are endeavouring to solve.

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SIR,—Drs John L Pearce and Helen M M Wesley have attempted to produce guidelines for the safe use of nebulised salbutamol in domiciliary practice in children with asthma. They conclude that children aged 3 years or less are not suitable for home treatment. We have studied 50 consecutive children admitted with acute asthma referred by general practitioners to our district general hospital.¹ Our data also showed that younger children are less likely to manage at home, but children who were mildly affected (able to speak whole sentences or count beyond 10 without taking a breath), even if aged 3 years or less, all responded to nebulised salbutamol every four hours for a maximum of 24 hours. We quite agree that children who require nebulised salbutamol more often than every four hours should be admitted to hospital. Our study suggested that some children will require more than two doses of nebulised salbutamol every four hours but will still respond safely within 24 hours. Both our studies involve extrapolating from hospital experience to