workload dealt with on take in days I am not sure. However, if it is the former then there are implications for medical education. If it is the latter then housemen must be made to realise the importance of making the most accurate clinical diagnosis possible and that the extra time taken to obtain a full history is time well spent.

If information collection can be maximised at a clinical level then negative laparotomy rates, appendix perforation rates, bad management errors, and annual savings to the National Health Service will improve even before the introduction of computerised systems.

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SIR,—I read with surprise the letter of Dr P N Hall (18 October, p 1025) in response to the article by Dr I D Adams and others. I am prompted to refer back to history and to the people who opposed the introduction of stethoscopes because they thought that this aid to their diagnostic acumen was not warranted.

In this prospective trial there was an improvement in diagnostic accuracy at all stages. There was an improvement when the form alone was used and again when the data were fed in by the examining doctor, who had immediate feedback from the computer. In my speciality of accident and emergency medicine we are bedevilled by most staff being in only their third job. Assuming that they are all intelligent and have been well trained at their medical schools, it is still too much to expect a newly qualified junior doctor to have the span and experience necessary to deal rapidly and with confidence with the variety of disorders facing him in an accident department. The abdomen in particular is notorious for its multitude of traps.

In this trial the use of the computer has improved the performance of the first year senior house officer to that of a registrar, both as regards accuracy of diagnosis and confidence in the management of the patient. It has very significantly cut down mortality and morbidity and, in effect, saved a substantial sum of money to a National Health Service with ever expanding demands for it. I am therefore surprised that anybody should reject outright an aid that, according to the results in this study, has improved the care of patients to such an extent. Even after being qualified for 16 years, I would never reject outright any aid to diagnosis. Dr Hall at least admits that the computer encourages a more careful approach to the management of abdominal pain, and even for that alone I would consider it a very worthwhile tool. It has been shown repeatedly that mistakes are made often not out of ignorance but because of a less than very careful approach to diagnosis.

This machine could, of course, also monitor a doctor's performance and the improvement thereof during his or her stay in a particular department. It would give a rare objective assessment that would add credibility to any reference given to this doctor. The careful doctor has nothing to fear from this modern aid to diagnosis but only points to gain. One is only too aware that sometimes the chemistry between seniors and juniors may not be quite right and this objective assessment of a junior's performance may positively influence the reference that he or she would be given by a consultant.

I would value the opportunity of its introduction in my department and its expansion to other problems such as head injury and chest pains.

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Trace element analysis of hair

SIR,—We read Dr T L Dormandy's leading article (18 October, p 976) with considerable interest as we coincidentally had both just had trace element analysis of our hair performed at the insistence of a family friend, even though we had no symptoms and eat a normal diet.

The analyses suggest that between the two of us we are deficient in 16 trace elements and have "allergic reactions" to 25 common foodstuffs; no reference ranges were included. Enclosed with the report was the advice to correct our vitamin and mineral "deficiencies" by buying supplements from a company recommended by the organisation who did the analysis and to try an elimination diet of its own devising, with subsequent repeated hair analyses.

Two interpretations of our analyses are possible: either our diet is defective and food intolerance is a subclinical problem, or the "allergic reactions" noted are clinically unimportant and the trace element reference ranges have been too rigidly defined. "Normal" ranges generally include 95% of the population, so 1 in 20 people will be "abnormal" based on conventional laboratory practice. However, 20% of the trace element and mineral analysis tests performed on us were abnormal, which makes us seriously wonder what is normal for normal people. If reference ranges are set too low the analysis services are likely to profit, while the individual will suffer much needless anxiety and dietary inconvenience. We strongly support further controlled studies to define the uses and limitations of this technique before its widespread use on an unsuspecting public.

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Use of serum cotinine to assess the accuracy of self reported non-smoking

SIR,—We were asked by Professor N Wald and colleagues (8 November, p 1217) whether we had any data on cotinine, a marker of tobacco smoke exposure, in self reported smokers and non-smokers to see how often people who say they are non-smokers in fact do smoke and, if they do, to see how much they smoke in comparison with people who report themselves to be smokers. Such estimates are needed for interpreting studies on

Cotinine values according to self reported smoking category

Serum cotinine	Non-smokers	Smokers
$\mu\text{g/l}$	No (%)	No (%)
<1.0	93 (40)	1† (2)
1.0–	94 (41)	2† (3)
2.0–	26 (11)	0
4.0–	12 (5)	2† (3)
8.0–	2* (1)	0
16.0–	2* (1)	3† (5)
32–	2* (1)	0
64–	0	5 (8)
128–	1* (0.4)	14 (22)
256	0	29 (45)
≥ 512	0	8 (13)
All	232 (100)	64 (100)
	$\mu\text{g/l}$	$\mu\text{g/l}$
Mean	2.9	304
Median	1.1	305
10th centile	0.4	19
90th centile	3.2	618

*Highest 7 cotinine values for non-smokers were 8, 14, 22, 28, 43, 48, 208 $\mu\text{g/l}$.

†Lowest 7 cotinine values for smokers were 0.5, 1.3, 1.9, 4.3, 5.2, 19.4, 19.6 $\mu\text{g/l}$.

lung cancer in self reported non-smokers in relation to exposure to other people's smoke.

We did have such data, based on a study of the smoking habits of 296 women attending a well person screening examination in Portland, Maine, USA, in 1983. The women were asked, through a self administered questionnaire, whether they smoked cigarettes and, if so, how many. A serum sample was also collected and tested for cotinine.¹ The table shows the distribution of serum cotinine values in the self reported non-smokers and smokers. There was very little overlap in the distributions. Eight per cent (5/64) of the self reported smokers and 98% (227/232) of the self reported non-smokers had values of 10 $\mu\text{g/l}$ or less. Four of the five self reported non-smokers with higher values had only slightly raised cotinine concentrations, suggesting that they were either heavily exposed to other people's smoke or themselves smoked occasionally. The fifth was almost certainly a smoker.

These data, which are similar to those published from a British series,² indicate that in a sample of the general population the reliability of self reported smoking habits is high and that most self reported non-smokers who do in fact smoke do so only to a small extent.

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1 Knight GJ, Wiley P, Holman M, Haddow JE. Minimizing the problem of bridge recognition with 125-iodine labeled haptens: improved assay for cotinine by selective removal of bridge antibodies. *Clin Chem* 1985;31:118.

2 Wald NJ, Boreham J, Bailey A, Ritchie C, Haddow JE, Knight GJ. Urinary cotinine as a marker of breathing other people's smoke. *Lancet* 1984;i:230.

Private nursing homes: contribution to long stay care of the elderly

SIR,—Dr J Bennett's report (4 October, p 867) of nursing home patients in Brighton agrees with many of our findings in Edinburgh.¹ In contrast, however, we found that our long term care geriatric patients were more dependent at every level than those in nursing homes. We were also aware that some nursing home owners were reluctant to accept heavily dependent patients. One hundred and twelve (28%) of the 400 nursing home patients in our study were largely independent for self care (range in individual homes 14–62%); Dr Bennett notes 23% in the low dependency category. We would be interested to know just how many of these low dependency patients were receiving DHSS supplementation at nursing home rates.

Dr Bennett does not mention the desirability of assessing patients. This is surely advisable before admission to any long stay facility, private or otherwise, and should be mandatory if public funding is to be provided. Assessment is necessary not only to determine suitability but also to screen for the presence of treatable disease.

In Edinburgh we noted wide variations between nursing homes, not only in fees and dependency of patients but also in the facilities provided.² Even in the 50% of homes with day rooms, access by the patients was restricted by poor mobility and the lack of lifts in most homes. The maintenance of standards in the independent sector remains a source of concern, and we agree with Dr Bennett that there is much scope for improving staff training and increasing the availability of physiotherapy and occupational therapy. This is particularly important for the growing number of patients dependent on DHSS support who cannot afford additional fees.

Dr Bennett offers little evidence to suggest that nursing homes are the "best buy" for our dependent elderly. Perhaps some of the public money being used to fund the expansion in private nursing home places might be better spent on geriatric wards or in helping people to remain in their own homes.

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- 1 Capewell AE, Primrose WR, MacIntyre C. Nursing dependency in registered nursing homes and long term care geriatric wards in Edinburgh. *Br Med J* 1986;292:1719-21.
- 2 Primrose WR, Capewell AE. A survey of registered nursing homes within the city of Edinburgh. *J R Coll Gen Pract* 1986;36:125-8.

SIR—We compliment Dr J Bennett (4 October, p 867) on bringing an important topic to general notice. However, there are points with which we would disagree.

The Purkiss rating for dependency is not known to us, and the reference suggests that it is not generally available for critical analysis. As such it is unsatisfactory to use such a scale, and a more generally accepted scale might have been that of Akhtar.¹ We would also like to know which mental test questionnaire was used to assess confusion, as subjective analysis can be notoriously misleading.

We would also draw different conclusions from the facts presented. Compared with nursing homes the long stay wards had a greater proportion of dependent patients (grades 3 and 4)—60% v 80%. The long stay wards were, however, deficient in qualified nursing staff and physical environment. Thus, before NHS facilities are further extended into the community or alternative care explored, the staffing and environment of NHS long stay wards should be made at least as good as those of private nursing homes, which are grossly subsidised by public money. The figure of 7.8 beds per 1000 population aged 65 years and over is not, to our knowledge, in general use. The DHSS has suggested to regional health authority chairmen that the recommended norm should be reduced from 10 beds to 8.5 beds per 1000 population aged 65 years and over. This is a topic which is hotly contested.²

It is indeed a laudable aim to promote meaningful dialogue between the NHS and private sector in terms of further education and continuing good relations. However, it would be dangerous to include private beds in overall NHS planning for the elderly in a health district. Private beds are not planned but driven, either up or down, by market forces. It is interesting that 18% of the nursing home patients were admitted from outwith the Brighton health district and thus they would be difficult to include in any planning. In addition, there appears to be no control over the suitability of admissions to private homes, other than the ability to pay. It is possible that some of the 36% of patients admitted directly to nursing homes from their own homes may have had rehabilitation potential.

Clearly the Brighton geriatric service is underbedded, as are many around the country. Equally clearly, the DHSS is paying considerable amounts of money for a service in the private sector over which it has no direct control.

Finally, although the situation in Brighton is interesting, it is not necessarily typical. This is exemplified by the numbers of nursing home residents who pay their own fees. This being the case, heavy reliance on private nursing homes is

not a pattern of care which can, or indeed should, be pursued elsewhere.

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- 1 Akhtar AJ, Broe GA, Crombie A, McLean WMR, Andrews GR, Caird FI. Disability and dependence in the elderly at home. *Age Ageing* 1973;2:102-11.
- 2 Andrews K, Brocklehurst JC. The implications of demographic changes on resource allocation. *J R Coll Physicians Lond* 1985;19:109-11.

Platelet function defects in chronic alcoholism

SIR—Some points deserve comment in the study by Dr D P Mikhailidis and colleagues (20 September, p 715) of reduced platelet aggregation and thromboxane A₂ production in chronic alcoholism.

Firstly, the control subjects differed from the study patients in more respects than just their alcohol intake: they were younger, they did not have liver disease, and they were not given drugs such as chlormethiazole or chlordinazepoxide during the study. All of these factors have effects on platelets and platelet activity¹⁻³ and might have influenced the results of the tests of platelet behaviour in this study. Attributing the difference in platelet behaviour between the patients and controls to the effects of chronic alcoholism alone is therefore not justified.

Secondly, inclusion in the study only of patients who had taken no medication in the two weeks before admission was presumably based on the patients' reporting of medication taken. In a group of chronic alcoholics admitted for alcohol withdrawal this must be suspect. Undeclared ingestion of aspirin in the week before admission cannot be discounted and might have accounted for the inhibition of platelet thromboxane production and aggregation seen in some of the patients on day 1 and the recovery of these platelet activities over the subsequent two weeks.

Thirdly, no mention is made of any changes in blood coagulation activity which may have resulted from the liver damage in the alcoholic patients. Platelet behaviour can be altered by changes in the concentrations of the vitamin K dependent coagulation factors,⁴ and changes in platelet behaviour and in bleeding time in the alcoholic patients may have been secondary to such coagulation abnormalities.

These criticisms cast some doubts on the validity of the authors' conclusion that chronic alcohol ingestion in itself exerts an inhibitory effect on platelet function.

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- 1 Burgess-Wilson ME, Green S, Heptinstall S, Mitchell JRA. Spontaneous platelet aggregation in whole blood: dependence on age and haematocrit. *Lancet* 1984;ii:1213.
- 2 Ordinas A, Maragall S, Castillo R, Nurden AT. A glycoprotein I defect in the platelets of three patients with severe cirrhosis of the liver. *Thromb Res* 1977;13:297-302.
- 3 Grimes RPJ, Kolakowska T, Wiles D, Woods HF. Increased platelet aggregation responses to 5-hydroxytryptamine in patients taking chlormethiazole. *Br J Clin Pharmacol* 1975;ii:29-35.
- 4 Poller I, Thompson JM, Priest C. Coumarin therapy and platelet aggregation. *Br Med J* 1969;ii:474-6.

AUTHORS' REPLY—Dr Jones states that our control subjects were younger than the patients; this difference was not significant ($p>0.09$; Mann-Whitney test). To eliminate any doubts we also matched (within three years) control subjects with patients; our conclusions remain the same.

Dr Jones's reference 3 deals with chlormethiazole and not chlordinazepoxide and chlormethiazole, which we used. This reference is even less relevant since it reports that chlormethiazole affected only serotonin induced aggregation and we did not use serotonin. Furthermore, (a) platelet function was abnormal on day 1, well before drugs were administered, (b) "several" patients received these drugs, implicit in this statement is that some did not. Obviously we carefully assessed the results of this latter group and they were similar to those of the other patients; (c) chlordinazepoxide does not influence platelet counts or bleeding time¹; (d) our findings were comparable with those of others who managed patients differently.

Dr Jones thinks our findings could be ascribed to the undisclosed ingestion of aspirin or other drug. However, it is unlikely that most of the 27 patients were both taking drugs and hiding this fact from us. Moreover, the effect of aspirin on platelet function lasts a week or so whereas some of our patients required double that time for platelet function to return to normal; other non-steroidal anti-inflammatory drugs may even require less time for normalisation.² Surely Dr Jones does not believe that aspirin caused the thrombocytopenia and rebound thrombocytosis, which were also reported by others. Finally, does the significant correlation between alcohol consumption and bleeding time in 17 patients with two different types of liver histology reflect a random event related to secretive aspirin ingestion?

Clearly the only factor that correlated with the changes in platelet function was abstinence, since: (a) liver histology (ranging from relatively minor changes to cirrhosis) was largely irrelevant and was unlikely to have improved dramatically during two weeks' abstinence, (b) alcohol consumption correlated with bleeding time, and (c) we cited evidence that alcohol affects bone marrow function.

It is well known that liver disease affects coagulation factors and we are aware that these in turn can influence platelet function.³ Our study, however, assessed platelet function and did not extend to coagulation factors. We felt that, within the constraints of space in the *BMJ*, we should comment only on work that we actually carried out ourselves.⁴

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- 1 Lackner H, Hunt VE. The effect of Librium on haemostasis. *Am J Med Sci* 1968;256:368-72.
- 2 Mikhailidis DP, Barradas MA, Temple-Savage I, et al. The effect of diflunisal administration on platelet aggregation and cerebral blood flow. *Pharmatherapeutica* 1985;4:255-9.
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- 4 Mikhailidis DP, Jeremy JY, Barradas MA, Green N, Dandona P. Effect of ethanol on vascular prostacyclin (prostaglandin I₂) synthesis, platelet aggregation, and platelet thromboxane release. *Br Med J* 1983;287:1495-8.

Boys with late descending testes

SIR—In our short report (27 September, p 789) we noted that we "found a hydrocele either at birth or at 3 months in seven (39%) of the 18 late descenders who had a cryptorchid testis at 1 year, compared with five (19%) of the 27 who did not." This suggested to us that another source of "retractile" testes may be boys whose testes were descended at birth but who were noted by us