

care required because of a disability and was the person involved in providing informal care for a disabled person. The questions were answered initially by the patient's general practitioner and then a simple questionnaire was sent to the patients themselves. A note was also made of the consultation frequency between 1 October 1987 and 31 December 1989.

The sampling process yielded 328 names. Twelve patients were no longer on the general practitioners' lists and a further 29 could not be contacted owing to the address being out of date. Of the 287 questionnaires distributed 220 were returned (response rate 84.4% for practice A and 69.2% for practice B, overall response rate 76.7%). In practices A and B, the prevalence of disability identified by patients was 20.2% and 19.8% respectively, care need 13.4% and 16.8% and care provision 9.2% and 12.9%. These differences were not significant. General practitioners seemed less able to identify need (Table 1). The specificity of all the general practitioner predictions was greater than 90%.

Within each practice patients who identified themselves as disabled consulted on average at more than twice the rate of the non-disabled patients (7.3 consultations per patient per year versus 3.4). Likewise, disabled patients who reported requiring care consulted more than twice as frequently as the disabled patients who did not (7.5 consultations per patient per year versus 3.5).

If general practitioners take on the case-finder role for community care, the accuracy of the age-sex registers would influence the required systematic review of their patients.<sup>1</sup> The finding of a 20% prevalence of disability is higher than some recent large postal surveys<sup>3,4</sup> and near to the general household survey<sup>5</sup> which used a similar definition. General practitioners failed to identify many patients with disabilities. The 1989 white paper stresses the importance of support for informal carers<sup>2</sup> but the general practitioners' ability to identify them was poor.

Whether practice needs to change to improve information gathering or whether this is in fact an appropriate task for

general practice needs to be debated during the delay in the implementation of community care legislation.

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### Apparent hyperglycaemia in paracetamol overdose

Sir,

Hypoglycaemia is a well documented complication of excessive alcohol ingestion,<sup>1</sup> and only a late manifestation of paracetamol overdose when hepatic damage has occurred.<sup>2</sup> Conversely, hyperglycaemia is not a well recognized complication of paracetamol toxicity. This case report discusses the presentation and management of a patient with apparent hyperglycaemia associated with self poisoning with paracetamol.

A previously well, 19 year old man with no significant past medical history, presented to the casualty department having two hours previously ingested an undisclosed amount of alcohol in combination with approximately 30 g of paracetamol. Induced emesis was unsuccessful and gastric lavage returned only a few tablet particles. Initial blood test strip testing revealed a capillary glucose level of 7–11 mmol l<sup>-1</sup> by visual reading. The patient was admitted and venous blood taken for biochemical analysis at four hours post ingestion which revealed

a paracetamol concentration of 2.42 mmol l<sup>-1</sup>, potassium 3.2 mmol l<sup>-1</sup>, carbon dioxide 23 mmol l<sup>-1</sup> and blood glucose concentration 22.0 mmol l<sup>-1</sup> (using the Yellow Springs Instrument glucose analyser). Arterial blood gas analysis revealed a pH of 7.40. Simultaneous blood test strip testing indicated a capillary glucose level of 7–11 mmol l<sup>-1</sup>. Ward urinalysis indicated a trace of glucose and a large amount of ketones.

Treatment with acetylcysteine was commenced. Analysis of a second venous blood sample (at approximately four hours 15 minutes post ingestion of paracetamol) revealed a glucose level of 19.8 mmol l<sup>-1</sup> when assayed by the above method. Information on paracetamol induced hyperglycaemia was not available from either the Poisons Information Service (Edinburgh) or the *Oxford textbook of medicine*.<sup>3</sup> Consideration was given to the initiation of insulin therapy to reduce blood glucose concentration. However, the other clinical and biochemical findings were not in keeping with diagnoses of diabetic ketoacidosis, non-ketotic hyperosmolar state or euglycaemic ketosis. Furthermore, results from blood test strip testing were inconsistent with results obtained using the laboratory glucose analyser instrument. Both previous venous blood samples were then re-analysed using a hexokinase/glucose-6-phosphate dehydrogenase method for glucose analysis, giving values of 10.0 mmol l<sup>-1</sup> and 8.8 mmol l<sup>-1</sup> respectively for the two samples. The hyperglycaemia was recognized to be artefactual and insulin therapy was not initiated. The patient made an uncomplicated recovery with no evidence of either hepatic damage or diabetes mellitus.

For the patient described here, the level of paracetamol in the blood was sufficient to interfere with blood glucose estimation. Paracetamol interference with blood glucose analysis has previously been reported.<sup>2,4</sup> The interaction is well recognized by chemical pathology personnel but does not appear to be widely published in the medical literature or recognized by medical staff. Most biochemistry departments run a 24 hour interpretation and advisory service, and all discrepant results should be referred to this service.

Many patients present to casualty departments with non-accidental self poisoning involving analgesics of the paracetamol group. The number of such patients requiring admission to hospital has increased, for Scotland alone, from 2145 in 1987 to 3456 in 1990 (Information Statistics Division of the Common Ser-

**Table 1.** Sensitivity of general practitioners' identification of patient disability in 220 cases.

Patient characteristic	Overall prevalence identified by patient	Sensitivity of GPs' identification		
		Practice A	Practice B	Overall
Disabled	20.0	29.2	85.0	56.4
Requiring care	15.1	37.5	64.7	51.6
Providing care	11.0	18.2	23.1	21.1

vices Agency of the Scottish Health Service). It is hoped that this case, reporting on apparent hyperglycaemia, will draw attention to an area of avoidable confusion in the management of paracetamol toxicity.

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### Health advice for travellers: the GP's role

Sir,

Despite the current worldwide recession the number of people embarking on travel abroad continues to rise — 30.8 million visits were made by citizens of the United Kingdom in 1989, 4.8 million of whom travelled beyond Europe (HMSO Business Statistics Office). Not surprisingly general practitioners are increasingly contacted by patients seeking advice both prior to travel and following their return. General practitioners are uniquely placed to advise, having access to the patient's relevant medical history including previous immunizations, allergic reactions, and long term medication, as well as insight into the patient's lifestyle. At the same time general practitioners have the immediate responsibility for the traveller returning unwell and having provided the pre-travel advice, they are ideally placed to assess the patient's needs.

A study in 1985 showed that of 645 travellers only 44% sought pre-travel health advice; the travel agent was consulted most frequently (21% of the 645 travellers), and the family doctor least frequently (10%).<sup>1</sup> However, another study carried out in 1989 at Heathrow airport asking 899 departing travellers where they preferred to obtain pre-travel advice showed that the majority favoured their family doctor (65%), followed by a travel clinic (26%) and the travel agent (9%) (Arnold WSJ. Paper presented at the Third International Conference on Tourist Health, Venice 1990). Furthermore, a study of information on health advice provided by

brochures issued by travel agents showed many deficiencies.<sup>2</sup> Other studies have suggested that general practitioners may encounter problems about giving appropriate advice,<sup>3</sup> that general practice may not be the best location for provision of travel advice,<sup>4</sup> and that general practitioners have a medico-legal responsibility to provide accurate advice.<sup>5</sup>

In recognition of the responsibilities and difficulties which the general practitioner faces in addressing this need, the Communicable Diseases (Scotland) Unit commenced a telephone advice service for the primary care sector in 1975; in addition a computerized travel health information database (*Travax*)<sup>6</sup> was established in 1982. A recent development is the installation of a UK-wide telephone networking system enabling easier access by local telephone call from a suitable modem linked to a screen display.

Against this background a study was conducted in September 1990 which attempted to assess whether the general practitioner is the best person to give pre-travel health advice. A postal questionnaire was sent to all 681 general practitioners in the Greater Glasgow area, with the objective of assessing their views on the provision of health advice for travellers; in addition their awareness of the *Travax* database and their assessment of the usefulness of this service was sought. The overwhelming majority (87%) of the 288 responding general practitioners felt that pre-travel health advice was best provided in the primary care setting (Table 1). Although the 42% response

**Table 1.** GPs' views of where pre-travel health advice is best provided.

	% of GPs <sup>a</sup> (n = 288)
Primary care	87
NHS hospital clinic	22
Health board clinic	17
Private clinic	8
Other	1

<sup>a</sup> Respondents could list more than one source. n = total number of respondents.

rate was disappointing, this group of general practitioners appears enthusiastic about providing health advice for travellers, correlating well with the apparent preferences of travellers themselves. Eighty five per cent of respondents indicated that they would find the travel health database a useful aid.

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### GPs and work in the third world

Sir,

Dr Parkes describes his experience in Nepal (letters, February *Journal*, p.82) and shows how a type of general practice, which includes sufficient primary surgery and obstetrics to meet the broader needs of a community in the third world, can provide a most satisfying and rewarding career. This style of general practice is applicable where doctors are relatively few, and specialist surgeons even fewer.

Cooperation between the Royal College of General Practitioners and the Royal College of Surgeons to give those with the MRCGP additional surgical expertise before going abroad would indeed be useful. The relatively low-technology apparatus available for operating in the district hospitals of poorer countries should be remembered.

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### Cholesterol screening

Sir,

We have audited the cholesterol measurements made at health checks in our practice over the nine months to 30 November 1991. A total of 625 patients aged 20-65 years (12% of the practice population in this age group) had their cholesterol level measured (51% of the sample were men). The results were classified as normal (less than 5.2 mmol l<sup>-1</sup>) in 21% of cases, borderline (5.3-6.4 mmol l<sup>-1</sup>) in 34%, raised (6.5-7.9 mmol l<sup>-1</sup>) in 36% and very high (8.0 mmol l<sup>-1</sup> or more) in 9%.

The British Hyperlipidaemia Association recommends that anyone with a cholesterol level over 5.2 mmol l<sup>-1</sup> should