mental hindrances and helps. Are the steps or path too steep? Is there a grab rail on the stairs? Is the seat of the easy chair too low or the bed too high? Are mobility, lavatory, or bath aids needed?

The patient's family and other carers can be interviewed and assessed. Many will have been under great strain (especially if the patient is incontinent, confused, or keeping them awake). A minority will be unable or unwilling to go on caring. The family may assume that potentially reversible conditions are inevitable concomitants of aging and may not expect recovery or discharge from hospital. Meeting the consultant at home can reassure the frightened elderly patient, who may harbour fears of going to the workhouse or asylum, perhaps for ever. The explanation that admission is not necessary or will necessitate only a short stay may alleviate much distress.²⁰ Some ill old people will not countenance admission under any circumstances; the visiting consultant may then take blood samples and perhaps do an electrocardiogram in the house.²¹

The general practitioner may benefit by being able to share the responsibility of managing patients with complex problems and by receiving advice on the medical and social management of the elderly, many of whom cannot be neatly labelled as having "acute" or "outpatient" problems. Consultants may also learn from general practitioners, but the rarity of combined visits means that a teaching opportunity is, unhappily, lost. Nevertheless, domiciliary visits with medical students allow the consultant to show the importance of a comprehensive approach to the care of the elderly.⁴

Domiciliary visits are time consuming (half an hour on average in the elderly patient's home) and are often done at evenings and weekends. They are also expensive, costing the NHS over £10m a year.² A detailed home visit may be useful, but is it cost effective? Domiciliary visits certainly prevent the unnecessary admission of old people to hospital. A 'psychogeriatrician reported that one in five patients assumed by the general practitioner to require immediate admission did not,¹⁵ and assessment at home showed that only 78 of 134 elderly patients referred to a geriatrician for urgent admission needed it.²² Other surveys of home visits have also found that 30% of referrals for admission to geriatric units might be managed by alternative strategies such as attendance at the day hospital or an outpatient clinic.^{10,23} The painstaking collection of data on a home visit also enables the consultant to initiate effective treatment, plan realistic rehabilitation goals, and make early preparations for future care at home. It is easier to plan a successful hospital discharge of an old person assessed at home than one transferred to a geriatric ward from within the hospital.²⁴

Domiciliary visits might save money by reducing expenditure on ambulance journeys to clinics and on investigations and by preventing admissions and reducing the length of hospital stays—but we have little hard evidence to prove this. One study of home visits done by a haematologist and a pathologist did, however, find that the savings exceeded the expenditure on domiciliary visits by a factor of five.¹

Our system of consultants' home visits is admired in many other countries. In the United States the importance of these visits is now recognised, and the hope has been expressed that this practice will become commonplace.¹⁷ A general practitioner has described domiciliary visits as one of the features of the NHS most appreciated by patients,²⁵ and nearly 90% of old people seen at home preferred the domiciliary assessment to an outpatient visit.⁴ None the less, cost conscious managers may consider domiciliary visits a target for financial savings. If they are to continue as an

important part of our health service they must be done responsibly and evaluated thoroughly. Useful preliminary developments could include the standardisation of domiciliary visit forms and the discussion of reports on visits at clinical audit meetings. The omission of domiciliary visits from the recent discussion document on performance indicators should be rectified, and the extent of any abuse of the system determined.²⁶ As the scope of home visits has enlarged far beyond the original objectives the ground rules should be revised. Domiciliary visits may be of great value to the patient, family, general practitioner, and consultant. Let us ensure that we all derive maximum benefit from them.

GRAHAM P MULLEY

Consultant Geriatrician,
Department of Medicine for the Elderly,
St James's University Hospital, Leeds LS9 7TF

- 1 Gruneberg RN, Richards JDM. Domiciliary visits by pathologists: an evaluation. *J R Coll Gen Pract* 1980;30:224-7.
- 2 Dowie R. National trends in domiciliary consultations. *Br Med J* 1983;286:819-22.
- 3 Arie T, Jolley D. Making services work: organisation and style of psychogeriatric services. In: Levy R, Post F, eds. *The Psychiatry of Late Life*. Oxford: Blackwell Scientific Publications, 1982:222-51.
- 4 Arcand M, Williamson J. An evaluation of home visiting of patients by physicians in geriatric medicine. *Br Med J* 1981;283:718-20.
- 5 Department of Health and Social Security. *National Health Service hospital medical and dental staff (England and Wales) terms and conditions of service*. London: HMSO, 1981.
- 6 Smith MV, Blythe JD. Domiciliary consultations. *Update Plus* 1971;1: 135-9,149.
- 7 Coupland AJ. Pattern of domiciliary consultations in the Trent region. *Br Med J* 1985;290:1987-8.
- 8 Littlejohns PC. Domiciliary consultations—who benefits? *J R Coll Gen Pract* 1986;36:313-5.
- 9 Casale FF. Review of domiciliary consultations for pain relief. *Anaesthesia* 1985;40:366-8.
- 10 Kimber J, Silver CP. Home visiting by a geriatric department. *J R Coll Gen Pract* 1981;31:41-4.
- 11 Green M. Domiciliary visits—usage or abuse? *Geriatric Medicine* 1980;10:3.
- 12 Coupland AJ, Todd GB. Pattern of domiciliary consultations in the Trent region. *Br Med J* 1985;290:1399-402.
- 13 General Practitioner. If I was forced to cut. *Br Med J* 1979;ii:1429-30.
- 14 Jackson PE. Domiciliary visits by consultants. *Br Med J* 1980;280:256.
- 15 Wattis JP. Home assessment: a study of different needs. *Geriatric Medicine* 1980;10:91-5.
- 16 Birmingham Research Unit of the Royal College of General Practitioners. Practice activity analysis 5. Referrals to specialists. *J R Coll Gen Pract* 1978;189:251-2.
- 17 Currie CT, Moore JT, Friedman SW, Warshaw GA. Assessment of elderly patients at home: a report of fifty cases. *J Am Geriatr Soc* 1981;24:398-401.
- 18 Burton JR. The house call: an important service for the frail elderly. *J Am Geriatr Soc* 1985;33:291-3.
- 19 Zebley RW. Geriatric follow-up: what only a home visit can tell you. *Geriatrics* 1986;41:100-4.
- 20 Amulree Lord, Exton-Smith AN, Crockett GS. Proper use of the hospital in treatment of the aged sick. *Lancet* 1951;ii:123-6.
- 21 Wilcock GK, Gray JAM, Pritchard PMM. *Geriatric problems in general practice*. Oxford: Oxford Medical Publications, 1986:101-2.
- 22 Bendall MJ. Changing work pattern in a geriatric unit and the effect of a day hospital. *Age Ageing* 1978;7:229-32.
- 23 Wilson LA, Levy MG. The domiciliary assessment visit in hospital geriatric practice: pressures and decisions on needs for admission. *Age Ageing* 1979;8:152-9.
- 24 McAlpine CJ. Unblocking beds: a geriatric unit's experience with transferred patients. *Br Med J* 1979;ii:646-8.
- 25 Robinson AM. A country practice's use of domiciliary radiology. *Practitioner* 1984;228:633-9.
- 26 Performance Indicator Group. *Performance indicators for the NHS. Services for the elderly*. London: DHSS, 1987. (Consultation Paper No 8.)

HIV infection: the challenge to general practitioners

Our ability to control and treat the AIDS epidemic depends critically on care in the community. Yet little is known about how primary care is responding to this challenge. Three articles in this issue look at general practitioners' attitudes to and experience with patients infected with the human immunodeficiency virus (HIV) (pp 533, 535, and 538).

The acquired immune deficiency syndrome (AIDS) touches so many sources of fear—sex, drugs, race, blood, contagion, and death—that inevitably attitudes vary widely, and these studies show a broad range of opinion among general practitioners. Anyone dealing with AIDS faces these anxieties and has to come to terms with many understandable but irrational responses. Encouragingly Boyton and Scambler

report that general practitioners who have experience of people with AIDS and HIV infection were more positive than the inexperienced about the job of the general practitioner in helping these patients and disagreed with authoritarian measures (p 538). In this instance familiarity seems to breed compassion. An imaginative proposal mentioned in two of the papers is that peripatetic facilitators might help practices to develop services for patients with HIV. Such a facilitator is already in post in Oxfordshire to help health professionals deal with their own reactions to AIDS and HIV infection (P Anderson, G Kirseh, personal communication).

Milne and Keen ask whether primary care is ready to grasp the preventive challenge posed by HIV infection (p 533). Their evidence (confirmed by Boyton and Scambler) shows that general practitioners do not yet consider that educating their patients about HIV infection is important. Milne and Keen point out that if advice about HIV infection were given carefully to every patient it might appreciably reduce the spread of HIV. Raising the subject of HIV infection during routine consultations is, however, difficult. The mere mention of AIDS raises huge anxieties (for doctors as well as patients), and discussing sexual behaviour rarely flows naturally from other material in the consultation. Despite this I think that we should be discussing the risks of HIV infection with most adults attending for immunisations for overseas travel and many patients consulting about contraception. Women usually find it difficult to suggest to their partners that they should use a sheath, and well woman clinics might help foster the assertiveness required. Few natural opportunities exist for educating young men about HIV infection; yet this is the group whose behaviour has to change most, and they may be reluctant to use condoms. Should we be seeking to talk about HIV infection whenever they attend? If we are to use any of the above opportunities to full effect condoms should be available on prescription.

One important point about testing for HIV has received little attention. Although most tests for antibodies to HIV are sensitive and specific, false positive results still occur. The ratio of false positives to true positives is always high when the prevalence of HIV infection is low in the population being tested. Currently this is the case in almost all general practices. The sensitivity and specificity of tests for antibodies to HIV are about 99.5%, and the current prevalence of HIV infection in Britain is about 0.002%. If general practitioners nationally perform 50 000 tests on this population—for example, in response to pressure from the “worried well”—there will probably be one true positive, 49 749 true negative, and 250 false positive results. Thus positive results found by general practitioners, especially in cases where there is no major risk factor for HIV infection, should be treated as false positives until confirmed by specialised tests.¹

It is difficult to learn new skills without clinical experience. Yet the next few years present general practitioners with a unique opportunity to use the extraordinary potential of each consultation to educate our patients about HIV infection. If we wait until we all have patients with AIDS it will be too late.

I am grateful to Dr Kinghorn, specialist in genitourinary medicine for raising the problem of false positives.

PAUL HODGKIN

General Practitioner and
Lecturer in General Practice,
Medical School,
Sheffield S10 2RX

Reye's syndrome in adults

In 1963 Reye described a syndrome in children of acute encephalopathy associated with fatty infiltration of the liver and other organs.¹ The cause of this syndrome remains unknown, although it has associations with preceding viral illness and with salicylate ingestion. The same condition, it is now apparent, may affect adults.²⁻⁷ Most reports of adults with Reye's syndrome have originated from the United States, but cases have also been reported from Europe,⁸ including Britain.⁹ Most of the patients have been young adults, but at least seven have been over 35.^{7 10} The oldest patient so far described was 61.

The clinical picture of Reye's syndrome in adults is similar to that seen in children: vomiting and shortly afterwards encephalopathy develop a few days after influenza, gastroenteritis, or an upper respiratory tract infection. Jaundice is rare even in severe cases. In those severely ill the picture is dominated by signs of raised intracranial pressure caused by cerebral oedema. It is this complication that kills and its clinical manifestations include abnormal pupillary responses and increased muscle tone progressing to decerebrate and decorticate posturing. Cerebral oedema may be shown by computed tomography,⁶ although the findings vary with the stage of the illness and the treatment given. About a third of adults die—a similar mortality to that seen in children.^{11 12}

Laboratory investigations show acute hepatocellular damage with a fourfold or greater increase in serum transaminase activities. The prothrombin time is usually prolonged, although it is rarely twice the control value. The serum bilirubin concentration is also moderately raised and rarely exceeds twice normal. Hypoglycaemia is uncommon. One of the most constant findings is an increase in blood ammonia concentration, and the height of this early in the course of the encephalopathy appears to be of prognostic value.⁷ In adults the diagnosis is best confirmed by percutaneous liver biopsy, which should be performed early in the illness with the patient given fresh frozen plasma if necessary. Histological examination of the liver specimen shows microvesicular fatty change within the hepatocytes and little or no inflammatory infiltrate or necrosis. As in children,¹³ there are other causes of microvesicular fatty change in adults, and when there is doubt about the diagnosis electron microscopy should be performed to look for characteristic changes in the mitochondria.¹⁴

Most patients have evidence of a recent viral infection as shown by the virus being cultured or a fourfold rise in serum antibody titres. Viruses that have been implicated in Reye's syndrome include influenza A and B, varicella zoster, coxsackie virus, echoviruses, Epstein-Barr virus, measles, rubella, parainfluenza, reovirus, dengue, and polio. The association with salicylates seems less strong in adults than in children.^{7 10}

The differential diagnosis of Reye's syndrome is wide and includes the causes of fulminant hepatic failure in adults (viral hepatitis, paracetamol overdose, halothane anaesthesia, and other rarer causes), valproate toxicity, and urea cycle diseases such as ornithine transcarbamylase deficiency and systemic carnitine deficiency. Raised intracranial pressure and cerebral oedema commonly develop in the later stages of fulminant hepatic failure of any cause, and the clinical picture may be similar for all the causes. In the early stages repeated vomiting appears to be commoner in Reye's syndrome than in other causes of hepatic failure, while deep jaundice and severe coagulopathy are less common. A

1 Meyer K, Pauker S. Screening for HIV: Can we afford the false positive rate? *N Engl J Med* 1987;317:238-41.