this seems appropriate. Other requests for benzodiazepines are refused. We commend this policy to other doctors caring for drug misusers in general practice.

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Hepatitis C virus infection

Define seropositivity

EDITOR,—Carol A Seymour's editorial¹ and the papers on hepatitis C in the same issue illustrate the problems of defining chronic hepatitis C and of identifying patients who would benefit from regular follow up in a gastroenterology clinic. We and colleagues have found that only liver biopsy reliably identifies patients with chronic infection. Kate E Ryan and colleagues rightly question the effectiveness of counselling when so little is known of the natural course of this infection.²

Liver biopsy is not a minor procedure, and scarce and expensive medical resources should be used only when the patient will benefit. The patient must be given an accurate prognosis and treatment with interferon alfa and other antivirals should be offered when appropriate, although the long term effects of such intervention on the prognosis of liver disease associated with hepatitis C are unknown.

Much of this information is not new. It has been known since the 1970s that a normal serum alanine aminotransferase activity in repeated samples taken over an extended period does not exclude the finding of non-A, non-B hepatitis on liver biopsy.^{3,4} Published studies of liver biopsies in blood donors positive for antibodies to hepatitis C virus show varying proportions with normal histological appearances and different patterns of severity of liver disease.

An accurate definition of what constitutes a specific result of a test for hepatitis C antibody is essential. We have attempted such a definition based on an algorithm devised for confirmatory testing of repeatedly reactive samples from blood donors.⁵ We found that serum that was reactive in three different enzyme immunoassays had a much greater chance of being reactive in a line immunoassay than serum that was reactive in only one or two enzyme immunoassays. Alternatively, a mean ratio of the absorbance obtained for the sample to the cut off absorbance for these assays of > 3.00 was associated with a much increased chance of a positive result for viral RNA by the polymerase chain reaction, confirming that strong reactivity by enzyme immunoassay is more likely to be specific. Samples from only two of 172 blood donors with viraemia failed to react in all three enzyme immunoassays; the viruses in these two cases were antigenic variants uncommon in our population of blood donors.

Our definition of a specific result of a test for hepatitis C antibody is reactivity in three different enzyme immunoassays, with a mean ratio of the absorbance obtained for the sample to the cut off absorbance greater than a minimum derived under

standard conditions from a group of people known to be positive, and reactivity in a line immunoassay. This definition excludes serum with low concentrations of specific antibody such as that from patients with resolving infection, who are unlikely to have viraemia or to need medical intervention.

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Psychosocial impact similar to that of HIV infection

EDITOR,—Over four fifths of injecting drug users seen by our community drug team are positive for hepatitis C virus and find coping with the knowledge of this difficult, given the uncertain implications of such a diagnosis. Counselling such clients is difficult as clear guidelines on the epidemiology, infectivity, and prognosis of asymptomatic hepatitis C are lacking.¹ We have been concerned recently about instances when patients were denied ordinary care because they were positive for the virus. One of our clients, a former injecting drug user in her 20s who receives maintenance treatment with low dose methadone, was refused treatment by her dentist after she disclosed to him that she was positive for the virus. On referral to an NHS dental clinic she was placed on a waiting list despite the urgency of her dental condition as she had to be given an appointment at the end of an afternoon so that adequate precautions could be taken.

We agree with Kate E Ryan and colleagues that disclosure of the fact that a patient is positive for hepatitis C virus can have serious psychosocial implications,² which may mimic those associated with positivity for HIV. The issues of counselling people at risk, consent to testing, and confidentiality of results need to be addressed urgently.

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Treatment with interferon reduces viraemia

EDITOR,—Carol A Seymour's editorial on the management of chronic hepatitis C¹ has initiated an interesting discussion, with some doctors advocating a policy of no intervention.² Although the natural cause of chronic hepatitis C is still a matter for debate, at least a fifth of infected patients are likely to develop cirrhosis or a hepatocellular carcinoma, or both.³ We still do not know

how to identify those patients who are at risk of developing permanent liver damage, but liver function tests are clearly of little value.

Most hepatologists would agree that patients with fibrosis or chronic active hepatitis with bridging necrosis proved by biopsy are probably at high risk of developing cirrhosis (by analogy with chronic hepatitis B). Formal studies to confirm this in hepatitis C, however, have not been published. A liver biopsy therefore provides some information regarding the likely prognosis and, in our view, is essential in patients with abnormal serum transaminase activities.

Identifying patients who are at high risk of developing progressive disease is of value only if we can offer treatment. High dose interferon reduces viraemia to undetectable levels (an analysis with the polymerase chain reaction) in up to a quarter of treated patients.⁴ We do not know whether this represents a permanent cure, but data showing prolonged normalisation of results of liver function tests in these patients indicate that this is probable. Studies combining interferon and oral antiviral agents are under way, and recent results suggest that these new treatment regimens may "cure" 43% of treated patients (L Chemelle *et al*, VITH international symposium on viral hepatitis, Madrid, 1994). Hence we are in a position to offer patients treatment that may considerably improve their prognosis.

Although there is still legitimate debate regarding the optimal management of patients with chronic hepatitis C, the current discussions should not be used as an argument for therapeutic nihilism: without intervention many patients with this disease will die. In our view Seymour's advice is sound: patients with chronic hepatitis C should be referred to centres skilled in managing this disorder so that they can benefit from the latest management options.

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Hepatitis B and medical student admission

Admission should be based on merit

EDITOR,—*BMJ* was right to publish an editorial on hepatitis B and medical student admissions and to lend its authority to the case for screening of students after admission.¹ The editors contributed the slightly provocative subtitle and amended some of the text after my last sight of it (unwisely in my opinion) in the interests, presumably, of making a more hard hitting message. As a means of engendering controversy where there was room for informed and balanced debate, this has been a journalistic "success" and has elicited a predictably nettled response from Peter Richards and Frank Harries, who are provoked to tilt at the person ("the luxury of opinion without responsibility") and the journal ("irresponsible"), without producing a substantive argument in support of the Committee of Vice-Chancellors and Principals' guidelines.² This contrasts with letters published simultaneously from the BMA medical students

committee and from A G Elder, in which in clear terms are laid out the case for screening after admission¹ and that against screening before admission.⁴ My only slight disagreement with Elder is that if he does not believe hepatitis B is the thin end of the wedge, he should look again at the lack of compelling arguments on which these current guidelines have been introduced and at Richards and Harries comment that hepatitis B may only be the "tip of the iceberg"—presumably as a criterion for exclusion from medical school.

Richards and Harries are at pains to underline the concept of responsibility. The point here is that the Committee of Vice-Chancellors and Principals has a massive responsibility. It has a responsibility to the medical student who is now halfway through his or her course, having been accepted and been held in limbo for the two years which the committee has taken to debate the matter. This student's future has now been significantly affected by the guidelines, and whereas a modified clinical course was in prospect, he or she is now being pressured to leave or change course.

The responsibility of the committee pertains particularly to medical schools, some of which are continuing their policy of screening after admission. The fear is that, in view of the justifiably high regard in which the committee is held, some schools will, against their own better judgment, exclude or dismiss outstanding students on the sole grounds that to admit them would be to go against one of the committee's pronouncements.

Admission to medical schools should be on the basis of merit and suitability to become a doctor, not on grounds of infinitesimal risk factors which are preventable. The concept of accepting an applicant who is less suited for medicine on grounds of intellect, attitude, and personality rather than someone who is more suited but is positive for hepatitis B antigen—possibly temporarily—is not in the best interests of the profession or the public, whereas constructive use of able individuals and creation of an appropriate training programme for them is. I believe the debate should continue and the Committee of Vice-Chancellors and Principals should re-evaluate its position in the light of responsible opinion, such as that provided by the BMA medical students committee.

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Guidelines apply to dental students too

EDITOR,—A M Lever highlights the problems of implementation of the recently issued guidelines for universities regarding medical students.¹ These guidelines also apply to dental student admission. The aim of courses for dental students is to produce a graduate with academic and clinical knowledge and skills, ready for independent practice as a dental physician and surgeon. Therefore as part of these courses all students are required to carry out a wide range of treatment procedures. By the Department of Health's guidelines virtually all dental procedures are "exposure prone" in that the operation takes place within a body cavity. On qualification virtually all graduates will continue to perform clinical work as there are few jobs in dentistry which do not include clinical work.

It is appropriate to screen dental students and

start hepatitis B vaccination during the first term of training as they are unlikely to perform exposure prone procedures then. Dental schools can avoid pre-admission screening. Lever suggested that one in 5000 medical school applicants could be infectious, which would suggest that one carrier of e antigen might be accepted to dental studentship every six years—surely a surmountable problem. The cost of the vaccination programme to dental schools or students is considerable—vaccination by the student's own general practitioner necessitates travel and time costs. This is accepted as necessary to protect the patients and the dentist.

We considered the problem of the HIV positive dental student at a European Community Working Party² since employment opportunities in dentistry would be very limited for such students. On admission to dental school, students should be informed of the occupational risk and consequences for employment of becoming HIV positive. There is one reported case of a dental undergraduate who was found to be HIV positive.³ Testing should remain on a voluntary basis but once a student is identified as positive a sympathetic approach by the dental school, university, and General Dental Council should allow a clinical student to complete the course and be examined while avoiding exposure prone procedures. The graduate could then seek research or administrative work or obtain graduate entry to a non-dental course.

A recent report indicated that "over 70% of hospital ward doctors had been accidentally jabbed by 'sharps' during a two year period."⁴ The emphasis in dentistry has, for some years, been to prevent injury and possible contraction of HIV. Risk assessment⁵ has led to modification of techniques and so reduced the danger to the operator and assistant. Anecdotal evidence points to a reduction in injuries, but only time will tell how effective these changes in techniques have been in preventing dentists from contracting HIV infection.

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General practitioners and necropsies

General practitioners are welcome at necropsies

EDITOR,—Recent articles on necropsies written by the non-forensic community are muddled and consistently omit to mention crucial differences between the coroner's necropsy (under the Coroners Act 1988 and the Coroners Rules 1984) and the hospital necropsy (under the Human Tissue Act 1961, as amended by the Anatomy Act 1984).^{1,2} The relevant cofactors that merit consideration by those indulging in medical jurisprudence are stated elsewhere.^{4,5}

The comment that a deterrent to general practitioners requesting necropsies is their belief that a necropsy is needed only if the cause of death is not known¹ is wrong. When the cause of death is unknown the case is referred to the coroner and a request from the general practitioner for a necropsy is redundant.

Although the coroner's investigation of a death primarily serves statutory requirements and medicolegal interest, modern forensic pathologists endeavour to find a medical reason for the death for the benefit of clinical colleagues and the bereaved family. All too commonly, and to the detriment of clinicopathological answers that may be gleaned from a necropsy, no clinical history is available.

The general practitioner is welcome at the necropsy (under rule 7 of the Coroners Rules 1984) and entitled to be notified when practicable of the time and place. It is constructive and of mutual benefit for doctors to liaise with the coroner's pathologist before the necropsy. More communication and greater rapport should be encouraged.

The financial burden of a medicolegal necropsy falls on the coroner or the police authority and is relieved by public funds. A prescribed fee (if any) for the necropsy report (under rule 57 of the Coroners Rules 1984) is a reasonable token payment. It may selectively control properly interested applicants. The report and other evidence before the coroner may be inspected without charge.

A proposal that a copy of every necropsy report should be readily available to the general practitioner is inappropriate under current legislation. In practice, the information in many medicolegal cases can be given in a telephone call, and in certain cases premature disclosure is inadvisable, particularly if legal proceedings or criminal charges are likely and the case material is sub judice. The disclosure of information without the coroner's prior authorisation is forbidden (under rules 10 and 13 of the Coroners Rules 1984) in coroner's cases.

A necropsy should not represent failure for a doctor but should be regarded as vital to the process of continuing postgraduate education and valuable to medicine.

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May harm relationships with relatives

EDITOR,—K B Thomas and R O Weller suggest that general practitioners hesitate to request necropsies because the death of a patient starkly highlights their failure as doctors¹; the general practitioner can be seen as attempting to bolster his or her flagging self confidence by denying that the death happened. I challenge this view and suggest that the reluctance of general practitioners to request necropsies stems from two main factors.

Whereas hospital pathology departments have little to do with dead patients' relatives, these relatives are often the patients of the general practitioner concerned, who may have developed a close relationship with them. A desire not to hurt a relative's feelings may seem a trivial reason not to press for a necropsy when viewed from the point of view of a hospital (or even a university department of general practice). But to a general practitioner, pressing unwilling relatives for permission to perform a necropsy may mean knowingly causing further stress and hurt to