true values because of a faulty heuristic. For example, a patient may accept an offered test because she reasons that the doctor would not have offered it if he did not think she should accept it. Another patient may argue that if a test is not offered then the doctors must have decided that for her it would not be advisable. If we assume that economic considerations can be disregarded the truth in all cases is that for every woman the decision depends not only on her genetic risk and the risks of the procedure but also on the relative utility she assigns to accidentally losing a normal baby and to having a child with Down's syndrome. Methods for measuring people's utilities have been described but are time consuming.¹ Surveys of values measured in a standardised way may alert doctors to the wide range of patients' utilities but are of little use in an individual consultation.

This subject could usefully be discussed by women and their peers in early antenatal classes. The probabilities of various outcomes can be given and the women introduced to the concept of utility, whereby different patients with identical risks might choose different treatments. A reasonably sized group should contain patients with utilities at both ends of the range, or a counsellor could describe patients with utilities not represented without the danger of exerting undue influence on the suggestible. Most patients should then be able to decide whether to undergo amniocentesis without any further individual counselling. We are presently studying whether such an approach does indeed result in improved decisions.

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1 Pauker SP, Pauker SG. Prenatal diagnosis: a directive approach to genetic counselling using decision analysis. *Yale J Biol Med* 1977;50:275-89.

Who needs pulse oximetry?

SIR,—Following Dr John S M Zorab's leading article (5 March, p 658) we would like to describe a recent case in which we used oximetry for measuring oxygen saturation during the transport of a sick patient.

After the fire in a hotel in Borovets, Bulgaria, in February all the injured from the United Kingdom were flown home two days later. They included one patient who had had a laparotomy, splenectomy, and a tear in the liver sutured and packed. The patient had also sustained a comminuted fracture of a femur, which was in traction. Resuscitation had included 5 units of blood. The most recent haemoglobin value was 116 g/l. There were symptoms of chestiness, probably as a result of smoke inhalation. There was no sign of fat embolism. These injuries, and those of the rest of the casualties, had been sustained in jumping from the third and fourth floors of the hotel.

A pulse oximeter (Novamatrix) was attached to a finger in the ambulance outside the hospital in Samokov, 70 km from Sofia, and removed at Gatwick. It was used frequently but not continuously. The altitude at Samokov is around 3000 feet (910 m) and at Sofia (the airport) 2000 feet (610 m), and the cabin altitude during flight was 5000 feet (1520 m). Oxygen saturation while the patient was breathing air rose during the drive down from the hills, from 85% to 89%, proving that supplementary oxygen would be needed during the flight. This was given, the flow being titrated to give an oxygen saturation of 95-97%. When the mask was

removed the saturation fell promptly to 85% or less.

This instrument was of great value during this medical repatriation, helping to provide a safer environment for the patient and reassurance for the escorts.

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SIR,—Dr John Zorab's leading article on pulse oximetry (5 March, p 658), by quoting Severinghaus and Naifeh,¹ may leave the reader with the impression that pulse oximeters vary widely in the accuracy of calculated arterial blood oxygen saturation. This paper, however, was evaluating the response of pulse oximeters to a brief period of induced profound hypoxia (arterial oxygen saturation 40-70%).

While there are significant limitations to the accuracy of pulse oximeters,² and this remains an area of concern and for future development,³ our recent study directly comparing the steady state accuracy of pulse oximeters in the clinically useful range (arterial oxygen saturation 80-100%) was more encouraging.⁴ With one exception all the oximeters showed little variation in calculated arterial oxygen saturation, but had a general tendency slightly to underestimate the true value. Accuracy in this range is to be expected as manufacturers calibrate pulse oximeters empirically, deriving an algorithm from in vivo studies.

In many, but not all, of the clinical situations in which pulse oximeters may be used a consistent accuracy of 2-3% SD in the 80-100% arterial oxygen saturation range is probably acceptable as long as falling or rising trends are reliably detected. There is some evidence that ear probes may detect such trends more rapidly and accurately than finger probes.⁵

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- Taylor MB, Whitwam JG. The accuracy of pulse oximeters. A comparative clinical evaluation of five pulse oximeters. *Anaesthesia* 1988;43:229-32.
- Kagle DM, Alexander CM, Berko RS, Giuffre M, Gross JB. Evaluation of the Ohmeda 3700 pulse oximeter: steady-state and transient response characteristics. *Anesthesiology* 1987;66:376-80.

Does infection with HIV affect the outcome of pregnancy?

SIR,—Dr Frank Johnstone and others examine the outcome of pregnancy in women who either were intravenous drug users or had a seropositive partner (13 February, p 296). The outcome of pregnancy in the HIV seropositive and seronegative groups were compared. Apart from an increased rate of spontaneous abortion in the seropositive group there were no appreciable differences between the two groups; in both there were increased rates of adverse outcome in terms of preterm deliveries and small for gestational age and low birthweight babies. Since the data are considered from the viewpoint of HIV infection it is not possible to assess the influence on pregnancy outcome of intravenous drug abuse, but it can be inferred that this is one of the features of "lifestyle

and deprivation" to which the adverse outcomes were attributed.

Although HIV infection is not yet a problem in obstetric practice in Glasgow, intravenous drug abuse is common. Since February 1986 pregnant intravenous drug abusers and partners of drug users in the north of Glasgow have been cared for at a community based antenatal clinic which operates in close liaison with community health services, the social work department, and the local drugs project, as well as other hospital specialties. Since HIV infection is a potential risk of intravenous drug use, which in turn correlates strongly with socioeconomic deprivation, this system provides a comprehensive service dealing with all aspects of deprivation. Initial management of drug abuse is by immediate or very rapid detoxification as an inpatient despite the fact that this is reportedly associated with increased fetal loss.

By 31 January 1988, 28 women with a history of intravenous drug use and 17 partners of men with this history had been delivered. All were HIV seronegative. Of the 28, only two had stopped using drugs before pregnancy; at the time of referral many were using large quantities of drugs with many consequent medical problems. There were no spontaneous abortions and one induced abortion for fetal abnormality; this woman was one of the two who had stopped using drugs before pregnancy. Three babies were delivered at <37 weeks' gestation, three had birthweights <2500 g, and one had a birthweight <5th centile. Among the 17 partners of drug users there was one spontaneous abortion, one baby delivered at <37 weeks' gestation, two with birthweights <2500 g, and one with a birthweight <5th centile. There were no perinatal deaths in either group.

The comprehensive management described here has many benefits, not least being its acceptability to the women it serves. Management of drug abuse in pregnancy by immediate detoxification allows an earlier start to rehabilitation, avoids withdrawal symptoms in the babies, and thus reduces the risk of separation of mother and baby at birth. Although the numbers are small, our results suggest this form of management may not be as hazardous to the fetus as earlier reports would suggest.

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Antisperm antibodies in infertility

SIR,—In Mr David Barlow's leading article the role of direct intraperitoneal insemination¹ in inducing the production of antisperm antibodies was questioned (30 January, p 310).

Direct intraperitoneal insemination has been performed at St Mary's Hospital, Manchester, since January 1987. Ovulation is stimulated by clomiphene citrate at 100 mg/day on days 2-6 of the menstrual cycle and triggered by an injection of human chorionic gonadotrophin (10 000 IU intramuscularly) when the leading follicle is 20 mm in diameter or by the occurrence of an endogenous luteinising hormone surge detected in serum samples collected daily. Washed motile sperm (mean 12.1×10^6 ; range $3.2-22.0 \times 10^6$) in 0.5 ml culture medium is injected into the peritoneal cavity through the vaginal wall 34-36 hours after the ovulatory trigger using a 1 ml syringe and 21 gauge needle.

Blood is collected from the female partner in the follicular phase of the treatment cycle (day 2-5), and 14 days and 28 days after the direct intraperitoneal insemination, and serum is tested for

the presence of antisperm antibodies by the gelatin agglutination test² and the tray agglutination test.³

Fourteen women have completed one treatment cycle, with two women having repeat treatment cycles after six months. One singleton pregnancy has been achieved, which resulted in the delivery of a live male infant weighing 623 g at 28 weeks' gestation.

In all 16 treatment cycles the women had no serum agglutinating activity detected by the gelatin agglutination test before or after direct intraperitoneal insemination. Two women, however, had weak agglutinating activity in serum before direct intraperitoneal insemination when tested by the tray agglutination test (both 1:4, head-head agglutination). One of these women showed no change in the measured titre after direct intraperitoneal insemination, and the other had a slight increase in titre on days 14 and 28 after direct intraperitoneal insemination (1:8, head-head agglutination). The two women with repeat cycles had not developed any agglutinating activity detectable by either test during the six months between the first and second treatment cycles.

It thus appears from these preliminary data that, with the numbers of sperm described here, direct intraperitoneal insemination does not induce the production of antisperm antibodies to any appreciable degree over the period studied. A larger study, however, with a longer follow up time is required to confirm this finding.

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- 1 Forrler A, Dellenbach P, Nisand I, *et al.* Direct intraperitoneal insemination in unexplained and cervical infertility. *Lancet* 1986;ii:916-7.
- 2 Kibrick S, Belding DL, Merrill B. Methods for the detection of antibodies against mammalian spermatozoa. II. A gelatin agglutination test. *Fertil Steril* 1952;3:430-8.
- 3 Friberg J. A simple and sensitive micro-method for demonstration of agglutinating activity in serum from infertile men and women. *Acta Obstet Gynecol Scand (Suppl)* 1974;36:21-9.

Career counselling for general practitioners

SIR,—The recommendation of the General Medical Services Committee (27 February, p 654) that counselling on careers in general practice should be offered to all junior doctors and medical students is welcome. Vocational training course organisers have in fact been offering such counselling for many years. It is one of the many tasks¹ we undertake that were not envisaged when the current "temporary arrangements" for course organisers' remuneration were made some 15 years ago.

The suggestion that such counselling should not be carried out by those with responsibility for appointments to vocational training schemes is, however, offensive. It implies that course organisers have been unprofessional in their approach to career counselling and have put the interests of their training schemes before those of the doctors they are counselling. I should be interested to know the evidence for such an assertion. In fact, course organisers are uniquely well placed to undertake this counselling. We know the vocational training regulations; are conversant with the knowledge, skills, and attitudes needed for a career in general practice; and have experience in assessing trainees' strengths and weaknesses. Furthermore, we are best able to judge whether our particular

scheme offers the most appropriate training programme for a particular individual, and if it does not we can offer guidance on the type of scheme to which the young doctor should apply.

The GMSC was mandated by the 1985 conference of local medical committees to secure a substantial increase in the remuneration of course organisers. While we appreciate the efforts of the negotiators, they have so far produced no tangible results. The Association of Course Organisers views with concern the implication in your report that the GMSC is now giving greater priority to funding others to perform part of our work than it is to securing course organisers the level of remuneration we have long deserved.

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- 1 Association of Course Organisers. Outline job description for a course organiser in vocational training. *Journal of the Association of Course Organisers* 1985;1:25-7.

Solving the problem of longitude

SIR,—Surely Dr Richard Smith (13 February, p 484) is wrong when he writes that it was the Royal Society that tried to deny Harrison the Longitude Prize.

The £20 000 prize was offered by act of parliament in 1714. Harrison heard of it in 1725, when he was 32. After five years' work he convinced the Astronomer Royal (Halley) that he was on the right track. In the 24 years between 1736 and 1760, backed by the constant help of the Royal Society, Harrison received from the commissioners of the Board of Longitude a total of £3250 towards the cost of developing his chronometer. The society awarded him its Copley Medal in 1749. In 1764, on a voyage to Barbados, the chronometer achieved a degree of accuracy three times better than that demanded by the act of 1714. To authorise payment, however, a fresh act was necessary, and this, shockingly, imposed a new condition—namely that two further chronometers must be made and proved before the £20 000 could be won. So he got only £10 000. Aged 73, with failing eyesight and health, Harrison was unable to deliver another chronometer until he was 80. Clearly a third chronometer was beyond him. Appeals to the King and the Prime Minister, and a petition to parliament, yielded a "bounty" of £8 750. He never received the full £20 000.¹

Thus Harrison's shabby treatment was not at the hands of a scientific society but at those of the government of the day.

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- 1 Quill H. John Harrison, Copley Medallist, and the £20 000 longitude prize. *Notes and Records of the Royal Society* 1963; 18:146-60.

Points

Should the pill be stopped preoperatively?

Dr RD EASTHAM (Department of Pathology, Frenchay Hospital, Bristol BS16 1LE) writes: Professor L E Hughes and Mr H Sue-Ling state that "drug prophylaxis for deep vein thrombosis inevitably carries morbidity" (13 February, p 447). They do not need to be so gloomy. Poller *et al* have shown that preoperative and postoperative minidose warfarin at a daily dose of 1 mg effectively reduces the incidence of thrombosis after major abdominal or vaginal surgery without causing unfortunate side effects.¹ There is only a slight increase in the prothrombin time and no postoperative

increase in the activated partial thromboplastin time or disturbance of normal haemostasis during the operation.

- 1 Poller L, McKernan A, Thomson JM, Elstein M, Hirsch PJ, Jones JB. Fixed minidose warfarin: a new approach to prophylaxis against venous thrombosis after major surgery. *Br Med J* 1987;295:1309-12.

HIV, genital ulceration, and granuloma inguinale

Dr NIGEL O'FARRELL (King Edward VIII Hospital, Durban, South Africa) writes: Dr D Mabey and colleagues (9 January, p 83) found an increased prevalence of HIV 2 among patients with genital ulcers and suggest a common behavioural factor that predisposes to infection. Their suggestion of prostitution has been made for HIV transmission previously,¹ but more specific risk factors applying to the heterosexual population need to be identified. Prostitutes are often implicated in the transmission of chancroid and syphilis, but other causes of prolonged or recurrent ulceration involving mucosal discontinuity need to be evaluated, in particular herpes, erosive balanitis, and granuloma inguinale. The diagnosis of granuloma inguinale may have been overlooked or underestimated in parts of Africa, as it has been elsewhere.² At the sexually transmitted disease clinic of this hospital we found 28 cases in one month compared with 25 in the whole of 1985. Slides were prepared by the May-Grünwald-Giemsa method, but we subsequently found that in more obvious cases a fast bedside diagnosis could be made using the RapiDiff stain. Most lesions were found to bleed easily and to require two to four weeks of treatment before complete healing. Non-compliance with treatment is common and probably exacerbated by patients' disappointment at not receiving parenteral therapy. A definitive diagnosis of sexually transmitted disease in repeat attenders with genital ulcers may be helpful in determining cofactors in HIV transmission, particularly in areas where prostitution is illegal and subjects unavailable for study.

- 1 Kreiss JK, Koeh D, Plummer FA, *et al.* AIDS virus in Nairobi prostitutes. *N Engl J Med* 1986;314:414-8.
- 2 Sehgal VN, Prasad AL. A clinical profile of donovanosis in a non-endemic area. *Dermatologica* 1984;168:273-8.

Newly registered elderly patients

Dr PHYLLIS LEMON (Welwyn Garden City, Herts AL8 8QW) writes: I am surprised that Drs Helen Graham and Brian Livesley (30 January, p 340) have not hit on the solution to the problem of the slowness of transfer of medical records that we use in our practice. We send a letter to all newly registered patients pointing out that it may take six months for their old records to be transferred and asking them to contact us if they are on any regular medication or if they have any medical problems we should know about. If they do so we write direct to their former general practitioner asking that the contents of their folder should be sent on to us. The family practitioner committee is perfectly happy as long as the outer envelope goes through the bureaucratic procedure, and we get the records. In the case of elderly patients we frequently write to the previous general practitioner without waiting for the patient to contact us.

Negative results at cervical biopsy directed by colposcopy

Dr FABIO PARAZZINI (Istituto di Ricerche Farmacologiche "Mario Negri," 20157 Milan, Italy) writes: Mr Paul Byrne and others (16 January, p 172) found that out of 132 women with persistent cytological abnormalities of the cervix in whom an initial punch biopsy directed by colposcopy gave a negative result 55 (42%) had a cervical lesion on repeated biopsy. They concluded that women with persistent abnormal smears should be carefully followed up despite the negative results of initial biopsy. We think that a single abnormal smear warrants a careful evaluation. We had the opportunity to perform a second smear