found for 35 drugs. Contrary to hospital advice, 59 drugs were issued in childproof containers.

We had spent time counselling the patients on their treatment before discharge. We had attempted to improve communication by sending a copy of the discharge prescription to the general practitioner by first class post and alerting the practice surgery by telephone to the patient's discharge.

Closer communication between hospital and community care professionals is clearly required. Hospitals should endeavour to inform general practitioners of patients' discharge on the day of discharge or the next working day, and a subsequent home visit by either the doctor or a liaison health visitor would facilitate continuity of treatment. We agree that a more active role for community pharmacists would help iron out potential sources of confusion in nomenclature, timing of doses, and containers and would benefit this vulnerable group of patients.

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1 Cochrane RA, Mandal AR, Ledger-Scott M, Walker R. Changes in drug treatment after discharge from hospital in geriatric patients. *BMJ* 1992;305:694-6. (19 September.)
2 Burns JMA, Sneddon I, Lovell M, McLean A, Martin BJ. Elderly patients and their medication: a post-discharge follow-up study. *Age Ageing* 1992;21:178-81.

Human insulin and awareness of hypoglycaemia

EDITOR,—Mr R Kiln dismisses our study on insulin species and awareness of hypoglycaemia¹ as worthless.² Kiln's comments reflect a less than careful reading of our paper. Contrary to the assertion that "nobody . . . seems to have taken any account of what diabetic patients are saying," this was in fact the main selection criterion for entry into our study.

Kiln finds serious flaws in the design of our study. The first is that one month is not long enough for patients to detect a difference in insulin species. This comment shows a lack of understanding of the design of our study. The randomisation schedule resulted in 28 of 50 patients being treated for two consecutive months with porcine insulin. Not one of these patients was able to identify the species of insulin. Furthermore, other studies in which patients were treated for up to three months also failed to show a difference (A Stocks, personal communication).¹ Kiln suggests that improvement in control may have accounted for our finding of no significant differences between human and porcine insulins. There was no suggestion, however, that glycaemic control improved or changed during our study.

The second concern relates to the method by which patients were asked to identify the insulin species. Kiln's reference to "the questionnaires" again highlights a lack of understanding of our study methods. No questionnaire was used. Instead, patients were invited to identify the sequence of insulin species by whatever means they wished, which invariably required the help of relatives and friends. Participation in a study may alter behaviour. Since patients were aware that one of the main outcomes of our study was their ability to distinguish the insulin species, however, it is likely that any bias would have favoured the patient being able to pick a difference rather than the contrary. The fact that only two of 50 patients could do so is convincing evidence against a species effect on hypoglycaemic awareness.

We appreciate Kiln's disappointment at the accumulating evidence that overwhelmingly fails to support anecdotal impressions about human insulin. Anecdotal evidence is important in

medicine to alert scientists to possible associations. It must then, however, be tested by well designed, controlled studies. Our study tested this anecdotal evidence and did not show an association between human insulin and hypoglycaemic awareness in the very patients who thought that they were experiencing a problem.

Our study is one of five double blind crossover comparisons of human and porcine insulin in patients selected because they complained about hypoglycaemic unawareness developing after their transfer to human insulin (A Stocks, personal communication).^{1,4,5} Not one of these studies has found a significant difference between human and porcine insulin. The continued focus on insulin species diverts attention from the serious problem of hypoglycaemic unawareness in people with insulin treated diabetes.

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1 Colagiuri S, Miller JJ, Petocz P. Double-blind crossover comparison of human and porcine insulins in patients reporting lack of hypoglycaemia awareness. *Lancet* 1992;339:1432-5.
2 Kiln MR. Human insulin and unawareness of hypoglycaemia. *BMJ* 1992;305:522.
3 Maran A, Macdonald IA, Gale EAM, Amiel SA. Human insulin does not affect the presentation of hypoglycaemia in type 1 diabetes: a clinical and laboratory study [abstract]. *Diabetic Med* 1992;9(suppl 1):11A.
4 Patrick AW, Bodmer CW, Tieszen K, White MC, Williams G. Human insulin and awareness of acute hypoglycaemic symptoms in insulin-dependent diabetes. *Lancet* 1991;338:528-32.
5 Ferrer JP, Esmatjes Z, Gonzalez-Clemente JM, Goday A, Conget I, Jimenez W, et al. Symptomatic and hormonal hypoglycaemic responses to human and porcine insulin patients with type 1 diabetes mellitus. *Diabetic Med* 1992;9:522-7.

Unexplained death in fit young people

EDITOR,—In the editorial on unexplained death in fit young people M J Davies states that there is an analogy with the sudden infant death syndrome.¹ Davies observes that in both instances necropsy does not yield a definitive answer, but the author focuses mainly on necropsy after sudden death. No mention is made of the fact that the National Institutes of Health in Bethesda, Maryland, updated its definition of the sudden infant death syndrome in 1989; this requires an investigation of the scene of death in addition to necropsy. A strong emphasis on such investigation may increase diagnostic reliability when the cause of death is unexplained by necropsy. My experience confirms that more thorough investigation of the death scene in sudden infant death confers a much greater chance of uncovering a cause of death other than the sudden infant death syndrome.²

In sudden unexplained death of a fit young person prompt investigation of the death scene by trained staff from the medical examiner's office, in addition to police investigation, may provide valuable information on the cause and manner of death not detected at the necropsy or by the police investigation. Police are trained and equipped to search for criminal activity, but public health problems, especially elusive environmental hazards, may escape their attention at the death scene.^{1,3}

Forensic pathologists might find it helpful to compile a checklist of basic procedures to use during an investigation of the scene of a sudden unexplained death of an infant or fit young person. Difficult diagnostic cases may require more than one visit to the scene, at different times of the day. Given adequate resources and professional collaboration, forensic pathologists who have restricted their practice to necropsies can easily

gain skill and conduct adequate investigations of the death scene. With an organised, systematic investigation of the death scene greater advances will be made in unravelling the mystery of sudden unexplained death.

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1 Davies MJ. Unexplained death in fit young people. *BMJ* 1992;305:538-9. (5 September.)
2 Bass M, Kravath RL, Glass L. Death-scene investigation in sudden infant death. *N Engl J Med* 1986;315:100-5.
3 Bass M, Hass R. Sudden infant death in Thailand and Alaska. *Lancet* 1991;337:304-5.
4 Bass M, Hass R. Sudden unexplained death in a Pacific archipelago (Mariana Islands). *Am J Forensic Med Pathol* 1991;12:182.
5 Bass M. The fallacy of the simultaneous sudden infant death syndrome in twins. *Am J Forensic Med Pathol* 1989;10:200-5.

Severity of imported falciparum malaria

EDITOR,—Stephen J Lewis and colleagues retrospectively investigated factors affecting the severity of imported falciparum malaria.¹ They found that prior antimalarial prophylaxis was associated with reduced severity of disease. In addition they concluded that ethnic origin (African versus white) was also associated with a favourable outcome: Africans (whether living in Africa or in Britain) were at significantly lower risk of developing severe malaria. The authors argue that this effect is due to acquired immunity against falciparum malaria. Immunity against subsequent infections with *Plasmodium falciparum* is, however, largely ineffectual, mainly because of the changing antigenic nature of the merozoites but also because most persisting anti-gametocyte IgG fails to offer immunological protection.²

The authors overlooked an important variable by failing to investigate the sickle cell status of their patients. In sub-Saharan Africa the rate of carriage of haemoglobin S is 10-30%.³ Heterozygotes for haemoglobin S are protected against falciparum malaria because the malarial parasites cause sickling of the cells containing the haemoglobin S and the affected cells are removed by the spleen and the reticuloendothelial system. The severity of falciparum malaria in those with sickle cell trait is therefore reduced.¹

Thus the observed effect of ethnic origin on the severity of falciparum malaria is probably due not to acquired immunity but to confounding variables, particularly sickle cell status.

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1 Lewis SJ, Davidson RN, Ross EJ, Hall AP. Severity of imported falciparum malaria: effect of taking antimalarial prophylaxis. *BMJ* 1992;305:741-3. (26 September.)
2 Manson-Bahr PEC, Bell DR, eds. *Manson's tropical diseases*, 19th ed. Ballière Tindall, 1987.
3 Grendel D. Protection against Plasmodium falciparum infection in children with haemoglobin S. *Pediatric Infect Dis J* 1991;10:620-1.

Controlling deaths from volatile substance abuse

EDITOR,—A Esmail and colleagues suggest that butane gas lighter refills should be withdrawn from the market as abuse leads to many deaths, especially in the under 18s.¹ They acknowledge that withdrawal of these refills might "force young people into abusing other gaseous products." History suggests that this fear is well justified.

McBride, writing in 1910, devoted 17 pages of

his textbook on the treatment of alcoholism to "ether inebriety" and a further nine pages to "chloroform inebriety." He gave his detailed views on the geographical and social spread of abuse of ether between 1842 and the legislative restrictions of 1909. He, too, believed that "another remedy would be the abolition of the retail sale" (of ether). He described the abuse of the substance by young "etherists." "Sturdy Irish lads and beautiful Irish lasses ... are slaves to ether drunkenness." He discussed supply: "The hawkers carry about a bottle of ether and do not scruple at selling to anyone, however young ... in this way the children may procure the ether on their way to school." He continued, "The habit has become so general, that small shopkeepers treat the children who have been sent to purchase some article with a small dose of ether, and schoolmasters have detected ether on the breaths of children from ten to fourteen (or even younger), on their arrival at school." He described escalation in dose; many drank ether, though his own patients inhaled: "In England I have known an ether inebriate use a pint of ether by inhalation every day." Users enjoyed the speed of the response: "The exhilarative stage of morbid exaltation ... the fun and exuberant merriment." A medical user preferred ether to opium.

McBride stood back to consider abuse of ether as "in reality, but a new manifestation of an underlying morbid condition which renders certain of the sons and daughters of men peculiarly liable to plunge into intoxication. We can never hope to succeed in the cure and prevention of any disease until we first recognise the presence of the disease itself. The malady of narcomania, as subtle as it is far-reaching in its influence on body, brain and mind, and morals." He further believed, "The disease of inebriety or narcomania (a mania for intoxication by any kind of narcotic or anaesthetic) may, besides other phases, assume a form correspondent to the particular inebriating substance." The success of the temperance crusade had caused an enormous reduction in the use of alcohol, but his population then turned to ether. The need for a mood altering substance or hallucinogen seems to remain; the substances vary. We must try to remove the most dangerous substances.

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- 1 Esmail A, Anderson HR, Ramsey JD, Taylor J, Pottier A. Controlling deaths from volatile substance abuse in under 18s: the effects of legislation. *BMJ* 1992;305:692. (19 September.)
- 2 McBride CA. *The modern treatment of alcoholism and drug narcotism*. London: Rebman, 1910:299-324.

Assessment of patients over 75

EDITOR,—Two recent studies on the assessment of people aged over 75 in general practice^{1,2} confirm some of the findings of a study that we carried out, evaluating the activity of 27 local practices regarding the assessment of patients over 75 in the first year of the new general practice contract. Interestingly, however, the two studies also seem to contradict each other's findings.

In a survey of 699 records we found a similar proportion of patients with new problems to that found by Ken Brown and colleagues¹ (43% compared with 37%). We also confirmed that more new problems were identified in the home than in the surgery (71% and 21% respectively). Brown and colleagues conjecture that this difference occurs because practices select high risk patients for further assessment in their own homes. We would be interested to learn the method used to define high risk groups for this conclusion. Our study also found that home assessment was more likely to identify problems, particularly sensitive ones, such as problems with continence, hearing, func-

tion, medication, and mobility. We therefore suggest that the time spent on the assessment and the comfort of the patients contributed to their willingness to respond.

We acknowledge Jill Tremellen's point that health education is a key element in anticipatory care.¹ Locally, we are expanding the link work scheme¹ and believe that link workers have a potential role in health education, in its broadest sense, in terms of giving advice and information relating to the needs that the assessor has unearthed. For more specialist advice the liaison role of link workers means that they can refer selectively to the practice nurse, health visitor, or district nurse.

Moreover, in contrast to the gaps in training of practice nurses, which are mentioned in both papers, link workers are prepared through their experience of working with elderly people in the community and the training they undergo for the job. The standardised, computerised assessment that link workers use, as well as the time and thoroughness they can give to the assessment, provides some confidence in the quality of assessments and means that Brown and colleagues' conjecture that the number of problems identified will reduce in subsequent years can be addressed. The benefits of this role not only outweigh any disadvantages but also provide solutions to the problems identified by these studies.

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- 1 Brown K, Idris Williams E, Groom L. Health checks on patients 75 years and over in Nottinghamshire after the new GP contract. *BMJ* 1992;305:619-21. (12 September.)
- 2 Tremellen J. Assessment of patients aged over 75. *BMJ* 1992;305:621-4. (12 September.)
- 3 Wallace P. Linking up with the over 75s. *Br J Gen Pract* 1990;4:267-9.

X-Y linkage and schizophrenia

EDITOR,—Michael Owen and Peter McGuffin's review of the present state of linkage studies in schizophrenia¹ overlooks a possible resolution of the conflicts of evidence with respect to the sex chromosomes. Correctly, the authors note that a "possible clue to the location of a locus for susceptibility to schizophrenia comes from the observation that pairs of siblings both affected ... are more often than not of the same sex" and point out that this might suggest a gene for schizophrenia in the pseudoautosomal region of the sex chromosomes. This is true but is unnecessarily restrictive. More generally, concordance by sex for diagnosis is consistent with X-Y linkage. Whereas previously it seemed that an autosomal pattern of transmission was compatible with a locus on the sex chromosomes only if that locus was within the pseudoautosomal region, a class of X-Y homologous genes in the sex specific regions of the sex chromosomes has now been described.² Disease associated with a gene of this type (like one within the pseudoautosomal region) would preferentially affect siblings of the same sex.

Owen and McGuffin discount the evidence of concordance by sex on the grounds that it might arise from a bias toward one sex (usually an excess of males) in the method of collecting pedigrees. This objection is weakened by a reanalysis of an earlier report of 120 sibships with two affected members¹ and a report from the Cardiff group itself.¹ Two further recent studies document an excess of siblings of the same sex,^{3,4} although

whether this is associated with a paternal family history (consistent with a dominant mode of transmission) or with absence of, or a maternal, family history (consistent with recessive transmission) is unclear. Thus while there is conflict regarding linkage to the pseudoautosomal telomere, concordance by sex (in the absence of a non-genetic explanation) points to X-Y linkage.

An X-Y homologous gene is an interesting candidate gene for schizophrenia because, firstly, there are grounds for suspecting that a genetic determinant of cerebral asymmetry is also of this type² and, secondly, concordance by sex is present in the affective disorders as well as schizophrenia;³ this leaves open the possibility of a common, sex linked locus for both affective and schizophrenic psychoses despite an apparently autosomal pattern of transmission.

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- 1 Owen M, McGuffin P. The molecular genetics of schizophrenia. *BMJ* 1992;305:665-6. (19 September.)
- 2 Davies K. The essence of inactivity. *Nature* 1991;349:15-6.
- 3 Crow TJ, DeLisi LE, Johnstone EC. Reply ... a locus closer to the telomere? *Br J Psychiatry* 1990;156:416-20.
- 4 Asherson P, Parfitt E, Sargeant M, Tidmarsh S, Buckland P, Taylor C, et al. No evidence for a pseudoautosomal locus for schizophrenia. *Br J Psychiatry* 1992;161:63-8.
- 5 Wang ZW, Crowe RR, Black D, Andreasen N. Pseudoautosomal locus for schizophrenia excluded in twelve pedigrees. *Arch Gen Psychiatry* (in press).
- 6 Maier W, Lichtermann D, Minges J. Further evidence for excess concordance by gender in sib pairs affected with schizophrenia. *Schizophrenia Research* (in press).
- 7 Crow TJ. Temporal lobe asymmetries as the key to the etiology of schizophrenia. *Schizophr Bull* 1990;16:433-43.
- 8 Crow TJ. The failure of the Kraepelinian binary concept and the search for the psychosis gene. In: Kerr A, McClelland H, eds. *Concepts of mental disorder*. London: Gaskell, 1991:31-47.

John Loutit's advance in collecting blood

EDITOR,—The obituary on John Loutit does not mention an important technical advance that he made with regard to the solutions used for blood collection from donors.¹

Those who had charge of transfusion centres from 1939 (the wartime emergency transfusion service) were faced with the problem that when alkaline citrate solution and glucose were autoclaved together caramelisation occurred, the autoclaved solution being dark brown like coffee or tea. Blood taken into citrate solution without glucose survived well in the recipient's circulation if used within a couple of days but was rapidly eliminated from the recipient's circulation if it had been stored for 10 days or more. Blood taken into citrate solution with glucose can be stored for up to 21 days and will survive quite well on transfusion; if stored for about a week it will survive about 100 days or so in vivo.

Caramelisation of glucose with its resultant deterioration was undesirable. Loutit introduced acid citrate-glucose solution, which was a great advance technically since such solutions could be autoclaved without caramelisation of the glucose. The autoclaved solution was the colour of lime juice. Blood taken into acid citrate-glucose solution had excellent in vivo survival. Before the introduction of acid citrate-glucose solution, the citrate and glucose solutions had to be autoclaved separately, the glucose being added at the time the blood was collected, entailing extra work and the risk of airborne contaminants. The use of acid citrate-glucose solution saved work and made for greater safety in blood collection.

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- 1 Obituary: John Loutit. *BMJ* 1992;305:519-20. (29 August.)