donations. Twenty eight patients had received transfusions of either red cells or platelet concentrate, 18 of whom had since died. Two recipients could not be traced. The remaining eight patients were contacted and offered testing for HTLV-I antibody after counselling. Two patients declined to be tested. Of the six patients who were tested, five yielded negative results. The only recipient who was positive for HTLV-I antibody was a child who had received a transfusion of platelet concentrate during major cardiac surgery at the age of 9 days in 1985. The child was well.

This case clearly illustrates two important points that Pagliuca and colleagues made: that ethnic origin and other risk factors are not good predictors of HTLV-I infection in donors (and therefore that selective screening of donors is not effective) and that failure to screen for HTLV-I antibody on grounds of cost may be a false economy if expensive look back programmes have to be undertaken. We also believe that a strategy of screening the existing donor population once and thereafter screening only new donors is worth serious consideration.

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Donors and recipients of organ transplants should also be screened

EDITOR,—In their editorial A Pagliuca and colleagues argue the case for screening blood donors in Britain for human T cell leukaemia/lymphoma virus type I (HTLV-I).¹ We believe that potential donors and recipients of organ transplants are another group who should be screened for carriage of the virus. Transmission of HTLV-I by blood transfusion around the time of transplantation is well recognised and has been associated with the rapid development of diseases related to the virus.² Other authors have pointed out that donor organs themselves are a potential source of the virus.³ In addition, we recently described the development of adult T cell leukaemia/lymphoma in a West Indian carrier of HTLV-I nine months after he received a renal transplant; the disease was rapidly fatal.⁴ Other, similar cases have also been reported.⁵

Such cases suggest that carriers of HTLV-I who receive transplants and immunosuppressive treatment may be at increased risk of developing adult T cell leukaemia/lymphoma. About 1500 renal transplant operations are performed annually in Britain, and if the prevalence of carriage of HTLV-I is as high as 1 in 500¹ we estimate that two or three high risk patients undergo transplantation each year. Although the exact prevalence of carriage of the virus among the transplant population is not known, transplant recipients who have survived long term and are carriers of HTLV-I are few because of the low rates of transplantation in Japan and the Caribbean. In view of the poor prognosis associated with adult T cell leukaemia/lymphoma it seems prudent to screen patients before operation, particularly those in high risk groups.

Screening would allow the prevalence of carriage of HTLV-I among potential recipients to be assessed and would determine the true association between such carriage and the development of adult T cell leukaemia/lymphoma after transplantation. If an association was substantiated,

perhaps those patients most at risk should be excluded from transplantation except in exceptional circumstances.

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Computerised prescribing of chemotherapy reduces errors

EDITOR,—S M Cotter advocates computerised prescribing as a useful addition to a clinical pharmacy service.¹ In 1993 we introduced a computerised prescribing system for cytotoxic chemotherapy in order to improve patients' care, rationalise prescribing, and increase the quality, clarity, and safety of prescriptions. Other advantages include improved compliance with protocols, ease of access to clinical data, a decrease in prescribing time, a reduction in errors of transcription, and help with audit.^{2,4}

At any time up to 50 research and standard chemotherapy protocols are available in our unit. Chemotherapy regimens are often complex, yet compliance is essential for patients' safety and to maintain good clinical practice. Most prescribing for chemotherapy is done by senior house officers undertaking the medical oncology attachment on a general medicine rotation. They do not normally have previous experience in oncology and are not expected to know all the intricacies of chemotherapy regimens. Pressures to reduce junior doctors' hours have led our unit to adopt as many procedures as possible to rationalise working practice.

Our system was developed with Filemaker Pro software on the unit's computer network by a multidisciplinary team including the pharmacist, business manager, doctors, and nursing staff. Computerised prescribing of chemotherapy requires identification of the patient with his or her minimum dataset; selection of the regimen to be given, including the particular cycle within the treatment programme; the patient's height and weight; and the date that chemotherapy has to be given. The surface area as calculated from the formula of Du Bois and Du Bois is used to calculate the dose for most of the regimens,⁵ and the dose can be reduced below 100% when this is clinically indicated. Notes are provided on the administration of the chemotherapy regimen, its emetogenicity, and the formula for calculating the dose if the surface area is not used. A prescription and pharmacy worksheet are printed and include details of the complete regimen. There is rigid control of access, an audit trail for logging in and off, security levels for overriding warnings, and password protection of prescribing.

We found that a pharmacist made 14 interventions during a 12 week period before computerisation and none during a 12 week period afterwards. In a random sample we found two errors in five

handwritten charts and none in computerised charts. As the system promotes safe and effective prescribing, time is ultimately freed for other clinical work.

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Infertility may lead couples to adopt children

EDITOR,—As an involuntarily childless couple, we wish to respond to Jill Emery's personal view of infertility.¹ While we acknowledge the pain and disappointment of not being able to have a child of our own, our experience of infertility has had—perhaps surprisingly to some people—a very positive influence on our lives. It has certainly strengthened our marriage, made us appreciate our family and friends for their unstinting support, and reminded us that we have otherwise perfect health. Most important of all, through our childlessness we have come to consider adoption seriously; it is a chance for us to give a loving and secure home to a child who might otherwise never know such a thing.

The process of adoption is not easy and, rightly, entails rigorous assessment procedures. We are, however, driven by the knowledge that what we are trying to do is right—right for a child, for us, and for society.

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Patients who reattend after head injury

Criteria for performing skull radiography on first attendance need to be better defined

EDITOR,—We share the frustration that Gordon Murray expresses in his commentary on Miranda Voss and colleagues' study.¹ Their paper presents the clinical features of 606 patients who reattended for the consequences of head injury but fails to give a detailed account of the 30 important patients who underwent neurosurgery when they reattended. In the light of this, some of the authors' conclusions may be misleading.

Firstly, the authors state that patients who reattend are a high risk group in themselves. It could be argued that their level of risk depends on the diagnostic work up performed at their first attendance. The authors state that 16 of the 30 patients who had neurosurgery had a vault fracture on first x ray examination (in addition to loss of consciousness or amnesia). We do not know much

about the 14 others except that some, if not most, of them had suffered a penetrating injury. Most centres today would perform emergency computed tomography for all such patients at their first attendance. This does not seem to have been the case in the study, since the authors claim that "none of the 20 patients who underwent computed tomography for a second time showed measurable change from the findings at the first attendance," which leads us to believe that most of the patients who were operated on had computed tomography for the first time at the time they reattended. One could thus conclude that a vault fracture is an indication for immediate computed tomography and neurosurgical evaluation rather than a predictor of computed tomographic abnormalities and surgery for patients who reattend (as the authors conclude).

Secondly, Voss and colleagues state that their data "support the continued use of selective skull radiography to identify those at high risk for intracranial complications." While we accept this statement in principle, we think that it is important to define better the criteria that emergency doctors should follow in requiring skull x ray films. Surely the data presented do not disprove Masters *et al*'s recommendations that skull radiography is unnecessary in patients who present for the first time after a head injury that did not result in loss of consciousness, amnesia, or other neurological abnormalities and that these patients should be sent home with an advice sheet.³ To prevent an epidemic of unnecessary skull radiography it would be helpful to know whether any such patient was among those who underwent neurosurgery on reattendance in the authors' study.

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Authors' reply

EDITOR,—We agree with Daniele Coen and colleagues that ideally all patients with a skull fracture or a penetrating injury should undergo computed tomography and neurological evaluation. This, however, is impossible where head injury is common or where computed tomography and neurosurgeons are scarce. If we had offered computed tomography to all our patients with penetrating wounds to the head or skull fractures who were classed as having minor head injury we would have obtained at least 10 times the number of scans, with the same yield. Generally, most of these patients go home and their problem resolves spontaneously. The purpose of our paper was not to repeat the many studies on outcome in patients after their first attendance with head injury but to try to formulate risk factors for the 2% who reattend on the basis of the advice sheet on head injuries.

We agree with Masters *et al* that skull radiography is probably unnecessary in most patients with blunt head trauma due to acceleration or deceleration who have no positive features such as loss of consciousness. This probably also applies to patients who are going to have computed tomography before observation in hospital. We believe that a skull fracture indicates that a non-trivial force has been applied to the head. This

may be associated with intracranial bleeding, and patients merit at least careful observation even if neurologically normal. Not all patients who develop intracranial complications after head injury have an initial brain injury, and early computed tomography is unlikely to be contributory in this group.

Skull radiography is particularly valuable for departments that do not have unlimited access to computed tomography: even after losing consciousness, patients who are neurologically normal and do not have a skull fracture can usually safely be sent home immediately to the care of a responsible person, thus releasing hospital beds. If such patients reattend, however, it makes sense to perform computed tomography if features indicate that a complication has developed, irrespective of the initial presentation. Another reason for skull radiography is to detect intracranial air, a foreign body, or a slot fracture from a penetrating injury: these are important even if the patient is neurologically normal. Two of the five patients with cerebral abscess, two of the eight with extradural haematoma, and three of those with subdural haematoma who had neurosurgery were neurologically normal at their first attendance; all those who reattended were neurologically normal on discharge from their first admission.

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Costs of prevention

Place impossible political burden on local authorities

EDITOR,—I submit that John Cairns does not go far enough in his editorial on the costs of prevention.¹ He suggests that prevention is not necessarily better or less expensive than cure. I would say that it is impossible to compare prevention and cure because the outcome measures are different. Cure is measured in terms of recovery from illness or of saving life, while prevention can be assessed only in terms of extended years of useful life, with the intended effects of intervention being explanatory variables rather than prime outcome measures.

The effects of prevention on the curative services may be immediately beneficial, but thereafter, by extending life, they are at best neutral and more likely to add to the burden. Furthermore, unless the risk is high, individual preventive measures give a low return and so are far more expensive than cure. At present, the public tacitly accepts that prevention is more expensive than cure. In his Richard Dimbleby lecture on BBC television in 1978 the late Lord Rothschild pointed out that expenditure on preventing death is related to the perceived rather than the real risk. It may be morally correct for society to decide that it is prepared to spend 10 times as much on preventing a death in a road accident (£10⁹) than is generally spent on cure (£10⁸). One question whether this is a rational moral decision when the sum per death probably multiplies 100-fold in the sequence road accident, railway accident, fire, and radiation. These differences put an impossible political burden on local authorities if they have to apportion one budget.

The problem must be solved centrally by a separate government allocation for health promotion. It might be possible for the same authority to coordinate services at a local level and for health promotion and treatment services to commission specific items from each other. Subject to this, the budgets must be held entirely separately and no virement allowed.

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1 Cairns J. The costs of prevention. *BMJ* 1995;311:1520. (9 December.)

Prevention encompasses more than screening

EDITOR,—John Cairns's editorial entitled "The costs of prevention" should more accurately have been titled "The costs of screening."¹ Cairns perpetuates the widespread misconception that prevention consists only of screening programmes. Prevention encompasses much more than screening, as so well discussed by Rose.²⁻⁴

Mass strategies such as the fluoridation of water, immunisation, nutrition programmes, environmental protection, a reduction in cigarette smoking, and legislation on the use of seat belts and drink-driving are also part of prevention. Certainly, all preventive programmes have costs and risks as well as potential benefits, which need to be examined critically. The balance of potential costs and benefits for mass strategies may, however, be quite different from the balance for screening strategies (which are targeted at identifying high risk individuals), as Rose has also pointed out; Cairns does not consider these at all.

This title and the subtitle ("Not necessarily better than cure") in a journal such as the *BMJ* may be misconstrued as applying to all preventive programmes, but the argument in the editorial is made for only one, relatively limited, aspect of prevention—screening; other aspects are ignored.

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Measurement of prostate specific antigen as screening test for prostate cancer

False positive results cast doubt on conclusion

EDITOR,—Carol Parkes and colleagues' main conclusion that 60-74 year old men with a prostate specific antigen concentration ≥ 12 times the normal median value have about a 50% chance of developing clinical prostate cancer within three years seems speculative and unsupported by the data presented.¹ We are told that over the whole age range of the 49 000 men studied 16 developed prostate cancer within three years of a blood sample being obtained, of whom 13 would have been detected if ≥ 12 times the normal median concentration of prostate specific antigen was used as the cut off value. With this cut off 0.5% of the men—that is, about 245 (on the assumption that serum samples were available for most subjects)