drug resistant tuberculosis.[2 3] Many in London are looking to New York to draw lessons from the success of the tuberculosis programme there.[4] The New York City epidemic of the late 1980s and early 1990s was halted and reversed through substantial investment, improvements in surveillance and infection control, and the expansion of systems to encourage treatment compliance.[5] Coercion was also used. In 1993 a New York City health code was amended to authorise the city's commissioner of health to detain any non-infectious individual "where there is substantial likelihood … that he or she cannot be relied upon to participate in and/or to complete an appropriate prescribed course of medication for tuberculosis." The authority to detain individuals was shifted from depending on an assessment of threat posed to an assessment of treatment compliance. This represented a significant shift in the balance between civil liberties and state authority. Since the amendments were adopted in New York more than 200 non-infectious patients have been detained, many for long periods, some for over two years.

In England and Wales section 37 of the Public Health (Control of Disease) Act 1984, which allows a local authority to apply to a magistrate to have a person suffering from a notifiable disease detained, has only rarely been used in recent years and almost always for tuberculosis.[6] For a person to be detained they must pose a serious risk of infection to others. The Public Health (Infectious Diseases) Regulations 1988 stipulates that when the act is applied to individuals with tuberculosis their disease must be "of the respiratory tract in an infectious state." Nevertheless, the act allows a magistrate to extend the period of detention in hospital "as often as it appears to him to be necessary." It is unclear, therefore, whether the act simply covers detention of infectious individuals or can be used to also detain non-infectious individuals who may potentially pose a public health threat in the future (because of poor compliance with treatment, for example). This raises the question of whether prolonged detention of non-infectious individuals is legally sound. One recent case of a detention order for six months, highlighted by the media,[7] illustrates the tensions between public health protection and civil liberties, but it should also draw attention to the inadequacy of support available for some patients in the community and the lack of appropriate residential facilities for persistently non-compliant patients.

London has an inadequate tuberculosis control programme. Methods to enhance treatment compliance are underused, underfunded, mired in bureaucracy, and lacking in coordination. There are too few community based programmes offering compliance incentives such as food or travel tokens or community based treatment supervision. Before detention is resorted to, practical (and cheaper) alternatives should be available. If an order for detention is sought then details of attempts at less restrictive alternatives should be presented to the magistrate. Moreover, an explicit objective examination of the potential threat posed by each non-compliant individual should be made and legal representation made available for those at whom the order is directed. When prolonged detention is envisaged an automatic, formal process of review should be instituted analogous to that under mental health legislation, and appropriate facilities with multidisciplinary support made available.

If public anxiety rises, and this is allied to physicians' and public health officials' frustration over failures to ensure and monitor compliance, calls for detention of non-compliant individuals will be heard loudly, just as they were in New York. These calls for coercive measures, where individuals fail to recognise their social obligations, need to be tempered with a coordinated approach which supports individuals with tuberculosis. Both civil rights and public health can be protected, but the emphasis should be on resource and organisational requirements, rather than coercion.

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Better blood transfusion

We must use donated blood better and consider alternatives

Allogeneic blood transfusion (transfusion of blood from another individual) in the United Kingdom has never been safer from the risk of transmission of infection.[1] Nevertheless, the cost of the blood transfusion service is set to rise substantially owing to the introduction of measures aimed at further increasing the safety of donated blood. A recent inquiry into errors during the process of transfusion has highlighted the need for measures to ensure safety when blood is used. Moreover, the demand for blood is outstripping supply. For all these reasons, therefore, it is time for the United Kingdom to re-examine the way blood is provided and used, reducing allogeneic transfusion where possible and seriously considering alternatives.

The measures to increase the safety of donated blood have arisen mostly in relation to recent concerns about the theoretical risk of transmission of new

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variant Creutzfeldt-Jakob disease. From June 1998 British plasma has been banned for fractionation, from July 1999 all plasma destined for fractionation will be subjected to nucleic acid testing for hepatitis C virus, and by November 1999 all cellular blood products will also undergo leucodepletion to remove their white cells. Overall, the cost of allogeneic red cell transfusion will more than double as a result of these measures (the cost of one unit of red blood cells rising from £29.14 to £78.88).

The Serious Hazards of Transfusion (SHOT) committee has established an anonymous system for reporting transfusion incidents aimed at improving transfusion safety and standards of hospital transfusion practice.[2–4] Although few, errors do occur: of 169 reports received in the first year of reporting 81 (47%) were episodes where a patient received blood intended for someone else (resulting in one death and nine cases of morbidity). These episodes resulted from several sources of error, often multiple, including incorrect patient sampling and laboratory, portering, and bedside administration errors.[3]

Shortly after the first SHOT report the NHS Executive last year issued a circular, *Better Blood Transfusion*, detailing actions to reduce transfusion errors.[5] It also suggests measures to use blood more effectively, highlighting the fact that the increase in demand for blood is outstripping the increase in donations: each year the demand for blood rises by 2-3%, reflecting our ageing population and the increased intensity and complexity of medical and surgical procedures requiring blood. *Better Blood Transfusion* requires all NHS trusts where blood is transfused to have in place from March 1999 hospital transfusion committees to oversee all aspects of blood transfusion and participate in the annual SHOT inquiry. By March 2000 trusts should have agreed and disseminated local protocols for blood transfusion, based on guidelines and best national practice, and supported by in house training. They should also have explored the feasibility of autologous transfusion (where patients have their own blood collected preoperatively for transfusion) and ensured that when appropriate, patients are aware of this option. In particular trusts, should have considered introducing perioperative cell salvage.

None of these blood saving measures is new, but intraoperative cell salvage and preoperative autologous donation are being explored more actively than ever before. A consensus conference held at the Royal College of Physicians of Edinburgh last November evaluated these options, together with acute normovolaemic haemodilution and the use of oxygen carrying solutions.[6]

Intraoperative cell salvage involves collecting shed red cells during surgery and reinfusing them into the patient during or after surgery.[7] It has promising potential to decrease the exposure of patients to allogeneic blood and appears to be practical and safe. However, the technique requires considerable investment in equipment, education, training, and operational support. Currently intraoperative cell salvage is more expensive than allogeneic blood, but this cost differential may be significantly reduced as allogeneic blood becomes more expensive.

Autologous donation is useful for patients undergoing planned surgery who are likely to require blood.[8] Since patients receive their own blood the risks associated with allogeneic transfusion are reduced, including transmission of infection, immunomodulatory side effects,[9] graft versus host disease,[10] and post-transfusion purpura.[11] In Britain there has been little interest in autologous donation, through ignorance of patients and surgeons of its existence, whereas in the United States the uptake is 10% (5% of total blood use). Preoperative autologous donation requires careful organisation and a guarantee that surgery will proceed on the intended date since the patient's donated blood has a shelf life of only five weeks at 4°C. It is worth noting that autologous transfusion does not reduce the patient's risk of receiving the wrong unit of blood, nor does it guard against bacterial infection of the donated units.

Acute normovolaemic haemodilution has been used with varying success for some years,[7] but the Edinburgh consensus report considered that there was no evidence that it reduced the amount of allogeneic blood transfusion. Similarly, artificial oxygen carrying solutions are unlikely to help reduce the use of allogeneic blood for some time,[12] although they remain under investigation.[13]

We therefore face an uphill struggle in which we must educate patients and staff about alternatives to allogeneic blood and invest in cell salvage and other technologies so as to reduce our dependence on allogeneic blood. We must provide a responsive and responsible service to our patients—transfusing only when absolutely necessary. Locally agreed transfusion policies should promote good transfusion practice, but, as with the other measures, this will require considerable user education. Most of these goals can be achieved through effective hospital transfusion committees, which will assume an increasingly important role in our local transfusion services.

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