TABLE X—*Malaria in Latin America and Caribbean*

	Country	Preferred regimen*	Alternative regimen*
Risk high, marked chloroquine resistance	Brazil ("legal Amazon" area, Amazon basin, Mato Grosso, and Maranhão only; very low risk and no chemoprophylaxis elsewhere) Colombia (most areas below 800 m) French Guiana Guyana (all interior regions) Surinam (except Paramaribo and coast) Amazon basin area of Bolivia and Venezuela	Mefloquine	Chloroquine plus proguanil
Risk variable or high, chloroquine resistance present	Bolivia (rural areas below 2500 m) Ecuador (areas below 1500 m) Panama, east of canal Peru (rural areas below 1500 m) Venezuela (rural areas other than coast, Caracas free of malaria)	Chloroquine plus proguanil	Mefloquine or Maloprim
Risk variable to low, no chloroquine resistance	Argentina (small area in north west only) Belise (rural except Belize district) Costa Rica (rural below 500 m) Dominican Republic El Salvador Guatemala (below 1500 m) Haiti Honduras Mexico (in some rural areas not regularly visited by tourists) Nicaragua Panama (west of canal) Paraguay (rural October-May)	Chloroquine	Proguanil

*See table I for details of regimens.

Advice on malaria prevention for travellers may be obtained from the Malaria Reference Laboratory and other centres listed in the *BNF*. Doctors and practice nurses requiring more detailed advice than is given in this paper, for specific problems, may ring 0171 927 2437. Travellers can obtain advice from the helpline 0891 600350 (calls are charged at 49p per minute, standard rate and at 39p per minute cheap rate).

Contributors to the recommendations were P Barrett, R Behrens, M Blaze, C J Box, A Breckenridge, A Bryceson, N Byrne, L Calvert, B Carroll, P Chiodini, P Clarke, C Conlon, C Dow, J Dunlop, C Ellis, C Facer, H Gilles, A Geddes, P Golightly, A Green, M Janosi, F Jones, G Lea, J Leese, K McAdam, B Mandal, A Miller, M Molyneux, G Pasvol, W Peters, T Peto, P Phillips-Howard, V Smith, B Southgate, J Stewart, G Targett, E Walker, D Warrell, W Weir, J Whitworth, G Wyatt, M J World.

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An Ethical Debate

Elective ventilation of potential organ donors

Hany Riad, Anthony Nicholls

Elective ventilation describes the procedure of transferring selected patients dying from rapidly progressive intracranial haemorrhage from general medical wards to intensive care units for a brief period of ventilation before confirmation of brain stem death and harvesting of organs. This approach in Exeter has led to a rate of kidney retrieval and transplant higher than has been achieved elsewhere in the United Kingdom, with a stabilisation of numbers on patients on dialysis. Recently doubt has been cast on the legality of our practice of elective ventilation on the grounds that relatives are not permitted to consent to treatment of an incompetent person when that treatment is not in the patient's best interests. We are thus faced with the dilemma of a protocol that is ethical, practical, and operates for the greater good but which may be illegal. This article explores various objections to the protocol and calls for public, medical, and legal debate on the issues.

It is four years since the Exeter protocol for elective ventilation of potential organ donors was published.[1] Briefly, patients admitted to general medical wards with rapidly deepening coma from irremediable intracranial haemorrhage are considered for organ donation. After assessment by a senior doctor suitability as a donor is established with the transplant team, and the intensive care unit is approached about bed availability. The relatives are informed of the poor prognosis and near inevitability of death, and organ donation is then discussed, focusing on the wishes of the dying patient. If donation is agreed in principle, it is mentioned that for this to be feasible death must occur in the intensive care unit so that artificial ventilation can start when natural breathing ceases, thus allowing the organs to be preserved in a state suitable for transplantation. As a result of this approach to organ harvesting we have achieved the highest rate of organ donation in the United Kingdom, and the number of patients on dialysis has been stable for four years.

Our approach has attracted wide professional and media interest, but unfortunately neither the Intensive Care Society[2] nor some other anaesthetists[3,4] have supported us. Various objections have been raised, all of which have been rebutted.[5-8] On the other hand our protocol is endorsed by the ethics committee of the Royal College of Physicians,[9] the British Transplantation Society, the BMA,[10] and the Royal College of Nursing.[11]

The ethical defence hinges both on the benefit that accrues to all parties and the lack of harm, distress, or indignity caused to the dying and bereaved. Patients awaiting transplantation benefit from an increased retrieval rate from donors; society gains as fewer resources are spent on dialysis; the bereaved family gains comfort in the knowledge that their relative's death led to help for someone else; and the donor dies with the wish (and right) to donate organs respected.

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Legal, ethical, and operational issues

The King's Fund Institute recently published a report about the shortage of organs for transplantation.[12] Elective ventilation was discussed from all angles, and it was concluded that the practice was ethically defensible.

The resource implications were addressed and thought to be beneficial overall even if there might be problems in transferring savings between dialysis and intensive care budgets to allow space in intensive care units for the ventilation of hopeless cases solely for organ donation.

Uncertainties were raised about the legality of ventilation before the diagnosis and certification of death. Because we institute mechanical ventilation of potential donors at the moment of respiratory arrest in a patient who has no hope of recovery but who has not yet been diagnosed as dead it was suggested that we might be guilty of battery. Treatment of a patient unable to give consent can take place only if it is in the patient's best interests. Furthermore, the House of Lords ruled in 1989 (F *v* West Berkshire Health Authority) that neither the patient's relatives nor the courts can consent to treatment that is not in the patient's best interests.

The dilemma is that there is a difference between the diagnosis of death and the timing of death. We believe that we ventilate patients at the moment of death, even though we diagnose death only by formal testing for brainstem death some hours later. Indeed, it was recognised in 1979 by the conference of royal colleges and their faculties that "in a minority of cases brain death occurs... as a direct result of severe damage to the brain itself, from, perhaps, a head injury or a spontaneous intracranial haemorrhage. Here the order of events is (that)... brain death results in the cessation of spontaneous respiration: this is normally followed in minutes by cardiac arrest due to hypoxia. If, however, oxygenation is maintained by artificial ventilation the heart beat can continue for some days, haemoperfusion will for a time be adequate to maintain function in other organs such as the liver and kidneys."[13,14] It would be fallacious to argue in such cases (or, for that matter, in conventional organ donors) that the moment of death is when brainstem death is diagnosed. We would suggest therefore that consent to treatment is irrelevant; we believe that we ventilate patients when they die, confirming death formally later. Respecting the right of a dying patient to donate organs is in any case acting in their best interests.

The Department of Health code of practice

The Code of Practice *Cadaveric organs for transplantation* issued by the health departments of Great Britain and Northern Ireland and revised in 1983 has not been withdrawn.[15] It was produced by a working party including doctors, nurses, lawyers, coroners, and administrators, and advice was taken from health councils and major religious bodies.[16,17] Paragraph 26 of this code states "Very occasionally it will be considered certain that death will inevitably occur shortly (in the case, for example, of gross trauma and progressive cerebral tumour). Despite what has been said in paragraph 13, in these cases doctors should seek the agreement of relatives for the initiation of artificial ventilation to preserve organ function *before death has been diagnosed* [our italics]." This section of the code explicitly describes our practice of elective ventilation.

In Exeter the working party for provision of organs for transplantation reconvened and agreed that artificial ventilation should not be instituted before natural respiratory arrest. The Exeter protocol was adjusted accordingly.[18] This served two purposes: firstly, to make sure that our practice fell in line with the statement on death by the conference of the Medical Royal Colleges, and, secondly, to minimise any chance of persistent vegetative state if ventilation be instituted before brainstem death.

The current situation

The dilemma we face now is the fact that we have an official government document which approves elective ventilation but which may not be legally binding. Can we be criticised and found to be acting illegally when we follow clear departmental guidelines? Pending further legal and governmental guidance, we have reluctantly suspended the practice of elective ventilation in Exeter. This will undoubtedly have both short and long term adverse implications for the national transplant programme; a clear statement from the Department of Health and their legal advisers is urgently needed. We remain convinced that our practice is both ethical and beneficial to society as a whole. A legal formula must be found to allow us to resume elective ventilation and thus help solve the growing problem of lengthening waiting lists for transplants.

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The lay view

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If elective ventilation of patients dying of rapidly progressive intracranial haemorrhage takes place, it begs several questions. The authors argue strongly that the practice is ethical. Yet that seems unlikely unless the person concerned has given express permission for this ventilation to take place and is a registered organ donor. To argue that the relatives can give consent (which legally they cannot) and see some good coming out of a tragedy is simply inadequate.

For even if the relatives believe that benefit can emerge from a tragedy and that, as a result of their consent, someone else can have a life, that does not necessarily make it ethical. It merely provides one moral argument in favour of the practice.

Yet the general public does not, on the whole, carry