

have their variability underestimated. This false estimation of variability is biased in such a way that asthmatic patients whose peak flow varies in the lower range are more likely to have to increase their treatment, given the current self management protocols. Arguably, the error tends to "fail safe," rather than expose the patients with the most severe asthma to undue risk.

But when changes in peak flow are used for diagnosis or as a criterion for discharge from hospital or an accident and emergency department then the errors inherent in these meters may lead to the wrong decisions. Preliminary findings from a recent study have indicated that correcting for this inherent inaccuracy in the meters substantially increases the number of interventions that would be made if self management plans were used.⁹

The meters' inaccuracy has not been due to any oversight by designers or manufacturers. No absolute standard exists for measuring the flow of gas, and when these meters were first produced they were calibrated with the best means available. Over the years manufacturers have been careful to ensure that new meters give readings as close as possible to those of the original meters. Technological advances have made it possible to produce pump systems that can generate dynamic flows of gas with greater accuracy than before, and this equipment has revealed the inaccuracies.

Since the problem with the meters' scales came to light manufacturers have produced peak flow meters with adjusted scales by using a standard calibrating system that was originally designed for testing spirometers.¹⁰ But this may not be appropriate for testing apparatus that records the rapid phenomenon of peak flow. Although it is relatively easy to improve a meter's accuracy by adjusting the scale, the main problem lies in defining the absolute standard of flow that all meters should meet and how to verify it. Work has already started on behalf of the European Commission to establish an agreed standard for flow generation, and a final standard scale for meters is expected within a year or so.

In the meantime, should peak flow meters continue with the current original scales, which formed the basis of the present self management schemes, or change to one of the arbitrary standards available? For self management plans the current scales will not judge every asthmatic patient's condition identically. Patients become familiar with how their peak flow readings vary, and this, together with the use of a symptom based management plan,⁴ should continue to result in improved asthma supervision. When peak flow meters are used to test for a threshold for discharge from hospital or an

accident and emergency department or are used for diagnosis then corrections should be made for the meters' inaccuracy. A mathematical correction for the errors can be made, but the formula is slightly different for each brand of meter and is too complex for simple mental arithmetic. Small calculators have already been produced to give predicted values for peak flow, so similar devices or a chart that corrects peak flow meters' readings might be helpful until the single standard is achieved.

Doctors have so far managed with the current scales derived from an arbitrary standard and have found in clinical trials that these meters improve the management of asthma. Concern exists that if any new arbitrary standard was adopted then experience with the changed meters would be accrued with no certainty that this was the best and final standard for such meters. Thus a change now to a new arbitrary standard might give peak flow readings closer to the truth, but the later establishment of a new international standard would lead to additional upheaval. As there are several million peak flow meters in use worldwide all efforts should be toward a single and final change in scale. The alternative is several different scales and adjustments before an international standard is agreed, causing increasing confusion among patients and their doctors.

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Non-heart beating donors as a source of kidneys

May help, but we should try harder with heart beating donors

In 1981, 814 cadaveric renal grafts were given to patients in the United Kingdom, a rate of 14.2 per million population. By 1989 the rate had more than doubled to 30.1 per million population, or 1728 cadaveric grafts. However, no further increase was recorded in the next three years, in which 1735, 1628, and 1640 cadaveric renal grafts were reported to the United Kingdom Transplant Support Service Authority. At the end of each of these three years the numbers of patients on the authority's waiting list for the United Kingdom were 3666, 3960, and 4361—an average annual growth approaching 10%.¹ For these patients who are waiting and for the

transplant teams eager to help them the mood is approaching desperation.

Most organ donations come from patients on ventilatory support in intensive care units and in whom the criteria of brainstem death have been confirmed according to the rules laid down by the royal colleges.² Such patients are the best source of cadaveric organs for transplantation, which are associated with a graft survival at one year of over 80%, but they supply insufficient numbers. A shortage of intensive care beds undoubtedly influences decisions on whether to ventilate patients who are comatose after cerebrovascular accidents.

It is often junior doctors who decide, possibly without consciously recognising that they have thereby pre-empted organ donation. Moreover, even when a patient suitable for organ donation dies in an intensive care unit, in nearly one third of cases family representatives are unfortunately not able to agree that the person who has died had expressed no objection to organ retrieval after his or her death.³ Thus kidneys that could have given new life to others are lost with these patients.

Public opinion is strongly in favour of organ donation. A majority would approve of a change in legislation to allow organs to be removed after death unless the patient had registered an objection beforehand. In one recent survey 28% of a random sample carried a kidney donor card saying, "I would like to help someone to live after my death." (E Ward for the British Kidney Patient Association, 1993). How many of them realise that death must occur in an intensive care unit for their wishes to be fulfilled? Unless, that is, the removal of organs from non-heart beating donors can be shown to be both practical and worth while.

Two papers in this week's *BMJ* address the issues surrounding non-heart beating donors.^{4,5} A group in Leicester used in situ perfusion to reduce damage to the organs while preparations, including obtaining permission for removal, were made (p 575).⁴ A group from King's College Hospital removed the kidneys as soon after death as possible, having obtained prior permission in two thirds of cases from families and even from the donors themselves, who were dying of cerebral tumours in a hospice.⁵ Death in these cases may be gradual, resulting in damage to the organs, and the moment of asystole is not always detected precisely. In both hospitals the pressure on intensive care beds usually precluded elective ventilation solely for the purpose of organ retrieval.⁶ The authors in Leicester were particularly careful to obtain ethical approval, and publicised their protocol in the local press. No objections were raised.

Varty *et al* report that some kidneys were lost because of difficulties in placing the double balloon triple lumen catheters, and the number of authors of the paper suggests that the in vivo cooling technique used demanded a high level of input from skilled surgeons.⁴ Phillips *et al* compared the results of using non-heart beating donors with those of using conventional heart beating donors and report a higher mortality and lower graft survival with non-heart beating donors.⁵ As Varty *et al* also found, primary non-function was the rule, and oliguria could be prolonged even in grafts that eventually functioned satisfactorily.

The implantation of non-viable kidneys not only results in graft nephrectomy but also risks sensitising patients to future grafts. We need a rapidly performed test, perhaps histochemical, to prove tissue viability so as to avoid implanting kidneys that are never going to work. These and other published results make it mandatory to obtain informed consent from patients waiting for a renal transplant who are to be included in a programme using non-heart beating donors.

At a recent combined meeting of the Dutch and British transplantation societies the question of non-heart beating donors was formally debated, and a clear majority supported the belief that "non-beating heart donors make an important contribution to kidney organ donation." Another paper presented at the same meeting, however, suggested that there was still a large stock of potentially usable kidneys from donors whose hearts were still beating. The authors audited clinical decisions taken in the case of 163 potential donors out of 5200 deaths in 1992 in five hospitals in north west England (J Connolly *et al*, Joint Meeting of British and Dutch Transplantation Societies, London, 1993). Only three quarters of the potential donors were being ventilated at the time of death, the most common reason for non-ventilation being a poor prognosis; among those ventilated an inquiry about donation was recorded in only 64%. The authors concluded that this large group of potentially usable kidneys was not used because of the failure of medical staff to identify potential donors and to facilitate organ donation. The question was "Are we educating the right people?"

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Homosexuality and mental health services

Homosexuals shouldn't have to suffer their doctors' prejudice

By inviting us to "identify the particular needs of lesbians and gay men" the *Health of the Nation Key Areas Handbook on Mental Illness* touches on complex issues.¹ For ours is a deeply homophobic society: gay men and lesbian women face prejudice at home, school, work and even in death.^{2,4} They are assaulted by their families² and by strangers.⁵ The discrimination is pervasive: some is derived from statute law,⁶ black youngsters chant death threats at gay men in mimicry of a popular song,⁷ and in *BMA News Review* distributed to all general practitioners and BMA members, a doctor recently wrote: "Only a society flirting with self-destruction encourages such perversity and ruination. Under no circumstances ought

homosexuality be regarded as anything other than a destructive habit system."⁸ Similar prejudices were voiced by opponents of this week's parliamentary amendment to lower the age of consent for homosexual men.

Although intuitively one might expect such prejudice to have an adverse impact on the mental health of lesbians and gay men, this has proved hard to show.⁹ Historically, medicine and psychiatry defined homosexuality as a disease or homosexuals as disturbed. But rigorous research has failed to differentiate homosexual and heterosexual populations on the basis of personality or psychopathology.¹⁰ Ask not why homosexuals are unstable, but why they are not.