It is important that debate about modelling does not obscure the practical implications of the predictions on which all are agreed: a considerable increase in resources for the treatment of renal failure will be required over the next decade solely to keep pace with the numbers of patients predicted from the target of 40 new patients per million population per year. Overall survival is now so good that the stock of patients kept alive with treatment will not level out before the end of the century. In addition, acceptance rates are expected to continue to rise. By 1985 numbers accepted already exceeded 40 per million population in 17 other European countries and were over 50 in eight of them and over 60 in two.¹

Since our prediction of dialysis requirements is minimised by assuming free availability of kidneys for grafting, failure in the supply of donor organs will hold up attainment of steady state and shift more patients into (more expensive) dialysis modes of treatment.

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Treatment of recurrent spontaneous abortion

SIR,—Dr Willem Vlaanderen and Professor Pieter E Treffers reported the outcome of fourth and later pregnancies in 24 women with a history of three consecutive miscarriages and concluded that no specific treatment should be offered to such couples (11 July, p 92). The spontaneous success rate of 80% is surprising in view of the data reported in other (larger) series.^{1,2} Habitual aborters are a heterogeneous group, and those women who have simply been unlucky may have been over-represented in this small group. The fact that either three or all four (it was not made clear) of the women miscarried in their fourth pregnancies supports that suggestion. Be that as it may, the authors' advice about treatment should be received with caution.

Women experiencing repeated pregnancy loss commonly complain that they are simply told that they should just try again because there is a good chance they will be luckier next time. While such a statement may be true, the patient sometimes considers that it reflects a lack of understanding, and it does nothing to alleviate depression or apprehension about future pregnancies. In this context any treatment may be considered better than nothing so long as it is not harmful. Tender loving care or its extension, psychotherapy,³ is both helpful and harmless and should be practised irrespective of other treatment. Immunotherapy by infusion or vaccination of blood components is more controversial and undoubtedly carries some risk, but encouraging results have been reported by several independent groups.^{4,6}

We have been treating selected women with this problem with two injections of their husbands' mononuclear cells, given before pregnancy and shortly after conception. The risks are small and probably acceptable. This treatment may be no more effective than tender loving care, but it is of obvious psychological benefit to the patients.

Moreover, all six of our patients who have completed the treatment either have delivered or are at an advanced stage of pregnancy. Possibly all idiopathic aborters will succeed eventually, but any treatment which might reduce the number of antecedent failures deserves consideration.

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Fatal bronchospasm after topical lignocaine before bronchoscopy

SIR,—The short report by Dr S P Ruffles and Dr J G Ayres (27 June, p 1658) reveals several important errors of management. It is possible, as the authors suspected, that their patient's bronchospasm was a hypersensitivity reaction to lignocaine, but the fundamental reasons for his death were (a) that he was being subjected to an unnecessary and, in his case, potentially dangerous investigation (fiberoptic bronchoscopy), (b) that no effort was apparently made to correct fairly severe hypoxaemia before the procedure was started, and (c) that the management of his cardiorespiratory arrest was inadequate.

The indication for bronchoscopy was stated to be weight loss suggesting a diagnosis of lung cancer. A chest radiograph had, however, shown "no suggestion of a carcinoma." It was thus highly improbable that the weight loss could have been due to intrathoracic malignant disease. Even if there had been radiological evidence of tumour, fiberoptic bronchoscopy, with its known risk of aggravating hypoxaemia,¹ would have been hazardous in a patient with a forced expiratory volume of 0.5 l, a PaO₂ of 7.6 kPa, and a PaCO₂ of 6.4 kPa. It is also questionable whether a patient with such a degree of ventilatory insufficiency and respiratory failure would have derived any real benefit from treatment for bronchial carcinoma had that improbable diagnosis been confirmed.

Although there is some ambiguity about the sequence of electrocardiographic changes, it would appear that he first developed hypoxic cardiac arrest in asystole, ventricular fibrillation occurring only as an agonal event after the administration of adrenaline and calcium chloride. In these circumstances cardioversion is futile, and unless oxygenation can be rapidly restored by intubation and ventilation with 100% oxygen death is inevitable. Manual ventilation was difficult, no doubt because of severe bronchospasm, and the patient's by then profound hypoxaemia was presumably never even partially corrected. Gross pulmonary hyperinflation caused by a combination

of bronchospasm and emphysema would also have prevented external cardiac massage from achieving an adequate cardiac output. Only open cardiac massage might conceivably have averted a fatal outcome, although such a drastic procedure could hardly have been justified in a man who must already have been a respiratory cripple.

Finally, I refer the authors to the following passage in a leading article I contributed to the *BMJ* less than a year ago²: "Perhaps too many high risk patients—the elderly, the frail, and those with advanced chronic obstructive airways disease—are now being subjected to an invasive investigative procedure that is unlikely to influence management. Respiratory physicians should not forget that bronchoscopy in these patients may be dangerous as well as pointless." The only amendment I might now want to make to that passage would be to omit the word "perhaps."

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AUTHORS' REPLY.—Dr Grant raises several points worthy of comment, though they are somewhat peripheral to the main reason for our reporting this case. We are glad that Dr Grant believes that the patient's death was a hypersensitivity reaction to the lignocaine.

Although this man had a low forced expiratory volume in one second he had premedication with serial doses of nebulised salbutamol and was given oxygen on the ward, although this was not made clear in our short report. The reason for bronchoscopy was weight loss and increasing breathlessness coupled with the fact that he was very anxious to find the cause. It is well recognised that a central small carcinoma of the bronchus can be invisible in a plain chest radiograph and can cause marked symptoms of increasing breathlessness by partially occluding the main bronchus. Increasing dyspnoea often has an anorectic effect because of the sheer effort involved in mastication and deglutition. For these reasons we contemplated bronchoscopy, as radiotherapy to such a lesion could relieve the breathlessness. In the past we have performed bronchoscopy in many patients with a forced expiratory volume of below 1 litre, this, in our opinion, not being an absolute contraindication to bronchoscopy where future management may be affected. As far as the management of his cardiac arrest is concerned, clearly it is difficult for a man with such lung disease to recover, but this should not stop our attempts to resuscitate him.

Dr Grant's original final paragraph in his leading article on the hazards of bronchoscopy need not be altered. The indications for performing bronchoscopy in this patient were clear cut. The possibility of a central tumour, though rare, was real and if one had been found radiotherapy would have conferred symptomatic benefit in the patient's final months of life.

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SIR,—Dr Said Abdallah's dogma that patients whose forced expiratory volume in one second is less than 1 litre are unfit for bronchoscopy (15 August, p 444) should not go unchallenged. I am sure there are many fiberoptic bronchoscopists