Average fall in rectal temperature (°C) in the first hour after birth. There are five subjects in each of the four cells in the table.

	With lamp	Without lamp	Total
With hat	0.48	0.90	0.69
Without hat	0.54	0.74	0.64
Total	0.51	0.82	0.66

are unlikely to be of any value in reducing heat loss immediately after birth, but that Gamgee-lined hats are effective.

We would like to acknowledge the practical assistance of Sister R Aitken in this work.

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Kidney transplants and long-term immunosuppression

SIR,—The recent short report by Dr F Di Padova and others (18 August, p 421) regarding the necessity of long-term immunosuppressive therapy for the maintenance of good kidney graft function is perhaps not unexpected. It is correct to anticipate the emergence of specific immune tolerance to the graft in a small percentage of recipients.

There are many possible mechanisms for the production of immune tolerance.¹ Certainly, in animal experiments² the use of cyclophosphamide up to 72 hours before and 48 hours after first-time exposure of mice to sheep erythrocytes is followed by tolerance with respect to antibody response.

Such reports and studies suggest the need to consider investigation of the residual capacity of a recipient for recognition of donor tissue at an arbitrary time following grafting. This should involve at least a mixed leucocyte culture analysis using washed host cells taken during minimum immunosuppressive therapy in combination with stored donor cells, employing stored allogeneic lymphocytes in addition to non-related antigens (for example, tuberculin and candidin) as controls in order to estimate the relative extent of specific and non-specific total immunosuppression.

After such procedures had been carried out it would be possible to consider the case for a brief cessation of immunosuppressive therapy on more rational grounds according to the results.

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¹ Voisin, G. A., *Progress in Allergy*, 1971, **15**, 348.

² Aisenberg, A. C., *Journal of Experimental Medicine*, 1966, **125**, 833.

Reactions to whooping cough vaccine

SIR,—A recent study by Professor G T Stewart purports to show an association between certain reactions to pertussis vaccine and subsequent severe brain damage. Because of the design of his study, however, his results may well be misleading. Not only do his methods of case finding and of selection for further study create risk of bias, but he asks the wrong questions.

The question which a parent or a doctor

wants answering is not "Is the relationship in time between immunisation and convulsions greater than would occur by chance?" It is "Will this child ultimately have a greater risk of significant disability if I vaccinate or if I do not vaccinate?" This question can be answered only by comparing the incidence of brain damage and disability at some suitable age (say 10 years) in a group of children with specified "contraindications" who were not given pertussis vaccine with that observed in a similar group having the identical "contraindications" who were vaccinated despite them.

Many of the accepted criteria for *not* vaccinating are indications of possible existing brain damage or proneness to convulsions. The child who is prone to convulsions may be provoked into a series of fits by a variety of stimuli, including infection and pyrexia as well as immunisations. Professor Stewart's test was thus inappropriate, being almost certain to show a greater-than-chance association for second convulsions after the second doses. This, however, does not prove that the ultimate brain damage would not still have occurred following "natural" febrile convulsions had the child not been vaccinated, or that the risk of brain damage due to pertussis years later might not be even greater.

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¹ Stewart, G T., *Journal of Epidemiology and Community Health*, 1979, **33**, 150.

Rubella vaccination

SIR,—The question of abandoning the sero-testing of adult women before rubella immunisation, which was dismissed by Dr R G H Bethel (25 August, p 501), is worthy of serious consideration in family planning clinics.

There are several problems involved in providing serotesting—the need for extra staff to take the blood samples, the need for extra resources to pay for the service, and the low acceptability of blood taking.¹ Mayon-White and Bull found only 50% acceptance for serotesting in family planning clinics, with only 50% of the seronegative women immunised (failure to reattend, left the area, etc)—that is, only 25% of seronegatives were converted. These considerations mean that a programme involving serotesting would only increase the group immunity from 80% to 82.5%, at a cost of approximately £20 per conversion.

Clearly none of these difficulties exist if immunisation is offered without serotesting. Assuming an acceptability of 80%, the group immunity would rise from 80% to 88.3%, at a cost of £2.40 per conversion. However, the cost of this improved effectiveness and efficiency is a rise in the number of terminations of pregnancy that would result. This could be minimised by offering immunisation without testing only to established oral contraceptive users, in whom the family planning doctor was reasonably confident of reliable use.

In Oxfordshire Area Health Authority (Teaching) it is estimated such a programme would result in two to three additional terminations a year (in regular oral contraceptive users who would probably request a termination anyway). This figure should be

considered in the light of the 13 planned pregnancies that were terminated in 1978 for contact with natural infection.

The idea of immunising without sero-testing is not without medicolegal difficulties, but it is a service that should at least be considered and debated.

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¹ Mayon-White, R T, and Bull, M J V, *Practitioner*, 1976, **216**, 317.

SIR,—I refer to Dr R G H Bethel's letter (25 August, p 501) in reply to my letter questioning the necessity of laboratory testing before immunisation. My anxiety is to ensure that all women in the reproductive age group receive the vaccine. No question of cost arises. I believe that the present necessity of ensuring tests other than for 12- and 13-year-olds puts difficulties in the way of bringing about this idea. It is accepted that all reasonable precautions should be taken to ensure that the woman is not pregnant at the time of inoculation and for the first three or four months thereafter.

Community levels of immunity can be determined by periodic surveys. Dr Bethel comes part of my way in the argument by suggesting the compromise of taking and storing blood at the time of immunisation and testing it only if subsequently it is discovered that inadvertently the woman was pregnant. Thereafter therapeutic abortion may be advised. This method would also allow for a 100% uptake, our joint aim.

The problem appears to be that some doubt exists about whether or not the vaccine is teratogenic.

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Effects of manufacturing oral contraceptives on blood clotting

SIR,—The three objections to our paper (30 June, p 1761) raised by Drs T W Meade and S G Thompson in their letter (25 August, p 493) on the effects of oral contraceptive manufacture on blood clotting can be refuted. These refer to the small numbers, the possible effect of diabetes in one subject, and the statistical analysis.

A point which may not have been sufficiently explicit in our paper was that, although the number of subjects who suffered high exposure was small, the many replicate tests performed allowed valid statistical analysis and produced highly significant results.

The clotting changes in this highly exposed group were marked and typical of the pattern which has now been established following long-term studies with oestrogen-progestogen combinations given by mouth as oral contraceptives.^{1,2} Such changes have not been found in the long-term assessment of controls or patients with uncomplicated diabetes. The typical "pill pattern" changes found in this group in factors VII and X, fibrinogen, and thrombelastography leave little doubt of the valid comparison between exposure during manufacture and oral ingestion of oestrogen-progestogen contraceptives. The only difference in the present study is the rise in platelet count, which we believe was due to the post-