of breath. Morbidity from emphysema was high and it was obvious that the problem had to be solved.

It has been successfully solved by improving ventilation and total relegation of blasting to the end of the shift. Now after 40 years there is little dust and no nitrous fumes, and pneumoconiosis and emphysema have ceased to exist and the industry is a healthy one.

J CRAW

St Bees, Cumbria CA27 0EF

Drains and sutures

SIR,—Mr N M Koruth and Mr P F Jones (5 July, p 45) begin their article on drains and sutures by emphasising that these play an important role in the recovery of the patient after operation. It was therefore disappointing that the accompanying picture showed a vertical laparotomy wound supported by retention sutures, which incidentally appeared to be tied rather tightly.

Retention sutures are thought to provide additional insurance against abdominal dehiscence,¹ but equally good results are achieved without their use.² One-layer mass suture gives good results with either continuous³ or interrupted⁴ methods, and there seems little to choose between absorbable (Dexon) or non-absorbable (Prolene) suture material.⁵ Furthermore it has been suggested that the use of tension sutures may cause haematomas in the abdominal wall, increased wound infection, and increased wound pain.⁶ The article ends by stating that suture marks are determined by the time for which a suture is left, its tension, and its position. As retention sutures are kept in place for 14 days, and often tied too tightly, they may cause ugly scars.

Thus it appears that retention sutures have no particular advantage and may even be harmful, so it is unfortunate that they should be so prominently displayed in your columns.

A E P CAMERON

Pathology Department,
Royal College of Surgeons of England,
London WC2A 3PN

¹ Lord JW, Pfeffer RB, Golomb FM. *Surg Gynaecol Obstet* 1969;129:758-60.

² Jenkins TPN. *Br J Surg* 1976;63:873-6.

³ Pollock AV, Greenall MJ, Evans M. *J R Soc Med* 1979;72:889-93.

⁴ Bentley PG, Owen WJ, Girolami PI, Dawson JL. *Ann R Coll Surg Engl* 1978;60:125-7.

⁵ Cameron AEP, Gray RCF, Talbot RW, Wyatt AP. *Br J Surg* 1980;67:487-8.

⁶ Goligher JC, Irvin TT, Johnston D, et al. *Br J Surg* 1975;62:823-9.

* * * We sent a copy of this letter to the authors, whose reply is printed below.—Ed, *BMJ*.

SIR,—The first sentence of Mr Cameron's letter implies that deep retention sutures have an adverse effect on wound healing but he does not produce evidence of this. Retention sutures markedly diminish the number of dehiscences in vertical laparotomy incisions closed with catgut (reference 6 above), so they do have an effect. The question which cannot at present be answered is whether deep retention sutures are useful in incisions closed with wire, prolene, or nylon.

Mr Cameron's own work (his reference 5) shows that two of his 361 patients who had mass closure of a vertical incision suffered dehiscence and both of these had emergency laparotomies. We close all vertical abdominal incisions with continuous 0 or 1 prolene, but

in emergency procedures (especially for intestinal obstruction or peritonitis), in operations on malnourished patients, and in laparotomies for malignant disease we also insert all-layer retention sutures of nylon. Using this regimen we had performed at the last count over 1000 consecutive emergency and elective laparotomies through vertical incisions without a wound dehiscence, and this record has been maintained over the last year. Mr Cameron cannot carry his point that deep retention sutures are unnecessary until he can quote as large a series as ours without a disruption. His suggestion that retention sutures may be harmful is not supported by our experience, especially in relation to wound sepsis.

An interesting point is whether the use of retention sutures can be abandoned in midline vertical incisions closed by Jenkins's technique (reference 2 above) but should be retained in paramedian incisions, to which this technique is not so well suited—the only disruption in the 1505 patients in Jenkins's series was in a paramedian wound. Because much of our work is on the colon and rectum many of our incisions are left paramedian wounds, closed with two layers of 0 prolene, supported by retention sutures. Many of our patients carry a high risk of wound dehiscence and we would not on present evidence feel justified in foregoing retention sutures.

PETER F JONES

Woodend General Hospital,
Aberdeen AB9 2YS

Kidney biopsy

SIR,—The classical technique of percutaneous renal biopsy described by Drs Richard McGonigle and Paul Sharpstone (23 February, p 547) gives excellent results in expert hands. We were surprised, however, that the authors and subsequent correspondents (12 April, p 1054; 24 May, p 1271; 26 July, p 306) did not mention the modified technique of biopsy under fluoroscopic control following intravenous contrast injection. In 82 consecutive cases we have obtained adequate tissue in all but one instance, with only two cases of minor perirenal bleeding (not requiring transfusion). The accuracy with which the needle, a Tru-cut disposable, can be placed has encouraged us to take at least two specimens for light, immunofluorescence, and electron microscopy. Particularly for a small department, where the skills required for the blind approach are harder to come by, we believe that the fluoroscopic technique is the one of choice.

P M BRET LAND
B I HOFF BRAND

Whittington Hospital,
London N19 5NF

The pre-pregnancy clinic

SIR,—We were interested in Mr Geoffrey Chamberlain's article (5 July, p 29) and would like to comment on his findings in the light of our experiences with a pre-pregnancy clinic in Melbourne. The pre-pregnancy counselling service, which is a pilot project of the Community Health Program, was set up in August 1979 and the weekly clinic opened in November that year. In the first nine months of operation just over 100 women attended. The outcome of pregnancy in women over 30

(25%); the availability of various options for birth such as Leboyer birth, birth centre, and epidural anaesthesia (21%); and previous perinatal death (20%) were the three commonest reasons for presenting. Other categories were previous bad birth experiences, pre-existing illness (for example, severe hypertension), and anxiety about previous induced and spontaneous abortions.

Two factors distinguish this service from the one described in the article. Firstly, the setting is a community health centre in an inner city suburb instead of a major obstetric hospital (though the department of obstetrics and gynaecology of Monash University initiated the service and provides information back-up). Secondly, two-thirds of women using the pre-pregnancy counselling service are self-referred, having heard of the clinic by word of mouth or through local newspapers and libraries. We wonder whether the need for the service is more clearly apparent to women themselves than to medical practitioners. Our referred clients come from infant welfare sisters (at baby health centres) or from family planning clinics. Because of self-referral about 10% of clients present with queries which do not fall within the scope of the clinic and these have been referred for genetic counselling or the investigation of infertility, as appropriate.

We would like to support Mr Chamberlain's comments about the importance of interest and knowledge of data collection locally and nationally, the ability to know where to look for information, and the time spent on interviewing and listening. We might add that some skills of counselling in grief and loss and in sexual problems seem to be other important elements in our service.

The pre-pregnancy counselling service also has a health education arm, which is at present involved in group work with adolescents and adults.

JUDITH LUMLEY
P S ALLEN
PRUE PLOVANIC
CARL WOOD
WILLIAM WALTERS

Pre-pregnancy Counselling Service,
Department of Obstetrics and Gynaecology,
Queen Victoria Memorial Hospital,
Melbourne, Australia 3000

Adverse effect of plasma exchange on anti-D production

SIR,—We were stimulated immunologically by the paper of Mr G R Barclay and others (28 June, p 1569) but disagree with their explanation for the increased anti-D production in their patient. Our comments are based on experience gained from treating 10 patients who had previously given birth to infants suffering from rhesus haemolytic disease of the newborn, who showed high circulating concentrations of anti-D in their current pregnancy with raised liquor bilirubin levels, and who were treated by intensive plasmapheresis.

Six healthy children have resulted from these 10 pregnancies. Fetal or neonatal mortality probably resulted from a combination of: (a) delay in initiating plasmapheresis; (b) not applying the treatment with sufficient intensity; and (c) complications of prematurity. In no case did we meet with the sharp rise in anti-D concentrations encountered by your authors. They postulate that plasma exchanges performed on their patient removed plasma inhibitory factors, which coincided with, and perhaps resulted in, elevated anti-D concentrations. We suggest an alternative and

simpler explanation for enhancement of anti-D levels.

The published graph of variations of anti-D concentrations with time shows a rise commencing between days 5 and 7, a high peak value being achieved on day 14, with a subsequent slow fall. The pattern would fit that of a classical secondary immune response¹ due to an immunising stimulus (that is, maternal infusion of rhesus positive erythrocytes) around day 0. We suggest that the likely immunising factor was the amniocentesis and intrauterine transfusion performed on day 1.² The failure to detect fetal cells in the maternal bloodstream does not exclude the possibility of fetomaternal haemorrhage as such cells are rapidly cleared in the presence of potent anti-D.³ We therefore invite the authors to reconsider whether the interesting data that they quote on K-cell lytic potential and inhibition of lymphocyte transformation might represent facets of a well-co-ordinated immune response rather than initiating factors of that response.

The authors refer to their disappointing results of treating other cases and to their use of Rh-unselected fresh frozen plasma replacement therapy. We measured the amount of red cells present in 10 carefully prepared plasma packs prior to freezing. On average 0.06 ml of blood (at packed cell volume 0.45) was present per pack (range 0.005-0.25 ml). When a pack was frozen and thawed, 4% of the erythrocytes survived intact. If 20 donor plasmas are required for a four-litre exchange, as much as 0.05 ml of intact Rh-positive erythrocytes might be infused. Such a stimulus is capable of exciting an antibody response in a good antibody former.⁴

In an attempt to reduce the amount of donor material needed for albumin and immunoglobulin replacement during intensive plasmapheresis, we have explored, in a non-pregnant volunteer, the possibility of absorbing the patient's plasma with Rh D-positive cells to reduce the anti-D content, with subsequent use of the absorbed plasma as a replacement fluid. The absorbed plasma was centrifuged twice and filtered at 0.22 μ before reinfusion. The initial anti-D level of 27 IU/ml fell after five plasmaphereses of 1200 ml each to 14 IU/ml; this was followed by a rise within seven days to 104 IU/ml, falling within a further week to 65 IU/ml. We therefore conclude that even the stringent attempts described to remove all D-positive material from plasma were unsuccessful and that sufficient Rh D-positive cells, or stroma, or both, remained to produce a typical secondary immune response.

In conclusion, we believe that enhancement of anti-D levels can be avoided if invasive uterine procedures (amniocentesis and intra-uterine transfusions) are kept to the irreducible minimum and that only Rh-negative plasmas should be used for plasma exchange of this group of patients.

R T WENSLEY
D LEE
S FLETCHER

National Blood Transfusion Service,
Manchester M1 3BP

¹ Roitt I. *Essential immunology*. Oxford: Blackwell Scientific Publications, 1977:3.

² Zipursky A, Pollack J, Chown B, Israels LG. *Lancet* 1963;ii:493-4.

³ Jandl JH, Jones AR, Castle WB. *J Clin Invest* 1957; 36:1428-59.

⁴ Jakobowicz R, Williams L, Silberman F. *Vox Sang* 1972;23:376-81.

*. We sent this letter to the authors, whose reply is printed below.—ED, *BMJ*.

SIR,—Following the submission of our recent paper (28 June, p 1569) we have evaluated the effects of plasma exchange on a further four patients with anti-D. In each of these patients a rise in anti-D was seen, commencing between days 5 and 7 and reaching a peak between days 10 and 14, despite continued plasma exchange. Anti-D levels could not be controlled by

plasma exchange in three of the five women, and they lost their babies owing to haemolytic disease of the newborn despite intrauterine transfusions. In the two cases where control of anti-D was achieved Rh(D)-negative babies were subsequently delivered. The rise in anti-D in these latter two patients could have occurred only as a result of the effects of plasma exchange. Inhibitory factors were not found in these patients' serum and we assume that Rh(D)-positive stroma was present in the fresh frozen plasma, and provided the necessary antigenic stimulus.

We therefore agree with Dr Wensley and others and with Drs D Tovey and E A E Robinson (personal communication) that anti-D levels may be boosted by Rh(D)-positive stroma. However, in the three cases where intrauterine death occurred the situation would appear to be more complex. The rise in anti-D could not be controlled by plasma exchange and it is interesting to note that plasma inhibitors of lymphocyte function were present. We would assume that Rh(D)-positive stroma (or amniocentesis) provided the necessary stimulus to anti-D production, but we would suggest that plasma exchange adversely affected the maternal control mechanisms, resulting in "escape" of antibody production and death of the Rh-positive fetuses.

It is interesting to note that the anamnestic rise in anti-D levels in the patient receiving "absorbed" plasma described by Dr Wensley and his colleagues was also associated with plasmapheresis.

The points made by Dr A C Newland and others (9 August, p 452) regarding the kinetics of anti-D production are highly relevant, and we took these into consideration when designing our plasma exchange protocol. Our aim was to undertake plasma exchange on a daily basis until the anti-D level was reduced to below 5 IU/ml (1 μ g/ml) since there is a higher risk of fetal mortality above this level.¹ The longer-term aim was to continue plasma exchanges at the appropriate interval to maintain the low level of anti-D. However, we have not been able to achieve this in practice, and would seriously doubt whether it could ever be achieved during the whole period of gestation.

Because of the active and selective transfer of IgG across the placenta we elected to exchange with fresh frozen plasma (FFP) rather than albumin (stable plasma protein solution (SPPS)) solution in an effort to maintain total IgG levels but reduce the IgG anti-D component. However, it is clear from our experience and that of others (Tovey and Robinson, personal communication) that long-term transfusion of large amounts of FFP is associated with unacceptable side effects and one is obliged to use SPPS during intensive plasma exchange.

We would agree with Dr Newland and his colleagues that in most of the reported series plasma exchange to remove anti-D could hardly be described as "intensive," and in our view the beneficial effects claimed for plasma exchange alone are as yet unproved.

S J URBANIAK
G R BARCLAY
M A M GREISS

Edinburgh and South-east Scotland
Regional Blood Transfusion Service,
Royal Infirmary,
Edinburgh EH3 9HB

¹ Fraser ID, Tovey GH. In: Cash JD, ed. *Clinics in Haematology*, vol 5 (1). London: W B Saunders, 1976:149-63.

Pseudomonas ophthalmia neonatorum

SIR,—In their article on pseudomonas ophthalmia neonatorum (9 August, p 440) Dr Gaynor F Cole and others state that the commonest cause of "sticky eye" in babies is the staphylococcus.

In a study of 213 consecutive neonatal eye infections in a maternity unit in Ayrshire I found that although *Staphylococcus epidermidis* was the most frequent organism isolated, 46% of the specimens yielding this organism had no pus cells in the stained smear, suggesting normal conjunctival flora.¹ In my study I found that the organism most frequently associated with the presence of pus cells was *Streptococcus viridans*.

A previous study from Northwick Park Hospital, Middlesex, of 104 infants with conjunctivitis and 104 healthy neonates also showed that *Strep viridans* was the organism most frequently associated with conjunctivitis.²

ROSEMARY E T MCGILL

Ayrshire and Arran Health Board
Laboratory Service,
Ayrshire Central Hospital,
Irvine, Ayrshire KA12 8SS

¹ McGill RET. *Communicable Diseases Scotland* 1979; 13(22):ix.

² Prentice MJ, Hutchison GR, Taylor-Robinson D. *Br J Ophthalmol* 1977;61:601-7.

Chlorpropamide-alcohol flushing in non-insulin-dependent diabetics

SIR,—As Drs A H Barnett and D A Pyke record further striking observations based on the chlorpropamide-alcohol flush in diabetics (26 July, p 261 and in a paper in the *Lancet*¹), some questions must be asked before diabetics too readily use it as a nostrum to predict their future health (statistically) or before economy-minded doctors apply it to the disposition of health care among diabetics.

The observations are cross-sectional in time, but used to predict the temporal course of disease. This implies a knowledge of what is "post" and what is "propter" in the associations they describe—firstly, between absence of chlorpropamide-alcohol flushing on the basis of a questionnaire and increased liability to recorded macroangiopathy among diabetics and, secondly, between indomethacin blockage of chlorpropamide-alcohol flushing and relative freedom from angiopathy among diabetics with chlorpropamide-alcohol flushing. Suppose that macroangiopathy is associated with loss of liability of skin blood flow, or with changed resting cheek temperature (which Köbberling and Weber² showed was closely associated with the increase in cheek temperature in chlorpropamide-alcohol flushing on reanalysis of the data of Leslie and Pyke,³ and which we have found an important predictor ($r=0.5$, $n=61$, $p<0.001$) of the increase in cheek temperature after intravenous injection of glucose).

Again, suppose that younger chlorpropamide-alcohol flushing-positive diabetics without clinical evidence of angiopathy and with relatively warmer cheeks have in operation a process affected by indomethacin, and so possibly involving prostaglandins, but that this process is not active when there is obvious vascular disease. We may be learning more about the effects of vascular disease on skin blood flow or the role of the skin in body temperature control than about chlorpropa-