pregnancy is of the same order. With prophylaxis limited to an injection of anti-D IgG after delivery these 18% or so would be protected, but the 2% who became immunized during the first pregnancy would not.[12]

The questions then arise whether this 2% of women at risk can be protected by treatment during pregnancy, and whether the attempt is worth while. We think the answer to the second question is that it is worth while, even though we realize that for every woman at theoretical risk (baby Rh-positive, ABO compatible) we would be treating one not at risk. The situation in this respect is similar to the treatment of women who miscarry.

The question remains, "Can these women be protected by treatment during pregnancy?" This question expands into several: What dose or doses should one give, and when? Could the IgG given during pregnancy increase rather than decrease the possibility of immunization? What effect would a given dose at a given time have on the foetus? Studies going on in several Canadian centres give an answer so far to only one question: a single dose of 300 micrograms of anti-D IgG given at any time from 34 weeks on will not harm the foetus, nor will it raise any diagnostic problems, as Dr. Ascari and colleagues suggested. We have evidence from one of our 10 immunized primiparae[6] that not all primiparae will be protected by prophylaxis at 34 weeks.

There will not be answers to the other questions for several years.—We are, etc.,

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Dilution Effects in a Spirit-stored Syringe

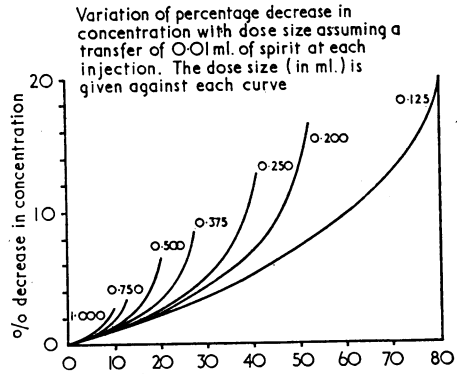
SIR,—Observations on a diabetic child using a spirit-stored syringe showed that the strength of the insulin used apparently decreased when the vial was nearly empty. When a new vial was started the dose required to control the diabetes returned to the normal value. It seemed possible that this effect might be due to dilution of the insulin by the surgical spirit in which the syringe was stored. This was investigated both by spectroscopy and by computation.

The volume of liquid transferred from a nominally empty syringe to a vial containing distilled water was measured spectroscopically. The syringe used for the measurements was stored in 1% sodium salicylate solution. This has an intense ultraviolet absorption at 296 mm., at which wavelength the extinction coefficient is 23 litre gram^{-1} cm.$^{-1}$. This intense absorption enables the presence of 0·001 ml. of the sodium salicylate solution in 10 ml. of water to be detected and measured.

A series of experiments was carried out in which a 1-ml. glass insulin syringe fitted with a size 20 stainless steel needle was stored in an Everett spirit-proof case in 1% sodium salicylate solution. The syringe was removed from the case and the plunger pushed up and down a counted number of times to remove most of the remaining liquid. The syringe was then used to withdraw 1 ml. of liquid from a vial containing 10 ml. of distilled water, and the volume of sodium salicylate thus transferred to the vial was measured spectroscopically. The syringe was then flushed with the salicylate storage solution, and the whole experiment was repeated a further nine times. The results obtained (the means of 10 values) are shown in the Table. The number of times the syringe plunger was pushed up and down outside the vial before the injection fluid was withdrawn from the vial is called "number of pumps."

No. of Pumps	1	2	6
Volume of storage liquid transferred to vial (ml.)	0·012	0·010	0·006

This small volume transferred is not significant if only a few injections are removed from the vial. But in some cases—for example, a diabetic on a small dose of insulin—a large number of doses are taken from the same vial, and the cumulative dilution effect becomes noticeable.



The computed variation of the dilution effect with dose size is shown in the Figure, in which the transfer volume is assumed to be 0·01 ml. For example, if a patient using a 10-ml. vial of insulin of strength 40 i.u. per ml. requires an injection of 10 units (0·25 ml.), he will receive 9·0 units only in the thirty-fifth injection from the same vial, if he pumps the syringe only once prior to injection. On the other hand, he would be receiving 9·6 units after this number of injections if the plunger were pumped six times before withdrawal of injection liquid. This effect increases very rapidly in the last few doses. For example, if the dose is 8 units and the syringe is pumped only once, the amount of insulin contained in the very last injection is only 2·5 units.

The practical result of this investigation is that the dilution effect can be reduced to a negligible amount if the syringe is pumped at least six times after withdrawing it from the surgical spirit. A further safeguard is to discard the last three doses in the vial. If this advice is followed, the amount of insulin of strength 40 i.u. per ml. withdrawn from a 10-ml. vial will always be within one unit of the required dose.

We wish to thank Mr. John Acquah, of the Faculty of Pharmacy, for carrying out the spectroscopic measurements.

—We are, etc.,

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Donors for Transplants

SIR,—Mr. Crossman is to delay taking action on the MacLennan report so as to give an opportunity to lay people to express their opinion. But the lay public cannot form a rational judgement unless the transplant surgeons are frank and completely honest about the facts. No transplant surgeon has seen fit to answer the questions asked of them in my own letter, and that of Mr. W. J. Dempster (7 June, p. 631). Why? At least Mr. Dempster knows what he is talking about, being one of the world's foremost authorities on the subject, and he has done a large amount of relevant experimental work for over ten years.

(1) Is it true or not that rejection invariably occurs, but whether it will be in years or days cannot be predicted?

(2) It has been demonstrated that the actual surgery of transplanting kidney, heart, and liver, can be done. Lay people are being led to believe that with increasing practice the surgeons will achieve much better results than at present. But does not experience, for example, of gastrectomy and pneumonectomy for cancer indicate that once the operative technique has been mastered any subsequent improvement in results is but marginal and will remain so until the fundamental problems of cancer are solved? With transplants there cannot be any marked improvement in results until the fundamental problem—that of rejection—has been solved. Should not this rejection problem be the top priority, and not methods of obtaining more donors?

(3) During the past 15 years scarcely a week has gone by without some claim to an important advance in the treatment of cancer and leukaemia, and doctors and the lay public have been frequently told that success is at hand. In spite of the expenditure of a tremendous amount of money, effort, and time, cancer remains a problem. What is the irrefutable evidence that makes transplant enthusiasts believe that the problem of rejection will be solved in the near future?

(4) Is not the continued repetition of figures such as 80% success rate for renal transplants misleading? I know that many lay people think this means an 80% chance of cure. Is not the correct figure for renal transplants using cadavers in British centres about 60% in one year, and about 20% in two years? What figures did Professor Calne give on a recent "Panorama" programme? What are his own figures?

(5) Is it not a fact that because figures using live donors are so much better than with cadavers the leading American renal transplant units now rarely use cadavers?

(6) Will the transplant surgeons agree that they merely replace one set of medical problems by another without ever achieving cure? More-