months. Three of them had had unsuccessful kidney transplants before CAPD and the fourth, a 3-year old, had Wilms's tumours. Although our experience is still too short to allow us more generalised conclusions, we are convinced that the availability of CAPD increases the therapeutic armamentarium in the management of children with end-stage renal disease.

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¹ Oreopoulos, D G, *Dialysis and Transplantation*, 1979, 8, 460.

History of an improvement

SIR,—I was interested to read Dr C J Levy's letter "History of an improvement" (26 May, p 1426).

In 1976 the Coventry anaesthetic department decided that all operating theatres in the Coventry area should be equipped with anaesthetic gas scavenging facilities, and this has now been done. When the work started there were not many other such systems from whose designers we could gain experience. Not surprisingly, we had several problems initially; but thanks to a very helpful area works department, some fine work by the hospital engineers, and useful constructive criticism by members of the anaesthetic department we overcame them. With the systems now in daily use the improvement in working conditions is commented on by all who have to work in the operating suites. We hope that there may also be more successful pregnancies among female operating theatre staff than there were before the scavenging systems were introduced.

In summary, I fully agree with Dr Levy that "complicated physics" demands the services of experts, and that engineering works that can affect patients must not be undertaken unilaterally. I strongly disagree with his Hutter's Law stating that "improvement means deterioration."

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Doctors and children's teeth

SIR,—We are much obliged to Dr A J S Waterston (2 June, p 1487) for drawing attention to fluoride tablets, but we think he may be giving a wrong impression by suggesting that a child should start on tablets at 2 years.

In accordance with Dr Benjamin Spock's suggestion, we advise that an expectant mother should take them in the last six months of pregnancy and the child from birth up to the early teens. An American dentist has demonstrated that dental caries can be almost entirely prevented by this method.¹

Taking tablets does not restrict their use to the most dedicated parents. For some 20 years Austria has had a nationwide fluoride tablet distribution scheme, which has resulted in the children in the 6-14 age group having just half as many teeth in need of treatment as children

in Britain. In this country Birmingham has achieved the same success through having a very efficient water fluoridation scheme since 1964.

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¹ Glenn, F B, *Journal of Dentistry for Children*, 1979, 46, 17.

Cimetidine for hypertrophic prostate?

SIR,—The antiandrogenic effect of cimetidine has been demonstrated recently in both animal and human studies.^{1,2} In the former animal and human studies has also been shown. One wonders if there is any place for the use of the product in benign hypertrophy of the prostate in man. The age at which it would be used would give little concern about reduction in sperm count.

We do not as yet know enough about the long-term use of cimetidine, or the optimal dosage for this type of effect, but it would be interesting to know if anyone had considered the feasibility of such a study.

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¹ Winters, S J, *et al*, *Gastroenterology*, 1979, 76, 504.

² Van Thiel, D H, *et al*, *New England Journal of Medicine*, 1979, 300, 1012.

The dilated upper urinary tract

SIR,—Your leading article on this subject (26 May, p 1382) was a timely focus on a clinical problem of increasing importance to urologists. It was unfortunate therefore that it contained several inaccuracies; we hope you will afford us the courtesy to correct these and update your account.

Firstly, it was stated that "the Manchester group believe that obstructed and non-obstructed dilated systems can be distinguished by comparing renograms in the dehydrated and hydrated states." Nothing could be further from the truth. What the diuresis renogram compares is renography in the normally hydrated patient with that performed during a brisk frusemide-induced diuresis, which increases the urine flow rate across the site of suspected obstruction to 10 ml/min or more—a situation similar to that artificially induced during urodynamic perfusion studies but without the coincidental invasion. We ourselves have stressed the pitfalls associated with dehydration renography, which can produce an obstructive pattern even in normal subjects.¹

Secondly, it is stated that "others who have compared the Manchester method with dynamic studies have found that even renography on hydrated patients can overdiagnose obstruction in those with greatly dilated upper tracts and underdiagnose it in those with early obstruction but minimal dilatation." A 1975 reference is given in support of this statement² yet our technique was first reported in 1978.³ To our knowledge no one has yet compared the technique with perfusion studies (although our own current work in this context shows good correlation). Your comments surely refer to standard, unmodified renography and describe the very reason for the development of our technique, which overcomes these deficiencies.

Thirdly, you state that the accuracy of the procedure has been compared only with operative findings. Twelve months ago we reported the results of a further study correlating the diuresis renogram with objective morphological changes in the renal pelvis of patients with idiopathic hydronephrosis removed at Anderson-Hynes pyeloplasty and examined by light and electron microscopy.⁴ Of 26 examinations, there was accurate correlation between our functional dynamic isotope procedure and the morphological changes in 24 and equivocal results in two, providing further evidence for the accuracy of the technique.

I trust you will record these important details so that any misconceptions may be corrected for the benefit of those clinicians wishing to continue using a simple, non-invasive, and accurate technique for the assessment of the dilated upper urinary tract while reserving more complex and invasive procedures for the small group of patients in whom the findings remain equivocal.

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¹ O'Reilly, P H, Shields, R A, and Testa, H J, *Nuclear Medicine in Urology and Nephrology*. London, Butterworths, 1979.

² Whitaker, R H, *British Journal of Urology*, 1975, 47, 377.

³ O'Reilly, P H, *et al*, *British Journal of Urology*, 1978, 50, 76.

⁴ Lupton, E W, *et al*, *British Journal of Urology*, 1979, 51, 10.

Biochemical testing for acute medical emergencies

SIR,—To do as Drs B T Williams and R A Dixon (19 May, p 1313) suggest and have an external advisory service in clinical biochemistry would, as I see it, take away from consultant chemical pathologists their *raison d'être*. But my chemical colleagues need have no fear, for Drs Williams and Dixon are quite naive when they talk of the "pooled experience of acknowledged experts."

Firstly, this would mean that the two groups of acknowledged experts, clinicians and biochemists, would physically have to come together, and this they simply do not do. Over the past three years I can think of only one scientific meeting to which both groups have been invited. And on this occasion they were as different as chalk and cheese, with little in common. Secondly, it assumes that you can get experts to agree. For many years now international experts in clinical enzymology have been wrangling over what is the best temperature to assay enzymes and have still not come up with an agreed figure. What hope is there for agreement on what tests are best in a given clinical situation?

So as not to appear totally destructive, may I propose a solution to some of the problems highlighted in this paper and many others? It is formulated on the premise that, just as clinicians consider themselves experts in clinical medicine, biochemists should also consider themselves experts in clinical biochemistry. My proposal is that clinicians, when requiring the assistance of clinical biochemistry for their diagnosis, simply submit a request stating the clinical details or the differential

diagnosis, or both. The biochemist then decides what tests, *if any*, will help. Moreover, no report would leave the department without an expert interpretation of the result. To implement such a proposal would require a drastic change in the philosophy of both clinicians and biochemists; but it is, of course, the only logical solution.

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Air embolism and intravenous catheters

SIR,—We read with interest the letter from Dr D P D Colqhoun (2 June, p 1489) reporting a further three cases of air embolism occurring via central venous catheters when the hubs became disconnected from the administration sets. We suspect that many similar incidents have occurred and have not been recognised.

When total parenteral nutrition is being administered in our general surgical ward, a Baxter-Trevenol "W" or "Y" administration set with the new Luer lock mechanism is used in conjunction with the central venous catheter. An incident has just been reported to the DHSS in which a patient receiving parenteral nutrition via a Vygon Surcath long-line and a "W" administration set almost suffered an air embolism. The thread of the Luer lock failed to engage the hub of the catheter and the two components slipped apart. Fortunately, the fault was recognised and corrected. We feel that this connection should be carefully inspected after assembly and at regular intervals during the period of infusion.

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Captain Cook and scurvy

SIR,—May I suggest that Dr C C Booth is in error (2 June, p 1470) in suggesting that Captain Cook's success in making his historic scurvy-free voyages was due to Lind's work?

Cook's work was independent, and due to his using other antiscorbutics, such as malt and cabbage, and "scurvy grass" and wild celery when obtainable, together with his insisting on other measures such as strict cleanliness and adequate fresh water. It has even been suggested that his work delayed the introduction of lemon juice into the Navy. Another of the great accomplishments of this non-medical man was his distinguishing between yaws and syphilis.

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Vaccination and pregnancy

SIR,—We feel that the answer to the question on the vaccination of pregnant or nursing mothers in your "Any Questions?" column (5 May, p 1194) could be misinterpreted. The statement that "vaccines given to the mother in pregnancy will, of course, benefit the infant by the transplacental route whether or not he

is breast fed" fails to emphasise the dangers of giving live vaccines during pregnancy and the possibility of infection to the unborn infant.

In general, live vaccines are contraindicated in pregnancy unless the risk of getting the disease outweighs the risk of vaccination. Fetal vaccinia, although rare, is well documented; if the mother must be vaccinated this should be done under antivaccinial globulin cover. The risks of using live polio and yellow fever vaccine appear to be very small.¹

A pregnant woman intending to travel to a developing country should have the killed polio vaccine unless she has to travel immediately, when the live oral strain should be used. Similarly, if travelling to an endemic yellow fever area vaccination is advised, although it should be delayed if possible until beyond the first trimester. Rubella vaccination remains a contraindication in pregnancy; the seronegative mother should be vaccinated on the second to fourth day after delivery. At this stage in the puerperium the risk of pregnancy in the ensuing six weeks is extremely low. Nevertheless, contraception should be advised for at least three months.

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¹ Levine, M M, Edsall, G, and Bruce-Chwatt, L J, *Lancet*, 1974, 2, 34.

An alternative to colostomy

SIR,—The introduction of circular stapling devices for intestinal anastomosis (the Russian SPTU gun and the American EEA gun) have enabled colorectal surgeons to perform safely very low rectal anastomoses in patients with carcinoma of the middle third of the rectum and at the same time preserve good anal sphincter control.¹ This obviates the need for abdominoperineal resection with a permanent colostomy in many of these patients. In our experience using the EEA gun the early results of this method of treating rectal cancer are excellent and the avoidance of a permanent colostomy saves the patient from many of the problems that we have previously commented on.² However, we are concerned about the economics of using the EEA gun and in particular the reluctance of some health authorities to sanction the purchase of these instruments because they are "too expensive" and "not a good buy."

The basic purchase price of the EEA instrument is £595 plus VAT and the cost of a set of staples is £47 per patient. The operating time to perform a sphincter-saving resection using this technique is about one and a half hours, the radiologically demonstrated leak rate is negligible, and the patients rapidly recover full continence after operation. The duration of postoperative stay in hospital is considerably less than that after an abdominoperineal resection.

By contrast, the patient having a conventional synchronous combined abdominoperineal resection has a larger and more blood-losing operation, a longer postoperative stay in hospital, and a permanent colostomy. We conservatively estimate the price of colostomy care over five years as between £597.50 and £2135. The low and high prices include home nursing costs and the cheapest or the more expensive conventional stoma

appliances, but exclude general practitioner, local authority disposal, and extra laundry costs. We have not attempted to quantify the social cost of the colostomy to the elderly patient, hospital and convalescent stay after abdominoperineal resection, or the many hidden costs of long-term care of stoma patients.

We therefore conclude that despite its high purchase price the EEA gun is a good economic alternative to a permanent colostomy.

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¹ Goligher, J C, *Annals of the Royal College of Surgeons of England*, 1979, 61, 169.

² Devlin, H B, Plant, J A, and Griffin, M, *British Medical Journal*, 1971, 3, 413.

Cyclophosphamide in chronic active hepatitis

SIR,—Dr I T Gilmore and others, in reporting the results of a clinical trial of cyclophosphamide for the treatment of active chronic hepatitis (28 April, p 1120), conclude that because of persistent azoospermia "the benefits [of cyclophosphamide] would have to be striking to justify its use." While we agree with their conclusion, we believe there are more important reasons why this is so.

We are surprised that no mention was made of the association between alkylating agents (including cyclophosphamide) and cancer in humans. There are at least 64 case reports of cancer (mostly leukaemias, lymphomas, and bladder cancers) in patients treated with cyclophosphamide for a variety of malignant and non-malignant diseases.^{1,2} In addition, cyclophosphamide causes cancer in mice and rats when administered in doses similar to those used in clinical practice.¹

Cyclophosphamide is often considered together with other alkylating drugs in reports of adverse effects, since individuals are frequently treated with more than one of them. Six of these drugs, which have been evaluated in the monographs of the International Agency for Research on Cancer,³ have data on carcinogenicity from case reports, epidemiological studies, or both. Recently a group of experts in cancer research concluded that, of these six, two are causally associated with cancer in humans (chlorambucil and melphalan), and three (chlorambucil, cyclophosphamide, and thiopeta) are probably carcinogenic to humans but sufficient evidence to establish a causal relationship is lacking. The data for the remaining drug (triaziquone) are derived from four case reports and are inadequate to allow any conclusions regarding carcinogenicity.⁴

Unfortunately, most of the evidence on the carcinogenicity of these compounds comes from case reports, which do not allow incidence rates to be calculated. However, the few available epidemiological studies⁵⁻⁸ suggest that over a period of 10 years from 5% to 15% of patients given alkylating agents will develop cancer. This is substantially in excess of what would be expected in the absence of these drugs.

Investigators planning clinical trials using these drugs, particularly in adjuvant chemotherapy for early stages of cancer or in the immunosuppressive treatment of non-malignant disease, should balance this sizable