One explanation of these anomalies is that talc may be acting as a particulate adjuvant, promoting cell-mediated hypersensitivity reactions to polysaccharide antigens of starch in susceptible individuals. For these reasons we would support efforts to eliminate talc, which although not directly pathogenic in low concentration, may facilitate cell-mediated reaction to other agents on the surface of surgical gloves.

J D DAVIES

University Department of Pathology

H J ESPINER

W K ELTRINGHAM

Department of Surgery,
Bristol Royal Infirmary,
Bristol BS2 8HW

J B F GRANT

Department of Surgery,
Hallamshire Hospital,
Sheffield S10 2JF¹ Neely J, Davies JD. *Br Med J* 1971;iii:625-9.² Cade D, Ellis H. *Eur Surg Res* 1976;8:471-9.³ Grant JBF, Davies JD, Jones JV. *Br J Exp Path* 1975;56:396-401.⁴ Grant JBF, Davies JD, Jones JV. *Br J Surg* 1976;63:867-9.⁵ Davies JD, Neely J. *J Path* 1972;107:265-78.⁶ Grant JBF, Davies JD, Jones JV, Espiner HJ, Eltringham WK. *Br J Surg* 1976;63:864-6.

Are reflectance meters necessary for home blood glucose monitoring?

SIR,—Drs J H Baumer and D C L Savage (8 November, p 1286) report serious inaccuracies in blood glucose estimation using the Boehringer reagent strip. This is at variance with the findings of Lawson *et al.*¹ who in a study of 150 independent blood sugar estimations using this reagent strip found that 109 of the observations were in the same range as the laboratory results and that none of those which fell outside this range did so by more than one colour standard on the strip. On reanalysing our reported results² on the same basis as Lawson we were able to confirm his claims.

Therapeutic decisions affecting diabetic control are aided by serial trends in blood sugar levels at the same time of day from day to day. The reliability of these trends is more important than the accuracy of a single observation. The evidence from our work² and that of Lawson *et al.*¹ Walford *et al.*³ and Earis *et al.*⁴ all support the view that the Boehringer strip is sufficiently reliable for this purpose.

The home blood sampling method described by Drs Baumer and Savage is a revival of the principle first described by Keen and Knight in 1962.⁵ Its major drawback is still that the patient is unable to act on the results until they are made available some time later.

S D FERGUSON

I A HUGHES

Department of Child Health,
Welsh National School of Medicine,
Cardiff CF4 4XN¹ Lawson PM, Kesson CM, Ireland JT. *Lancet* 1979; i:742.² Ferguson SD, Prosser R. *Br Med J* 1980;281:912.³ Walford S, Clark P, Paisey R, Hartog M, Allison SP. *Lancet* 1980;i:653-4.⁴ Earis JE, Greenway MW, Macauley MB. *Lancet* 1980;i:823-4.⁵ Keen H, Knight R. *Lancet* 1962;i:1037-42.

Changeover to U100 insulin

SIR,—It is hoped to introduce U100 insulin into the UK in the near future but the main setback to this apparently is the attitude of the DHSS, which estimates that such a conversion

would cost £1-1½m. The U20, U40, and U80 insulins and the present standard diabetic syringe would then be discontinued.

In an attempt to discover the most convenient size of diabetic syringes for the new insulin, a note was made of the range of insulin doses injected by patients at any one time. These details were taken from all the patients attending five consecutive diabetic clinics held at Leeds General Infirmary. A total of 508 patients attended these clinics, of whom 241 (47.4%) were on insulin therapy and 42 (17.4%) were injecting twice daily. The table shows the range of insulin doses injected. It can be seen that 77.4% of patients injected 50U or less at any one time (that is, 0.5 ml of U100) and there was one patient who injected over 100U (that is, over 1 ml).

Insulin doses injected by 241 patients attending diabetic clinic

Units insulin	Total No of injections	% total
0-19	16	5.7
20-49	203	71.7
50-99	63	22.3
100+	1	0.4

When U100 insulin is introduced a number of diabetic syringes would therefore be required to cover the range of insulin volumes injected—for example, 0.5 ml, 1.0 ml, and 1.5 ml syringes—as it seems unlikely that one syringe would be able to deliver, for instance, 12 units (0.12 ml) and 120 units (1.2 ml) accurately and be easily read by the patient.

A date for the introduction of U100 has been postponed owing to the indecision of the DHSS in funding the new insulin and syringes. Hopefully these syringes will be disposable and available on the NHS prescription. Although there are clear savings for the NHS in introducing a single insulin strength—that is, in packaging, pharmacist's fees etc—the different syringes will no doubt give rise to occasional error, as does the present usage of three insulin concentrations.

H TINDALL

J K WALES

Department of Medicine,
General Infirmary,
Leeds LS1 3EX

Generalised allergy to porcine and bovine monocomponent insulins

SIR,—Although Dr J P Simmonds and others (2 August, p 355) were able to find only one prior case of systemic allergy to monocomponent insulin,¹ there is at least one other reported case.² We would like to present a similar case.

A 74-year-old woman with diabetes had been treated with oral hypoglycaemic agents for seven years. In March 1978 she was briefly treated with insulin while hospitalised elsewhere for a haemorrhoidectomy. She presented at our hospital in July 1980 with uncontrolled diabetes while on chlorpropamide 750 mg daily. Six days after starting daily injections of insulin (isophane beef-pork, Lilly) she developed generalised urticaria and pruritus. She was taking no other medications at this time. Since she refused admission to the hospital, she was given lente monocomponent pork insulin (Lente Pork Iletin II, Lilly). By eight hours after injection she had again developed generalised urticaria and pruritus, which was more severe than previously. She was subsequently admitted to the hospital, where, despite hydration, intravenous bicarbonate, and chlorpropamide she developed severe diabetic ketoacidosis (arterial pH 7.06). Therefore she was desensitised to soluble mono-

component pork insulin (Regular Pork Iletin II, Lilly) over a six-hour period.³ During the desensitisation she had local reactions of erythema to the 1:500-1:100 dilutions within five minutes of injection, but these disappeared with further desensitisation. The ketoacidosis was then treated with intramuscular injections of soluble monocomponent pork insulin. Subsequently, lente monocomponent pork insulin was also added after skin testing showed no reactions. Her diabetes is now controlled on a combination of lente and soluble monocomponent pork insulin with no reactions.

Although allergic reactions to monocomponent insulin are rare, they can be of extreme importance. This is illustrated by our patient, who required insulin for severe ketoacidosis. As in one of the other reported cases,¹ we successfully desensitised her using monocomponent insulin. It is interesting that each of these four patients had received less pure insulin previously. In a recent review⁴ it is noted that no cases of insulin allergy (local or systemic) have been seen in patients who received only monocomponent pork insulin. The widespread use of purified insulins and the introduction of human insulin may eventually eliminate this clinical problem.

J M GOLDMAN

H C BRYNILDSEN

Department of Medicine,
Coney Island Hospital,
New York 11235,
USA¹ Leslie D. *Br Med J* 1977;iii:736-7.² Goldman BA, Lewis AE, Rose LI. *JAMA* 1976;236: 1148-9.³ Galloway JA, Bressler R. *Med Clin N Am* 1978;62: 663-80.⁴ Galloway JA. *Diab Care* 1980;3:615-22.

Impotence in diabetic and non-diabetic hospital outpatients

SIR,—Dr D K McCulloch and others (1 November, p 1216) regard our control group of non-diabetic hospital outpatients as unsatisfactory because chronic obstructive airways disease, ischaemic heart disease, uraemia, and multiple sclerosis are known to be associated with sexual dysfunction. It is difficult to see what specific pathogenetic denominator could be common to all these conditions and diabetes mellitus. The obvious common one is that patients with any of these disorders are unlikely to be feeling very fit. Although an obvious explanation may not necessarily be correct, its obviousness does not of itself disqualify it.

The writers refer to current research from their unit suggesting that impotence may be the earliest manifestation of diabetic autonomic neuropathy. We await with interest the outcome of this work, but until it has been demonstrated by a prospective study that impotence is followed by other manifestations of diabetic autonomic neuropathy it is surely unjustifiable to call it the "earliest" manifestation.

EVA LESTER

A J GRANT

F J WOODROFFE

Diabetic Clinic,
North Middlesex Hospital,
London N18 1QX

PGE₁ and vasospastic disease

SIR,—I was very interested to read the report by Mr P C Clifford and others (18 October,

p 1031) on the effect of prostaglandin E₁ (PGE₁) and vasospastic disease. They observed haemodynamic improvement of the hands and fingers during and after infusion of PGE₁. Their estimation of blood flow was made from skin temperature measurements and radial pulsatility index and from finger pulse volume recordings, all of which indicate changes in total blood flow to the hand and fingers. However, improvements based on these criteria merely indicate vasodilatation, which is not necessarily concomitant with an increased perfusion in the skin microvasculature—especially in the fingers, which have abundant arteriovenous anastomoses acting as heat exchangers. Direct measurement of the cutaneous microcirculation is possible. Recently Nilsen *et al.*,¹ using the xenon-133 epicutaneous (atraumatic) labelling technique, showed microcirculatory improvement in patients with Raynaud's disease following intra-arterial infusion of reserpine. Presumably there are similar improvements in the cutaneous microcirculation following PGE₁ infusion because five out of eight ischaemic ulcers healed in the study by Mr Clifford and his colleagues.

Furthermore, they were unable to explain the discrepancy between subjective reports of improvement in vasospasm and an unchanged response in finger temperature following a standard cold water challenge. It should therefore be emphasised that, although patients with Raynaud's disease have a reduced hand blood flow compared with normal people at all ambient temperatures, the percentage and absolute falls in hand blood flow following cold water challenge and the recovery time after removal of the cold stimulus are similar in normal subjects and Raynaud's patients.² It is my experience that measurements of skin temperature and hand blood flow following challenge with cold in Raynaud's patients do not provide reliable criteria for assessing the severity of the disease, and indeed these measurements are complicated by central thermoregulatory responses. However, when measuring the cutaneous microcirculation Nilsen¹ did find that, whereas local cold stimulation did not affect control subjects, there was a reduction of around 50% in patients with Raynaud's disease.

It is clear therefore that if vasoactive agents such as PGE₁ are to find a place in the management of vasospastic disease an assessment of the effects of such drugs on the cutaneous microcirculation under both normal and stressful conditions is essential.

VANCE SPENCE

Vascular Laboratory,
Ninewells Hospital Medical
School,
Dundee DD1 9SY

¹ Nilsen KH, Jayson MIV. *Br Med J* 1980;280:1408-11.
² Downey JA, Frewin DB. *Clin Sci* 1973;44:279-89.

Injection abscesses due to *Mycobacterium chelonae* and other organisms

SIR,—Dr P G Jackson and others (25 October, p 1105) describe injection-site abscesses caused by *Mycobacterium chelonae* arising in a diabetic patient who had used a non-sterile syringe; they suggest that the ideal solution would be a sterile syringe and needle for each injection.

Even with such desirable measures this

ubiquitous organism can inadvertently be introduced into the patient and we have described a painless submandibular granuloma caused by *M. chelonae* which developed beneath the jaw of an otherwise healthy 8-year-old boy three months after he had received a dental injection of anaesthetic.¹ Sterile apparatus was used for the injection. There was no evidence incriminating the batch of anaesthetic and at the time we were satisfied that the most probable source of the infecting organism was the patient's own mouth.

Such incidents are rare and probably unavoidable. However, it is equally important to bear in mind that, apart from autogenous infections of this type, cross-infection can occur as a result of faulty technique or faulty equipment even when disposable and sterile syringes and needles are used.² In this connection the relatively recently introduced evacuated, sterile blood-collecting tubes which employ a non-sterile reusable needle holder pose a possible hazard, since the sheath can be shown to become contaminated with blood and bacteria. Although I know of no incident of cross-infection resulting from the use of this equipment I will be most interested to hear from any of your readers if such an incident is recognised.

C A MORRIS

Department of Microbiology and Public Health
Laboratory,
Royal Shrewsbury Hospital,
Shrewsbury SY3 8XH

¹ Morris CA, Grant GH, Everall PH, Myers ATM. *J Clin Path* 1973;26:422-6.
² Cayton HR, Morris CA. *Monthly Bulletin of the Ministry of Health* 1966;25:87-91.

Faecal klebsiellae in rheumatoid arthritis and spondylitis and in controls—incidence or prevalence in specimens or patients?

SIR,—The latest claim by Dr Roland Ebringer and his colleagues (30 August, p 583) of an association between the faecal carriage of klebsiellae and certain rheumatological conditions requires critical scrutiny. Their conclusion that there is an increased incidence of faecal klebsiella carriage in patients with HLA B7 CREG antigen and in men with rheumatoid arthritis is, in our view, inadequately supported by their published evidence.

Even for the normal population the literature abounds with contradictory rates for faecal carriage of klebsiellae, ranging from less than 1% to more than 90%. This is well recognised as being due to differences in sampling, failure to distinguish incidence from prevalence, and—most importantly—the bacteriological methods employed.^{1,2} The discrepant carriage rates, as assessed from single specimens, quoted from their previous study³ of 10% in female physiotherapy students and 33% in healthy hospital-associated controls raises doubts about variations in bacteriological techniques. The validity of using the results of the present study as a "control population" for a previous study is of itself dubious. Control groups should be studied concurrently and not sequentially.

On the assumption that bacteriological methods were appropriate and consistent (and we consider that these are inadequately described in their referenced previous publication⁴), the detection of klebsiellae in faeces may reflect transitory excretion or more prolonged colonisation that may persist for several months. Thus the determination of the incidence of the carriage of faecal klebsiellae requires the examination of sequential samples of faeces from each patient over a defined period and the calculation of the proportion of patients who excrete the organism on one or more occasions. Repeated samples from positive

(or negative) patients will distort the proportion of positive samples. A single sample taken from each patient at a standard time will give an indication of the prevalence of carriage, which is again expressed as the proportion of patients who are positive.

Dr Ebringer and his colleagues found that, of 106 patients who made a variable number of visits to a clinic and provided 445 faecal samples, "a higher proportion of men compared with women yielded cultures positive for klebsiellae on at least one occasion (57% versus 39%) but this was not significant (our italics). In apparent contradiction, their summary states that "the incidence of carriage was higher in men (28%) than in women (14%) (p<0.001)." The latter percentages refer not to true "incidence"—that is, the proportion of positive patients—but to the proportion of positive samples, for which there is no indication of the number of repeat samples in positive and negative patients. Similarly, there is no indication whether the claimed increased incidence of carriage of faecal klebsiellae among patients with HLA B7 CREG antigen is significant when assessed as the proportion of positive patients rather than the proportion of positives among repeated samples.

Many of these criticisms have been made previously⁵ with reference to this group's work in spondylitis^{3,6} and uveitis. They may explain the failures^{7,8} to confirm the association described by Dr Ebringer and his colleagues between faecal klebsiellae and disease activity in ankylosing spondylitis. We report here in addition that we have found no difference in the prevalence of faecal klebsiellae, as assessed from single specimens, among 27 male and 55 female rheumatoid arthritis patients (30% and 33% respectively), a finding that has also been reported in acute anterior uveitis.⁹

The problems of associating faecal klebsiella excretion with these conditions have not in our view been met. We look forward to more carefully designed studies which establish more convincingly any such differences between these important patients and defined control populations. Such studies should pay early attention to any association with specific well-known klebsiella antigens, such as the 76 capsular (K) antigens.

M W CASEWELL

Microbiology Department,
St Thomas's Hospital Medical School,
London SE1 7EH

R E WARREN

Clinical Microbiology and Public Health Laboratory,
Addenbrooke's Hospital,
Cambridge

¹ Orskov I. *Acta Path Microbiol Scand* 1955;36:461-70.
² Cooke EM, Brayson JC, Edmondson AS, Hall D. *J Hyg Camb* 1979;82:473-80.
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⁷ Warren RE, Brewerton DA. *Ann Rheum Dis* 1980;39:37-44.
⁸ Eastmond CJ, Willshaw HE, Burgess SEP, Shinebaum R, Cooke EM, Wright V. *Ann Rheum Dis* 1980;39:118-23.
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* *We sent this letter to the authors, who reply below.—ED, *BMJ*.

SIR,—We would like to clarify some of the points raised by the letter of Drs M W Casewell and R E Warren concerning our bacteriological investigations in rheumatoid arthritis and ankylosing spondylitis.

(1) The study on rheumatoid arthritis patients was carried out concurrently with our study on ankylosing spondylitis patients and not sequentially as they suggest. The results of a four-year study of faecal cultures in ankylosing spondylitis are being prepared for publication.