ing they may fear, rightly or wrongly, that he will be unsympathetic, and even remove them from his list.

However, whatever reservations one may have about the Department's circular—and we have many—the mere fact that guidance has been issued represents a victory for the Patients Association.—I am, etc.,

HELEN HODGSON
Chairman
The Patients Association

London W.C.1

Classification of Protein-calorie Malnutrition

SIR,—With reference to the article by Professor J. C. Waterlow (2 September, p. 566), I would like to raise the following points from four years' experience in Rwanda, where childhood malnutrition has lately assumed almost epidemic proportions.

That we are unable to classify malnutrition as accurately as we desire surely witnesses to our lack of skill as a profession in describing and analysing what we are seeing. This is not to underrate the value of weighing and measuring the height of such children but to give these figures a rightful place in the total clinical picture. In Rwanda we are beginning to classify our cases of malnutrition in the following way, based upon an attempted understanding of what is happening to the child. We find that most children fall readily into one of three groups.

Group 1.—"Marasmic" children of women who are not producing enough breast milk. They are almost always under 1 year of age, have no or few teeth, and their mothers have futilely attempted to feed them with beer, sweet potatoes, and as much cow's milk as they can beg from wealthier neighbours. They hang on to their mother's breast, are thin and wizened, and in advanced cases may become light skinned and oedematous. They are often very active—always wriggling—are rarely miserable, and are surprisingly difficult to treat.

Group 2.—Children aged usually between 1 and 2½ who have to be pulled off their mother's breast to be examined, and their miserable looking faces appear to be full of teeth and eyes. They are the weanling children who have never taken to food and whose only reliable source of nourishment is a normal but inadequate supply of breast milk. Skin changes are slow to appear, and oedema of the feet appears only in the more advanced cases. Somewhat contrary to the teaching of others, we have found that the only way to deal with most of these cases is to recommend the mother to deny the child her breast in an attempt to promote the child's appetite for appropriate food. This, indeed, can prove remarkably successful.

Group 3.—Children who have been successfully weaned but faultily fed, both with the wrong types of food and too infrequently. In our experience they are older than 2 years, and mostly between 2½ and 4. However, as the table, based on 295 patients hospitalized in 1972 shows, often much older children and adults are affected. We have found two common types of presentation, easily distinguishable and with intermediate forms. Firstly, underweight and oedematous children who show little if any skin lightening or hair changes. Secondly, many, often older, children with very light skin, very light and thin hair, but with no oedema—or, at most, a mere trace. Those in the second subgroup are often much more difficult to treat than those in the first with normal skin and hair. Significantly, the more seriously affected in the second subgroup become oedematous after a few days in hospital on unrestricted

fluids, at a time when the children in the first subgroup on a similar regimen may already be losing their oedema. Seriously ill children in the third group tend to become hypothermic terminally. This can be recognized at a glance. The child is an inert bundle, resents any interference, has stunted, discoloured hair, a shiny, pale skin, and is blown up in the dependent parts with oedema fluid. Very few of these children survive.

Age of Patients on Admission to Hospital with Clinical Malnutrition in 1972

Age	No. of Patients
0-11 months	21
12-23 months	51
2-4 years	138
5-9 years	59
10-20 years	13
over 20 years	13*

* All but one were females.

Whether there is any difference in aetiology between our two subgroups remains to be seen. Up till now we have unfortunately not routinely measured the height of children. It is extremely difficult to do because it requires the full co-operation of the child—something an undernourished child is rarely able to give. On the other hand, we find age in years and months relatively easy to determine. Every adult male has an income tax book in which at least the year of birth of his children is written. Most mothers, by reference to the "agricultural calendar," can recall the month of the year in which a child was born. By using these two figures in addition to counting the child's teeth the age of a child can be accurately assessed.—I am, etc.,

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Cost of Drugs

SIR,—While discussing the cost of drugs for urinary tract infection Professor J. D. P. Graham (3 March, p. 546) wrongly ascribes to me and my colleagues¹ the statement that "ampicillin should be omitted on account of frequency of rashes." With a prevalence of 7.3% for this phenomenon² there is something to be said for his point of view but we did not discuss the matter. I would accept credit, however, for the remainder of the sentence—namely, "Choice . . . is influenced above all by the sensitivity of the pathogen to the drug"—and the first part of the following sentence—"Little bacterial resistance to the last three drugs [nalidixic acid, co-trimoxazole, and nitrofurantoin] has been encountered." I am also pleased to note the quasi-biblical status of our paper—often quoted but seldom read.

It is a pleasure to be misquoted and mis-spelt in a good cause, as I fully agree with Professor Graham's tenet that cost-effectiveness is a more important consideration than cost alone. A rational choice of antibiotics should be based on the following factors³: (1) causal organisms and sensitivity based on either a "best guess" or a laboratory report; (2) pharmacology; (3) toxicity; (4) cost; (5) availability; (6) special effects; and (7) emotion. Our paper presented "league tables" of antibiotic sensitivity against causal bacteria. These are of value for making a "best guess" choice and also for monitoring the changing ecology of the bacterial population. We now provide a

routine monthly computer print-out of our data to assist the clinicians in this group in their choice.

The cost of antibiotics is a favourite whipping-boy but the only truly expensive drugs are those that fail. The basic cost of treating a child in this hospital is appreciably more than £100 per week, yet a child with a respiratory tract infection can be given six days' therapy with erythromycin stearate at home for less than £1. In hospital terms the cost of such a tablet is on the same scale as that of dropping a chip on the dining-room floor or sewing on a fresh button in the hospital laundry.—I am, etc.,

T. A. McALLISTER

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- McAllister, T. A., Percival, A., Alexander, J. G., Boyce, J. M. H., Dulake, C., and Wormald, P. J., *Postgraduate Medical Journal*, 1971, 47, September Suppl., p. 7.
- Report of a Collaborative Study Group, *British Medical Journal*, 1973 1, 7.
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Prolonged Action of Pindolol

SIR,—In a recent comparative study of propranolol and pindolol we found that though the antianginal effect of the two drugs was similar the action of pindolol was more prolonged. This difference may be of clinical value, and we therefore report briefly our findings.

In a double-blind cross-over study one group of patients was treated in the sequence propranolol-placebo-pindolol and another group in the sequence pindolol-placebo-propranolol. The periods of treatment with pindolol and propranolol were four weeks, in a dosage of 5 mg and 40 mg four times daily respectively, and the intervening period on placebo lasted two weeks. Of the 30 patients included in the study three defaulted, two were withdrawn because of side effects, and one was dropped for unreliability in reporting. The patients' progress during the trial was measured by the number of nitroglycerine tablets required each week and by the "angina index" (number of severe attacks $\times 3$ + number of moderate attacks $\times 2$ + number of mild attacks $\times 1$). Both drugs produced a decrease in the angina index and in the number of nitroglycerine tablets needed, and seemed equally effective in these respects. However, the patients who started on propranolol deteriorated rapidly when propranolol was replaced by placebo, whereas patients who started on pindolol did not begin to deteriorate until they had been on placebo for about a week. At first it was thought that this finding might be an artefact owing to the wide variations in the severity of angina among the patients. The results were therefore re-evaluated after excluding all patients with an angina index of more than 25 at the end of the first week's treatment, but the same pattern of response was found.

Since all the beta-adrenergic blocking agents seem equally effective in the treatment of angina pectoris, interest in them has tended to centre on the finer points of distinction such as duration of action, patient acceptability, and side effects. Our results suggest that a further point of distinction worthy of consideration is the patient response in the event of sudden, though temporary, interruption in therapy. Olsson and Varnauskas¹ showed that complete beta-blockade persisted for 24 hours after a single 10-mg dose of pindolol, whereas six hours

after a 200-mg dose of alprenolol blockade was incomplete. Saameli² showed in anaesthetized dogs that the duration of action of a single intravenous dose of pindolol is appreciably longer than that of an equivalent dose of propranolol. These findings suggest that the therapeutic action of pindolol might last longer than that of propranolol or alprenolol, but they do not explain why in our patients it apparently lasted for a week. Possibly with prolonged dosage (over a period of four weeks in our study) pindolol becomes fixed in the tissues and is then released slowly. Perhaps all beta-blocking drugs become fixed for a time in the tissues and the duration of their action depends on how quickly they are released. This is a matter which might be investigated.—We are, etc.,

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India

- 1 Olsson, S. B., and Varnauskas, E., *Indian Heart Journal*, 1972, 24 (Suppl. 1), 167.
2 Saameli, K., *Indian Heart Journal*, 1972, 24 (Suppl. 1), 146.

** Although clinical trials are in progress, pindolol (LB46, Sandoz; 4-(2-hydroxy-3-isopropylaminopropoxy) indole) is not yet commercially available in Britain.—Ed., *B.M.J.*

Spina Bifida Splint

SIR,—The "Draycott-Oswestry" spina bifida splint described here has been used successfully in this hospital for the past six months for maintaining the required position of the legs after operation on children with myelomeningocele. It can be made cheaply from standard National Health Service sheepskin and it obviates the pressure problems of plaster-of-Paris splinting.

Fig. 1 shows the front and fig. 2 the back view of the sheepskin with Velcro bands attached. The views (figs. 3 and 4) of the splint in position show that the bands are not in contact with the patient's skin and that those holding the legs pass through the sheepskin. A later addition that has proved useful after talectomy has been the addition of foot supports (fig. 4). The sheepskin is tailored to fit from the nipple line to feet, allowing for extensions for covering the soles of the feet to the end of the big toe. The width at the nipple line and around the pelvis at great trochanter level should allow for 1 in (2.5 cm) overlap.

We keep the splint continuously in posi-

tion, except for napkin changing and washing, until the wound has healed and then we apply it only at night. Incontinence has not been a problem when waterproof pants are worn. The wool side of sheepskin is easily rubbed dry (canvas-backed nursing fleeces tear and soil easily and are unsuitable). Pathological fracture of the femur can be effectively treated with the splint. It prevents external rotation, and shortening can be overcome by incorporating a Ventifoam extension (fig. 4).

We thank Mr. G. K. Rose for access to his patients and the photographic department of the Robert Jones and Agnes Hunt Orthopaedic Hospital for the illustrations.

—We are, etc.,

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Immunoglobulin Deficiency Syndrome

SIR,—Over the past six years I have had the interesting experience of seeing nine patients with the following symptoms in common: (1) generalized cramping, colicky abdominal pain; (2) pyrexia; (3) emotional irritability; (4) occasional diarrhoea; and (5) hypogammaglobulinemia as measured by immunoelectrophoresis. Six of the nine patients with this syndrome were aged 8-16 years and the other three were 35 or over. All the patients had a low IgA or IgM (see table). The blood count, intravenous pyelogram, and urine and stool cultures, and investigation of the gastrointestinal tract were normal. No giardia were found. The symptoms had persisted despite various treatments.

Patient	Age (Years)	IgA (mg/100 ml)	IgM (mg/100 ml)	IgG (mg/100 ml)
1	8	36	60	950
2	10	120	30	1,040
3	16	75	35	950
4	8	41	28	720
5	11	80	40	1,300
6	8	150	65	920
7	35	80	110	1,300
8	56	100	90	650
9	35	280	37	750

All nine patients were completely cured of their syndrome after two 5-ml intramuscular injections of gammaglobulin (IgM and IgA), and they were maintained on a dose of 2.5 or 5.0 ml every four to six weeks. A full report of these patients will be presented shortly. They seem to fall into a general category of patients described by several authors.¹⁻³

The "irritable bowel" or peculiar abdominal pains could perhaps be explained by the deficiency of immune globulins. I would be interested to hear if others have met this problem. Further studies are needed.—I am, etc.,

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- 1 Rosen, F. S., and Janeway, C. A., *New England Journal of Medicine*, 1966, 275, 709.
2 Hermans, P. E., et al., *American Journal of Medicine*, 1966, 40, 78.
3 Kirkpatrick, C. H., Waxman, D., Smith, O. D., and Schinke, R. N., *Archives of Internal Medicine*, 1968, 121, 273.