infant makes great effort to avoid the covering hand so that he can maintain vision on the object of interest. When the eye with poor vision is covered no such avoiding movements are made since the infant is in no way inconvenienced by the test.

Although this screening examination may be carried out by doctors it is much more readily and accurately performed by ophthalmists, whose training and abilities with young children are specifically designed to this end. Dr Valman's statement that if a squint is seen or suspected at any time after 6 months of age the child should be examined by an ophthalmologist is correct; but in the present state of undermanning in the ophthalmological services of the NHS there is an excellent case to be made out for such initial screening to be carried out by orthoptists, and only those infants who are suspected of a squint or poor vision in one eye by the orthoptist should be referred on to the ophthalmologist.

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Vitamin D₃ in osteoporosis

SIR,—Professor B E C Nordin and his colleagues have reported (16 February, p 451) that 1 α -hydroxycholecalciferol (1 α -OHD₃) is of no use when given alone for the treatment of spinal osteoporosis in postmenopausal women. We have studied the effects of 1-hydroxylated vitamin D₃ (1-OHD₃) preparations in a group of patients with osteoporosis.

Five men and twenty women with back pain and no biochemical evidence of osteomalacia took part in the study. Each was allocated randomly either to a group receiving from 0.5 to 1.0 mg of 1-OHD₃ daily for six months (seven patients received 1, 25(OH)₂D₃ and eight received 1 α -OHD₃) or to a group (16 patients) receiving 0.5 ml daily of a placebo. Eleven patients entering the 1-OHD₃ group and nine entering the placebo group had two or more vertebral compression fractures and the average ages ($\pm$ SD) of the patients in the groups were 69.9 ($\pm$ 9.8) years and 73.0 ($\pm$ 8.6) years respectively. An iliac crest biopsy was taken from every patient assigned to the 1-OHD₃ group; none of the biopsies showed evidence of osteomalacia.

All patients were followed up for at least six months. Results from the study showed that intestinal calcium absorption, as assessed by a double isotope technique, rose significantly (paired *t* test *p* < 0.005) in the 1-OHD₃ group, but so did urinary calcium excretion (paired *t* test *p* < 0.05). Neither changed significantly in the placebo group. The incidence of new vertebral compression fractures was the same (20%) in both the 1-OHD₃ and the placebo groups, and the values for bone mineral mass per unit length estimated by photon absorptiometry¹ of the right femur and right radius and ulna did not change significantly (paired *t* test) in either group over the six months. Back pain and mobility were assessed from the patients' spontaneous comments and by inquiries into analgesic consumption. Eleven of those receiving 1-OHD₃ and one of those receiving placebo considered that their back pain was improved; seven receiving 1-OHD₃ but none receiving placebo considered mobility

improved (see accompanying table). Comparing the responses in the two groups in terms of improved versus not improved for severity of back pain and mobility the Fisher exact test gives probabilities of 0.004 and 0.02.

The study provided no objective evidence of improved bone strength and its single-blind design makes the interpretation of symptomatic improvement uncertain. The findings do, however, raise the possibility that the 1-hydroxylated vitamin D₃ preparations produced improvement in the symptoms of some of the patients in the 1-OHD₃ group.

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¹ Aird JGA, Pierides AM. *Br J Radiol* 1977;50:350-6.

Cholesterol and mortality rates

SIR,—In New Zealand Maoris, Dr Robert Beaglehole and others (2 February, p 285) noted an inverse relation between serum cholesterol level and overall mortality, and mortality from cancer and "other" causes of death. Hence the authors warned against introducing measures to reduce cholesterol level to ameliorate cardiovascular disease, which in these people has an incidence as high as or even higher than that in New Zealand whites. Conceivably, such measures might worsen Maoris' total mortality rate, since "the risk ratios of total mortality at a serum cholesterol concentration of 4.14 mmol/l (160 mg/100 ml), as compared with that at a concentration of 6.73 mmol/l (260 mg/100 ml), when adjusted . . . were 1.7 for men and 1.4 for women." The authors commendably urged caution in applying their findings on Maoris to other populations.

In the Maori population the lower and upper serum cholesterol values chosen (4.14 versus 6.73 mmol/l) are very wide apart. The point we wish to make is that serum cholesterol and mortality associations, when significant, will vary from population to population, in part because the mean cholesterol level of myocardial infarction patients varies considerably—from 7.2 mmol/l (278 mg/100 ml) in Australia¹ to as low as 4.4 mmol/l (170 mg/100 ml) in India.² Furthermore, the mean level in myocardial infarction patients varies widely even within a given country, as demonstrated in Italy³ and Norway.⁴ Such variation certainly will add to difficulties in investigations but does not detract from the authors' emphasis on "the importance both of studying risk factors on a population-specific basis and of using total mortality as an end point for community-based intervention studies."

A further complicating factor concerns differences in reactivity displayed by different emerging populations having somewhat similar biological variables. Maoris have slightly lower cholesterol levels (about 1 mmol/l (38.6 mg/100 ml) less) than New Zealand whites, the same systolic pressures, but much greater frequencies of obesity in both men and women. They are, as mentioned, very

prone to cardiovascular disease. In Johannesburg, urban blacks at middle age and later have lower cholesterol levels (about 1.0-1.5 mmol/l (38.6-57.9 mg/100 ml) less) than whites but much higher diastolic and systolic pressures, and a greater frequency of obesity, principally in women.⁵ Yet, in remarkably striking contrast to Maoris' experience, the age-specific mortality rate of blacks from ischaemic heart disease is very low, only 5-10% or so of that of whites.⁶ Interestingly, this diversity of ischaemic heart disease experience of South African blacks and whites resembles that noted in immigrant Caribbeans and whites in East London.⁷

Dr Beaglehole and his colleagues, in stressing the use of total mortality as an end point for community-based intervention, have in a sense underlined the view of Rose and Barker⁸ that "the outcome of screening must be judged in terms of its effect on mortality or illness. . . ." This scrutiny of the worthwhileness of intervention has long been urged by Cochrane.⁹ When carried to its logical conclusion this scrutiny, if its results are implemented, has enormous implications regarding many well-known practices, some especially relevant to Third World populations. The authors are to be congratulated on their thought-stimulating contribution.

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¹ Palmer AJ, Blacket RB, Leelarthapin B. *Med J Aust* 1973;2:19-23.

² Chaudhuri S, Das S, Das NC. *Ind Heart J* 1966;18:391-402.

³ Keys A, Fidanza F. *Circulation* 1960;22:1091-106.

⁴ Jervell A, Meyer K, Westlund K. *Acta Med Scand* 1965;177:13-23.

⁵ Seftel HC. *S Afr Med J* 1978;54:99-104.

⁶ Walker ARP. *S Afr Med J* (in press).

⁷ Pedoe HT, Clayton D, Morris JN, Bridgen W, McDonald L. *Lancet* 1975;ii:833-8.

⁸ Rose G, Barker DJF. *Br Med J* 1978;iii:1417-8.

⁹ Cochrane AL. *Effectiveness and efficiency. Random reflections on health services*. London: Nuffield Provincial Hospitals Trust, 1972.

Massive bleeding from the large bowel

SIR,—Your leading article (16 February, p 425) in discussing the differential diagnosis of this perplexing problem rightly stresses that known diverticular disease cannot be assumed as the source of haemorrhage.¹ Your review, neglects, however, to discuss the important role played by colonoscopy. This investigation may make a significant contribution to both diagnosis and management, as has been shown by a number of studies,^{2,3} especially when barium enema or the single most useful procedure, selective mesenteric angiography, is not available.⁴

You rightly draw attention to the greater awareness of vascular ectasias as a cause of bleeding, particularly in the elderly. Despite suggestions in the literature⁵⁻⁷ that colonoscopy is not of value in this condition, it seems logical that a mucosal defect will be present if significant blood loss has occurred and that this will be visible in the well-prepared bowel on careful scrutiny by the endoscopist. Such angiodysplastic lesions have been seen in nine patients in the last 500 colonoscopies in this hospital. The mean age of the patients was 70 and the mean haemoglobin concentration at presentation 6.9 g/dl. Two patients have been successfully operated on for multiple lesions and the other seven have had diathermy coagulation applied at colonoscopy⁸ without any recurrence. The diagnosis was confirmed histologically in one of the operative specimens and in six of the seven patients at diathermy coagulation biopsy.

Clinical response in patients with osteoporosis taking placebo and 1-OHD₃

	Severity of back pain			Mobility		
	Decreased	Unchanged	Increased	Decreased	Unchanged	Increased
No taking placebo	1	6	3	1	9	0
No taking 1-OHD ₃	11 (73%)	4	0	0	8	7 (47%)