

## Parental awareness was high

EDITOR.—We wish to report the results of an observational study that a group of us undertook recently as part of our community medicine attachment. We chose the topic of measles immunisation because it was a current issue.<sup>1</sup> There had also been public concern that the campaign contained information contradicting that given in the previous measles, mumps, and rubella campaign, launched in October 1988. At that time the parliamentary secretary for health, Mrs Edwina Curry, stated that "It [measles, mumps, and rubella vaccine] provides life-long protection against all three infections with a single jab."<sup>2</sup> A third point of interest was the controversy surrounding the rubella component of the vaccine.

The aim of our project was to discover whether parents of 4-16 year old children were aware of the current measles immunisation campaign, understood and accepted the information provided, and were prepared to have their children immunised. This was undertaken with a questionnaire administered during an interview.

Questionnaires were answered by 190 parents; 185 of the 190 were aware of the current publicity, with 110 of 189 identifying school leaflets as their first source of information. The predicted epidemic was identified as the reason for the campaign by 143 of the 190. Previous immunisation and previous measles infection were recognised as not exempting a child from the campaign by 139 and 129 parents respectively. Altogether 163 of 181 stated that they would allow their children to be immunised, although only 82 of the 190 identified the correct constituents of the vaccine. Parents aged over 40 were more likely to refuse the vaccine (7/31 (23%) of those over 40 refused v 11/151 (7%) aged 40 and under;  $P=0.02$ ). There was no variation in uptake between ethnic groups (uptake was 90% (143/159) among white children v 91% (20/22) among non-white children).

Awareness of the impending epidemic correlated with uptake (uptake was 94% (128/136) among children whose parents were aware of the epidemic v 78% (35/45) among children whose parents were not;  $P=0.003$ ). Knowledge about the vaccine's content did not correlate with uptake (uptake was 94% (73/78) among children whose parents correctly identified the vaccine's components v 87% (90/103) among children whose parents responded incorrectly). Knowledge about the irrelevance of previous immunisation and previous measles infection both correlated with uptake (uptake was 97% (131/135) among children whose parents responded correctly v 70% (32/46) among children whose parents responded incorrectly regarding previous immunisation; it was 97% (120/124) among children whose parents responded correctly v 75% (43/57) among children whose parents responded incorrectly regarding previous infection;  $P<0.001$  for both analyses).

We therefore conclude that most parents were aware of the measles immunisation campaign. Most of them understood and accepted the information given to them (except with regard to the vaccine's content). Furthermore, in the light of the government's aim to immunise 95% of the target population, our study showed that more than 90% of parents were willing to have their children immunised. Thus, as Elizabeth Miller discussed, a periodic mass campaign to combat future epidemics in industrialised countries may be a feasible alternative to a two dose schedule.

ANITHA VARGHESE  
Final year medical student

NICHOLAS A WOODALL  
Final year medical student

St George's Hospital Medical School,  
London SW17 0RE

1 Miller E. The new measles campaign. *BMJ* 1994;309:1102-3. (29 October.)

2 Illman J. Painful choice of risks. *Guardian* 1994 Oct 12.

## Ethnic variation in epidemiology of hip fracture

EDITOR.—A study that we and colleagues performed recently in the west midlands<sup>1</sup> confirms the hypothesis of S J Calder and colleagues that fractures in Asians may partly be due to vitamin D deficiency.<sup>2</sup> In our community based study a group of elderly Asians was compared with control groups of elderly and young white subjects and young Asians. Low 25-hydroxycholecalciferol concentrations were common in both the old (22/39) and the young Asians (7/19) but not in the white subjects (2/36). 25-Hydroxycholecalciferol concentrations were significantly lower ( $P<0.0002$ ) in the elderly and the young Asians than the white controls, while the parathyroid hormone concentrations were significantly higher ( $P<0.0005$ ) in the elderly Asians than in the young controls.

Analysis of abnormal parathyroid hormone and 25-hydroxycholecalciferol concentrations indicated a high risk of osteomalacia (high parathyroid hormone and low 25-hydroxycholecalciferol concentrations) in 26% of the elderly Asians compared with 5% of the elderly white subjects and none of the young controls. Calcium, phosphate, and alkaline phosphatase values were normal in all subjects. Among the Asians, vegetarianism was not related to lower 25-hydroxycholecalciferol concentrations. Symptoms suggestive of osteomalacia were common ( $P<0.05$ ) in elderly Asians compared with their white counterparts.

Bone disease in Asians may be due to osteomalacia, as the findings of these studies suggest, or to bone loss due to chronic low grade hyperparathyroidism consequent on vitamin D deficiency.<sup>3</sup> More research is needed, looking at risk in ethnic subgroups and at appropriate modes of intervention.

T SOLANKI  
Consultant physician

Taunton and Somerset Hospital,  
Taunton TA1 5DA

R H HYATT  
Consultant physician

Sandwell District General Hospital,  
West Bromwich  
B71 4HJ

1 Solanki T, Hyatt RH, Hughes EA, Kemm JR, Cowan RA. Are elderly Asians at a higher risk of vitamin D deficiency and osteomalacia? *Age Ageing* (in press).

2 Calder SJ, Anderson GH, Harper WM, Gregg PJ. Ethnic variations in epidemiology and rehabilitation of hip fracture. *BMJ* 1994;309:1124-5. (29 October.)

3 Chapuy MC, Durr F, Chapuy P. Age related changes in parathyroid hormone and 25-hydroxycholecalciferol levels. *J Gerontol* 1983;38:19-22.

## Clinical scores in the differential diagnosis of acute stroke

EDITOR.—Robert F Logan and colleagues<sup>1</sup> suggest that the clinical scores validated in Italy<sup>2</sup> might be useful in assessing patients with stroke who present too late for reliable computed tomography. They recommend, on population health grounds,

Numbers (percentages) of patients with stroke surviving one day or 30 days according to different criteria

	Intracerebral haemorrhage	Cerebral infarction	Total
All patients with definite diagnosis	58 (12)	439 (88)	497
Patients surviving one day:			
All patients	47 (10)	438 (90)	485
Excluding those who had:			
Lost consciousness or were drowsy	24 (7)	343 (94)	367
Allen score > 4	21 (6)	356 (94)	377
Allen score > 0	12 (4)	281 (96)	293
Patients surviving 30 days:			
All patients	31 (7)	394 (93)	425
Excluding those who had:			
Lost consciousness or were drowsy	20 (6)	332 (94)	352
Allen score > 4	16 (5)	331 (95)	347
Allen score > 0	8 (3)	261 (97)	269
New dependence	13 (5)	253 (95)	266

that antithrombotic secondary prophylaxis be given to patients surviving 30 days even if there was a 50% chance of the original stroke being haemorrhagic. These arguments do not, however, help in deciding an individual patient's treatment when the risk of haemorrhage must be minimised.

By this time after the stroke there may be insufficient information, particularly on acute blood pressure, to complete a Sriraj or Allen score. We therefore used data from the Oxfordshire community stroke project<sup>3</sup> to estimate retrospectively the risks of including patients with intracerebral haemorrhage according to simpler exclusion criteria (table). When patients with an acute impairment of conscious level, or new dependence (grades 3-5) on the Oxford handicap scale<sup>4</sup> at one month, are excluded the risk of including patients with intracerebral haemorrhage is reduced to less than 6%.

J P S BURN  
Research fellow

Oxfordshire Community Stroke Project,  
Department of Rehabilitation Medicine,  
Southampton General Hospital,  
Southampton SO9 4XY

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3 Bamford J, Sandercock P, Dennis M, Burn J, Warlow C. A prospective study of acute cerebrovascular disease in the community: the Oxfordshire community stroke project 1981-86. II. Incidence, case fatality rates and overall outcome at one year of cerebral infarction, primary intracerebral, and subarachnoid haemorrhage. *J Neurol Neurosurg Psychiatry* 1990;53:16-22.

4 Bamford JM, Sandercock PAG, Warlow C, Slattery J. Inter-observer agreement for the assessment of handicap in stroke patients. *Stroke* 1989;20:828.

## Stroke units

EDITOR.—Having recently established stroke services in south Ayrshire, we support Martin Dennis and Peter Langhorne's views on stroke units.<sup>1</sup> Although the use of assessment and treatment protocols is to be encouraged, we question their efficacy when implemented outside a specific stroke unit. Our acute stroke unit manages 90% of patients with acute stroke in south Ayrshire. Half of these are admitted direct, but because of shortages of beds the other half are initially admitted to general medical beds and transferred to the unit later, during the first three days of their admission. Basic investigations have commonly not been completed in these patients who are transferred, who have often been inappropriately prescribed antithrombotic and antihypertensive treatment despite the widespread availability of the acute stroke protocol. The protocol is commonly not followed by junior medical staff admitting patients to the acute stroke unit unless overseen by nursing staff. Protocols are of value only if their implementation is rigorously overseen. Nursing staff with sole responsibility for patients with stroke are in an ideal position to ensure this and guide and