- All letters must be typed with double spacing and signed by all authors.
- No letter should be more than 400 words.
- For letters on scientific subjects we normally reserve our correspondence columns for those relating to issues discussed recently (within six weeks) in the *BMJ*.
- We do not routinely acknowledge letters. Please send a stamped addressed envelope if you would like an acknowledgment.
- Because we receive many more letters than we can publish we may shorten those we do print, particularly when we receive several on the same subject.

Could an outbreak of poliomyelitis occur in the UK?

SIR,—With the elimination of indigenous poliomyelitis from the United Kingdom any cases of paralytic poliomyelitis are most likely to be associated with vaccine or imported from endemic areas. The importation of wild type poliovirus strains in ostensibly immune populations is becoming a cause for concern.

The risk of infection comes from non-Sabin-like epidemic strains, which have caused outbreaks in Finland, Israel, and Oman: poliovirus type 3 in a population in Finland protected with inactivated poliomyelitis vaccine¹; poliovirus type 1 in Israel, where enhanced inactivated poliomyelitis vaccine superseded oral poliomyelitis vaccine²; and poliovirus type 1 in a population in Oman protected with oral poliomyelitis vaccine.³ The outbreak in Oman occurred against high uptake of vaccine and spread among vaccinated children.

In Glasgow we recently investigated a major outbreak of hepatitis A enteroviral infection in a community in a deprived housing scheme.⁴ We concluded that the spread of virus was possibly amplified by contamination of the environment with sewage from an infected household. Major outbreaks of enteroviral infection, including poliomyelitis, are associated with faecal contamination of the environment. We therefore measured levels of immunity to poliomyelitis in this community.

Serum from 24 of 47 subjects identified as having hepatitis A was tested for antibody to poliovirus at the National Institute for Biological Standards and Control. Antibody titres to type 1 and type 2 virus were above recommended levels; only 35% of the subjects, however, had this level of antibody titre to poliovirus type 3. Only two of the samples tested were from subjects aged over 30. Thus protection against poliovirus types 1 and 2 was most probably vaccine induced. It is unclear, however, why the antibody response to type 3 virus was poor and whether this community is at risk from an outbreak of poliovirus type 3 infection, especially as the aetiology in a recent case of fatal poliomyelitis in the United Kingdom remains unexplained.⁵

Concern about levels of immunity to polioviruses is not new. Two previous studies in the United Kingdom have shown decreasing antibody levels in children.^{6,7} The apparent ease with which hepatitis A virus spread in this deprived urban community, and the associated contamination of the environment with sewage, shows the urgent need for further seroepidemiological studies of immunity to polioviruses in the United Kingdom.

We thank Dr David Wood, senior scientist at the National Institute for Biological Standards and

Control, for his help in measuring the poliovirus neutralising antibodies and for his advice.

S O CAMERON
D CARRINGTON

Virology Laboratory, Royal Infirmary,
Glasgow G4 0SF

W PATTERSON

Department of Public Health Medicine,
Ruchill Hospital, Glasgow G20 9NB

- 1 Poliomyelitis—Finland. *MMWR* 1985;34:5-6.
- 2 Slater PE, Orenskin WA, Morag A, Avni A, Handsher R, Green MS, *et al.* Poliomyelitis outbreak in Israel in 1988: a report with two commentaries. *Lancet* 1990;335:1192-8.
- 3 Sutter RW, Patriarca PA, Brogan S, Malankar PG, Pallansch MA, Kew OM, *et al.* Outbreak of paralytic poliomyelitis in Oman; evidence for widespread transmission among fully vaccinated children. *Lancet* 1991;338:715-9.
- 4 Carrington D, Cameron SO, Gillespie GDS, Paterson W. A hepatitis A epidemic on a Glasgow housing estate—possibly linked to sewage contamination of the environment. *Communicable Disease (Scotland) Weekly Report* 1990;51/52:10-1.
- 5 A case of poliomyelitis. *Communicable Disease Report* 1991;1:209.
- 6 White PMB, Green J. Prevalence of antibody to poliovirus in England and Wales 1984-86. *BMJ* 1986;293:1153-5.
- 7 Reid D, Bell EJ, Grist NR, Wilson TS. Poliomyelitis; a gap in immunity? *Lancet* 1973;ii:899-900.

Unstable asthma and theophylline

SIR,—The relation between plasma concentrations of theophylline, control of symptoms of asthma, and peak flow measurements was questioned in an interesting case history presented by Myra Stern, with the suggestion that a life threatening exacerbation occurred despite the maintenance of therapeutic plasma concentrations.¹

We agree that there are many variables in the home environment that affect home monitoring. The relative timing of administration of theophylline and assay, however, was not clear, making any analysis questionable.

After slow release theophylline was introduced the patient's asthma, in terms of peak expiratory flow, was stable for six weeks and a morning fall in peak flow was quickly corrected by dose adjustment. When theophylline was withdrawn and on another occasion when the patient suffered diarrhoea and vomiting, however, peak expiratory flow rates deteriorated rapidly. Diarrhoea and vomiting would have affected the absorption of all oral preparations the patient was taking, including theophylline and oral steroids. Interestingly, withdrawal of salbutamol had no deleterious effect on the control of peak expiratory flow rate.

The experience in this case is similar to that of Brenner *et al.*, who withdrew theophylline treatment in five young patients with severe asthma who were concurrently taking 400-800 mg of inhaled beclomethasone dipropionate and 10-30

mg of prednisolone daily.² Within 48 hours of stopping theophylline all five patients had an appreciable increase in symptom score and a considerable decrease in peak flow measurements and each required an increase in the steroid dosage. Three of the five patients had severe non-infective exacerbations, and the results were such that it was considered unethical to recruit further patients to the study.

Theophyllines have been used for many years to manage asthma, but only recently has research started to unravel the complexity of theophylline's activity. Recent work has shown that in addition to producing dose dependent bronchodilatation theophylline attenuates the late asthmatic response³ and modulates the inflammatory changes in the airways, principally through its action on T lymphocyte subsets.⁴ We are therefore not surprised that on stopping treatment the patients described by both Stern and Brenner *et al.* deteriorated much more than could be expected from the bronchodilator effects alone.

Contrary to Duncan M Geddes's opinion,¹ we consider that the only valid conclusions that can be drawn from this case study are that theophylline has an important role in the management of patients with unstable asthma and that its withdrawal in such patients may precipitate a severe exacerbation despite the continued administration of other appropriate treatments.

C J McDONALD
M COURT
A J MILLER

Napp Laboratories,
Cambridge CB4 4GW

- 1 Stern M. Unstable asthma and theophylline. *BMJ* 1991;303:1317-9. (23 November.)
- 2 Brenner M, Berkowitz R, Marshall N, Strunk RC. Need for theophylline in severe steroid-requiring asthmatics. *Clin Allergy* 1988;18:143-50.
- 3 Pauwels RA. New aspects of the therapeutic potential of theophylline in asthma. *J Allergy Clin Immunol* 1989;83:548-53.
- 4 Shohat B, Volovitz B, Varsano I. Induction of suppressor T cells in asthmatic children by theophylline treatment. *Clin Allergy* 1983;13:487-93.

Medically unexplained physical symptoms

SIR,—Though I agree that we should try to provide an explanation for persistent, mystifying physical symptoms, I am surprised that Samuel I Cohen can usually make a physical diagnosis in such cases.¹ Have I been missing the ischaemic jaws and contracting chest muscles of the anxious and unhappy, or is Cohen confusing the art with the science of non-disease?²

The interpretation of symptoms by patients and