report immediately serious side-effects such as bleeding, infections, sore throat, mouth ulcers, and rashes.

(4) Facilities for clinical and haematological monitoring should be available. The patient should be questioned before each injection and skin and urine should be examined routinely; the patient's haemoglobin, total and differential white cell count (in absolute values), and platelet count should be to hand. Where values remain within reference ranges, comparison should be made with previous results and any trends noted. If counts are falling, therapy should be suspended immediately pending further assessment, which should include a bone marrow aspirate and trephine biopsy. Alternative causes of cytopenias such as gold-induced immune thrombocytopenic purpura and early onset cytopenias due to immune hypersensitivity should be borne in mind since these have a good prognosis. Eosinophilia without cytopenia is common and, although a general indicator of gold toxicity, may not be an absolute indication for drug suspension or withdrawal. However, the data sheet recommends temporary suspension and observation in such circumstances, with reintroduction of a smaller dose following resolution of this or other features of toxicity.

Following a response to treatment, a reduction of dosage or frequency of administration should be considered. If the patient does not respond chrysotherapy should be stopped.

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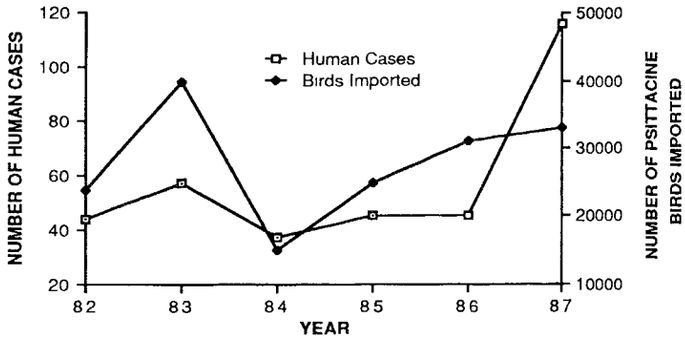
INCIDENCE OF RESPIRATORY TRACT CHLAMYDIAL INFECTIONS AND IMPORTATION OF PSITTACINE BIRDS

SIR,—Between 1982 and 1987, two patients from Cambridgeshire died of psittacosis, both having had contact with psittacine birds.

There are no generally accepted serological criteria for diagnosis of human respiratory tract chlamydial infections. In Cambridge, cases are detected by the complement fixation (CF) test. A CF titre of 256 or more is usually regarded in the UK as evidence of recent infection[1] while in the USA the cut-off is 32 or more.[2] We analysed patients with acute respiratory tract symptoms whose serum CF titre was 64 or more because in this laboratory the serum of 70% of such patients has been found by a μ capture ELISA to contain chlamydia-specific IgM. By contrast, only 15% of samples with titres below 64 contained chlamydia-specific IgM.

The figure shows the number of cases of human respiratory tract chlamydial infection detected each year in Cambridgeshire between 1982 and 1987 and the numbers of psittacine birds imported each year into Britain (figures kindly provided by the Ministry of Agriculture, Fisheries, and Food; 1987 figure is provisional). The number of cases correlates with the numbers of imported psittacine birds ($r = 0{\cdot}50$). In 1987 we noted a sharp increase in cases of human respiratory tract chlamydial illness in Cambridgeshire. This increase may be due in part to a slight increase in the number of psittacine birds imported in 1987 and in part to increased awareness among doctors in the Cambridge area, implying previous underdiagnosis.

The correlation reported here may be important despite the fact that only about one-third of our patients were known to have been in contact with psittacine birds. A similar correlation has been noted in



Correlation between cases of human respiratory tract chlamydial infections in Cambridgeshire and numbers of psittacine birds imported into Britain 1982–87.

the USA.[2] Imported psittacine birds may be involved in direct and indirect transmission of disease. Attempts must therefore be made to identify the routes by which chlamydial respiratory tract infections are acquired so that control measures can be introduced. The importation of psittacine birds should be strictly controlled and psittacosis should be a notifiable disease nationally, as it is already in Cambridgeshire. This would increase the powers of medical officers for environmental health to control the spread of this serious and sometimes fatal zoonotic infection.

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SUDDEN INFANT DEATH SYNDROME AND DIPHTHERIA/TETANUS TOXOID/PERTUSSIS/ POLIOMYELITIS IMMUNISATION

SIR,—In 3 weeks in March, 1986, a cluster of five cases of sudden infant death syndrome (SIDS) occurred in France among infants who had received within the previous 24 h an injection of diphtheria/tetanus toxoid/pertussis/poliomyelitis vaccine (DTCP). This cluster raised questions about the role of DTCP vaccine in SIDS and led us to do a case-control study, including biological studies of the suspected batch.[1]

We studied all cases that were notified as SIDS at the National Register of Causes of Deaths (ICD 798·0 and E911), whose death had occurred between Jan 1, 1986, and March 31, 1986, and who were aged between 3 months and 1 year. 228 cases were thus selected. The immunisation history of 135 cases (59·2%) was obtained from the physician who had notified the death. These cases were matched for sex and age with 3 living controls with an available immunisation history, selected from Protection Maternelle et Infantile (PMI) services, who hold the 8th-day-of-life certificates. The immunisation history of the controls was obtained by a PMI nurse or physician who visited the children's parents. 401 controls were selected (in 4 cases we could not match the third control). The closing date was the date of death for each case, and for the controls the date of reaching the matched case-age at death.

Cases and controls were compared for DTCP immunisation received before the closing date by the Mantel-Haenszel χ^2 test for matched analysis with a variable number of controls per case.[3] There was no significant difference between the cases and controls in DTCP immunisation, whatever the delay between the last inoculation and the closing date (table). The mean delay was not significantly different between the groups (cases, 34·8, and controls, 33·9 days).

Controls with an available immunisation history were selected from the 8th-day-of-life certificates. Recall bias was possible because, while a large proportion of children are notified to the PMI services, children who are not notified are probably in the lowest socioeconomic classes, among which mortality rates are higher[3] and immunisation status is lower. A real association between DTCP immunisation and SIDS could exist but was not detected in our

DTCP IMMUNISATION IN CASES OF SIDS AND CONTROLS

Immunisation status	Cases (n = 135)	Controls (n = 401)	Maximum value of relative risk *
Immunised	54 *(40·0%)*	189 *(47·1%)*	1·51
Immunised within:			
7 days	17 *(12·6%)*	47 *(11·0%)*	1·81
2 days	8 *(5·9%)*	17 *(4·2%)*	2·59
1 day	6 *(4·4%)*	13 *(3·2%)*	3·01

*Hypothesis of an undetected association with a power of 90% and level of significance of 5%

study because of a lack of power. Under this hypothesis the relative risk associated with DTCP immunisation would be less than 1·51, a moderate value (table).

Reports about the association between diphtheria/tetanus toxoid/pertussis (DTP) immunisation and SIDS are equivocal. Walker et al[4] found a weak association between DTP given 3 days before SIDS. A large multicentre case-control study in the USA (757 cases of SIDS),[5] which studied the link by time interval, found no association. Furthermore, after a cluster of 4 cases of SIDS after DTP inoculation in Tennessee in March, 1979, Bernier et al[6] did not find evidence to support a causal relation. SIDS is frequent between the ages of 3 and 6 months—ie, when DTCP immunisation is likely. Therefore, some cases of SIDS would be expected by chance after a vaccine injection.

Whilst we are doing other investigations, including socioeconomic variables, our conclusions support neither changing the immunisation schedule nor reducing efforts to immunise infants with DTCP, because we know the large benefit of such a community programme.

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APICAL IMPULSE TENDERNESS: CLINICAL OBSERVATIONS IN TWO CULTURES

SIR,—A physician examining for the cardiac apical impulse sometimes notes that the patient withdraws in discomfort. Such findings tend to be grouped within the vague category of anterior chest wall syndrome.[1] However, apical impulse tenderness may be a distinct clinical entity.

From 1958 to 1969 I worked in a rural African hospital in a cultural setting close to the Stone Age. In such societies cardiovascular disease is rare.[2] Hypertension was present in 2·8% of a two-year sample of all hospital patients,[3] and myocardial infarction was virtually unknown.[4] Not once in those ten years can I recall eliciting apical impulse tenderness. On my return to the United States I soon found how frequent such tenderness was. The three most striking examples over the past fifteen years have been in a woman admitted for profound anaemia secondary to subacute gastrointestinal bleeding, an elderly agitated obese woman admitted with uncontrollably severe systolic hypertension, and a frail elderly man with rapid atrial fibrillation and severe hypertension. In the first two patients pectoral tenderness disappeared within two days of correction of the cause for admission while in the third it was much reduced.

As a symptom apical impulse tenderness is quite rare but as a sign it seems surprisingly common. Over the past ten years, in an office practice dealing mainly with elderly hypertensives, I have routinely checked for apical tenderness. The characteristics seem to be:

(1) Tenderness is focal, usually coinciding with the palpable impulse over an area 1–2 cm wide in the fifth intercostal space near the midclavicular line. Occasionally it may be elicited in the fourth intercostal space immediately above, or, less commonly, in the sixth space below.

(2) In wide areas of impulse, as in the large apical lifts of congestive failure, the sign has not been noted.

(3) It is more common in women than in men.

(4) It seems to correlate with raised systolic pressures, though not in a direct or linear fashion. One especially vulnerable subgroup seems to be women with low systolic readings in the 80–100 mm Hg range.

(5) It seems to be more common in contexts suggesting exaggerated physiological coping, such as obese patients attempting to maintain active lifestyles, during periods of extreme heat or cold, in late adolescent girls experiencing emotional crises, or in psychiatric patients.

(6) The tenderness tends to recur in the same individuals but it is not always present. A woman may comment: "It used to be so sore there that I had to take my bra off, but it's OK now".

The primary clinical impression is that, when noted, apical impulse tenderness appears to relate to cardiac lability.

Apical impulse tenderness could be related to the fact that patients with arrhythmias often prefer not to sleep on their left sides.

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ASYMMETRICAL LOSS OF GLUTAMATE RECEPTOR SUBTYPE IN LEFT HIPPOCAMPUS IN SCHIZOPHRENIA

SIR,—The reciprocal control mechanisms governing dopamine and glutamate release[1] suggest that altered glutamatergic transmission could have an important role in schizophrenia. Studies of post-mortem schizophrenic brains point to neuropathological abnormalities of the hippocampus,[2] and the hippocampus both receives glutamatergic input from cortical areas[3] and utilises glutamate (or aspartate) as its intrinsic transmitter. Glutamate can be neurotoxic,[4] an effect mediated by kainate, among other receptors, and the hippocampus contains the highest density of kainate receptors of any part of the brain.[5] We have studied glutamate and kainate receptor sites in hippocampal tissue from post-mortem schizophrenic brains.

Brains came from the Nottingham brain bank: for kainate binding there were 11 schizophrenics (age 57–84) and 9 controls (59–86) and for glutamate binding there were 10 schizophrenics (57–84) and 7 controls (59–86). All the schizophrenic patients had received neuroleptic treatment in the previous 12 months. Post-mortem delay was less than 72 h and receptor binding would not have been affected.[6] There was too little synaptic membrane material for a full saturation analysis on all samples. Saturation analysis (0·1–40 nmol/l ^{3}H-kainate acid and 0·1–100 nmol/l ^{3}H-glutamate) was done on a set of control membranes to find out a minimal saturating dose (B_{max}). For kainate binding, incubations were done at 4°C for 2 h with 300 µl membrane (0·7–1 mg protein) and 300 µl "tris" citrate buffer (pH 7·1). Specific binding was determined from the total binding in the presence of 20 nmol/l ^{3}H-kainic acid (66 Ci/mmol) and non-specific binding (20 nmol/l ^{3}H-kainic acid + 10 µmol/l glutamate). Maximal binding was