

Epidemiology

Report from the PHLS Communicable Disease Surveillance Centre

An outbreak of legionnaires' disease was reported among holiday-makers returning from Yugoslavia between August and September; there were further outbreaks of gastrointestinal illness associated with shellfish; influenza received much publicity after a suggestion that an epidemic might occur during the coming winter; and two tropical diseases were in the news, leishmaniasis and cercarial dermatitis.

Legionnaires' disease

Surveillance of legionnaires' disease in Britain began in 1977, soon after serological tests became available. Medical microbiologists in England and Wales report confirmed infections to the Communicable Disease Surveillance Centre and in Scotland to the Communicable Diseases (Scotland) Unit; 10 years later, by the end of 1986, over 1300 cases had been reported in England and Wales alone. Since 1979, when surveillance was fully operational, the annual numbers reported have varied from 129 to 211, with 11 to 38 deaths, an overall case fatality rate of 12.5%. There were over two and a half times as many cases in men as in women. Over one third of all the patients were aged 60 years or more and just over a quarter each were aged 50 to 59 years and 30 to 49 years; less than 5% were under 30 years.

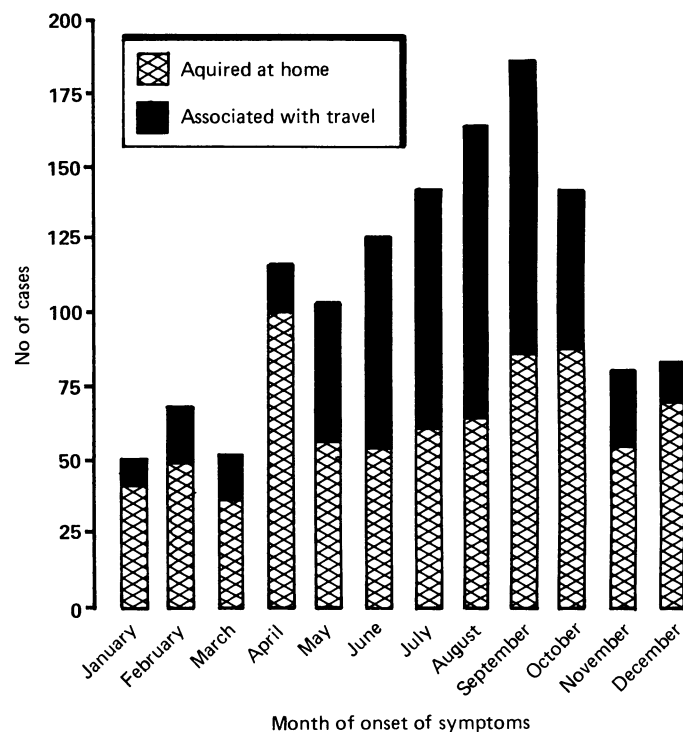
Altogether 557 (43%) cases were associated with travel, 501 of them outside the United Kingdom. As might be expected, these cases showed a seasonal variation, with 353 (63%) having their onset during June to September (see figure). A similar seasonal peak was also evident in cases not associated with travel, but this was smaller and later in the year, in September and October; another larger peak in April 1979-86 was due to the hospital outbreak in Stafford in April 1985. Most of the cases associated with travel occurred in southern Europe, particularly Spain, Portugal, and Italy, but this probably reflected the distribution of travellers in the susceptible age groups rather than a higher risk of infection in these countries.

One of the aims of national surveillance is to detect outbreaks which might otherwise escape notice so that local investigation and appropriate control measures can be swiftly implemented. Between 1979 and 1986, 58 clusters of two or more cases associated in time with the same buildings were identified. These comprised 325 (25%) of the total reported cases in these years. Twenty one of the clusters were associated with buildings in the United Kingdom, including eight hospitals and three hotels, and the remaining 37 were associated with hotels overseas. In many of these episodes a source was found and the spread of infection controlled.

In the Yugoslavian outbreak last summer a tour operator reported to the Communicable Disease Surveillance Centre two possible cases of legionnaires' disease in clients who had stayed at a hotel near Dubrovnik in early August. Both these cases were subsequently serologically confirmed, the Yugoslav health authorities informed, and control measures carried out locally in the middle of August. Further cases were identified by laboratory reporting of infections, including one in Scotland and one in Holland. Some of the reported cases were in clients who stayed in the hotel at the end of August and in September, indicating that the control measures had not been effective. The Yugoslav authorities were contacted again and additional control measures implemented. In the mean time several tour operators had withdrawn their clients from the

hotel, and at the end of October the hotel closed for the season. The size of this outbreak was not fully apparent; there were at least 10 cases in British tourists, but there were probably more among the greater number of guests of other nationalities staying at the hotel.

The recently published second report on the outbreak in Stafford in 1985 emphasises the need for the prompt detection of cases associated with travel and makes recommendations on the design, commissioning, and maintenance of engineering systems in buildings to prevent and control the infection.¹



Cases of legionnaires' disease associated with travel and reported in England and Wales, 1979-86.

Shellfish and gastrointestinal illness

A series of outbreaks of gastroenteritis associated with cockles took place in the south of England in 1976 and 1977; no bacterial pathogens were isolated from the cockles or the affected people, but small round viruses were seen on electron microscopy of stools. A year later, in 1978, an outbreak of hepatitis A in the midlands and north was attributed to mussels. Since then numerous outbreaks, of both viral gastroenteritis and hepatitis A, have been associated with molluscan shellfish, including cockles, mussels, and oysters. Widespread outbreaks of viral gastroenteritis occurred again in the winter of 1985-6 and in 1987, resembling those seen in 1976 and 1977, most of which were attributed to cockles.

The last reported cases of typhoid fever due to eating shellfish were reported in the 1950s, a hazard which was eliminated through

cleansing by depuration of shellfish. This process, however, does not cleanse the shellfish of viruses. Furthermore, the shellfish, particularly oysters, are often eaten raw, and even when cooked the heat treatment is often insufficient to inactivate viruses. Not surprisingly, therefore, as shellfish consumption has risen so has the number of outbreaks of viral illness attributed to it. Until more effective methods of treatment are devised shellfish will continue to pose a risk to those who savour these delicacies. In November the Department of Health and Social Security wrote to chief environmental health officers and medical officers for environmental health giving advice on the processing of cockles, but more public information may be required to persuade people to avoid this unpleasant form of gastroenteritis in the future.

Influenza

Influenza A appears in pandemics associated with major antigenic changes in the virus ("shift"). The most notable took place in 1918 after the appearance of the virus now known as swine influenza virus (HSw N₁). Since the second world war there have been three pandemics, none of which were as devastating as that after the first world war. In 1947 the A prime virus appeared (H₁N₁); this was succeeded 10 years later, in 1957, by the Asian virus (H₂N₂) and again in 1968 by the Hong Kong virus (H₃N₂). The last serious outbreak took place in 1977, when the H₁N₁ subtype reappeared (red flu) and infected mainly young people born after the H₁N₁ pandemic at the end of the 1940s. Since then both subtypes H₃N₂ and H₁N₁ have circulated in the UK, causing small outbreaks each winter. Minor antigenic changes in the H₁N₁ subtype were reported in the Far East in 1986-7 and these strains were subsequently reported in the UK but little spread took place.

The suggestion of a major outbreak or pandemic in 1987-8 was possibly deduced from the observation that epidemics had recurred roughly every 10 years since 1947, but it was a scientifically unfounded and an unfortunate prediction. It led to an increased demand for influenza vaccine, so that some of those groups in most need of routine protection, such as the elderly and those with chronic cardiac and pulmonary disease, could not obtain supplies of vaccine.

Leishmaniasis

Both cutaneous and visceral leishmaniasis are endemic in many tropical and subtropical areas of the world, with an estimated 400 000 new cases annually. The disease may be rising in incidence, possibly because of an increase in the population of the sandfly vector caused by the cessation of insecticidal spraying in malaria eradication programmes. In the autumn of 1987 there was considerable but unjustifiable public alarm when the present epidemiological problem was interpreted by the press as a "killer bug" likely to affect British tourists on Mediterranean beaches.

Cutaneous leishmaniasis is caused by several different species of leishmania, most of which are zoonotic infections transmitted from animals to man by the bite of plebotomine "sandflies." The lesion which develops around the site of the bite is usually self limiting, but healing may be accelerated and scarring prevented by appropriate treatment. The disease is present in most Mediterranean countries as well as countries ranging from the Middle East through Central Asia to the west of the Indian subcontinent, where it is known as oriental sore. Its distribution in Africa is patchy and infection can even be acquired at high altitudes in parts of east Africa and Ethiopia. In Central and South America, usually in forest areas, more severe mucocutaneous disease may occur. Although there were fewer than 80 laboratory reports of cutaneous leishmaniasis in England and Wales in 1977-86, many infections may have been unrecognised.

Visceral leishmaniasis (kala-azar) is caused by several different geographical variants of *L. donovani*. In some of the eastern states of India, where the infection is endemic, it is spread from person to person by sandflies. In the Mediterranean area the causative parasite

is prevalent in the dog population and is transmitted by sandflies to human beings, but human infection is much less common than in India and responds readily to specific therapy. Zoonotic visceral leishmaniasis is also endemic in small foci in Africa as well as countries from the Middle East and Central Asia through to the western states of India and is present in localised foci in South and Central America. The infection usually affects indigenous infants and children and is rare in travellers to endemic areas. There were only 30 laboratory reports of visceral leishmaniasis between 1977 and 1986 in England and Wales, mostly in residents of endemic areas who were visitors or immigrants to Britain.

The incidence of both cutaneous and visceral leishmaniasis must be measured against the number of people who visit endemic areas. For example, in 1986, when there were 20 laboratory reports of leishmaniasis in England and Wales, most of them probably in visitors to the United Kingdom, over 16 million people from the United Kingdom visited the Mediterranean alone. Protection against this very small risk relies on travellers avoiding sandfly bites by covering their arms and legs when out of doors after sunset and at dawn and by using insect repellants.

Cercarial dermatitis

An outbreak of swimmers' itch was recorded in the Suffolk press in the summer of 1987 in people who had been windsurfing on or swimming in a freshwater lake near Ipswich. Many complained of itching and rash, beginning soon after immersion in the lake, which disappeared spontaneously within a few days but in some persisted for more than a week.

Cercarial dermatitis is seen in tropical climates, where it may be associated with bilharzia or schistosomiasis; it is caused by the penetration of the skin by cercariae of the human schistosomes, *Schistosoma haematobium*, *S. mansoni*, and *S. japonicum*, after their development in the intermediate host, the freshwater snail. Other, non-human cercariae, which do not develop further in human beings, cause more severe dermatitis and are present in both tropical and temperate zones; these are often avian schistosomes, particularly from infected waterfowl.

Swimmers' itch was previously considered to be a rare curiosity in Britain, but painstaking investigation by the east Suffolk department of community medicine suggests that it may be common in swimmers and participants in water sports on freshwater lakes frequented by waterfowl, particularly when warm weather may favour an increase in the population of water snails and an increase in the use of these waters for recreation.

Reference

- 1 Committee of Inquiry into the Outbreak of Legionnaires' Disease in Stafford, April 1985. *Second report*. London: HMSO, 1987. (Cmnd 256.)

What is the hazard of a wrist watch with a luminous dial?

Concern about this arose from the practice, dating from the 1930s, of painting dials with a self luminous mixture containing radium-226, which emits a substantial component of highly penetrating radiation. International recommendations in 1967 discouraged this practice in favour of the alternative use of either tritium or promethium-147, both of which emit only β particles of energy insufficient to penetrate the case of a wrist watch. The use of radium for this purpose has now effectively ceased and, as a consequence, the mean annual effective dose equivalent per person in the United Kingdom from luminous watches is estimated to be 0.6 microsievert.¹ This figure may be compared with the annual dose due to natural background sources of about 2000 microsieverts. Any corresponding "hazard" is negligible.—C R HILL, professor of physics as applied to medicine, Sutton, Surrey.

- 1 United Nations General Assembly. *Report of the United Nations scientific committee on the effects of atomic radiation*. New York: United Nations General Assembly, 1982:120-1.