Quarterly Communicable Disease Review
April to June 1997

From the PHLS Communicable Disease Surveillance Centre

Events of the Quarter
The quarter saw the first detected incident of HIV infection transmitted through transfusion in England since testing donated blood began in 1985, the release of new guidelines on post exposure prophylaxis for health care workers occupationally exposed to HIV, and the launch of a new communicable diseases surveillance bulletin, Eurosurveillance Weekly, on the Internet. At the same time as this latest technological development in the dissemination of surveillance information, responsibility for processing data from one of the oldest surveillance systems in existence, the notification system for infectious diseases in England and Wales, moved from the Office for National Statistics to the Public Health Laboratory Service.

Policy and practice
The notification system for infectious diseases in England and Wales is the oldest national system for the collection of morbidity statistics on communicable diseases. It was established through the Infectious Disease (Notification) Act 1889, as part of a series of measures to identify and prevent the spread of infectious disease. The first notifiable diseases listed in the Act were ‘smallpox, cholera, diphtheria, membranous croup, erysipelas, the disease known as scarlatina or scarlet fever, and fevers known by any of the following names: typhus, typhoid, enteric, relapsing, continued, or puerperal’. The designated recipient of reports of notified cases of infectious disease is the Registrar General, and until March 1997 these reports were processed, on behalf of the Registrar General, at the national level by the Office for National Statistics (ONS). With effect from the beginning of April 1997, however, responsibility for processing data on notifications of infectious disease in England and Wales was transferred to the PHLS Communicable Disease Surveillance Centre (CDSC). Proper Officers of local authorities in England and Wales are to send all reports of notified cases of infectious disease (and cases of food poisoning otherwise ascertained) to CDSC, rather than ONS, from April 1997. Queries about the notification process should now be directed to CDSC (0181 200 6868 extension 4428).

The United Kingdom (UK) Health Departments published Guidelines on post exposure prophylaxis for health care workers occupationally exposed to HIV in June 1997. The guidelines, which were prepared by the Expert Advisory Group on AIDS, describe how to assess the risk to a health care worker of acquiring HIV infection following occupational exposure, when to recommend post exposure prophylaxis, and what drugs should be used. The guidelines were sent to all National Health Service Trusts, for whom guidance is included on how to ensure that policies are in place for all exposed health care workers to obtain local advice on post exposure prophylaxis, the drugs needed, and appropriate emotional support. CDSC have adapted the form used for the surveillance of occupational exposure to HIV so that more detailed information can be collected on post exposure prophylaxis, to inform analyses of the costs and benefits of the new policy. Staff at the PHLS AIDS and Sexually Transmitted Disease (STD) Centre at CDSC are happy to discuss general enquiries about how the guidelines apply locally.

Trends in reported morbidity
There was a rise in the incidence of parvovirus infection in the first half of 1997, with 542 cases reported to CDSC in the first 24 weeks of the year, compared with 144 in the same period of 1996. This rise was consistent with the normal epidemic cycle seen for parvovirus, with two years of higher incidence followed by two years of lower incidence. The rise was reported from all regions, with the greatest increase in case numbers being seen in the Thames regions. The great majority (82 per cent) of cases reported in the first half of 1997 were female, particularly among cases aged 15 years or over. This may reflect a greater tendency for clinicians to investigate rashes of probable infective origin in women of childbearing age (35 out of 343 women aged 15–45 years were reported to be pregnant), but is also consistent with the finding that parvovirus is more likely to be clinically apparent in adult females than males. In pregnant women, infection with parvovirus B19 is associated with a higher rate of spontaneous abortion and the risk of hydrops developing in the fetus. A PHLS study of the outcome of parvovirus infection in pregnancy has indicated that...
the excess risk of fetal loss due to parvovirus infection is highest between 9 and 16 weeks of pregnancy, and that cases of fetal hydrops occurred between 11 and 18 weeks gestation, the risk according to stage averaging around 3 per cent (E. Miller, personal communication).

In May, the PHLS Staphylococcus Reference Unit reported that during the first quarter of 1997 there had been a further increase in the number of hospitals reporting the two commonest strains of epidemic methicillin resistant Staphylococcus aureus (EMRSA), strains 15 and 16. This rise followed a levelling off of reporting during 1996. The geographical distribution of these two strains has changed little: EMRSA-15 is widely spread, although there are two foci of higher incidence, in West Midlands and North Thames, whereas EMRSA-16's distribution is more focused in the Thames regions.

Reports of food poisoning rose by 25 per cent between the June quarters of 1996 and 1997. The March to June seasonal rise in 1997, at 49 per cent, was more than double that seen in 1996, making the number of reports in the June quarter 1997, at 23686, the highest ever for a June quarter. Notifications of dysentery and hepatitis A also increased in the June quarter of 1997, compared with the corresponding quarter of 1996, by approximately 25 per cent and 15 per cent respectively.

The number of notifications of tuberculosis increased by about 6 per cent between the June quarters of 1996 and 1997, although there were considerable variations in the trend across the country. Whooping cough notifications increased by 42 per cent between the June quarter of 1996 and that of 1997, following the much larger rise in notifications between the March quarters of these two years. All regions except South and West reported increases.

**Outbreaks and incidents**

An HIV infection transmitted through transfusion was reported in April. The patient in whom the HIV infection was diagnosed had received many units of blood during a course of treatment in the previous year and had no other risk factors for acquisition of HIV. None of the stored samples from the units given to the patient were found to contain antibodies to HIV on subsequent investigation, but one unit did contain HIV RNA. It is probable that the implicated donor became infected shortly before donating. Two further patients had received components of blood from the infectious donation: one died of a condition unrelated to HIV infection, and the other has HIV antibodies. The possibility of collecting blood from an infected donor in the 'window period' before HIV antibodies have developed has been recognized since testing donated blood began. This risk is reduced through advising individuals who are at increased risk of HIV infection not to donate blood. This is the first incident of HIV infection transmitted through transfusion that has been detected in England since testing donated blood began in 1985.

A case of diphtheria was reported in a 72-year-old woman from the UK who had developed a sore throat while on a cruise in the Baltic Sea. The cruise ship had called at St Petersburg and Tallinn, as well as at a number of Scandinavian ports and Amsterdam. The woman, who was unimmunized, despite recommendations \(^5\) that all travellers to the former USSR and other areas where diphtheria is endemic or epidemic be immunized against the disease, returned to Britain five days after onset of her symptoms. Investigations in Britain revealed a 'classic' grey membrane in the pharynx, from which was isolated a toxigenic strain of Corynebacterium diphtheriae var. gravis. The strain was characterized by the PHLS Streplococcus and Diphtheria Reference Unit, and was found to be indistinguishable by ribotyping from the predominant epidemic strain (D1) that was circulating in the former USSR at that time. \(^5\) The patient was treated with diphtheria antitoxin and clarithromycin. The risk to passengers on the cruise ship, other than close family contacts, was considered to be very small, and no investigation or prophylaxis was undertaken within that group.

**News from abroad**

An outbreak of *Escherichia coli* O157 occurred among visitors to Fuerteventura in the Canary Islands. The outbreak first came to light when two children from Finland became ill on 19 March, at the end of a two week holiday at the same resort on Fuerteventura. Following the identification of the two cases in Finland, all members of the European surveillance network for salmonellosis and Vero cytotoxin producing *E. coli* infection ('Salm/Enter-net') were contacted. This revealed six additional cases in England and Wales, and one case in Denmark, and local investigations in the Canary Islands identified two further cases among visitors to Fuerteventura, one from England and one from Sweden. Dates of onset of illness ranged from 4 to 29 March. No cases were found among the local population. All of the isolates recovered from cases associated with this outbreak were of the same phage type (PT2) and of the same antimicrobial resistance pattern. At least three of the cases that occurred among children in this outbreak had haemolytic uraemic syndrome. All cases stayed at three hotels that used untreated non-potable water from a private well, which was apparently uncapped, with goats and other animals nearby. Distribution of water from this well ceased on 29 March.

The results of a Swedish multicentre trial of whooping cough vaccines were released in May. \(^6\) The trial, which was carried out between 1993 and 1996, compared a whole cell vaccine (as used in the UK), with two acellular vaccines, containing three or five components of *Bordetella pertussis*. Almost 83000 children received three doses of vaccine in their first year and were followed up for an average of 22 months after the third dose. The whole cell vaccine and the five-component acellular vaccine gave better protection against less severe disease, but
all three vaccines gave similar protection against laboratory confirmed whooping cough with 21 or more days of paroxysmal coughing.

Publications of interest

Eurosurveillance Weekly, a surveillance bulletin distributed exclusively by electronic means, was launched on the Internet world wide web in June. Eurosurveillance Weekly reports communicable disease events in Europe and elsewhere rapidly, in the form of brief, authoritative, and timely information. The editorial board for this new bulletin consists of the editors of national surveillance bulletins in member states of the European Union. The target audience is professionals concerned with the prevention and control of communicable diseases throughout the European Union. The electronic bulletin, which can be found on the Internet at http://www.eurosurv.org, is updated at least once a week. The Eurosurveillance Weekly website also contains back issues and links to other sites of national and international significance. A plain text file is also made available each week for those who have access to e-mail but not to the world wide web. Please e-mail eurowkly@eurosurv.org if you wish to receive this version.

Hospital-acquired infection: surveillance, policies, and practice, a report of a detailed study of activities to control infection in hospitals in England and Wales, was published during the quarter. The study, which was undertaken in a volunteer group of 19 hospitals, included urinary tract, respiratory tract, and bloodstream infections in adult patients treated in intensive care units. Risk factors, including case mix (in terms of age, sex, diagnosis, and treatment), were examined, and the significance of their effects on rates of hospital-acquired infections was assessed. The study also examined hospital policies designed to prevent hospital-acquired infections, and their relation to observed practice. The authors noted that many operators within hospitals were unaware of the existence of a policy relevant to their procedures. The report concludes that although improved surveillance could help in the control of hospital-acquired infections, current information systems do not lend themselves to such surveillance, resources are scanty, and a change in attitude is required to make surveillance an integral part of hospital practice rather than an inspection imposed from outside.

Gonorrhoea – increased incidence in England and Wales

Gonorrhoea is, at present, the only communicable disease for which an explicit target for disease reduction has been set within the UK government’s Health of the Nation (HOTN) strategy for England. In 1992, when the first round of HOTN targets were being set, it was felt that there were not sufficient data available to allow a specific target to be set with respect to the prevalence or incidence of HIV or AIDS. In the absence of such data, gonorrhoea was chosen as an indicator condition for monitoring sexual health, as much because it was felt that changes in its incidence would serve as an indicator of changes in sexual behaviour likely to result in HIV transmission as it was felt that it was an important cause of morbidity in its own right. Thus it was stated in the HOTN Key Area Handbook on HIV/AIDS and Sexual Health (published January 1993), that 'the target for reducing gonorrhoea should not be regarded as an end in itself, nor simply as a proxy for HIV transmission' and that a ‘continued reduction in the number of cases of gonorrhoea should also be accompanied by a reduction in the incidence of other STDs’.

Gonorrhoea was selected, rather than any other STD, for target setting because the characteristics of the disease make it more likely that, compared with most other STDs, changes in sexual behaviour will result in rapid changes in incidence, and because routine data are available on the majority of cases of clinically recognized gonorrhoea in all parts of the country, from statistical returns from genitourinary medicine (GUM) clinics. The disease characteristics that make changes in gonorrhoea incidence a suitable marker of sexual behaviour change include its relatively short incubation period and high infectivity, the relatively low proportion of asymptomatic infections, the lack of lasting immunity following infection, and the fact that infection can be eliminated through treatment.

The original HOTN target for gonorrhoea, ‘to reduce the incidence of gonorrhoea among men and women aged 15–64 by at least 20 per cent by 1995 (from 61 new cases per 100 000 population in 1990 to no more than 49 cases per 100 000)’, was set when it appeared that the steady downwards trend in gonorrhoea cases seen during the 1970s and 1980s had levelled off, or even reversed, particularly among males, with an increase in male cases of gonorrhoea between 1989 and 1990. When, however, the statistics on new cases seen at GUM clinics in England and Wales in 1992 were produced, it became apparent that gonorrhoea diagnoses were again declining, to the extent that the national target set for 1995 had already been passed in 1992. The number of diagnoses reported from GUM clinics continued to fall in 1993 and 1994 among both men and women. In 1995, there was a small upturn in diagnoses reported from statistical returns from genitourinary medicine (GUM) clinics. The disease characteristics that make changes in gonorrhoea incidence a suitable marker of sexual behaviour change include its relatively short incubation period and high infectivity, the relatively low proportion of asymptomatic infections, the lack of lasting immunity following infection, and the fact that infection can be eliminated through treatment.

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information on a substantial outbreak of infectious syphilis in Bristol. This reported 27 cases of early infectious syphilis (10 males, 17 females) diagnosed between the beginning of 1997 and early August by specialists in genitourinary medicine at Bristol Royal Infirmary. The diagnoses were established by clinicians in collaboration with the supra-regional treponemal serology service at Bristol Public Health Laboratory. In recent years national numbers of new cases of infectious syphilis reported by genitourinary medicine clinics have been at an all time low (Fig. 2), thus making the Bristol outbreak even more impressive with what would be equivalent to 20 per cent of the total number of cases seen in England and Wales in 1995. A number of important clinical and public health points arise from this event. Proper management of an outbreak like this places considerable extra burden on the genitourinary medicine, laboratory and public health departments, which need to be resourced. Clinical acumen is also needed. Several of the cases presented with atypical and subtle lesions, for example isolated vulval oedema, which might have been missed by less experienced clinicians and emphasizing the need for routine screening of all new genitourinary medicine clinic attenders for syphilis. When syphilis is as uncommon as it is now it needs to be remembered that, until the advent of human immunodeficiency virus (HIV) infection, syphilis was regarded as the sexually transmitted disease with the most variable range of clinical presentations. If the clinical presentations of the cases were atypical so also was the character of the outbreak itself in its lack of recognized current risk factors for syphilis in the UK (homosexual acquisition and exposure abroad). All of the infections seem to have been acquired through heterosexual intercourse and almost entirely (25 of 27) in Bristol. The importance of using the (free) service offered by the six PHLS laboratories (at Birmingham, Bristol, Manchester, Newcastle, St Georges Tooting (London) and Sheffield) providing syphilis diagnosis reference services is also highlighted. Not only does this assist in investigating what is a difficult infection to diagnose but this is also the main way that risk factor data are collected to build up a national picture of current syphilis epidemiology, information that is important to inform UK policy decisions, for example on screening in pregnancy.

Other parts of the world have recently seen resurgences of syphilis. The United States experienced a major re-emergence of infectious and congenital syphilis in the late 1980s, epidemics which have now subsided, although currently the best known resurgence is that in Eastern Europe and the former USSR. These events may seem predictable after the event, but they were by no means predictable prospectively. Also, their course once they start is often unclear. For example, the risk factors of the US epidemics are well known; black race, poverty, crack-cocaine use and (for congenital syphilis) failure to obtain antenatal care, and early detection and treatment of cases and those exposed are certainly important for control. However, a sober reminder of the unpredictability of syphilis came in July this year from one of the students of the US
epidemic speaking at a joint MRC/Centre for Disease Control & Prevention workshop in London, who pointed out that despite all this knowledge the reasons for the rise and even more for the fall of syphilis in the United States remained obscure (M.E. St Louis, personal communication). What is also unclear with the former USSR and Eastern Europe epidemics is whether they will remain a problem only for travellers to the affected countries or whether they will seed endemic transmission within other countries to which cases are conveyed.

In recent years there has been some debate over the need to continue routine screening for syphilis in pregnancy in the UK, especially in view of cases being made to introduce routine screening for other infections, notably hepatitis B and HIV. A number of surveys and analyses that bear on the topic of syphilis screening are nearing completion.22 However, an unpredicted outbreak like that in Bristol and the international uncertainty of syphilis epidemiology make abandonment of antenatal screening seem a hazardous policy option.

Target 2000 – a world without polio

In 1988, the 166 member states of the World Health Assembly resolved to eradicate polio by the year 2000.23 The feasibility of this task is supported by experience with the eradication of smallpox. Polio and smallpox viruses share certain characteristics that lend themselves to elimination;24 the reservoir is only in humans, immunity is lifelong, there is no long-term carrier state and there are effective vaccines. There are two areas, however, where a different approach has been required to that taken for smallpox eradication.

Polio control in the developing world was hampered by the poor immune responses to live attenuated polio vaccine25 and by the failure to sustain high routine coverage. The novel strategy, developed in the Americas, was the National Immunization Day (NID), where the live vaccine is delivered to a high proportion of the childhood population on a single day.26 Using this supplementary approach, countries which were recently endemic for poliomyelitis have successfully interrupted the transmission of wild poliovirus. In 1996, 400 million children were immunized at NIDs and already the estimated number of polio cases has fallen by 90 per cent world-wide.

The second area where the polio target will require a new approach is in the demonstration of eradication. Unlike smallpox infection, which is always clinically apparent and distinctive, less than 1 per cent of poliovirus infections result in paralysis. This means that, even where there are no apparent cases of paralysis, exhaustive surveillance is necessary to ensure that silent transmission of the wild strain is not occurring. In 1995 the criteria were established on which the certification of polio free status would be based, and in 1996 the certification commission was established for the European region. The United Kingdom, Denmark, Finland and France have been invited to submit their certification reports first to establish the appropriate process for the other European countries.

For the UK, where the last case of indigenous paralytic polio due to wild virus strain occurred in 1984, meeting the surveillance criteria set out in the guidelines will be difficult. Public health professionals and microbiologists are asked to enlist the co-operation of clinicians, in particular neurologists and paediatricians. A clinician who sees a case of acute flaccid paralysis, even where the diagnosis of polio infection is considered unlikely, should be reminded to take a stool sample for viral culture – the only investigation able to exclude wild poliovirus infection. Microbiologists have also been asked to send all polio isolates, particularly those from cases with neurological symptoms, for intra-typic differentiation (to distinguish wild from vaccine-like strains) so that further evidence of the lack of transmission of wild infection can be assembled.

When the world is declared polio-free and the decision to stop mass vaccination made, the benefits to the UK will be the elimination of vaccine-associated polio and the considerable saving of the cost of polio immunization. Globally, the expertise gained and the resources released by polio eradication can be diverted to even greater public health problems, such as the eventual eradication of measles.

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References


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