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Occupational exposure risk for zoonoses among those working on control of the foot and mouth disease epidemic

Q fever has been identified in two people who worked together on a number of farms to assist with the cull of cattle and sheep undertaken as part of the control measures in the national epidemic of foot and mouth disease. They presented with an influenza-like illness including repiratory symptoms with onsets on 6 and 11 May. This report is therefore to issue some reminders of this and other potential occupational zoonotic risks which may be associated with the foot and mouth disease outbreak. These were included in a wider risk assessment exercise coordinated by the Department of Health. This is available at <www.doh.gov.uk/fmdguidance/disposalriskassessment.htm> (Paras 3.18-3.21 and Annex C).

***Coxiella burnetii* (Q fever)** Exposure to *Coxiella burnetii* is common in farmworkers. Human infection usually occurs by inhalation of organisms in infected dust or from exposure to amniotic fluid or placentae where they are present in high numbers. The organisms are resistant to moderate heat and drying (although they will be destroyed in pyres) and the infectious dose for humans is thought to be low. Infection may be asymptomatic, it may present as a self-limiting acute febrile illness or as an atypical pneumonia. Chronic infection can very occasionally occur, leading to endocarditis or hepatitis. Clinicians should be aware of this disease in the light of the two cases reported above and consider this diagnosis particularly in patients who have had exposure to activities undertaken to contain the foot and mouth disease epidemic and who present with an acute flu-like illness and/or pneumonia.

***Chlamydia psittaci* (Psittacosis)** Human infection is usually acquired following exposure to infected birds, their droppings or dust and feathers. Psittacosis may less commonly be acquired through exposure to farm animals, particularly the products of abortion or parturition from sheep. Transmission is via the respiratory route from aerosols of dust or infected tissues and results in flu-like illness or atypical pneumonia. The risk to pregnant women from infected sheep at lambing time, leading to miscarriage, is well known.

Leptospirosis The most common serovars of this organism in the United Kingdom (UK) are *Leptospira icterohaemorrhagiae* (from rats) and *L. hardjo* (from cattle). Leptospirosis is carried in animal urine and is usually transmitted through contamination of broken skin. It may be acquired both occupationally and recreationally through contact with surface waters or, in the case of *L. hardjo*, through the urine of cattle. The cattle form is generally mild in humans and tends to be an occupational disease of agricultural workers. It presents with non-specific febrile illness but rarely may be complicated by liver and renal failure and meningitis.

Streptococcus suis This organism is carried in the tonsils of pigs. Human cases of the disease are rare in the UK, with an average of 2 per year, but infection may be acquired from inhaled droplets from pigs or through contact with meat through broken skin. It is primarily a disease affecting butchers, pig farmers, and slaughterhouse workers. Asplenic patients are known to be at greater risk from the disease, which may be severe with septicaemia and meningitis and with deafness as one of the long-term sequelae. It is noteworthy that few pigs have been culled in during the current epidemic.

Brucella and anthrax are not present in herds and flocks in England, Scotland, or Wales, although brucella is still found in herds in Northern Ireland. The last case of anthrax diagnosed in an animal in the UK was 1997.

Among the above the infections that are most likely to be acquired by those occupationally exposed are therefore Q Fever and psitticosis. All those who, in the four weeks before onset of symptoms, have been in contact with animals on farms where slaughtering for mouth and mouth disease has taken place, and who have suffered influenza-like (any or all of headache, chills, sweats, fatigue, malaise, myalgia) or pneumonic type (any or all of cough, fever, headache) illness during or since this time, should be offered screening for Q fever and psittacosis. Diagnosis among patients with exposure is by serology which is undertaken by a number of laboratories. For cases associated with the foot and mouth epidemic, however, either entire sera or an aliquot should be set to Bristol PHL, tel: 0117 9291326 (out of hours 0117 923000). Advice on management should be sought from a specialist in infectious disease.

Further reading

1. Chin J. *Control of communicable diseases manual*. Washington: American Public Health Association, 2000.

2. Marryie TJ. Q Fever. In: *Zoonoses*. Palmer SR, Soulsby L, Simpson DIH (editors). Oxford: Oxford University Press, 1998, pages 171-185.

Report on strengthening the public health function

The Department of Health has recently published the summary report of a major project to strengthen public health (1). It is the culmination of a number of years of work led by the Chief Medical Officer (CMO) for England, and is a landmark publication. The prime recommendations of the report is that there should be better co-ordination and communication within those contributing to the public health function, and specifically that there should be:

- improved systems of surveillance and gathering information about the health of the population;
- full use by public health departments of local government information sources, eg housing indicators, transport statistics, air pollution measurements, in monitoring population health.
- better co-ordination to strengthen the impact of public health activity;
- a national public health forum, involving the broad public health community;
- public health networks that are strengthened and used more systematically;
- public health professionals and organisations that build on what they have in common;

The project identified the five major themes that are essential for a successful public health function:

- a wider understanding of health and well-being;
- better co-ordination and communication within the public health function;
- effective joined up working;
- sustained community development and public involvement;
- an increase in capacity and capabilities in the public health function.

The appearance of this report is a particularly timely as the recent announcement by the Secretary of State for Health of a reorganization of the National Health Service into regions, strategic health authorities, and primary care trusts begs the question of how public health, and in particular health protection, will be organized in the new NHS (2). If, as is suggested, strategic health authorities are concerned only with monitoring performance, how will responses to the common communicable disease threats to public health such as a major outbreak of food poisoning, a local breakdown of infection screening quality, uncontrolled serious infection contracted in hospitals, or HCV infected health care worker who have practiced in many areas, be dealt with? These and similar threats require coordination above the level of primary care trusts, and would best be dealt with in managed networks of public health practitioners such as is suggested in the CMO s report (1).

1. Department of Health. The report of the Chief Medical Officer s project to strengthen the public health function. London: Department of Health, 2001. Available from <www.doh.gov.uk/cmo/phfunction.htm>.

2. Regan M. Health protection in the next millennium from tactics to strategy. *J Epidimiol Community Health* 1999; 53: 517-8.

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Invasive meningococcal infections, England and Wales: laboratory reports, weeks 14-17/01

	Method of diagnosis			Total reports 14-17/01	Cumulative total* 2001	Annual total 2000
	CSF and blood		Other sites			
	culture	non-culture**	culture			
Group A	–	–	–	**–**	**2**	**2**
Group B	65	75	13	**153**	**832**	**1645**
Group C	16	14	–	**30**	**169**	**712**
Group W135	18	7	1	**26**	**69**	**109**
Group X	–	–	–	**–**	**4**	**4**
Group Y	3	–	–	**3**	**14**	**29**
Group Z	–	–	–	**–**	**–**	**–**
Group 29E	–	–	–	**–**	**–**	**–**
Ungroupable	–	–	3	**3**	**14**	**22**
Ungrouped	–	4	–	**4**	**89**	**137**
Total	**102**	**100**	**17**	**219**	**1193**	**2660**

* combined CDSC and Meningococcal Reference Unit data. ** latex antigen, microscopy, polymerase chain reaction.

Virus infections, England and Wales: laboratory reports, weeks 21-24/01

Laboratory reports	Number of reports received				Total reports 21-24/01	Cumulative total 2001
	21/01	22/01	23/01	24/01		
Coxsackie A	–	–	–	–	**–**	**16**
Coxsackie B	2	1	2	2	**7**	**42**
Cytomegalovirus	10	33	12	7	**62**	**403**
Echovirus	5	12	18	7	**42**	**156**
Parvovirus B19	11	28	13	6	**58**	**220**
Varicella zoster virus	7	13	3	5	**28**	**193**

Laboratory confirmed cases of measles, mumps and rubella, England and Wales: January to March 2001 quarter

The four weekly reporting of laboratory confirmed cases of measles, mumps, and rubella previously published in *CDR Weekly* has been replaced by quarterly reporting (table 1). Cases include those confirmed by salivary IgM antibody tests as well as routine laboratory reports. Analyses are by date of onset rather than by week of report as was used previously, and therefore totals may differ from those formerly published in this section. Cases confirmed by salivary antibody detection from 1995 to 2000 are available from: <www.phls.co.uk/facts/Immunisation/Measles/meas-t03.htm>.

Table 1 Salivary IgM antibody tests in cases notified to ONS: weeks 01-13/01

	Cases		Salivary IgM antibody results		
	Notified	Tested (%)	Total positive	Recently vaccinated	Confirmed
Measles	741	569 (72)	3	–	3
Mumps	918	574 (73)	239	2	237
Rubella	432	271 (72)	1	–	1

Measles

There were eight cases of confirmed measles with onset dates in the first quarter of 2001. One was a 7 month old infant with no history of travel or contact. Five were children aged from 1 to 4 years. Three were unvaccinated; two aged one year (one with pneumonia and septicaemia, one had a history of travel to Bangladesh) and a four year old refugee from Afghanistan with no history of recent travel. A vaccinated three year old and a one year old, whose vaccination status was unknown, were also reported. Two cases were unvaccinated adults, aged 26 and 46 years.

Mumps

Three hundred and sixteen cases of mumps with onset dates in the first quarter of 2001 were confirmed, continuing the increase observed in 1999 and 2000. One case of mumps meningitis was reported in 36 year old man (serum IgM positive). Seventy per cent of the cases were reported from two regions (Northern and Yorkshire 149, North West 71) and were associated with outbreaks in schools (table 2).

Seventy-nine per cent of cases were aged 10 to19 years (born from 1982 to 1991). Those born before 1983 are too old to have been offered MMR vaccine. Children born between 1983 and 1986 may have been offered a single dose as part of a school entry catch-up programme from 1988, when MMR was introduced. Children born from 1987 will have been offered one routinely scheduled dose of MMR vaccine and many will have had a second dose of measles-rubella vaccine in the school campaign in 1994. About 10% of children who have had only a single dose of a mumps-containing vaccine fail to respond, emphasising the need to include a second dose of MMR in the schedule, which was introduced in 1996. When mumps has been confirmed in a community or school those responsible for the management of the outbreak could consider implementing some or all of the following measures which have proved acceptable in one health authority (1):

- After discussion with CDSC and local GPs, publicise the outbreak by writing to parents and professionals
- Encourage the notification of suspected cases to the CCDC so oral fluid antibody testing kits can be sent to the GP
- Offer a GP-based MMR programme. The most important group to vaccinate is children without a history of MMR, although it is desirable for children who have received only one dose of mumps containing vaccine previously to receive a second dose.

Table 2 Laboratory confirmed cases of mumps by age group and region, England and Wales: weeks 01-13/01

Region	Age group					
	1-4	5-9	10-14	15-19	20+	Total
Northern and Yorkshire	4	12	73	46	14	**149**
Trent	–	–	16	16	4	**36**
Eastern	2	–	2	4	2	**10**
London	1	–	11	6	3	**21**
South East	2	–	5	2	5	**14**
South West	1	–	4	6	1	**12**
West Midlands	–	–	1	2	–	**3**
North West	1	6	46	10	8	**71**
Wales	–	–	–	–	–	**–**
Total	**11**	**18**	**158**	**92**	**37**	**316**

Rubella

Ten cases of rubella with onset dates in the first quarter of 2001 were confirmed. Cases included a one year old female, and nine adult cases (four males and five females).

1. Baxter D. Prepare for resurgence of mumps infection. *Pulse* 2001; **61** (22): 56, 60.

COVER programme: January to March 2001

Vaccination coverage statistics for children up to five years of age in the United Kingdom

This report of the COVER programme presents coverage data for children in the United Kingdom (UK) who reached their first, second or fifth birthday during the evaluation quarter, January to March 2001. This is the third quarter to also include coverage data on Meningococcal conjugate Group C vaccine (MenC) following its introduction in the UK vaccination programme in November 1999 (1). Children who reached their first birthdays in the quarter would have been scheduled for their third dose primary vaccinations (third dose diphtheria, tetanus, pertussis (DTP vaccine), *Haemophilus influenzae* type b (Hib vaccine), polio vaccine and MenC vaccine) from May to July 2000. Children who reached their second birthdays would have been scheduled for their third dose primary vaccinations from May to July 1999 and first measles, mumps and rubella (MMR) vaccination from January to July 2000. These children would have been scheduled for two (or one) catch-up dose(s) of MenC from mid-January 2000. Children who reached their fifth birthdays would have been scheduled for their third dose primary vaccinations from May to July 1996, their first MMR from January 1997 to July 1997, their pre-school booster DT, polio and second dose MMR from May 1999 onwards. One catch-up dose of MenC would have been scheduled from April 2000 onwards.

Methods

Data from computerised child health information systems were submitted in May and early June 2001 for children resident in UK health authorities and health boards on 31 March 2001 and reaching their first, second or fifth birthdays during the evaluation quarter (January to March 2001). Details of the data requested have been published (2). These routine request parameters now include MenC.

Results

Coverage at 12 and 24 months

Data were received from all health authorities and health boards in Wales, Northern Ireland, and Scotland and all but two health authorities in England (tables 1 and 2). Nine English trusts, each serving part/s of a health authority, were unable to provide data this quarter. Twenty-seven of the participating health authorities/boards (23%) achieved the 95% target for three doses of diphtheria, tetanus, and polio vaccine (D3), 11 (9%) for three doses of pertussis vaccine (P3), and 24 (20%) for Hib3 at 12 months of age. Seventy-five health authorities/boards (62%) achieved 95% coverage for D3, 48 (40%) for P3, and 72 (60%) for Hib3 at 24 months of age. Two health boards and one health authority achieved 95% coverage for MMR at 24 months. Coverage of all antigens at 12 months was similar to that reported in the previous quarter (3). At 24 months coverage for all antigens was lower than the previous quarter; D3 was down 0.4% to 94.5%, P3 down 0.6% to 93.5%, Hib3 down 0.3% to 94.3%, and MMR down 1.6% to 86.4%.

Table 1 Completed primary immunisations (all antigens) by 12 months: January to March 2001

Region/country	Number of participating districts (total)	D3	P3	Hib3	MenC
England					
Northern and Yorkshire	13 (13)	92.2	91.8	92.0	90.6
Trent	10 (11)	91.9	91.4	92.0	92.1
Eastern	8 (8)	93.7	93.2	93.5	90.3
London	14 (16)	82.8	82.2	82.4	79.2
South East	14 (14)	91.7	91.0	91.5	90.0
South West	8 (8)	92.8	92.0	92.6	90.5
West Midlands	13 (13)	92.3	91.4	92.1	88.0
North West	16 (16)	90.2	89.4	90.0	89.1
England (total)	**96 (99)**	**90.6**	**90.0**	**90.4**	**88.2**
Wales	**5 (5)**	**94.8**	**93.4**	**94.6**	**94.0**
Northern Ireland	**4 (4)**	**94.6**	**94.1**	**94.7**	**92.5**
Scotland	**15 (15)**	**94.1**	**93.4**	**94.0**	**93.3**
United Kingdom	**120 (123)**	**91.3**	**90.6**	**91.1**	**89.1**

Table 2 Completed primary immunisations (all antigens) by 24 months: January to March 2001

Region/country	Number of participating districts (total)	D3	P3	Hib3*	MenC	MMR1
England						
Northern and Yorkshire	13 (13)	95.0	94.1	94.6	85.3	88.5
Trent	11 (11)	95.8	95.0	95.8	88.1	90.1
Eastern	8 (8)	95.4	94.4	95.1	85.3	87.6
London	14 (16)	88.2	87.5	87.7	70.5	76.4
South East	14 (14)	94.2	93.2	93.9	84.7	85.9
South West	8 (8)	95.5	94.1	95.2	86.4	86.6
West Midlands	13 (13)	95.2	94.0	94.9	82.8	87.8
North West	16 (16)	94.8	93.6	94.4	87.2	86.5
England (total)	**97 (99)**	**94.1**	**93.0**	**93.7**	**83.8**	**85.8**
Wales	**5 (5)**	**96.5**	**94.6**	**96.4**	**91.4**	**87.2**
Northern Ireland	**4 (4)**	**96.7**	**95.6**	**96.8**	**89.6**	**90.4**
Scotland	**15 (15)**	**97.3**	**96.5**	**97.2**	**92.3**	**90.7**
United Kingdom	**121 (123)**	**94.5**	**93.5**	**94.3**	**85.1**	**86.4**

* three doses before 13 months or one dose thereafter

The routine coverage for MenC vaccine presented in this report represents about 93% of health authorities in England. All health boards in Scotland, three out of four in Northern Ireland, and all Welsh health authorities submitted data. Routine coverage at 12 months was 88.2% in England, 93.3% in Scotland, 92.5% in Northern Ireland, and 94.0% in Wales. Catch-up coverage for this quarter s 24 month cohort was 83.8% in England, 92.3% in Scotland, 89.6% in Northern Ireland, and 91.4% in Wales.

Coverage at 5 years

Data were received from 96/99 (97%) health authorities in the English regions and for all health authorities/health boards in Wales and Northern Ireland. Data for children reaching their sixth birthday in all Scottish health boards were also received for four doses of diphtheria, tetanus and polio vaccine (D4) and MMR2. Coverage at 5 years in England, Wales, and Northern Ireland for D3, Hib3, and MMR1 was 0.3% higher than in the previous quarter (3) and P3 increased by 0.4%. More substantial increases for D4 (up 1.1% to 81.5%), and MMR2 (up 0.8% to 75.9%) at this age were observed (table 3).

Table 3 Completed primary immunisations (all antigens) by 5 years: January to March 2001

Region/country	Number of participating districts (total)	D3	P3	Hib3*	MenC	MMR1	MMR2	D4
England								
Northern and Yorkshire	13 (13)	96.0	94.4	95.3	81.1	94.4	79.5	83.7
Trent	10 (11)	96.7	95.5	96.2	84.9	95.0	81.4	83.6
Eastern	8 (8)	94.8	93.4	94.1	81.1	92.5	76.8	81.2
London	14 (16)	88.6	86.9	87.2	59.4	84.7	60.5	69.1
South East	14 (14)	93.9	92.7	92.8	78.6	92.0	74.4	81.4
South West	8 (8)	97.0	95.5	96.1	85.2	95.0	82.7	88.4
West Midlands	13 (13)	96.4	94.6	95.3	78.3	94.9	78.0	82.3
North West	16 (16)	95.5	93.5	94.8	80.0	93.3	75.3	81.6
England (total)	**96 (99)**	**94.6**	**93.1**	**93.7**	**78.3**	**92.4**	**75.5**	**81.1**
Wales	**5 (5)**	**96.3**	**93.2**	**95.7**	**83.6**	**93.6**	**74.4**	**82.0**
Northern Ireland	**4 (4)**	**97.8**	**95.8**	**97.0**	**88.9**	**97.1**	**87.0**	**89.2**
Scotland (6 years)	**15 (15)**						**90.8**	**94.6**
England, Wales, and Northern Ireland	**105 (108)**	**94.8**	**93.2**	**93.9**	**79.0**	**92.7**	**75.9**	**81.5**

* three doses before 13 months or one dose thereafter

Coverage in Scotland at 6 years was also marginally higher this quarter; 94.6% for D4, and 90.8% for MMR2. MenC catch-up coverage at 5 years was 78.3% in England, 83.6% in Wales and 88.9% in Northern Ireland.

Early coverage of MMR

Data on MMR coverage submitted by participating English health authorities/trusts using the National Child Health System for children aged 16 months (ie recently scheduled for MMR1) since April 1998 (and retrospectively to April 1994) has been used to predict changes in the national routine MMR coverage (4). The figure shows a sharp drop in coverage at 16 months for children

born in July 1999 from 78.1% to 72.5.0% and an increase in the next birth cohort, born October 1999, to 76.4%. This follows several birth cohorts where coverage was relatively stable.

Comments

The report for this quarter is the first to record MenC data from all UK countries and presents the second one year old cohort to have routinely been offered vaccine at two, three and four months with the other primary antigens. The MenC vaccine coverage at 24 months and at 5 years provides an estimate of coverage for the catch-up programme, when the vaccine was offered to all children up to 17 years of age. Figures for 12 and 24 months and 5 years indicate the high acceptability of the vaccine and show the successful efforts of primary care services in identifying and calling up children for the campaign. This high coverage has already had an impact on disease (5), and further reductions in cases and deaths from meningococcal group C infections are expected.

The implementation of the MenC catch-up programme may have contributed to the drop of 1.6% in coverage of MMR at 24 months (and to a lesser extent to the drop for other antigens evaluated at this age). The children in this cohort were scheduled for their MMR vaccination from January to July 2000, but would also have been scheduled for two (or one) catch-up dose(s) of MenC from mid-January 2000. The dual scheduling may have resulted in some children only receiving one of the two vaccines they were scheduled for in a timely manner. This decrease was observed in all countries (1.2% in Northern Ireland, 1.6% in England, and 1.8% in Scotland and Wales) and is therefore more likely to be the result of pressure on primary care services, than the effect of continuing adverse publicity relating to MMR vaccine. This explanation is also supported by the fact that previous decreases in MMR coverage thought to be due to adverse publicity have not affected all countries simultaneously and with the same order of magnitude, and there was no new adverse publicity about MMR vaccine at the time these children were due to be immunised. The 16 month coverage data from England also suggests an effect due to the MenC programme, indicating that the drop in 24 month routine MMR coverage may persist for at least another quarter (ie April to June 2001 quarter), possibly two. Continued monitoring is required to fully evaluate these results.

The improvement of supply of diphtheria-tetanus vaccine, following shortages in 1999, is again reflected in the coverage of D4 vaccine at 5 years of age. This increased for the third successive quarter to 81.5%, an increase of 1.1% since the previous evaluation (3). There were also modest increases in coverage of both MMR1 and MMR2 at this age (0.3% and 0.8% respectively).

Links to PHLS website:

www.phls.co.uk/facts/Immunisation/Measles/meas.htm
www.phls.co.uk/facts/Vaccination/VaccIndex.htm

1. Chief Medical Officer, Chief Nursing Officer, Chief Parmaceutical Officer. *Introduction of immunisation against group C meningococcal infection*. London: Department of Health, 1999 (PL/CMO/99/2, PL/CNO/99/4, PL/CPHO/99/1).

2. CDSC. COVER/Körner: October to December 1998. *Commun Dis Rep CDR Wkly* 1999; **9**: 115-6.

3. CDSC. COVER programme: October to December 2000. *Commun Dis Rep CDR Wkly* [serial online] 2001 [cited 18 June 2001]; **11**: immunisation. Available online at <www.phls.co.uk/publications/CDR%20Weekly/PDF%20files/cdr1201.pdf>.

4. CDSC. Fall in MMR vaccine coverage reported as further evidence of vaccine safety is published. Commun Dis Rep CDR Wkly 1999; 9: 227, 230.

5. Ramsay M, Andrews N, Kaczmarski E, Miller E. Efficacy of meningococcal serogroup C conjugate vaccine in teenages and toddlers in England. *Lancet* 2001; **357**: 195-6.

Enhanced surveillance of laboratory confirmed cases of *Bordetella pertussis*, England and Wales: 1999 to January-March quarter 2001

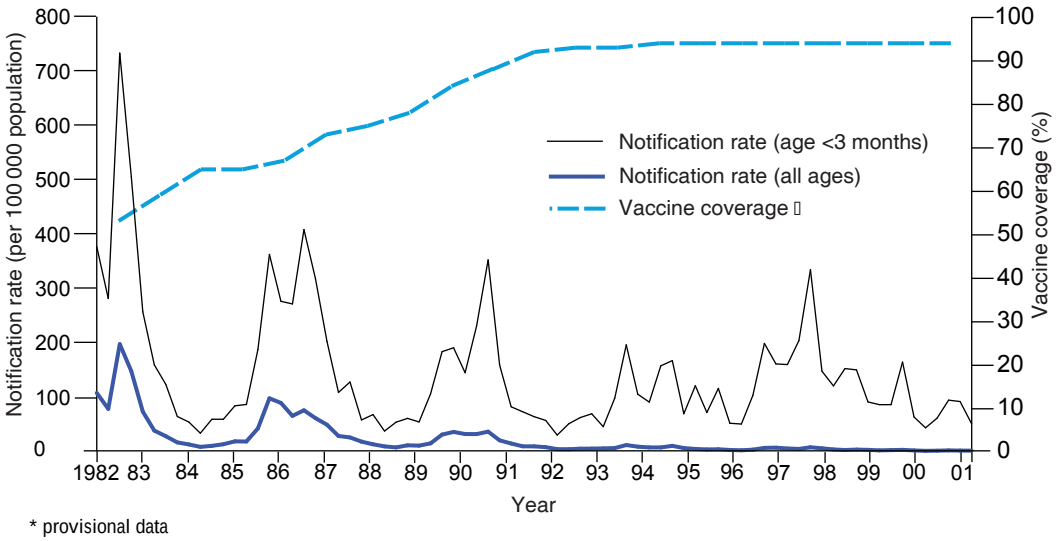
The four weekly reporting of laboratory confirmed cases of *Bordetella pertussis* previously published in the CDR Weekly will now be replaced by quarterly reporting of routine laboratory reports reconciled with data from the Pertussis Reference Laboratory (PRL). Numbers are therefore greater than those formerly published in this section. Date of specimen rather than week of report is used for analysis.

A number of recent international reports have focused on a resurgence of whooping cough, often associated with significant mortality in very young children, despite high vaccination rates (1). In England and Wales the number of cases of whooping cough has reached historically low levels since the attainment of high coverage rates for primary vaccination over the last decade. In the last two years, annual totals of notified cases reached the lowest ever recorded: 1139 notifications in 1999 and 712 in 2000. Although notifications are low, concern has been expressed about the possibility of increasing disease in very young children and the possible lower duration of efficacy associated with the accelerated vaccination schedule now used (2).

In response to these concerns CDSC, together with PRL, initiated a programme of enhanced surveillance to monitor whooping cough numbers and vaccine efficacy. Analysis of notified cases for the years 1990-97 showed that although the total number was falling during this period, the number of pertussis cases in children aged less than three months (ie too young to be vaccinated),

was not falling (figure) (1).

Figure Quarterly notification rates of whooping cough per 100,000 population (all ages and infants aged 0 to 2 months) and pertussis vaccine coverage: England and Wales, 1982 to the first quarter of 2001*



* provisional data

Severe cases in very young children are more likely to be laboratory confirmed, and laboratory confirmed cases are more likely to be notified, introducing a bias towards infants (table). In 1999, 330 laboratory confirmed cases of *Bordetella pertussis* were reported to the enhanced pertussis surveillance programme, this dropped to 202 cases in 2000. Children aged less than three months accounted for 48% in each year (160/330 and 97/202 respectively). In the first quarter of 2001, 47 (provisional) confirmed cases have been reported of which 62% (29/47) were aged less than three months.

Table Laboratory confirmed cases of pertussis by age group, England and Wales: 1999 to the first quarter of 2001

Age group	1999 (quarters)				2000 (quarters)				2001 (quarter)	Total
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	Total
<3 months	39	39	61	21	21	24	29	23	26	**283**
3-5 months	13	12	16	3	2	7	13	4	8	**78**
6-11 months	1	5	4	3	2	2	6	–	1	**24**
1-4 years	9	8	27	6	7	7	18	5	–	**87**
5-9 years	10	8	18	3	3	4	8	1	1	**56**
10-14 years	4	1	5	2	–	3	–	1	2	**18**
15+ years	5	2	3	1	–	2	4	1	4	**22**
Not known	–	–	1	–	–	–	4	1	1	**7**
Total	**81**	**75**	**135**	**39**	**35**	**49**	**82**	**36**	**43**	**575**

Historical annual notification and enhanced surveillance data is available from: <www.phls.co.uk/facts/Immunisation/Whooping%20Cough/whoo.htm> and historical vaccine coverage data is available from <www.phls.co.uk/facts/Vaccination/cover.htm>

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HIV and AIDS in injecting drug users in the United Kingdom

United Kingdom data from the PHLS HIV and STI Division, Scottish Centre for Infection and Environmental Health, Institute of Child Health, London, and Oxford Haemophilia Centre (on behalf of UK Haemophilia Centre Directors' Organisation).

Although sexual contact is the most common route of transmission for HIV infections reported in the United Kingdom (UK), a substantial number of infections are attributed to injecting drug use. By the end of March 2001, 44,988 individuals with diagnosed HIV infection had been reported. Eight per cent (3695/44,988) were classified as having acquired infection through injecting drug use (table 1). Of these 3695 individuals (2543 males and 1152 females), 30% (1104) were reported as having developed AIDS and 37% (1254) were known to have died. Thirty-six per cent (452/1254) of those who died did so without AIDS being reported; for patients in all the other exposure categories this proportion is 12%. The high proportion of deaths occurring without AIDS being reported is expected, because other causes of death such as liver disease due to hepatitis B virus (HBV) and hepatitis C virus (HCV) and accidental or intentional drug overdoses are common in injecting drug users (IDUs) (1). Five per cent (920/18801) of patients seen for treatment in England, Wales, or Northern Ireland in 1999 who were reported to the survey of HIV infections which have been diagnosed (SOPHID), were reported as infected through injecting drug use (2).

Table 1 HIV infections* probably acquired through injecting drug use: UK data to end of March 2001

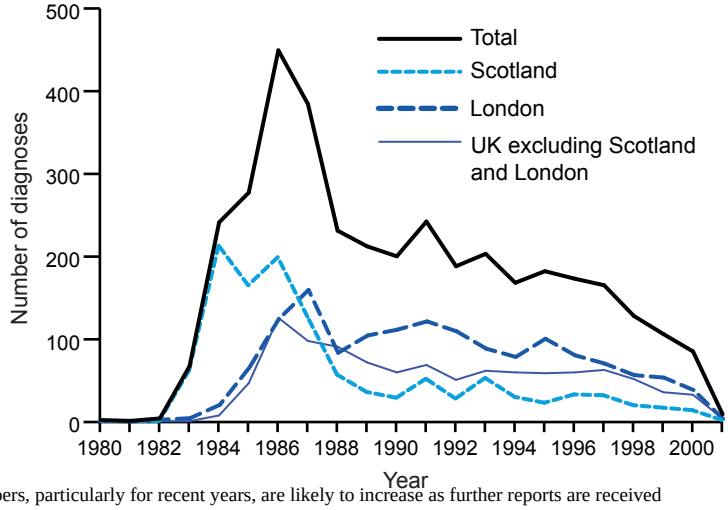
Country/region of first report	Total reports	AIDS cases reported	Deaths	
			AIDS reported	AIDS not reported
Northern and Yorkshire	98	27	22	9
Trent	148	46	32	20
Eastern	133	46	32	9
London	1469	411	260	89
South East	272	90	66	28
South West	116	30	22	15
West Midlands	79	16	11	9
North West	162	55	40	16
England total	**2477**	**721**	**485**	**195**
Wales	30	9	6	1
Scotland	1173	371	308	255
Northern Ireland	7	3	3	1
Channel Isles/Isle of Man	8	3	–	–
Total	**3695**	**1104**	**802**	**452**

* individuals with laboratory reports of infeciton plus those with AIDS or death reports for whom no matching laboratory report has been received.

Injecting drug use has played a much smaller part in the HIV epidemic in the UK than in other European countries such as Spain and Portugal. Over time the numbers of new diagnoses of HIV infection attributed to injecting drug use have fallen substantially. The fall, from a peak of 447 cases in 1986 to 84 in 2000, appears to be continuing (figure). After allowing for the fact that data for recent years are incomplete due to reporting delay, it is unlikely that the total number of new diagnoses in 2000 in IDUs will increase much beyond 100. The epidemic in IDUs has had a different pattern in different parts of the UK. More cases were initially seen in Scotland although

cumulatively, cases diagnosed in London form a larger proportion of the total (1469/3695 in London compared with 1173/3695 in Scotland).

Figure HIV infection attributed to injecting drug use by year of HIV diagnosis* and region of report



* numbers, particularly for recent years, are likely to increase as further reports are received

HIV transmission through injecting drug use affects not only those who engage in injecting behaviour but also their sexual partners. Of 11,667 infections reported as acquired through heterosexual sex, 629 were recorded as acquired through sexual intercourse with a partner who was an IDU. Seventy-five per cent of individuals with HIV infection acquired from IDUs were female (473/629) as most infected users are male. Women who become infected through their own injecting drug use, or through heterosexual contact with an injecting drug user have the potential to transmit HIV through any subsequent pregnancies. By the end of January 2001, 2108 children born to HIV infected mothers had been reported in the UK. The mothers of 13% (282/2108) of these children acquired infection through their own drug use, and 5% (102) had had partners who were drug users (3). In children born to HIV infected mothers reported in Scotland, 85% (190/223) of the maternal infections have been related to injecting drug use.

Throughout the last decade the median age at diagnosis for those recorded as having acquired HIV infection through injecting drug use rose. For males diagnosed in 1990 it was just over 29 years, while in 1998 it was nearly 35 years (4). This suggests the existence of an ageing cohort of individuals who acquired infection in the 1980s, some members of which were not diagnosed until the 1990s. There has also been an upward trend in the median age at diagnosis for females (who have tended, on average, to be a year or two younger at diagnosis than the males), but because of the smaller numbers involved it has not been as smooth. Over the last two years, however, the median age at diagnosis for males has fallen, and in 2000 it was lower than that for females for the first time. The change in the trend may be related to an increasing proportion having acquired infection abroad.

Supplementary reporting of new HIV diagnoses by clinicians was introduced from the beginning of 2000 (5). Of the 71 reports of HIV infection associated with injecting drug use diagnosed in England, Wales, or Northern Ireland in 2000 reported by the end of March 2001, 38 had been reported by clinicians. The information requested includes the likely country of infection, and this was given for 31 of the 38 individuals. For 10 of the 31 the country was the UK, for 13 it was Portugal, three each for Italy, and elsewhere in Europe, and for one each it was in Asia and Africa.

Indicators of HIV infection risk in injecting drug users in England and Wales

The Unlinked Anonymous Prevalence Monitoring Programme (UAPMP) survey of IDUs provides prevalence data for hepatitis B and C as well as for HIV (6). It also provides information about behaviours associated with the risk of transmitting blood borne viruses, such as needle and syringe sharing, and uptake of hepatitis B vaccination (7). Data from this survey, and reports from microbiology laboratories of acute HBV infection attributed to injecting drug use, have been collated to form a profile of blood borne infection risk among IDUs in England and Wales. Bringing prevalence, incidence, and behavioural information together facilitates comparison of a range of factors over time. The profile for the period 1994 to 2000 is given in table 2.

Table 2 Monitoring infection risk in injecting drug users in England and Wales

Prevalence data are available for HIV, hepatitis B, and hepatitis C antibody in IDUs who began injecting in the three years before the date they were included in the survey. They provide information on the risk of acquisition of infection in the recent past. Many of those who have been injecting for less than three years (new injectors) will have been aged under 25years (young injectors) at the time of the survey, and these individuals will be included in the analysis in both groups. Many young injectors, however, have been injecting for more than three years and others have started injecting later in life and will be present in just one of the groups. HIV prevalence was low in both groups throughout the period 1994 to 2000. Only 10 of the 4793 specimens from participants who had begun injecting in the previous three years, and 10 from the 5613 who were aged less than 25, were HIV positive.

Despite the lack of HIV infection in new injectors, there is evidence of injecting practices that have allowed the spread of hepatitis B on a much wider scale. Among the 4785 specimens contributed by new injectors, 299 were positive for hepatitis B core antibody, indicating current or past infection. Prevalence declined prior to 1997, but has subsequently risen. Among specimens from young injectors 387 of 5605 tested were hepatitis B positive, and a similar trend to that seen in 'new' injectors was apparent. There has also been an upward trend in the overall number of laboratory reports of acute hepatitis B in IDUs, which more than doubled between 1994 and 1999 (8). The apparent fall in 2000 is due, in part at least, to reporting delay. The prevalence of hepatitis B core antibody in new and young injectors would decline during a successful vaccination campaign, and become less useful as a marker of HIV risk. Since 1998 IDUs participating in the UAPMP survey have been asked whether they have received hepatitis B vaccine. The proportion of new injectors who have been vaccinated was 14% in 1998 and 26% in 2000. For young injectors it was 17% and 30% respectively.

UAPMP specimens have been tested for antibody to hepatitis C since 1998 (9) and during the three years of testing, the prevalence of this marker of current or resolved infection has been higher than for hepatitis B.

There is evidence of the wide scale use of practices that allow the acquisition of hepatitis and so potentially of HIV, such as needle sharing, by IDUs who have begun injecting in the past three years (table 2). The level of risk taking remains as high or higher than it was when monitoring of injecting behaviour began. The evidence from the UAPMP indicates that despite prevention activities, such as needle exchange and methadone maintenance, the behaviour of injectors is continuing to put them at risk from HIV and other blood borne viruses.

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Table 2 Monitoring infection risk in injecting drug users in England and Wales*

	1994	1995	1996	1997	1998	1999	2000
Injecting drug users who began to inject in the last three years							
HIV antibody positive†	0.1% (1/678)	0.2% (1/501)	0.3% (2/651)	0.3% (2/584)	0.4% (3/743)	0.1% (1/849)	0.0% (0/787)
Hepatitis B core antibody positive‡	10.5% (71/678)	5.2% (26/501)	6.8% (44/646)	3.4% (20/583)	5.0% (37/742)	5.4% (46/848)	7.0% (55/787)
Hepatitis C antibody positive‡	–	–	–	–	8.5% (63/743)	9.0% (76/849)	8.4% (66/787)
Injecting drug users aged ≤24 years							
HIV antibody positive†	0.4% (4/908)	0.2% (1/646)	0.4% (3/817)	0.0% (0/647)	0.1% (1/835)	0.1% (1/938)	0.0% (0/822)
Hepatitis B core antibody positive‡	11.3% (103/908)	5.9% (38/646)	8.4% (68/809)	3.7% (24/647)	5.5% (46/835)	4.5% (42/938)	8.0% (66/822)
Hepatitis C antibody positive‡	–	–	–	–	11.1% (93/835)	12% (108/938)	11.8% (97/822)
Laboratory reports of acute hepatitis B infection in injecting drug users	102	147	166	192	251	231	172§
Hepatitis B vaccine coverage¶							
Injecting drug users who began to inject in the last three years	–	–	–	–	14.2% (99/699)	16.8% (136/808)	25.9% (200/771)
Injecting drug users aged ≤24 years	–	–	–	–	17.4% (138/794)	21.3% (189/887)	30.4% (246/810)
All injecting drug users	–	–	–	–	25.2% (784/3114)	28.8% (1022/3548)	35.3% (1179/3341)
Sharing in past month among current injectors¶							
Sharing of needles and syringes#	17.5% (390/2230)	17.1% (315/1838)	18.3% (418/2281)	17.4% (313/1794)	31.7% (678/2138)	32.8% (748/2276)	30.8% (672/2184)
Sharing of any injecting equipment@	–	–	57.6% (1271/2205)	55.2% (956/1731)	63.3% (1370/2188)	63% (1486/2345)	60.3% (1340/2221)
Ever received used needles or syringes¶							
Injecting drug users who began to inject in the last three years	44.7% (300/670)	45.3% (224/494)	44.1% (283/642)	42.8% (248/579)	51.8% (383/739)	52.9% (444/839)	47.0% (369/785)
Injecting drug users aged ≤24 years	55.6% (500/899)	55.7% (355/637)	50.5% (406/804)	51.7% (331/640)	56.1% (467/832)	62.0% (575/928)	55.2% (453/821)

* data from PHLS Unlinked Anonymous HIV Prevalence Monitoring Programme and laboratory reporting of acute hepatitis
† denotes current infection with HIV
‡ denotes current or past infection with hepatitis B/C
§ provisional
¶ self-reported
# passing on or receiving used needles or sringes in the last month
@ sharing of any injecting paraphernalia including needles and syringes in last 4 weeks