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Severe and unrecognised: pertussis in UK infants

Between 1998 and 2000, epidemiologists and microbiologists from the Public Health Laboratory Service (PHLS) carried out a study of pertussis in partnership with paediatricians in London paediatric intensive care units, reported in the current issue of *Archives of Diseases in Childhood* (1). They found that for most (72%) infants with pertussis admitted to paediatric intensive care, the diagnosis was not suspected. Advanced methods of diagnosis using polymerase chain reaction (PCR) and serology significantly improve the ability to diagnose pertussis in very young infants, who often show none of the typical signs of this infection. The researchers also found that the child's parents were the most frequent source of infection. The findings re-enforce the need to continue to vaccinate as many children as possible for pertussis in the United Kingdom (UK).

On the basis of this work, the Health Protection Agency (formerly the PHLS) Respiratory and Systemic Infection Laboratory (RSIL) Pertussis Reference Facility started to provide PCR and serology routinely since 2002, and the data have now been incorporated into the enhanced surveillance of pertussis (2, 3). PCR testing is adding to the number of cases identified in younger infants and serology is proving particularly useful for older children and adults with prolonged cough. The findings of the study also informed the decision to add a pre-school booster to the national immunisation programme in November 2001 (4).

Most of the children's household contacts who had pertussis and passed the infection on to others were symptomatic. Parents should be aware that, to recall an old axiom, coughs and sneezes spread diseases. Coughing adults and children should be kept away from small infants, wherever possible. Infants are most vulnerable to pertussis at the age when they are too young to be protected directly by vaccination, particularly the first two months of life, when the outcome of infection may be fatal (5).

Paediatricians, especially in intensive care units, should be aware of the continuing occurrence of pertussis despite high vaccine coverage of 93% (5) and low overall numbers of reported cases (2). PCR and serology are available for diagnosis of this infection from RSIL. This service is offered where the following criteria are met:

- for serology - paired sera or single samples taken, at least, three weeks after onset for any individuals with prolonged cough;
- for PCR - nasopharyngeal aspirates from a child aged six months or above admitted to paediatric intensive care units or paediatric wards with respiratory illness compatible with pertussis.

Contact Tim Harrison, tel 020 8200 4400ext 3906, for further information.

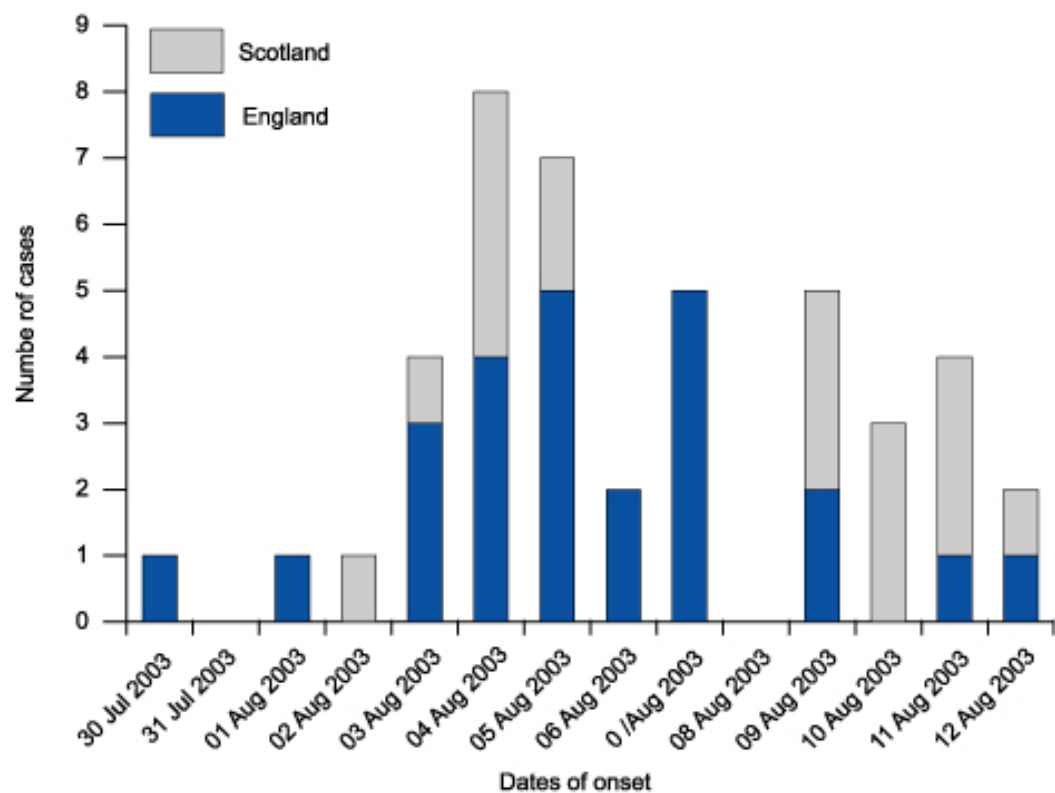
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National increase in *Salmonella* Bareilly

The Health Protection Agency Laboratory of Enteric Pathogens (LEP) for England and Wales, and the Scottish Salmonella Reference Laboratory (SSRL) for Scotland have confirmed 60 cases of *Salmonella* Bareilly infection from 1 to 28 August 2003. There are 41 cases in England and Wales, at least one in every NHS Region, and 19 in Scotland. The cases range in age from 1 to 93 years and the gender distribution is even. *Salmonella* Bareilly infection might possibly have contributed to the death of one elderly lady in Scotland. Where known, the dates of onset for these cases range from 30 July 2003 to 12 August 2003 (Figure) and the epidemic curve is consistent with a continuing source.

Figure: Epidemic curve for cases of *S. Bareilly* in England, Wales and Scotland, July and August 2003 (N =43)



Salmonella Bareilly, which was first identified in India in 1928, is rarely isolated in the United Kingdom. In 2002, 38 cases were confirmed in England and Wales, with two in Scotland, and more than half of these reported travel to the Indian subcontinent during the incubation period. Since 1995 LEP has confirmed contamination of certain food items with *S. Bareilly* - these include prawns, spices (curry powder, chilli powder, coriander), coconut, raw fish, raw fish eggs, and yeast powder.

Plasmid analysis performed by the SSRL and the LEP has shown that the outbreak strain is characterised

by a 2.9 kb plasmid. Pulsed field gel electrophoresis is also being undertaken in both laboratories and the results will be compared.

Consultant medical microbiologists in England and Wales are asked to ensure that Group C1 *Salmonellas* (O6,7:y:1,5) are referred to the LEP for confirmation and typing as quickly as possible. Sarah O'Brien (ext 4422) or Bob Adak (ext 4551) at the Health Protection Agency Communicable Disease Surveillance Centre would be grateful to hear of any suspected cases in England and Wales that might be linked to this outbreak.

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National increase in *Salmonella* Enteritidis outbreaks

Twenty-two outbreaks of *S. Enteritidis* have been reported to the Health Protection Agency Communicable Disease Surveillance Centre (CDSC) from 1 June to 27 August 2003, compared with 14 in the same period in 2002. A variety of *S. Enteritidis* phage types is involved: PT 1 resistant to nalidixic acid and low level susceptibility to ciprofloxacin (Nx, CpL) three outbreaks; PT 1e one outbreak; PT3 (Nx, CpL) one outbreak; PT4 three outbreaks; PT6 three outbreaks; PT6a one outbreak; PT6a (Nx, CpL) one outbreak; PT8 two outbreaks; PT12 one outbreak; PT14b one national outbreak including three local outbreaks; PT21 (Nx, CpL) one outbreak; PT24 resistant to tetracycline (T) one outbreak; PT53 one outbreak; PT56 one outbreak. Three hundred and fifty-six people are known to have been affected.

The largest outbreak is a national outbreak of *S. Enteritidis* PT14b that has so far affected 117 people, and an analytical study is underway to identify a contaminated food vehicle(s). In seven outbreaks microbiological evidence of contaminated food vehicles has been found. Twelve outbreaks have been linked to Chinese restaurants, three to bakeries, and one has occurred in a hospital. In response to the recent outbreaks and increased incidence of *S. Enteritidis*, food items such as raw shell eggs, raw chicken, and raw duck should be considered for sampling as part of the local outbreak investigations. In addition, a public health investigation of eggs has been initiated. Sampling guidance and protocols can be obtained from Christine Little at the Environmental Surveillance Unit, HPA CDSC (tel 020 8200 6868 ext 4931).

Between September and December 2002, 23 outbreaks of *S. Enteritidis* were reported to CDSC, compared with 36 in the whole of 2001. In these outbreaks, over 1000 people were affected and 17 people infected with *S. Enteritidis* died, although most of the deaths were not attributed directly to salmonella infection (1). Three outbreaks, affecting over 450 people, were national. Based on the epidemiological evidence, two investigations into eggs in use in the catering trade were initiated. As part of a public health investigation in late 2002, 8501 shell eggs were sampled. *Salmonella* spp. was isolated from 5.1% of imported Spanish eggs used in catering premises (2), which compares unfavourably with salmonella levels of 0.3% found in eggs (mostly UK produced) tested in a Local Authorities Co-ordinators of Regulatory Services/Health Protection Agency study of 34,296 eggs used in catering premises during April to May 2003 (3).

Advice issued by the Food Standards Agency re-iterating the need for proper cooking of raw shell eggs (4), especially for vulnerable groups, and suggesting that all importers and wholesalers heat treat eggs imported from Spain (5) is still in force.

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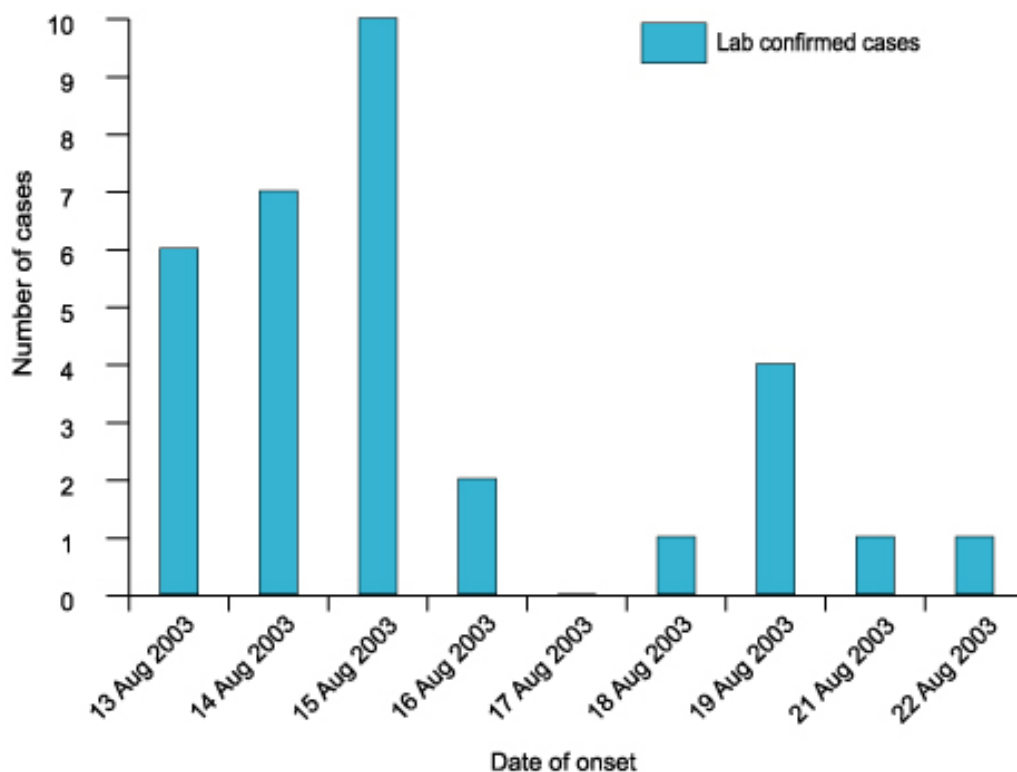
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Outbreak of *E. coli* O157 in a Liverpool prison

The Cheshire and Merseyside Health Protection Team are currently investigating an outbreak of *E. coli* O157 phage type (PT) 8, in a Liverpool prison. Thirty-two laboratory confirmed cases, have been reported between 13 and 22 August 2003. No prisoner has been seriously ill and there have been no admissions to healthcare facilities outside the prison. The epidemic curve suggests a point source with some ongoing transmission.



Initial avenues of investigation have included an animal sanctuary, where prisoners regularly assisted, and the consumption of milk in individual cartons consumed by some prisoners in the week preceding the onset of symptoms, which was possibly contaminated and reported as tasting “off”. The possibility of a food source is also being investigated and the team is in the process of conducting a case control study in the prison.

The Health Protection Team has worked closely with prison staff to control the outbreak. Liquid soap and paper towels have been provided in every cell, with enhanced cleaning of toilet facilities. Prisoners, staff, and visitors have been updated regularly and reminded about the importance of simple hygiene measures. Practices such as cigarette sharing have been discouraged. Where possible, prisoners with symptoms have been given a single cell or accommodated together. Transfers out of and into the prison have been temporarily restricted.

Prison settings often facilitate the spread of gastrointestinal infection between inmates because of the close contact prisoners have with each other and the prevailing social practises, such as cigarette sharing.

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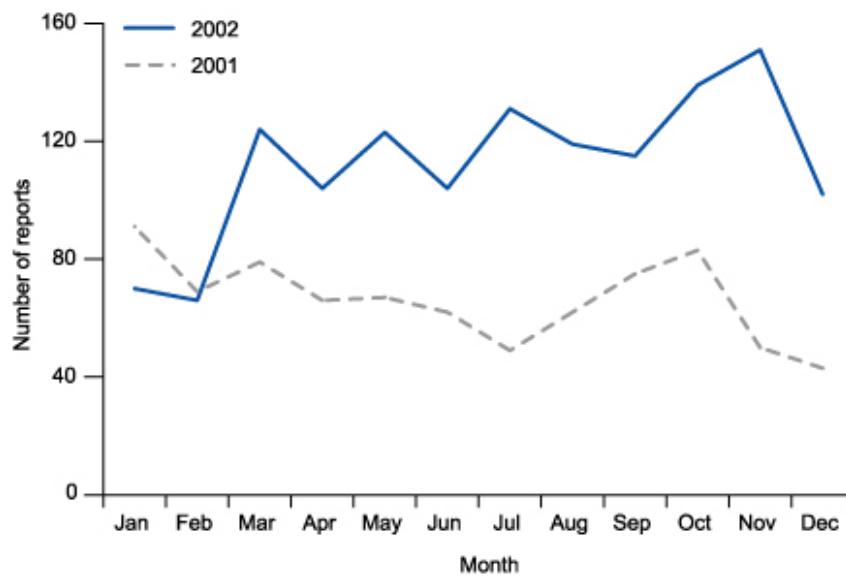
Laboratory reports of hepatitis A in England and Wales: 2002

In 2002, 1352 laboratory reports of confirmed hepatitis A virus (HAV) infections in England and Wales were made to the Health Protection Agency Communicable Disease Surveillance Centre (CDSC), an increase of approximately 42% from the previous annual total of 789. Monthly reports varied with greatest number of monthly reports occurring in four separate months: 124 reports in March, 123 reports in May, 131 reports in July, and the highest of 151 reports in November (figure 1). The majority of reports (76%) were of cases in adults aged between 15 and 44 years and strikingly, 72% of these were men (table 1). The Trent region accounted for 32% of the total reports. This is attributable to several outbreaks among injecting drug users (IDUs) in the region.

Table 1 Laboratory reports of hepatitis A to CDSC in England and Wales by sex and age group: 2002

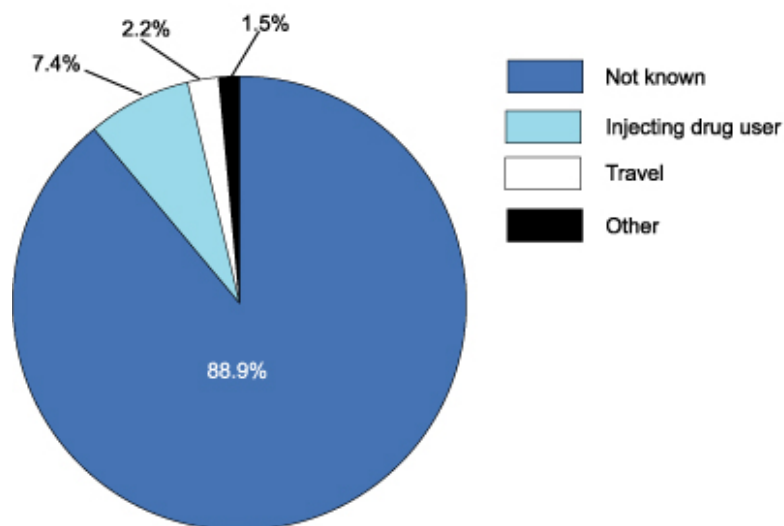
Age group	Male	%	Female	%	Not known	%	Total	%
<1	2	0.2	–	–	–	–	2	0.1
1-4	11	1.2	13	3.0	2	12.5	26	1.9
5 - 9	39	4.3	17	4.0	5	31.3	61	4.5
10-14	26	2.9	25	5.8	1	6.3	52	3.8
15-24	324	35.7	132	30.8	2	12.5	458	33.9
25-34	323	35.6	107	25.0	4	25	434	32.1
35-44	98	10.8	41	9.6	–	–	139	10.3
45-54	32	3.5	24	5.6	–	–	56	4.1
55-64	18	2	29	6.8	–	–	47	3.5
≥65	32	3.5	35	8.2	–	–	67	5
Not known	3	0.3	5	1.2	2	12.5	10	0.7
Total	908	–	428	–	16	–	1352	–

Figure 1 Laboratory reports of hepatitis A in 2001 and 2002



Only a minority of reports (150/1352, 11%) included information on risk-factors. Intravenous drug use was the most frequent, mentioned for 100 infections or 67% of those for which information was provided. Thirty infections were acquired abroad. Of those with a source country of travel included in the laboratory report, 10/17 named countries within the Indian subcontinent (Pakistan 8, India 2). Twenty reports of HAV infection included other risk factors such as contact with HAV infection, food, and occupation. In 2002, 89% of laboratory reports lacked any risk factor information (figure 2).

Figure 2 Hepatitis A risk-factor information for 2002



A decline in the number of laboratory reports of hepatitis A has been seen since 1991 (1), however, this trend changed in 2002. Laboratory reports increased by 42%, while notifications increased by 17% in 2002 (table 2). The ratio of notifications to laboratory reports decreased by 29% from 2001. Additionally, the percentage difference of total laboratory reports and notifications in 2002 was 2%, a much lower figure compared to the high of 31% seen in 2001.

Table 2 Laboratory reports and notifications to CDSC in England and Wales by region: 2001 and 2002

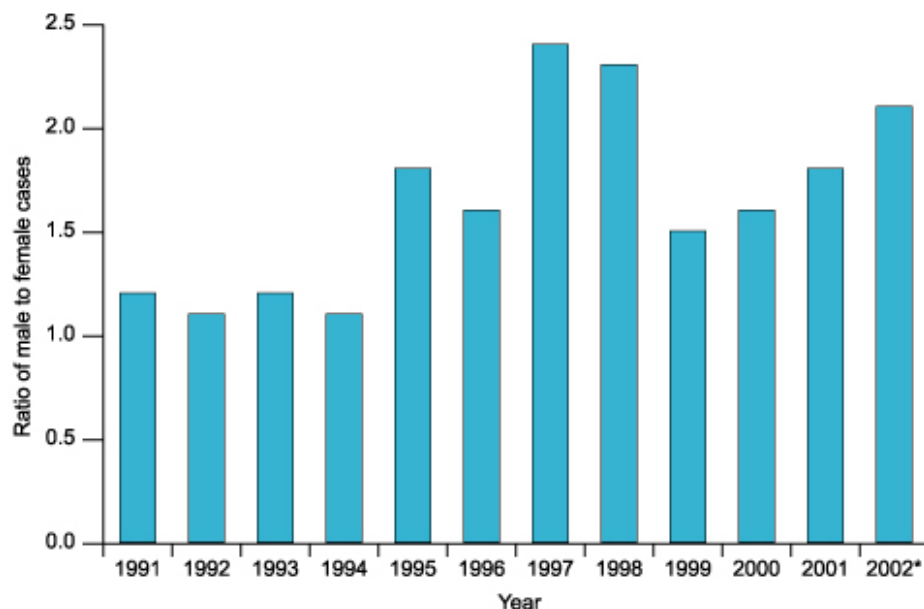
Region	Laboratory reports			Notifications		
	2001	2002	% change	2001	2002	% change
Northern and Yorkshire	160	79	-50.6	224	120	-46.4
Eastern	53	50	-5.7	52	38	-26.9
London	62	35	-43.5	237	135	-43.0
South East	89	66	-25.8	169	114	-32.5
South West	115	302	61.9	120	146	17.8
West Midlands	108	239	54.8	92	206	55.3
Trent	101	431	76.6	97	475	79.6

North West	85	132	35.6	119	126	5.6
Wales	16	18	11.1	31	21	-32.3
Total	789	1352	41.6	1141	1381	17.4

Between 2001 and 2002, an increase in laboratory reports of hepatitis A was seen in five of the nine regions of England and Wales and ranged between 11% and 77% (table 2). The greatest increases were seen in the Trent, South West, and West Midlands regions; 77%, 62%, and 55% respectively. Interestingly, the results of a survey conducted on consultants in communicable disease control detailing HAV outbreaks demonstrated that these three areas coincide with areas where the majority of outbreaks have been occurring. The survey respondents stated that IDUs were involved in all 20 documented outbreaks (2). Fourteen of these outbreaks occurred in England in 2002. Trent reported seven of the 20 outbreaks (35%), West Midlands reported six (30%), and South West reported two (10%). Seventy-five per cent (15/20) of the outbreaks documented in this survey occurred in these three regions. Notifications generally followed the same trend as laboratory reports except for in Wales, where laboratory reports increased but notifications fell. The discrepancy between numbers of laboratory reports and notifications in 2002 was greatest in London (ratio of notifications to laboratory reports of 3.8). Despite the ongoing outbreaks, the number of laboratory reports in London fell by almost half between 2001 and 2002. If the low numbers are a true reflection of current incidence in London it is difficult to explain, as populations at high-risk are concentrated in the city. Since the IDU population is so mobile, the ongoing outbreaks would be expected to have spread into London as well. It is more likely that underreporting by London laboratories is the cause, which continues to impede surveillance (3).

The ratio of male to female cases of HAV infection has consistently been above one since 1995 (4). In 1997 and 1998 the ratio exceeded two, probably reflecting outbreaks that occurred in gay men (5). Once again, in 2002, the male to female ratio of HAV infection was above 2 (figure 3). This is probably a reflection of the numerous outbreaks that have occurred/are occurring in IDUs, most of who are young males.

Figure 3 Ratio of male to female cases of hepatitis A, England and Wales: 1991-2002*



*Data for 2002 are provisional.

As outbreaks continue to occur in the IDU community, as seen in the recent Weymouth outbreak (6), it is recommended that IDUs, especially in areas where HAV incidence is high, be immunised against HAV (2). Intravenous drug users are at considerable health risk (particularly of liver disease) especially those with a history of alcohol abuse, or those who have had hepatitis C and/or hepatitis B (2). Additionally, it is feared that there may be a spillover of HAV infection from these outbreaks into the general population, as reported to have occurred in a similar outbreak in Finland (9).

In 2000, an IDU survey of those who had injected in the previous 28 days found that 61% had been in a prison or young offenders institution (7). It would seem reasonable therefore, to target the prison population, in addition to hostel residents and staff. It has been suggested that the combined hepatitis A/B vaccine now be used to extend the national immunisation against hepatitis B in IDUs to include hepatitis A (8).

The Sexually Transmitted and Bloodborne Viruses Laboratory (SBVL) of the Health Protection Agency initiated sequence-based typing of HAV in 2002 in an attempt to help clarify the epidemiology of the virus. Ascertainment of the routes along which distinct HAV strains spread among IDU populations should permit interventional measures to be specifically implemented. In addition, this will facilitate tracking of the possible spread of HAV from IDUs into the general population and will enhance general surveillance.

Current guidelines for post-exposure prophylaxis include vaccination for contacts of cases, if they can be vaccinated within one week of onset of jaundice in the index case, or HNIG for contacts of cases identified more than one week from onset of illness in the index case. Travellers are no longer recommended to be given HNIG (1). HNIG licensed for

prevention of HAV infection is available at the Health Protection Agency CDSC for contacts of cases.

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Laboratory reports of hepatitis B in England and Wales: 2002

Eight hundred and twenty-seven reports of acute hepatitis B infection were reported in 2002 (table 1). The majority of cases (77%) were in individuals aged between 15 and 44 years. Cases in males exceeded those in females, the annual male to female ratio being, 2.4:1.

Table 1 Quarterly laboratory reports of acute hepatitis B infection by age group and Sex, England and Wales: 2002*

Age Group (Years)	Q1 Jan-Mar			Q2 Apr-Jun			Q3 Jul-Sep			Q4 Oct-Dec			Total
	Male	Female	NK	Male	Female	NK	Male	Female	NK	Male	Female	NK	
<15	1	1	-	-	-	-	1	3	-	1	2	-	9
15-24	26	15	2	25	27	-	25	22	1	27	22	1	193
25-34	50	11	2	45	25	-	45	7	2	53	23	-	263
35-44	41	4	-	30	14	1	31	14	-	33	11	1	180
45-54	16	7	-	21	3	-	24	3	1	10	4	-	89
55-64	4	3	-	11	-	1	7	-	1	19	2	-	48
≥65	1	2	-	7	-	-	2	3	-	5	2	-	22
NK	7	1	-	2	2	-	2	-	2	3	3	1	23
Total	146	44	4	141	71	2	137	52	7	151	69	3	827

NK = Not known

* Provisional data

Injecting drug use was the main risk-factor associated with hepatitis B infection, accounting for 38% (159/416) of individuals with a known risk factor (table 2). This compares to 37% reported in 2001. In 2002, heterosexual exposure accounted for 28% (118/416) compared to 31% in 2001 and sex between men accounted for 15% (64/416) compared to 18% in 2001. Other reported risks for acute hepatitis B infection in 2002 accounted for 18%. In 2001, other risks accounted for 13%. The proportion of cases with no identified risk was 50% (411/827) compared to 53% in 2001.

Table 2 Quarterly laboratory reports of acute hepatitis B infection by risk exposure, England and Wales: 2002*

Risk Exposure	Q1 Jan-Mar	Q2 Apr-Jun	Q3 Jul-Sept	Q4 Oct-Dec	Total
IVDU*	40	45	42	32	159
Sex between men and women	20	34	25	39	118
Sex between men	24	11	14	15	64
Other identified risk	14	21	18	22	75
No identified risk	96	103	97	115	411
Total	194	214	196	223	827

* Provisional data

Laboratory reports of hepatitis C infection in England and Wales: 2002

There were 5917 reports of hepatitis C infection in 2002 (table 3), greater than the 4836 total reported in 2001. The majority of cases (64%) were in individuals aged between 25 and 44 years, this compares to 62% reported in 2001. The number of cases in males exceeded those in females in each quarter of 2002, the annual male to female ratio being 2.3:1.

Table 3 Laboratory reports of hepatitis C infection by sex and age group, England and Wales: 2001

Age Group (Years)	Q1 Jan-Mar			Q2 Apr-Jun			Q3 Jul-Sep			Q4 Oct-Dec			Total
	Male	Female	NK	Male	Female	NK	Male	Female	NK	Male	Female	NK	
<15y	7	3	–	6	6	–	12	7	–	6	2	2	51
15-24	91	57	3	108	60	8	111	73	7	106	58	4	686
25-34	295	99	7	379	174	8	380	174	10	341	166	6	2039
35-44	249	88	8	325	130	8	331	115	8	343	118	11	1734
45-54	132	28	1	144	53	1	178	56	1	170	65	3	832
55-64	16	16	–	47	12	3	31	27	–	37	19	–	208
≥65	30	19	–	27	26	1	21	20	–	33	30	4	211
NK	18	8	6	16	8	4	39	20	3	22	11	1	156
Total	838	318	25	1052	469	33	1103	492	29	1058	469	31	5917

NK = Not known

Invasive meningococcal infections, England and Wales, laboratory reports: weeks 17-20/03

	Method of diagnosis			Total reports	Cumulative* total to week 16/2003
	CSF and blood		Other sites		
	culture	non-culture			
Group A	–	–	–	–	–
B	60	41	9	110	621
C	8	3	–	11	64
W135	3	–	1	4	18
X	1	–	–	1	2
Y	–	–	–	–	8
Z	–	–	–	–	–
29E	–	–	–	–	–
Ungroupable	–	–	–	–	–
Ungrouped	–	10	–	10	41
Total	72	54	10	136	754

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

Enhanced surveillance of meningococcal disease: weeks 14-26/03

Regional enhanced surveillance of meningococcal disease (ESMD) began on 1 January 1998 in five regions of England and was extended to include all English regions, Wales, and Northern Ireland from the 1 January 1999. The national

enhanced surveillance system relies upon consultants in communicable disease control (CCDCs) reporting confirmed and probable cases of meningococcal disease occurring in their district each week. Data are collated at regional level and sent on to the Immunisation Division at the Health Protection Agency Communicable Disease Surveillance Centre (CDSC), each month. These data are subsequently published quarterly in *CDR Weekly*. Additionally, CCDCs are asked to report details of any clusters of meningococcal disease occurring in educational establishments.

Second quarter of 2003: weeks 14-26/2003

In the second quarter of 2003, ESMD identified 556 cases of invasive meningococcal disease in the nine English regions, Wales, and Northern Ireland. This is a decrease of 26% on the total of 755 in the previous quarter and a decrease of 16% on the total of 659 in the equivalent quarter of 2002. West Midlands reported the highest number of cases this quarter (82), however, the highest rate was reported in Wales (table 1).

Table 1 Meningococcal disease by region, weeks 14-26/03

Region	B	C	Other	Infection not confirmed	Total	Rate per 100,000
North East	14	1	1	14	30	1.2
Yorkshire and Humberside	21	3	6	39	69	1.4
East Midlands	17	1	2	23	43	1.0
Eastern	18	1	–	12	31	0.6
London	21	1	–	31	53	0.7
South East	15	2	–	42	59	0.7
South West	37	1	2	26	66	1.3
West Midlands	25	5	2	50	82	1.6
North West	25	2	4	19	50	0.7
Wales	9	–	1	38	48	1.7
Northern Ireland	15	1	–	9	25	1.5
Total	217	18	18	303	556	

A clinical diagnosis of invasive meningococcal disease was reported for 511 cases identified in England and Wales compared to 340 cases of meningitis and septicaemia, officially notified to CDSC during the same period. This implies that approximately 66% of clinically diagnosed meningococcal disease is formally notified, although cross-checking to compare the identity of those notified to those reported in ESMD has not been carried out. The overall case fatality rate in cases identified in ESMD with a clinical diagnosis (in England, Wales, and Northern Ireland) was 4 per 100 cases. Similarly, the case fatality rate for cases with septicaemia alone was 4 per 100 cases (table 2).

Table 2 Clinically diagnosed cases (deaths) of meningococcal disease: England, Wales, and Northern Ireland, weeks 14-26/03

Region	Meningitis	Septicaemia	Meningitis & Septicaemia	Not meningitis or septicaemia	Total
North East	5	21	4	–	30
Yorkshire and Humberside	19	27	18 (2)	2	66 (2)
East Midlands	18 (2)	18 (2)	7 (1)	–	43 (5)
Eastern	17	9	5	–	31
London	13	22	15 (2)	2	52 (2)
South East	20 (1)	27 (1)	10	1 (1)	58 (3)
South West	22	33 (4)	10	–	65 (4)
West Midlands	27	42 (1)	9	3	81 (1)
North West	19 (1)	21 (1)	7	–	47 (2)
Wales	3	34 (1)	1	–	38 (1)
Northern Ireland	6	18 (1)	1	–	25 (1)
Total	169 (4)	272 (11)	87 (5)	8 (1)	536 (21)

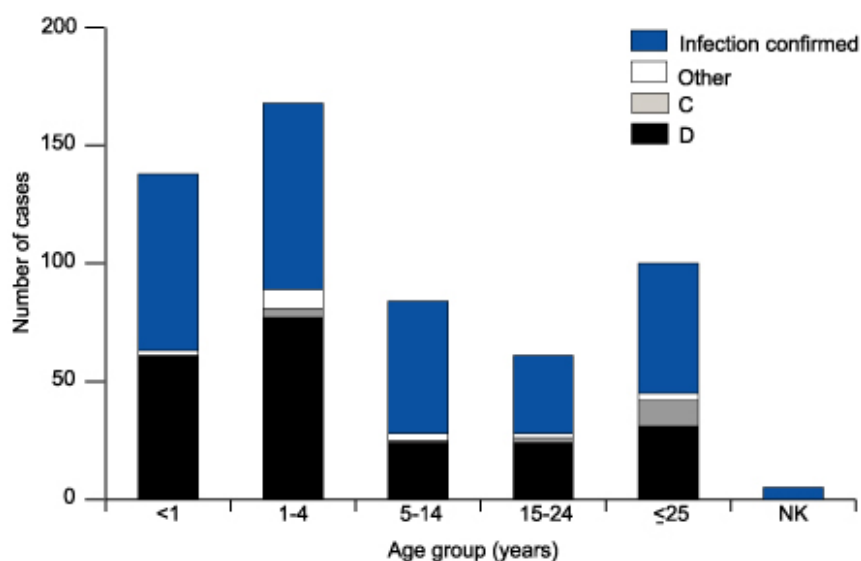
Two hundred and fifty-three of the 556 cases (45%) identified in ESMD were confirmed as *Neisseria meningitidis* infection, compared to 328 reports of laboratory confirmed meningococcal disease made to Meningococcal Reference Unit (MRU) in the same period.

Serogroup B *N. meningitidis* was detected in 86% (217/253) of confirmed cases identified in ESMD, serogroup C in 7% (18/253) and the remaining 7% included ungrouped cases (6/253) and other serogroups (12/253). The latter consisted

predominantly of serogroup W135 (7/12).

Over half (60%) of all confirmed cases were in children aged under 5 years. Serogroup B accounted for 91% of these infections, serogroup C accounted for 3%, and other serogroups for 6%. Four serogroup C infections occurred in this age group of children. The MenC vaccination status was unknown for two of these children and two vaccine failures were documented (figure).

Figure Serogroups of *N. meningitidis* identified in cases in England, Wales, and Northern Ireland by age: weeks 14-26/03



There has continued to be an overall reduction in the observed number of cases of meningococcal disease compared to the equivalent period in the previous year: serogroup B fell by 16% (217 cases compared to 259 in 2002), serogroup C by 58% (18 cases compared to 43 in 2002), other serogroups by 47% (18 compared to 34 in 2002), and unconfirmed by 6% (303 compared to 323 in 2002). This trend may reflect a real reduction in meningococcal disease, since a decline is also observed in routine data: clinical notifications fell by 4% (340 compared to 353 in 2002), and laboratory reports by 15% (328 compared to 385 in 2002).

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Laboratory confirmed cases of pertussis infection in England and Wales: April to June 2003

Table 1 Laboratory confirmed cases of pertussis infection in England and Wales by Age Group: April to June 2003

Age group (years)	PCR and or serology	Culture	Total	Percentage increase in case ascertainment through PCR and/or Serology
<3 months	1	23	24	4
3-5 months	3	2	5	150
6-11 months	1	1	2	100
1-4 years	1	2	3	50
5-9 years	1	1	2	100
10-14 years	3	2	5	150
≥ 15 years	8	1	9	800
NK	-	-	-	-
Grand Total	18	32	50	56

Since January 2002, infants ≤ 6 months of age with suspected pertussis have been offered PCR testing through RSIL. Adults with a cough persisting for >21 days and children with a cough persisting for >14 days, have been offered serology testing through RSIL. These cases are likely to have been culture negative, and testing with PCR and/or serology have increased case ascertainment. NK = not known

Table 2 Laboratory confirmed cases of pertussis infection, England and Wales by age group: January to June 2003 *

Quarter	Method of Diagnosis			Total
	PCR and /or Serology only	Culture	proportion of pcr/serology reports	
Q1	8	27	23	35
Q2	18	32	36	50
Total	26	59	31	85

The apparent increase particularly in adult cases is explained by the availability of enhanced diagnostic methods which have been increasingly used during the three quarters, as illustrated by the increasing proportion of reports diagnosed by PCR and or serology.

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Next update due: 25 September 2003**Contents****AIDS and HIV infection in the United Kingdom: monthly report (August 2003)**[PDF |](#)**AIDS and HIV infection in the United Kingdom: monthly report (August 2003)**

United Kingdom (UK) data from the Health Protection Agency HIV and STI Division, Scottish Centre for Infection and Environmental Health, Institute of Child Health, London, and the UK Haemophilia Centre Doctors' Organisation.

Of the cumulative total of 57,763 reports of HIV infected individuals received between the beginning of AIDS reporting in 1982 and the end of June 2003, 16,375 (28%) are of diagnoses made since the beginning of 2000. Clinician reporting of new diagnoses of HIV infection was introduced in the January of that year, and as a result the reporting of the ethnicity has improved. In the past, only microbiologists who do not usually have this information available to them reported new diagnoses. This report summarises the information relating to ethnicity from these more recent diagnoses.

Even with the improvement in the reporting of patient ethnicity, the information is unknown for 17% of those diagnosed since the beginning of 2000 (2737 of 16375). Among the 13,638 for whom ethnicity is known, 39% are recorded as white, and 51% as black African (table 1). The numbers of individuals of other ethnicities are relatively small – 4% black Caribbean, 3% other/mixed, and 1% each from the Indian sub-continent, and black other. Most of the last group are probably British born individuals of Caribbean descent. Among those of white ethnicity, infection is attributed to sex between men for 67%; in all the other ethnic groups the majority of infections are attributed to heterosexual transmission. Only a quarter of the HIV infections diagnosed in white individuals are attributed to this route of infection, with another 5% attributed to injecting drug use. The great majority (79%) of children with maternally acquired infection are of black African ethnicity.

Table 1 Ethnicity by Probable route of infection, first UK HIV diagnoses from the beginning of 2000: data to the end of June 2003

Probable route of infection	Ethnicity							Total
	White	Black Caribbean	Black African	Black Other	ISC	Other/Mixed	Not Reported	
Sex between men	3588	146	85	43	52	197	1246	5357
Sex between men and Women	1301	390	6258	74	112	194	727	9056
IDU*	255	5	8	5	1	14	79	367
Blood Factor	–	–	3	–	–	–	3	6
Blood transfusion	19	–	35	–	8	2	8	72
Mother to child	17	6	250	–	5	39	2	319
Other/Undetermined	199	30	252	7	14	24	672	1198
Total	5379	577	6891	129	192	470	2737	16,375

* Intravenous drug user

Table 2 Heterosexually acquired HIV infections diagnosed in the UK from the beginning of 2000 by sub-categorisation and ethnicity Data to the end of June 2003

Sub categorisation of heterosexually acquired infections	White	Black Caribbean	Black African	Black Other	ISC	Other/Mixed	Not Reported	Total
Exposure to 'high risk'* partner(s)	96	3	12	1	5	5	23	145

Exposure to presumed heterosexually infected partner(s):									
Africa	360	39	5814	28	33	42	376	6692	
Latin America/Caribbean	37	211	9	3	–	14	14	288	
Asia	157	–	4	2	54	93	32	342	
North America	11	5	3	–	–	–	2	21	
Europe	96	2	23	7	–	8	12	148	
Australasia	8	–	1	–	–	1	–	10	
country(ies) not known	2	–	2	1	–	–	–	5	
Exposure in the UK to partner(s) presumed infected									
outside Europe	184	60	160	14	14	10	24	466	
Europe	115	17	13	5	–	1	2	153	
in country(ies) not known	163	17	15	3	3	2	1	204	
Partner's exposure category undetermined~	72	36	202	10	3	18	241	582	
Total	1301	390	6258	74	112	194	727	9056	

Table 2 gives the sub-categorisation of the 9056 reports of heterosexually acquired HIV infection recorded in table 1. Only 2% were attributed to heterosexual spread from a 'high risk' partner (*ie*, a bisexual man, injecting drug user, or blood or blood product recipient) and where ethnicity was reported, 79% of these were white. For the majority (74%) of those with heterosexually acquired HIV, infection is attributed to acquisition in Africa, and of the 6316 for whom ethnicity is recorded, 92% are black African. Six per cent are white. The latter group will include individuals who acquired HIV while visiting Africa as well as those of white ethnicity who have grown up in Africa or have spent long periods living or working there. Fifty per cent of those who acquired HIV heterosexually in Asia (where ethnicity was recorded) were white: many of these infections were acquired in Thailand by individuals visiting that country on holiday or on business. The number of black Africans (160) who are recorded as having acquired HIV heterosexually in the UK has probably been underestimated. When an individual is reported to have been exposed to HIV in countries in more than one world region (like Uganda and the UK) the likely area of infection is recorded as that of the country with the higher HIV prevalence. In some cases however this allocation will be wrong and infection acquisition in the UK will therefore be underestimated.

For the HIV infections diagnosed since the beginning of 2000 the reported ethnicity distribution over the UK is not even (table 3). Excluding those with unreported ethnic group, the proportion of white individuals varies from 23% in the Eastern region of England to 92% in Scotland. Northern Ireland, Wales, and the North West and South West regions all have over 50% white. The majority (53%) of the HIV infected black Africans have been reported from London. In London, however, and everywhere else apart from the regions and countries listed above, black Africans form the largest ethnic group among those with HIV infection diagnosed in the UK since the beginning of 2000.

Table 3 Ethnicity by region/country of report, first UK HIV diagnoses from the beginning of 2000: data to the end of June 2003

Earliest Reg Name	Ethnicity							Total
	White	Black Caribbean	Black African	Black Other	ISC	Other/Mixed	Not Reported	
North East	83	3	95	–	2	4	18	205
Yorkshire and Humberside	246	19	293	3	7	18	132	718
East Midlands	207	22	348	2	32	19	38	668
Eastern	251	26	754	6	9	23	48	1117
London	2098	408	3652	100	107	272	2037	8674
South East	623	23	909	6	10	51	113	1735
South West	222	14	138	–	1	19	71	465
West Midlands	221	46	337	7	4	9	126	750
North West	665	14	253	5	17	37	145	1136
England total	4616	575	6779	129	189	452	2728	15,468
Wales	131	1	55	–	2	8	8	205
Northern Ireland	53	–	14	–	–	4	1	72
Scotland	570	1	42	–	1	6	–	620
UK Total	5370	577	6890	129	192	470	2737	16,365
Channel Islands/Isle of Man	9	–	1	–	–	–	–	10