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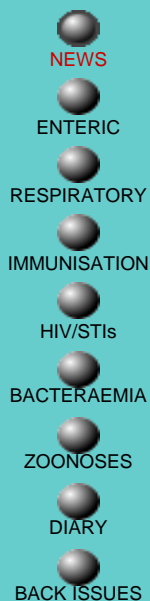
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PHLS Communicable Disease Surveillance Centre



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Animal foot and mouth epidemic in the UK - information for those concerned with human health

In the *CDR Weekly* Vol 11 No 9 (1 March 2001) the Public Health Laboratory Service asked that doctors report any possible cases of animal foot and mouth disease occurring in humans in association with the current epidemic of foot and mouth disease to the CDSC duty doctor (1). This was so that the reporting doctors could be directed towards specialist advice on management and diagnosis, and for surveillance purposes. Since then eight cases have been reported to CDSC and specialist tests have been undertaken on specimens from these by the Virus Reference Division at the Central Public Health Laboratory. Patients or their medical advisors have been informed of the results. Tests included polymerase chain reaction (PCR) testing for animal foot and mouth virus.

None of the specimens from the eight cases have tested positive for the animal foot and mouth infection. One has been positive for a human enterovirus. This makes it very unlikely that any of these cases have human foot and mouth disease. To exclude any possibility of foot and mouth infection, serology tests will be conducted in the next two weeks.

As reported earlier, clinically manifest animal foot and mouth disease in humans seems to a very rare event, even during intense and widespread animal epidemics and considerable exposure to the virus among the many people working with animals. During the epidemic of 1967 in the UK there was only one reported case in a man who worked directly with animals (2). That case, and the few others that have been confirmed worldwide, had direct exposure. On-going transmission of infection to other humans has never been reported.

Possible cases should continue to be reported to CDSC duty doctors. The diagnosis is unlikely unless there is direct exposure through contact with infected or possibly infected animals and testing would be recommended only in these circumstances. The signs and symptoms of animal foot and mouth disease in humans have been described recently in a leading article in the *British Medical Journal* (2). The symptoms relatively non-specific and even among those exposed to animal foot and mouth disease most will have other diagnoses. Those taking specimens must liaise directly with the Virus Reference Division of the PHLS Central Public Health Laboratory (CPHL) (tel: 020 8358 3225) to ensure that the correct specimens are taken and transported securely to CPHL Colindale. Testing should not take place locally.

Media reporting is creating considerable anxiety among some members of the public, especially where animal foot and mouth disease is prevalent. There also continues to be confusion between animal foot and mouth and the common human viral infection hand, foot, and mouth disease which is caused by a completely different human enterovirus (2). Those health care staff advising worried patients should bear in mind the extreme unlikelihood of animal foot mouth and disease in humans, and first consider other diagnoses. A set of frequently asked questions and their answers is available on the PHLS website at <www.phls.co.uk/advice/fmd_qa.pdf>.

Further guidance has now been issued by the Department of Health as to how to minimise the risk to public health from the slaughter and disposal of animal carcasses through rendering, incineration, burning, and burial. This is available from the Department of Health website at <www.doh.gov.uk/fmdguidance/fmdsummary.pdf>. It is important that those working directly with animals should take appropriate precautions to protect themselves from known zoonoses (animal infections affecting humans). This is important to prevent people carrying foot and mouth disease between animals. Some guidance on protection against zoonoses that those working with animals may be exposed to are provided by the Health and Safety Executive (HSE) in their pamphlet. Common zoonoses in agriculture available on the HSE website at <www.hse.gov.uk/pubns/ais2.pdf>.

1. CDSC. Foot and mouth disease outbreak – no threat to public health. *Commun Dis Rep CDR Wkly* [serial online] 2001 [cited 25 April 2001]; 11 (9): news. Available online at <<http://www.phls.co.uk/publications/CDR%20Weekly/archive/news0901.html#foot>>

2. Premph H, Smith R, Muller B. Foot and mouth disease the human consequences. *BMJ* 2001; 322: 565-6. Available online at <www.bmj.com/cgi/content/full/322/7286/565>

Two tuberculosis incidents

Tuberculosis in a health care worker in Cheltenham

A health care worker, who had been working on the same ward at the same time as another healthcare worker who developed tuberculosis in May 2000, has also been diagnosed with the disease.

The index case was a 69 year old man who was admitted to Cheltenham General Hospital with pulmonary smear positive tuberculosis in September 1999. In May 2000 a health care worker who had been involved in the care of this case, developed pulmonary tuberculosis. Isolates of *Mycobacterium tuberculosis* from the two cases were indistinguishable on IS6110 restriction fragment length polymorphism (RFLP) typing. In April 2001 a second health care worker, who had been working on the same ward at the same time as the index case was diagnosed with pulmonary smear positive tuberculosis. A case of tuberculosis who had social links with the second health care worker outside the hospital was reported in the community shortly before that worker was diagnosed.

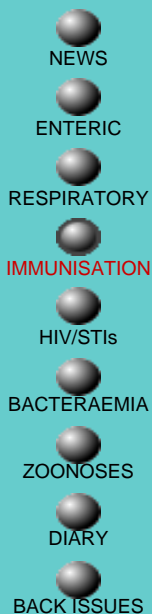
As the second health care worker had had respiratory symptoms, including cough, from about May 2000, all inpatients admitted to this ward between April 2000 and April 2001 are being sent a letter with information about the incident and are being offered screening. In addition, all staff are being screened using tuberculin (Heaf) testing and by chest x-ray if strongly tuberculin positive. Sputum specimens are being requested from any staff with a productive cough. RFLP typing of isolates from the last two cases is underway. The incident is being managed by the East Gloucestershire NHS Trust.

Tuberculosis in students attending a school in south Wales

The public health team at Gwent Health Authority is investigating eight cases of tuberculosis in students in the same year group at a secondary school in Newport, south Wales. Following the diagnosis of two cases of pulmonary tuberculosis in 14 year old pupils at the school, one of whom was smear positive, the remainder of the school year was screened. Six further cases were identified on the basis of strongly positive tuberculin (Heaf) reactions and abnormal chest x-rays. The diagnoses in the two original cases have been microbiologically confirmed.

Assessment and investigation of household and other close social contacts of the cases is being carried out. Screening with tuberculin (Heaf) skin testing is being offered to students in other year groups in the school to determine whether there are other cases of tuberculosis in the school community. In addition, staff are to be screened with chest x-rays.

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Invasive meningococcal infections, England and Wales: laboratory reports, weeks 05-09/01

	Method of diagnosis			Total reports 05-09/01	Cumulative total* 2001	Annual total 2000
	CSF and blood		Other sites			
	culture	non-culture**	culture			
Group A	–	–	–	1	1	2
Group B	112	151	35	298	518	1645
Group C	33	23	2	58	111	712
Group W135	4	1	–	5	19	109
Group X	–	–	2	2	3	4
Group Y	3	1	1	5	9	29
Group Z	–	–	–	–	–	–
Group 29E	–	–	–	–	–	–
Ungroupable	–	–	3	3	9	22
Ungrouped	–	48	–	48	73	137
Total	152	224	43	419	743	2660

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

Virus infections, England and Wales: laboratory reports, weeks 12-16/01

Laboratory reports	Number of reports received					Total reports 12-16/01	Cumulative total 2001
	12/01	13/01	14/01	15/01	16/01		
Coxsackie A	1	–	1	–	–	2	11
Coxsackie B	1	–	–	–	1	2	31
Cytomegalovirus	20	26	23	6	15	90	266
Echovirus	4	12	5	5	6	32	85
Parvovirus B19	18	7	12	2	5	44	110
Varicella zoster virus	1	21	9	3	6	40	132

Laboratory reports of hepatitis infection, England and Wales: weeks 01-52/00 (provisional data)

Hepatitis A

A total of 1024 reports of hepatitis A infection were reported in 2000 (table 1). Forty-seven per cent of cases occurred in 15 to 34 year olds. Sixty-six per cent of cases were male.

Table 1 Quarterly laboratory reports of hepatitis A infection by age group and sex, England and Wales: 2000

Age	Quarter 1 Jan-Mar			Quarter 2 Apr-Jun			Quarter 3 Jul-Sep			Quarter 4 Oct-Dec			Total
	Male	Fem	NK	Male	Fem	NK	Male	Fem	NK	Male	Fem	NK	
<1	1	–	–	–	1	–	–	–	–	–	–	–	2
1-4	3	1	–	4	3	1	2	3	–	6	4	–	27
5-9	10	5	–	14	11	–	5	7	–	11	14	1	78
10-14	8	15	–	11	12	1	14	6	–	6	8	–	81
15-24	50	26	3	50	16	–	25	19	1	32	12	1	235
25-34	36	17	1	49	28	1	34	16	1	40	22	–	245
35-44	26	12	2	23	9	–	18	6	–	20	15	1	132
45-54	17	8	–	8	5	1	11	3	1	14	4	–	72
55-64	4	4	1	7	7	–	7	3	–	5	5	–	43
65+	9	8	–	10	8	–	3	10	–	7	11	1	67
NK	5	6	–	5	6	–	7	5	1	5	2	–	42
Total	169	102	7	181	106	4	126	78	4	146	97	4	1024

Data based on date of specimen.

Acute hepatitis B

A total of 565 reports of acute hepatitis B infection were reported in 2000. The majority of cases (78%) occurred in 15 to 44 year olds (table 2). Cases in males exceeded those in females in each quarter by approximately three to one.

Table 2 Quarterly laboratory reports of hepatitis B infection by age group and sex, England and Wales: 2000

Age	Quarter 1 Jan-Mar			Quarter 2 Apr-Jun			Quarter 3 Jul-Sep			Quarter 4 Oct-Dec			Total
	Male	Fem	NK	Male	Fem	NK	Male	Fem	NK	Male	Fem	NK	
<15	1	–	–	2	–	–	–	3	–	1	1	–	8
15-24	30	20	3	18	20	–	14	12	1	13	15	–	146
25-34	55	14	1	35	10	–	34	9	2	27	7	–	194
35-44	23	9	1	23	8	–	16	4	–	13	4	–	101
45-54	14	4	–	11	2	–	10	–	–	12	2	–	55
55-64	6	4	–	7	3	–	4	–	2	7	1	–	34
65+	3	2	–	4	1	–	1	–	–	3	–	–	14
NK	2	1	–	1	2	1	3	–	–	3	–	–	13
Total	134	54	5	101	46	1	82	28	5	79	30	–	565

Data are based on date of specimen.

Injecting drug use was the main risk factor associated with hepatitis B infection, accounting for 48% (172/360) of individuals with known risk factors (table 3). Twenty-four per cent (87/360) of individuals with known risk factors has hepatitis B infection associated with heterosexual exposure, 14% sex between men, and 14% associated with other risk exposures.

Table 3 Quarterly laboratory reports of acute hepatitis B infection by risk exposure, England and Wales: 2000

Risk exposure	Quarter 1 Jan-Mar	Quarter 2 Apr-Jun	Quarter 3 Jul-Sep	Quarter 4 Oct-Dec	Total
IVDU	65	41	39	27	172
Sex between men	19	12	10	9	50
Sex between men and women	32	27	15	13	87
Other identified risk	21	14	10	6	51
No identified risk	56	54	41	54	205
Total	193	148	115	109	565

Data are based on date of specimen.

Hepatitis C

A total of 5114 reports of hepatitis C infection were reported in 2000 (table 4). The majority of cases (63%) occurred in 25 to 44 year olds. Cases in males exceeded those in females in each quarter.

Table 4 Quarterly laboratory reports of hepatitis C infection by age group and sex, England and Wales: 2000

Age	Quarter 1 Jan-Mar			Quarter 2 Apr-Jun			Quarter 3 Jul-Sep			Quarter 4 Oct-Dec			Total
	Male	Fem	NK	Male	Fem	NK	Male	Fem	NK	Male	Fem	NK	
<15	2	2	–	7	2	1	8	3	–	6	9	1	41
15-24	96	81	5	91	81	9	93	67	6	61	50	6	646
25-34	341	175	24	353	133	18	283	110	11	298	128	14	1888
35-44	239	91	12	258	98	8	217	103	8	214	105	7	1360
45-54	141	50	13	126	42	2	114	34	3	140	38	9	712
55-64	16	13	5	23	25	1	19	11	2	22	12	3	152
65+	30	19	2	23	18	3	31	16	2	28	19	1	192
NK	13	10	5	23	9	5	18	9	–	24	7	–	123
Total	878	441	66	904	408	47	783	353	32	793	368	41	5114

Data are based on date of specimen.

Haemophilus influenzae by age group and serotype, England and Wales: weeks 01-13/01

Reports of *Haemophilus influenzae* for the first quarter of 2001 remained at a similar level to the same period of 2000 for all age groups except the under one year olds where the number of cases, although remaining at a low level, increased from 11 to 24 (table). Of the 24 cases under one year old, 15 were aged under three months, two between three and six months, and seven between six months and one year. This compares with eight infants under three months, two between three and six months, and one case between six months and one year in the first quarter of 2000.

The distribution of cases by serotype is also similar for the first quarters of 2000 and 2001. The number of cases of invasive *H. influenzae* disease have been at a low level since the introduction of *H. influenzae* type b vaccine in 1992.

Table Laboratory reports of *Haemophilus influenzae*, by serotype and age group: first quarter 2001 (2000)

Serotype	Age					Total
	<1 year	1-5 years	5-14 years	15 years+	not known	
b	3 (2)	11 (13)	3 (–)	11 (7)	– (–)	28 (22)
nc	11 (7)	2 (6)	4 (3)	51 (52)	1 (3)	69 (71)
a, e, f	1 (1)	3 (1)	– (1)	10 (5)	– (–)	14 (8)
not typed	9 (1)	2 (–)	2 (3)	33 (35)	3 (3)	49 (42)
total	24 (11)	18 (20)	9 (7)	105 (99)	4 (6)	160 (143)

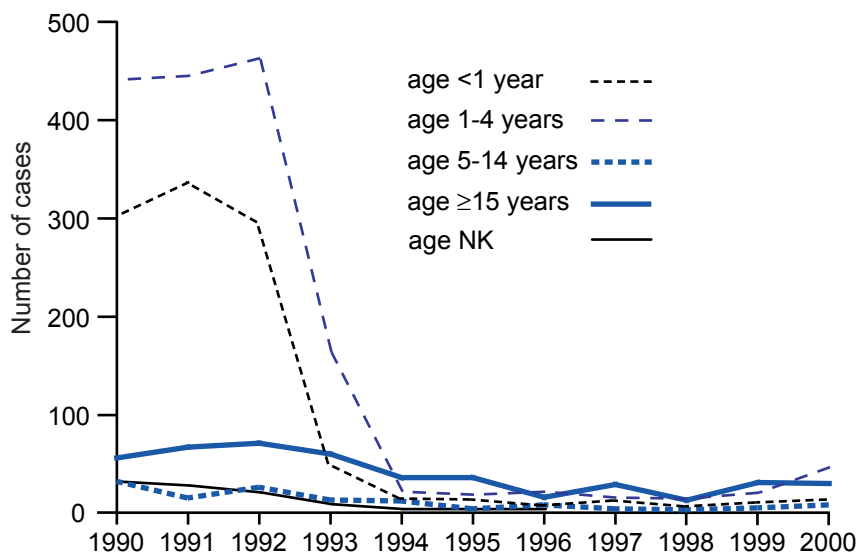
Update Table Laboratory reports of *Haemophilus influenzae*, by serotype and age group: fourth quarter 2000 (1999)

Serotype	Age					Total
	<1 year	1-5 years	5-14 years	15 years+	not known	
b	5 (4)	17 (7)	4 (2)	9 (13)	1 (–)	36 (26)
nc	9 (6)	5 (4)	1 (–)	31 (27)	1 (–)	48 (37)
a, e, f	1 (–)	2 (–)	– (1)	8 (5)	– (–)	11 (6)
not typed	1 (1)	2 (1)	1 (1)	28 (25)	– (1)	32 (29)
total	16 (11)	26 (12)	6 (4)	77 (70)	2 (1)	127 (98)

Surveillance of invasive *Haemophilus influenzae* infections in children

Routine infant immunization with conjugate Hib vaccine in the United Kingdom (UK) began in October 1992. The incidence of invasive Hib infections fell dramatically following the introduction of the Hib vaccination programme and has remained at very low rates. It is notable that the incidence in children aged less than 5 years has increased from 0.92 per 100,000 in 1996 to 1.88 per 100,000 in 2000 (30 cases and 61 cases respectively [figure]). The incidence for the year preceding vaccine implementation (October 1991 – September 1992) was 23.8 per 100,000. The reason for the increase in incidence over the last two years is unclear. It may simply reflect a transient fluctuation that is within the range of normal variability expected in the presentation of this disease. Other possibilities include waning population immunity, which could be linked to a reduction in natural boosting as a consequence of the low levels of carriage observed in pre-school children following the introduction of Hib vaccine. Further evaluation of trends in Hib carriage and population immunity is required.

Figure *Haemophilus influenzae* type b disease by age group: 1990 to 2000



Enhanced surveillance of invasive *Haemophilus influenzae* disease in children who had been immunized began at the same time as the vaccination programme, under the auspices of the British Paediatric Surveillance Unit (BPSU). By March 2001, 474 (264 type b, 210 non-b) cases were reported in children who had received one or more doses of Hib vaccine. One hundred and eighty-nine cases of Hib were reported that represented true vaccine failures (TVF) (170 fully vaccinated with three doses, 12 developed disease more than one week after two doses Hib vaccine and seven after a single dose in the catch-up campaign). A further 59 cases of Hib disease occurred in children who had received Hib vaccine but in whom the disease had developed before protection could be reasonably expected to have developed. In 16 cases in vaccinated children, the strains of *H. influenzae* were not fully characterized (and therefore may not be Hib). One hundred and sixty-seven vaccinated children had invasive disease due to non-capsulated strains of *H. influenzae*, and 42 had infections caused by non-type b capsulated strains (33 type f, 7 type e, 1 type a, 1 type c).

In September 1995 the enhanced surveillance was extended to cover all cases of invasive *H. influenzae* infection in children aged from 0 to 16 years regardless of Hib vaccination status. Since September 1995 there have been 198 reports of *H. influenzae* disease in unvaccinated children. Sixty (30%) were Hib, 138 (70%) were not Hib and therefore could not have been prevented by Hib vaccine. Invasive *H. influenzae* disease was removed from the BPSU orange card reporting scheme in October 2000.

Continued surveillance of cases of invasive *H. influenzae* disease is of great importance in determining whether the current rise in incidence will be sustained or whether it is a transient phenomenon. Ongoing case ascertainment will occur through consultants in communicable disease control and microbiologists. Cases of invasive *H. influenzae* disease should be reported to Mary Slack at the PHLS *Haemophilus* Reference Unit, (tel: 01865-220859/220852, fax: 01865-220890), Jodie McVernon of the Oxford Vaccine Group at the John Radcliffe Hospital, Oxford, (tel: 01865-221068, fax: 01865-220479) or Mary Ramsay at the PHLS Communicable Disease Surveillance Centre (tel: 020 8200 6868 ext.4085, fax: 020 8200 7868). Isolates of *H. influenzae* from cases of invasive disease should be submitted (on chocolate agar slopes) for confirmatory typing to Mary Slack, PHLS *Haemophilus* Reference Unit, Level 7, John Radcliffe Hospital, Oxford, OX3 9DU.

Advice for clinicians and microbiologists

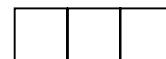


Survey form



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**PHLS HAEMOPHILUS REFERENCE UNIT,
OXFORD VACCINE GROUP
PHLS COMMUNICABLE DISEASE SURVEILLANCE CENTRE**



Invasive *Haemophilus* Disease – Advice for Clinicians & Microbiologists

Microbiology:

Isolates should be sent on chocolate agar for confirmation of typing to Dr. Mary Slack:

PHLS Haemophilus Reference Unit
Department of Microbiology
Level 6/7
John Radcliffe Hospital
Headington, Oxford OX3 9DU

Any isolate of *Haemophilus influenzae* from a normally sterile site (csf, blood, pleural fluid, joint fluid, etc.) should be submitted to the PHLS Haemophilus Reference Unit for confirmation and typing. The strain should be accompanied by a Haemophilus Reference Unit request form, duly completed. (These forms can be obtained by contacting Mrs. Sue Gurney, PHLS HRU, tel: 01865-220852, fax: 01865-220890, e-mail: sue.gurney@ndcls.ox.ac.uk). Cases where there is a strong suspicion of an invasive Haemophilus infection (latex agglutination positive for Hib, Gram-staining of csf revealed Gram-negative coccobacilli which morphologically resemble haemophili, should also be notified to the PHLS HRU.

Clinical information:

While formal 'orange card' reporting has ceased through the BPSU, we are still very interested in collecting information regarding cases of invasive *Haemophilus* disease, in particular those with type b who have been appropriately vaccinated. This programme of post licensure surveillance provides unique insights into the effectiveness of the Hib vaccine programme in the United Kingdom.

We aim to collect the following information:

- Basic demographic data
- Date of birth
- Sex
- Vaccination history, including batch numbers where known
- Clinical presentation of disease and outcome in terms of survival
- Underlying risk factors such as chronic disease, immunodeficiency or prematurity

A proforma for this information can be obtained from Mrs Carole Barr at the Oxford Vaccine Group by phoning 01865 221068 or emailing carole.barr@paediatrics.ox.ac.uk. Alternatively, you can give details directly over the phone to Mrs Barr, or Dr Jodie McVernon at the same number. Alternatively, you may call Sue Gurney or Dr Mary Slack at the Haemophilus Reference Unit on 01865-220852/220859.

Immunological information:

Hib conjugate vaccine failure has been associated with minor abnormalities of immunoglobulins and subclasses, both here and in the United States. This picture, which may represent a delay in immune maturation, has also been associated with recurrent ear, nose and throat infections in childhood. We are interested in gathering more information on this association. Results may also be directly relevant to patient care if abnormalities are found.

Immunoglobulins, subclasses and Hib antibody can be measured on a specimen of serum (1 ml) if sent to:

Department of Immunology,
Churchill Hospital,
Oxford OX3 7LJ

**PHLS HAEMOPHILUS REFERENCE UNIT,
OXFORD VACCINE GROUP
PHLS COMMUNICABLE DISEASE SURVEILLANCE CENTRE**

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Survey of Invasive *Haemophilus Influenzae* Infection

Completed by: Date of Report:...../...../.....

Reported by:

Section A: Patient ID Data (hospital sticker can be used)

1. Name of patient:
2. Address:
.....Post code
3. Date of Birth:/...../..... 4. Sex: M F
5. Hospital number:

Section B: Vaccination details

Date(s) Hib Vaccine Given	Day / Month / Year	Batch Number
Dose 1:/...../.....
Dose 2:/...../.....
Dose 3:/...../.....

Section C: Clinical and laboratory features

1. CLINICAL DIAGNOSIS Date of admission:/...../.....
Meningitis Epiglottitis Pneumonia Bacteraemia
Bone/joint Cellulitis Other (please specify)
Source of isolate: Blood CSF Other (please specify)

2. CLINICAL OUTCOME

Did the patient: Survive Die Not known

3. CLINICAL RISK FACTORS

Does the child have an underlying illness? Yes No Don't know

Does the child have known immunodeficiency? Yes No Don't know

If yes, please specify:

Gestational Age at Birthweeks

Section D: Contacts for further information about vaccination and clinical details

GP: Name and address
.....Phone No.....

Consultant Microbiologist: Name & Hospital.....
.....Phone No.....

Consultant Paediatrician: Name & Hospital.....
.....Phone No.....

Reminders: Isolate Sent Serum Sent

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AIDS and HIV infection in the United Kingdom: monthly report

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).

One thousand and eighty four new diagnoses of HIV infection were reported to the United Kingdom (UK) data set in the first quarter of 2001. Three hundred and forty four of these infections were probably acquired through sex between men, 504 through sex between men and women, 23 through injecting drug use (IDU), and five through blood transfusion abroad. At the end of the quarter the probable route of infection was unresolved for 206 of the reported cases. Of the reports received, 498 (46%) were of HIV infections diagnosed in the first quarter of 2001, 533 (49%) were of diagnoses made in 2000, and 53 (5%) related to diagnoses made in 1999 or earlier. The 533 reports of HIV diagnoses made in 2000 received during the last quarter bring the total for that year to 3435 (table 1). This is the highest number of diagnoses reported for a single year at any stage in the UK epidemic. Although the introduction of reporting of HIV diagnoses by clinicians (1) has contributed to the increase, only 111 of the individuals reported as diagnosed in 2000 were known about solely from this source, and the total of diagnoses for the year 2000 would have been the highest annual total even without its contribution.

Table 1 HIV infected individuals* by year of diagnosis, United Kingdom[§]: data to end of March 2001

How HIV infection was probably acquired	Year of diagnosis											Total [†]
	1990 and earlier	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Sexual intercourse between men [#]	11032	1707	1634	1495	1473	1460	1533	1377	1335	1298	1302	25806
Sexual intercourse between men and women	1606	644	779	765	788	847	828	1002	1147	1382	1674	11667
Injecting drug use	2057	241	187	202	167	181	172	164	127	105	84	3695
Blood factor treatment (eg, for haemophilia)	1329	4	4	4	2	—	2	2	2	1	1	1351
Blood/tissue (eg, transfusion)	143	20	19	13	15	19	19	25	7	16	16	314
Mother to infant	81	35	57	67	64	58	58	82	92	75	81	751
Other/undetermined	473	57	53	62	37	56	55	44	64	104	277	1404
Total	16721	2708	2733	2608	2546	2621	2667	2696	2774	2981	3435	44988

* Individuals with reports of HIV diagnosis plus those with AIDS or death reports for whom no separate report has been received

† Numbers, particularly for recent years, are likely to increase as delayed reports are received

‡ Includes 498 diagnoses made in 2001

§ Includes 66 individuals first reported from the Channel Islands or Isle of Man

Includes 652 also exposed through injecting drug use

Understanding of the UK HIV epidemic relies on being able to establish how the individuals reported to the data set probably acquired infection, and if the route is heterosexual, how or where they or their partners are likely to have become infected. All reports of new diagnoses of HIV infection which are received with insufficient information for their allocation to a probable route of acquisition are subject to systematic follow-up to establish this. Where necessary and when clinician and patient agree this follow-up includes interview by a research nurse. The time taken to complete this process means that the proportion of reports for which infection route is unresolved is higher for recent time periods than for the data set overall.

HIV infection acquired through sex between men and women

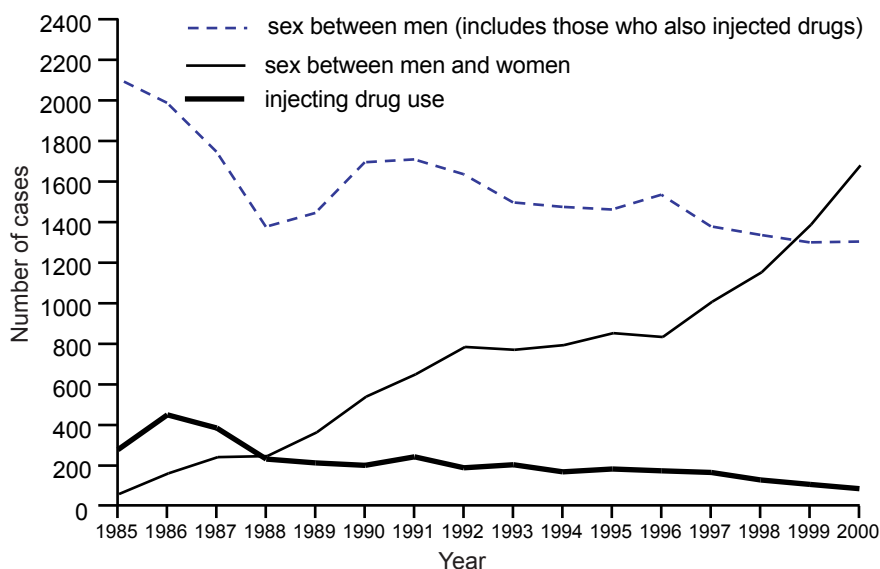
Twenty six percent (11667) of the 44988 infected individuals reported in the UK by the end of March 2001 were classified as having acquired their infection heterosexually. This compares with 57% (25806/44988) recorded as having acquired infection through sex between men, and 8% (3695/44988) through IDU. Although heterosexual acquisition has accounted for only a quarter of the cumulative diagnoses the number reported each year has risen, particularly for recent years, so that in 1999 and 2000 more heterosexually than homosexually acquired infections were diagnosed (figure).

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Figure Rate* of HIV infection by year of diagnosis, United Kingdom: data to end of March 2001



* for the three most common routes of infection; individuals with laboratory reports of infection plus those with AIDS or death reports for whom no matching report has been received

Although diagnoses of infections attributed to heterosexual sex currently outnumber diagnoses of homosexually acquired infection, sex between men remains the predominant route of HIV transmission within the UK. The majority of the heterosexual HIV infections diagnosed in the UK are acquired abroad by people infected with HIV before moving to the UK, though infection is also contracted heterosexually by individuals from the UK working or travelling abroad. Of the heterosexually acquired infections diagnosed by the end of 2000 which were classified as having been acquired abroad, 85% (7627/9017) were attributed to infection in Africa (table 2). The numbers of infections acquired in Asia and in Latin America/Caribbean have risen in the latter part of the 1990s, while those from North America, Europe and Australasia have remained low or declined. Reports received to the end of March 2001 showed that almost half (231) of the total of 470 infections reported as acquired in Asia were associated with Thailand, often affecting individuals visiting that country from the UK for business or tourism. Diagnoses of infections acquired in Latin America/Caribbean increased from 12 in 1991 to 62 in 1999 and 43 in 2000. Of the cumulative total of 320 reports of infections probably acquired in Latin America and the Caribbean 94 were probably acquired in Jamaica and 42 in Brazil.

Table 2 HIV infections* probably acquired through sexual intercourse between men and women by year of diagnosis†: data to end March 2001

How HIV infection was probably acquired	1990 and earlier	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total‡
Exposure to high risk partner(s) ie to partner(s) presumed infected through:												
Sexual intercourse between men	81	13	22	25	21	15	11	11	11	7	10	227
Injecting drug use	176	50	54	53	46	48	41	59	52	27	22	629
Blood factor treatment (eg, for haemophilia)	51	5	9	2	2	3	8	1	1	1	–	83
Blood/tissue (eg, transfusion)	7	–	3	4	–	2	3	5	2	4	1	31
Exposure to presumed heterosexually infected partner(s):												
Exposure abroad												
in Africa	969	448	525	502	528	558	551	638	735	956	1118	727
in Latin America/Caribbean	29	12	21	25	27	13	24	29	33	62	43	320
in Asia	22	17	26	28	19	36	43	49	74	68	88	471
in North America	31	10	14	16	9	8	8	9	15	7	5	132
in Europe	63	23	37	35	36	42	41	48	43	46	28	443
in Australasia	4	1	1	2	–	2	1	2	4	6	1	24
in country(ies) not known	25	1	1	1	2	6	9	4	18	–	–	67
Exposure in the UK to partner(s) presumed infected												
outside Europe	48	16	25	17	36	50	41	76	80	85	85	561
in Europe	69	41	31	48	57	47	34	51	40	44	27	489
Partner(s) exposure category undetermined:												
investigation continuing/closed	31	7	9	7	5	17	13	20	39	69	246	563
Total	1606	644	779	765	788	847	828	1002	1147	1382	1674	11667

* Individuals with laboratory reports of infection plus those with AIDS or death reports for whom no matching laboratory report has been received

† Numbers, particularly for recent years, are likely to increase as delayed reports are received

‡ Includes 205 diagnoses made in 2001

A major concern early in the epidemic was that groups recognised as being at high risk of HIV infection, such as bisexual men and injecting drug users, would provide a bridge for the virus to cross into the general population through heterosexual sex. In the UK this route does not seem to have had a great impact on the spread of HIV and fewer than 90 diagnoses of infections acquired in this way have been recorded each year throughout the last decade. Overall, 8% (970/11667) of heterosexually infected individuals diagnosed by the end of March 2001 were categorised as infected through contact with a partner classified as high risk.

The number of diagnoses of heterosexually acquired HIV infections in the UK from a partner also presumed to have been infected heterosexually has risen gradually although the proportion of heterosexually acquired infections they form has remained the same. In 1991 and 1992 these infections accounted for 113 of 1423 (8%) of all those heterosexually acquired and in 1999 and 2000 for 241 of 3065 (8%). Most of the rise in numbers is attributable to infections acquired through heterosexual contact with individuals themselves heterosexually infected outside Europe. For 79% of this group (439/561) the partner's infection was attributed to heterosexual contact in sub-saharan Africa.

Overall, more heterosexually acquired infections have been diagnosed in women than in men (table 3). This is particularly so for those infected through contact with members of high risk groups, as these are predominantly male. There are also more females than males among those recorded as heterosexually infected in Africa, and among those infected heterosexually in the UK by a partner infected heterosexually outside Europe. The female predominance overall has been contributed to by increased uptake of testing as a result of initiatives to improve the rates of maternal antenatal diagnosis. This has been reflected in the reason for test reported with HIV diagnoses. This information is often unrecorded, but in 2000 109 diagnoses were attributed to antenatal testing, compared to 48 the previous year.

Table 3 HIV infections* probably acquired through sexual intercourse between men and women: data to end March 2001

How HIV infection was probably acquired	Male	Female	Total
Exposure to 'high risk' partner(s) ie to partner(s) presumed infected through:			
Sexual intercourse between men	–	227	227
Injecting drug use	156	473	629
Blood factor treatment (eg, for haemophilia)	1	82	83
Blood/tissue (eg, transfusion)	23	8	31
Exposure to presumed heterosexually infected partner(s):			
Exposure abroad			
in Africa	3370	4252	7622
in Latin America/Caribbean	196	124	320
in Asia	344	127	471
in North America	79	53	132
in Europe	256	187	443
in Australasia	13	11	24
in country(ies) not known	44	21	65
Exposure in the UK to partner(s) presumed infected			
outside Europe	151	410	561
in Europe	258	231	489
Partner(s) exposure category undetermined:			
investigation continuing/closed	257	306	563
Total†	5148	6512	11660

* Individuals with laboratory reports of infection plus those with AIDS or death reports for whom no matching laboratory report has been received

† Excludes seven people of unknown sex (five exposed in Africa, two in unknown countries)

The annual survey of prevalent diagnosed HIV infections (SOPHID) collects information for every patient seen for HIV related treatment and care in the previous year. Partly as a result of the increasing numbers of diagnoses of heterosexually acquired HIV (table 2), reports from England and Wales to the SOPHID survey of individuals with heterosexually acquired HIV infection receiving care rose from 2635 in 1995 to 5357 in 1999, an increase of 49%. When Northern Ireland was included the total of heterosexually HIV infected residents for 1999 was 5386 (table 4). Sixty-seven per cent (3593/5386) lived in the London region and a further 9% elsewhere in the south east. Among those resident in London 75% (2707/3593) were from black ethnic groups, and 18% (632/3593) were white. In all other regions combined, 62% were white (1042/1674).

Table 4 Diagnosed HIV infected patients probably exposed through sex between men and women, by ethnicity and region of residence when last seen for care in 1999*: data from survey of prevalent HIV infections (diagnosed)

NHS region of residence	White	Black-Caribbean	Black-African	Black-other	South Asian†	Other/mixed	Not known	Total
England:								
Northern and Yorkshire	124	4	48	1	–	6	1	184
Trent	94	3	43	–	23	8	7	178
Eastern	115	8	71	3	4	7	1	209
London	632	136	2485	86	80	121	53	3593
South East	247	10	170	2	9	14	34	486
South West	123	5	33	1	2	12	1	177
West Midlands	113	22	49	1	10	10	–	205
North West	146	9	65	3	8	12	5	248
England total	1594	197	2964	97	136	190	102	5280
Wales	53	–	14	–	1	9	–	77
Northern Ireland	27	–	2	–	–	–	–	29
Total‡	1674	197	2980	97	137	199	102	5386

* Patients seen for statutory medical HIV-related care at services in England, Wales, and Northern Ireland in 1999

† Indian/Pakistani/Bangladeshi

‡ Excludes 120 patients resident abroad or for whom area of residence could not be allocated

Only those who have their infection recognised early in the course of disease can benefit fully from interventions which can improve their prognosis. Results from the Unlinked Anonymous (UA) survey of genitourinary clinic attenders in 1999 found that among heterosexuals with HIV infection 55% of the men and 42% of the women had not had their infection diagnosed (2). Antenatal screening will have contributed to the higher proportion of HIV infected women having had their infection diagnosed. The UA survey of dried blood spots found that in 1999 among pregnant women with HIV infection 73% in Inner London, 65% in Outer London and 49% in the rest of England and Wales had had their infection diagnosed prior to giving birth. These proportions are an improvement on previous years, reflecting improved rates of antenatal diagnosis (3).

Paediatric data

By the end of January 2001, 1101 HIV infected children had been reported in the UK, 302 (27%) of whom are known to have died (table 5). Most of these children acquired HIV infection from their mothers at or around the time of birth. The second largest group is of those infected through blood factor treatment for haemophilia. No new HIV infections in this group have been identified since donor screening and heat treatment of clotting-factor products was implemented in 1985.

Table 5 HIV infection* and deaths† in children‡ by sex and exposure category: United Kingdom to end of January 2001

How children probably acquired the virus	England, Wales and N Ireland			Scotland			Total§	(Deaths†)
	Male	Female	NS	Male	Female	NS		
Mother to infant	355	355	2	21	18	–	751	(165)
Blood factor treatment (eg for haemophilia)	264	–	–	21	–	–	285	(122)
Blood/tissue transfer (eg transfusion)	17	15	3	2	2	–	39	(14)
Other/undetermined	15	9	1	1	–	–	26	(1)
Total	651	379	6	45	20	–	1101	(302)

* Includes all children with AIDS, or with virus detected, or with HIV antibody at age 18 months or over

† Deaths in HIV infected children without AIDS are included

‡ Infected when aged 14 years or younger

§ Includes 334 children who were aged 15 years or over at the end of July 2000 or at death (39 children infected through mother to infant transmission (1 died), 268 haemophilia patients (105 died), 19 blood recipients (3 died), and 8 in the other/undetermined category (1 died).

Two thousand one hundred and eight children born to HIV infected mothers had been reported by the end of January 2001 (table 6), 254 of whom were born abroad (table 6). Seventy per cent (1477) were born to women who had acquired HIV infection heterosexually. All but 41 of these women were recorded as having acquired HIV infection abroad. A further 384 (18%) were infected through IDU either by the mothers themselves (281) or by their sexual partners (103). In Scotland, 190 of the 236 births have been to mothers with IDU associated HIV infection. Of the 2108 children, 751 (36%) are known to be HIV infected, and 865 (41%) are known to be uninfected (table 7). The status of the remainder is unresolved or unreported. In many children infection was only recognised when they became ill, and these children have not been able to benefit from interventions available since 1994 which can reduce the risk of mother to child transmission to under 5% (4). The rise in reports of births to HIV infected women since the mid-1990s may partly reflect an improvement in the rate of maternal diagnosis; this allows prompt recognition of their maternally exposed children.

Table 6 Reports of children^{*} born to HIV infected mothers by exposure category of mother: United Kingdom to end of January 2001

Year of birth	England, Wales and Northern Ireland					Scotland					Total (Born abroad [¥])	
	IDU associated [†]	Blood/ blood factor associated [‡]	Sexual intercourse [§] abroad	B. Isles	Other/ [¶] undetermined	IDU associated [†]	Blood/ blood factor associated	Sexual intercourse [§] abroad	B. Isles	Other/ [¶] undetermined		
1979-83	1	3	9	–	2	1	–	–	–	–	16	(11)
1984-85	6	4	24	–	3	23	–	–	–	–	60	(20)
1986-87	15	2	42	1	9	44	–	1	–	–	114	(31)
1988-89	29	6	64	2	8	31	–	2	–	–	142	(47)
1990-91	37	6	139	6	13	26	–	1	–	2	230	(51)
1992-93	26	6	188	5	16	18	–	–	–	1	260	(33)
1994-95	18	1	184	11	25	20	–	–	2	2	263	(28)
1996-97	23	–	230	5	42	11	–	4	2	3	320	(16)
1998-99	26	2	317	4	55	9	–	2	1	6	422	(16)
2000-01 [#]	13	2	226	2	27	7	–	3	–	1	281	(1)
Total	194	32	1423	36	200	190	–	13	5	15	2108	(254)

* Includes children who are HIV infected, uninfected or of undetermined status

† Includes 52 in England, Wales and Northern Ireland and 51 in Scotland whose mothers were sexual partners of injecting drug users

‡ Includes 20 whose mothers were sexual partners of blood/blood factor recipients

§ No evidence of bisexuality, IDU, or blood/blood factor treatment in

mothers' sexual partners

¶ Includes 19 in England, Wales and Northern Ireland and 1 in Scotland whose mothers were the sexual partners of bisexual men

¥ Maternal exposure categories: IDU associated (10), blood associated (7), sexual intercourse between men and women abroad (228) or UK (1), and other/ undetermined (8). For 81 children the country of birth was not known

Reports to end of January 2001

Table 7 HIV infection status and deaths^{*} by year of birth of children born to HIV infected mothers[†]: United Kingdom to end of January 2001

Year of birth	Infected [‡]				Indeterminate [§]		Not infected		Total (Deaths [*])	
	England, Wales and N Ireland		Scotland		England, Wales and N Ireland	Scotland	England, Wales and N Ireland	Scotland		
	AIDS	not AIDS	AIDS	not AIDS						
1979-83	9	6	1	–	–	–	–	–	16	(5)
1984-85	18	13	6	4	2	2	4	11	60	(13)
1986-87	24	19	4	3	11	3	15	35	114	(12)
1988-89	44	28	2	1	10	4	27	26	142	(23)
1990-91	60	63	1	3	25	3	53	22	230	(36)
1992-93	69	58	1	3	37	3	77	12	260	(40)
1994-95	55	56	1	2	40	3	88	18	263	(23)
1996-97	52	57	3	1	40	4	151	12	320	(19)
1998-99	33	33	2	1	94	3	244	12	422	(10)
2000-01	12	3	–	–	198	10	57	1	281	(1)
Total	376	336	21	18	457	35	716	149	2108	(182)

* Excluding deaths in children known not to be HIV infected

† Due to ascertainment bias the rate of vertical transmission cannot be estimated from surveillance data

‡ Includes children who are HIV infected, uninfected or of

undetermined status

§ Aged less than 18 months when last tested positive for HIV antibody and without other evidence of HIV infection. Includes 80 children who were lost to follow up

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