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# Prevalence of HIV and hepatitis infections in the United Kingdom

1999

Annual report of the Unlinked Anonymous  
Prevalence Monitoring Programme

Report from the Unlinked Anonymous Surveys Steering Group  
Department of Health  
November 2000

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## Annual report of the Unlinked Anonymous Prevalence Monitoring Programme

*Report from the Unlinked Anonymous Surveys Steering Group\**

*Programme conducted by:*

**The Public Health Laboratory Service**

Communicable Disease Surveillance Centre

Central Public Health Laboratory

Statistics Unit

**The Institute of Child Health, University of London**

**The Scottish Centre for Infection and Environmental Health**

*Programme funded by:*

**Department of Health (London)**

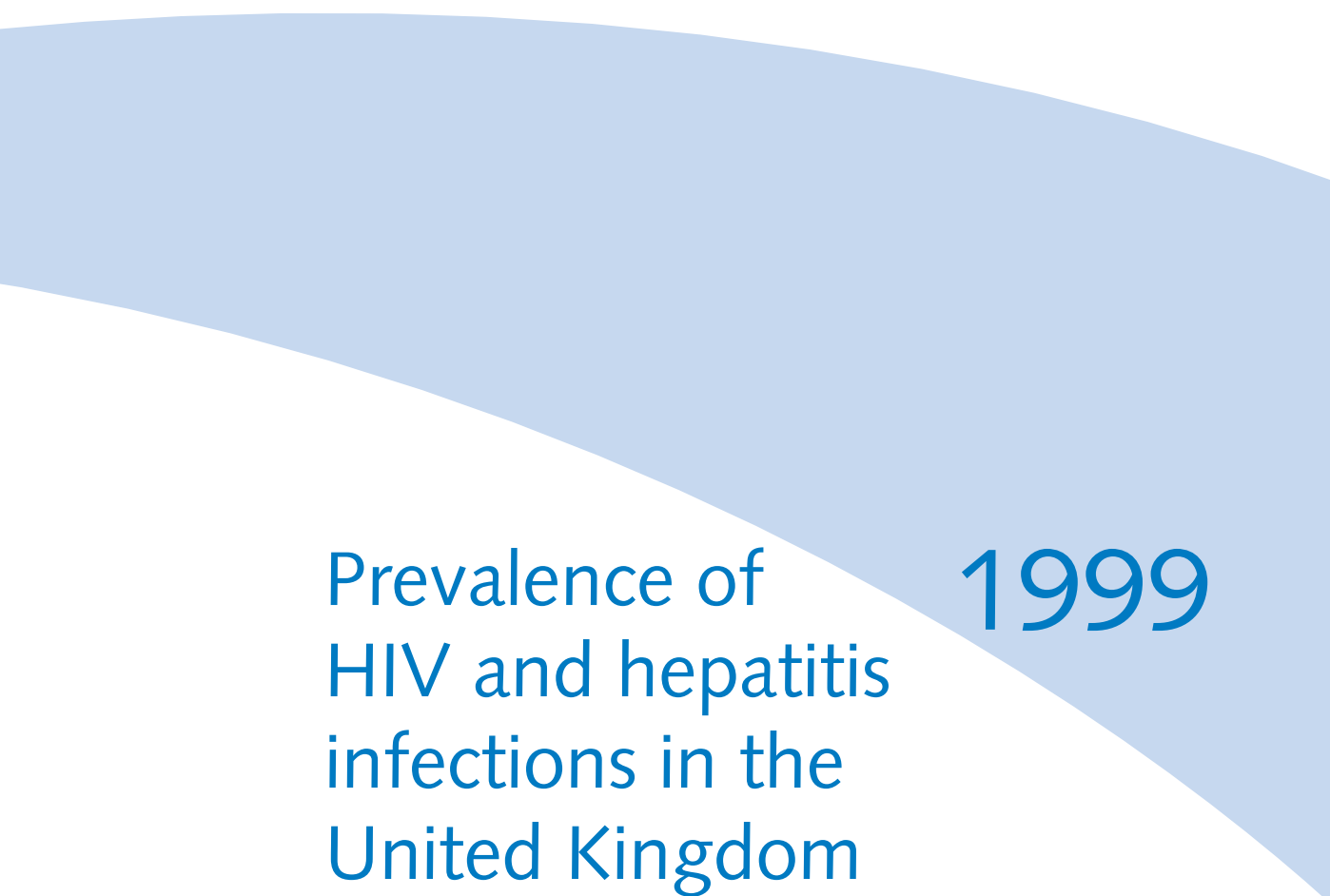
**Scottish Executive**

**Department of Health and Social Services (Belfast)**

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\*Members of the Steering Group are listed in Appendix One



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## Key Points

**HIV transmission and unsafe sexual behaviour are continuing among homosexual and bisexual men of all ages.** From 1992 to 1999 there was no decrease in the prevalence of undiagnosed HIV infection in those attending genitourinary medicine clinics in London, and 1 in 40 of those aged under 25 was HIV infected in 1999. A novel laboratory technique has suggested that the rate of new HIV infections in homosexual and bisexual men in England and Wales was 2% per year in 1998.

**Increased antenatal HIV testing is the key factor contributing to a decrease in mother to infant HIV infections in recent years.** In 1999, an estimated 380 births to HIV-infected women in the UK would have resulted in about 55 HIV-infected infants. If all maternal HIV infections had been diagnosed and interventions offered to all HIV-infected mothers, fewer than 10 infant HIV infections would have occurred. Continued increases in antenatal HIV testing should enable the National Objective – an 80% reduction in the number of children acquiring HIV infection from their mothers by December 2002 – to be met.

**Transmission of hepatitis C and hepatitis B infection through injecting drug use is a major problem.** There has been an increase in sharing of injecting equipment, although prevalence of HIV infection remains low. One-third of injecting drug users attending specialist agencies in England and Wales had antibodies to hepatitis C as had 1 in 11 of those who began injecting in the past three years. Nearly 25% of those who began injecting drugs after 1996 in Glasgow were hepatitis C antibody positive when tested in 1999. Since 1992 reports of acute hepatitis B in England and Wales have risen four-fold among injecting drug users, while in 1999 only 29% reported having been vaccinated against hepatitis B.

**A substantial number of HIV infections in genitourinary medicine clinic attendees remained undiagnosed in 1999.** This means that many of those who are infected are not benefiting from recent therapeutic advances. The proportion of HIV-infected homosexual and bisexual men who were aware of their infection remained unchanged at 63%. The proportion of HIV infections in heterosexual men in London that had been diagnosed clinically fell from 61% in 1998 to 48% in 1999. In heterosexual women in London this proportion has risen gradually such that, in 1999, 58% of those who were HIV infected had been diagnosed clinically.

### Box 1: Programme objectives\*

- 1 To monitor the prevalence of, and associated risks for, HIV infection in accessible groups of those adults whose risk behaviour makes them vulnerable to infection, such as attenders at genitourinary medicine clinics and injecting drug users.
- 2 To measure, through serosurveillance of accessible groups, the impact of HIV infection on those who are less vulnerable behaviourally and are more broadly representative of the adult population.
- 3 To monitor closely the prevalence of HIV infection in London and to recognise emerging problems elsewhere.
- 4 To measure the effectiveness of voluntary confidential testing strategies for clinical diagnosis of HIV infections.
- 5 In combination with other data, to provide estimates of the total numbers of HIV-infected persons and to assist in projecting future numbers of persons with severe HIV disease who will require care.
- 6 To use specimens gathered by the programme to measure the prevalence of, and associated risk factors for, other important infections.
- 7 To make available programme data in a timely and accessible form so as to inform the targeting of health promotion, the assessment of the effectiveness of preventive measures, and the planning of medical and social services for those affected by HIV.

\*Unlinked Anonymous HIV Surveys Steering Group 1995, adapted from the January 1995 report and the Medical Research Council Strategic Review 1991



## Introduction

1. The Unlinked Anonymous Prevalence Monitoring Programme which began in 1990 aims to measure the distribution of infection, in particular HIV\*, in accessible groups of the adult population. The programme has a number of objectives (Box 1), including assessing the effectiveness of voluntary confidential testing for clinical diagnosis of HIV infection. The data obtained are used to target and evaluate health promotion, to inform estimates of the numbers requiring treatment and care in the future, and to plan services for those affected by HIV and AIDS [1]. This report summarises programme data to the end of 1999. More comprehensive tables of data (see index in Appendix Three) are available at <http://www.phls.co.uk/facts/HIV/hiv.htm>
2. The programme provides estimates of the prevalence of infection among groups in whom a substantial proportion of infections are undiagnosed and therefore not ascertained by other surveillance systems. **Essential public health information on the prevalence of HIV infection in these groups cannot be obtained in any other way.**

3. The programme monitors HIV infection levels in two population sub-groups (Box 2):

The first includes **those whose behaviour puts them at increased risk of HIV infection**, e.g. homosexual and bisexual men and heterosexual men and women attending genitourinary medicine clinics, and injecting drug users in contact with specialist treatment and support agencies or genitourinary medicine clinics.

The second includes **those at lower or general risk of infection**, e.g. pregnant women or women having a termination of pregnancy.

A total of 633,358 specimens were tested in 1999 (Table 1).

## Methodology

4. The surveys use leftover blood from samples taken for routine clinical tests, with the exception of the survey of injecting drug users, which uses saliva samples that are collected voluntarily (Box 2, Figure 1).

\*Throughout this report, the term HIV is used to refer to HIV subtype 1 only. Very few HIV-2 infections have been identified in the UK either through the unlinked anonymous programme or diagnostic testing.

5. **All specimens have patient identifying details permanently removed before testing. Individual test results cannot be linked in any way to the source patient. The programme surveys populations of specimens, not individual patients.**
6. Patients are informed about the surveys by leaflets and posters, which are displayed at centres where specimens are collected for clinical purposes. Specimens from patients who spontaneously express an objection to their leftover specimen being used in the programme are not tested.
7. To assist interpretation of the results, data from other surveillance systems are given, such as clinical reports of diagnosed AIDS cases, HIV infections, and hepatitis B infections, as well as reports on sexually transmitted infections seen in genitourinary medicine clinics.

**Box 2: Unlinked Anonymous Prevalence Monitoring Programme: populations under surveillance**

Population under surveillance	Survey	Reasons for specimen collection	Location
<i>Behaviourally vulnerable</i>			
Homosexual and bisexual men	Genitourinary medicine clinic attendees	Syphilis serology	UK
Heterosexual men and women with greater than average sexual partner change	Genitourinary medicine clinic attendees	Syphilis serology	UK
Injecting drug users	Treatment and support agencies for injecting drug users*	Voluntary collection of saliva. This survey also measures current and prior infection with hepatitis B and hepatitis C viruses	England & Wales
<i>Representing the general population</i>			
Pregnant women	Infant dried blood spot	Guthrie cards for metabolic screening	England & Scotland
	Antenatal	Rubella serology	London and Northern & Yorkshire
	Termination of pregnancy	Blood grouping	London

\*The genitourinary medicine clinic survey also provides some prevalence data for injecting drug users

## HIV

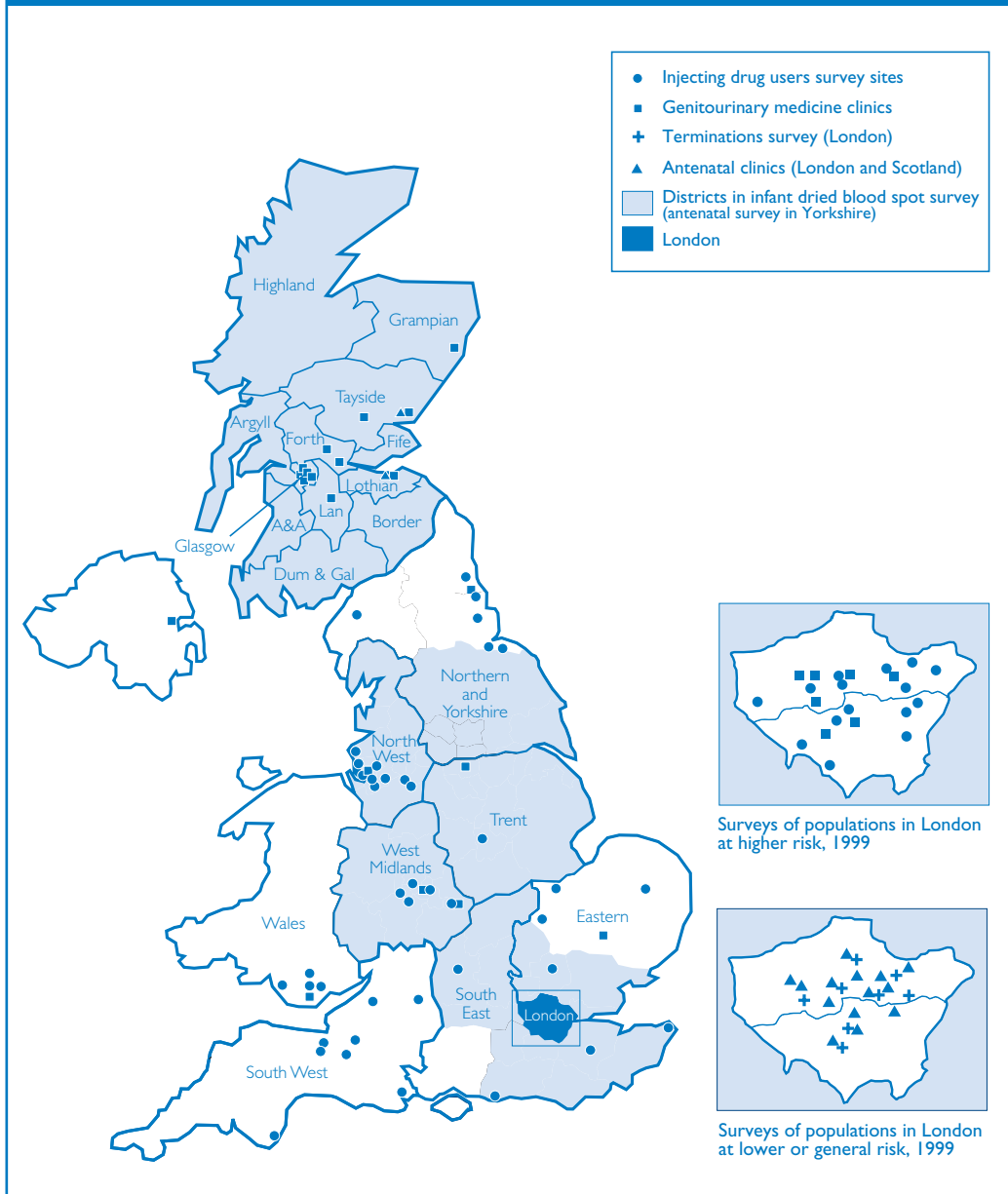
### General findings

8. HIV infection was widely disseminated among those at greatest behavioural risk (Table 2) and was found in every region surveyed. Prevalence remained much greater in those at increased behavioural risk than in pregnant women.
9. Prevalence was highest in homosexual and bisexual men attending genitourinary medicine clinics and in injecting drug users attending specialist agencies. Prevalence overall, and within each risk group, was much higher in London than elsewhere.
10. The big increase in antenatal testing for HIV infection was the key factor contributing to a decrease in mother to infant HIV infections from an estimated 100 annually to 55. If all maternal HIV infections were diagnosed and appropriate interventions offered to all HIV-infected pregnant women, then the number of mother to infant HIV infections annually could be reduced to fewer than 10.

**Table 1: Unlinked Anonymous Prevalence Monitoring Programme 1999: surveys, centres, districts and specimen numbers**

Survey and specimen	Centres or districts			Specimen numbers
	London	Scotland	Elsewhere in the UK	
Genitourinary medicine clinics — syphilis serology	7	12	8	76,742
Injecting drug users — saliva (voluntary survey)	14	–	37	3,731
Pregnant women:				
infant dried blood spot survey	29	15	92	462,582
antenatal-rubella serology	15	–	11	82,945
pregnancy terminations — blood grouping	8	–	–	7,358
<b>Total</b>	<b>73</b>	<b>27</b>	<b>148</b>	<b>633,358</b>

**Figure 1: Unlinked Anonymous Prevalence Monitoring Programmes in the United Kingdom: centres and areas involved 1999**



**Table 2: Prevalence of HIV infection in the survey groups: 1999**

Area		Male			Female			
		Genitourinary medicine clinic attendees		Injecting drug users <sup>§</sup>	Genitourinary medicine clinic attendees	Injecting drug users <sup>§</sup>	Pregnant women	
		Homosexual/bisexual	Heterosexual		Heterosexual		Delivery	Termination
London	Number tested	3,930	10,678	594	15,003	187	102,287	7,358
	Number HIV infected	283	85	17	106	6	254	62
	% HIV infected	7.2	0.80	2.9	0.71	3.2	0.25	0.84
	Prevalence range (%) <sup>+</sup>	3.9–13.9	0.31–2.3	–	0.46–1.2	–	0–0.86	0.14–1.80
Scotland	Number tested	1,133	6,643	–	5,372	–	55,374	–
	Number HIV infected	36	20	–	8	–	13	–
	% HIV infected	3.2	0.30	–	0.15	–	0.023	–
	Prevalence range (%) <sup>+</sup>	2.3–5.8	0.17–0.34	–	0.13–0.30	–	0–0.10	–
Elsewhere in the UK <sup>#</sup>	Number tested	1,562	15,526	2,281	14,761	638	338,653	–
	Number HIV infected	36	20	7	16	1	74	–
	% HIV infected	2.3	0.13	0.31	0.11	0.16	0.022	–
	Prevalence range (%) <sup>+</sup>	0–3.2	0–0.25	0–1.1	0–0.24	0–0.6	0–0.15	–
Prevalence ratio <sup>¶</sup> : London vs elsewhere		2.7	4.4	9.3	5.9	20.5	11.2	–

<sup>+</sup> The range within a category is the lowest and highest prevalence recorded in individual clinics (genitourinary medicine survey), regions (injecting drug users survey), districts (infant dried blood spot survey) or hospitals (termination of pregnancy, antenatal and hospital surveys)

<sup>¶</sup> The ratio by which the prevalence of infection in London is greater than the prevalence elsewhere in the UK

<sup>§</sup> Attending specialist centres for injecting drug users

<sup>#</sup> In Northern and Yorkshire region, data for pregnant women come from the antenatal survey

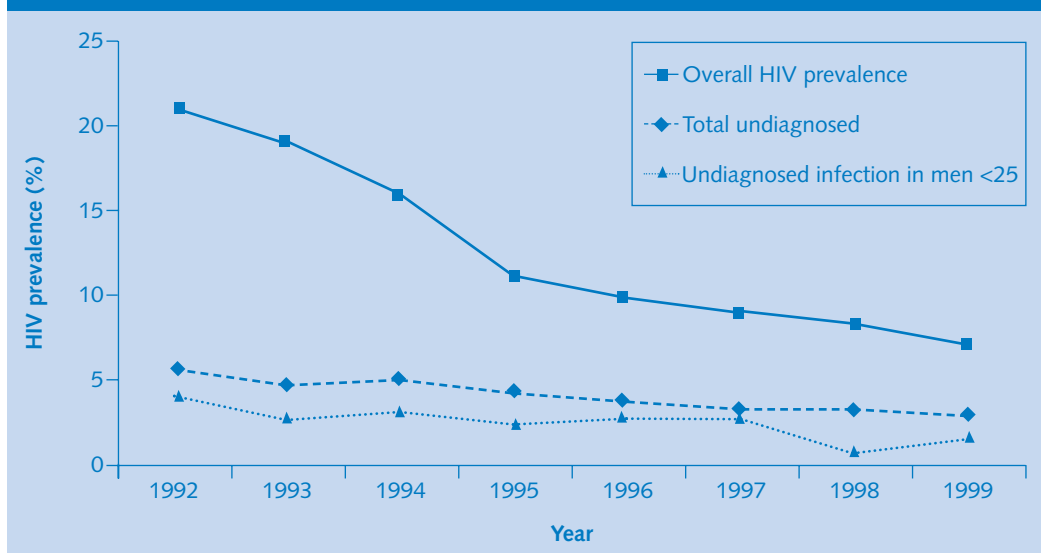
## Those at increased risk of HIV infection

### *Homosexual men attending genitourinary medicine clinics*

11. In 1999 prevalence was higher among homosexual and bisexual men than in any other group (Table 2). Among those attending genitourinary medicine clinics prevalence was 1 in 14 in London, 1 in 31 in Scotland and 1 in 43 elsewhere in the UK. Between 1993 and 1999, HIV prevalence fell in London from 19.4% to 7.2%, and outside London from 4.6% to 2.3%.

12. One in 33 young (i.e. aged under 25 years) homosexual and bisexual men in London was infected with HIV. These infections would have been acquired after prevention activities began. From 1992 to 1999, there was no decrease in the prevalence of HIV infections that were undiagnosed clinically in this subgroup (Figure 2), a clear indication of continuing transmission.
13. The proportion of HIV-infected homosexual and bisexual men in whom HIV infection was recognised clinically remained unchanged at 63% in 1999; in London this proportion was 61%. Although the advantages of early

Figure 2: Prevalence of HIV infection and of undiagnosed HIV infection in male homosexual and bisexual genitourinary medicine clinic attendees: London 1992–1999



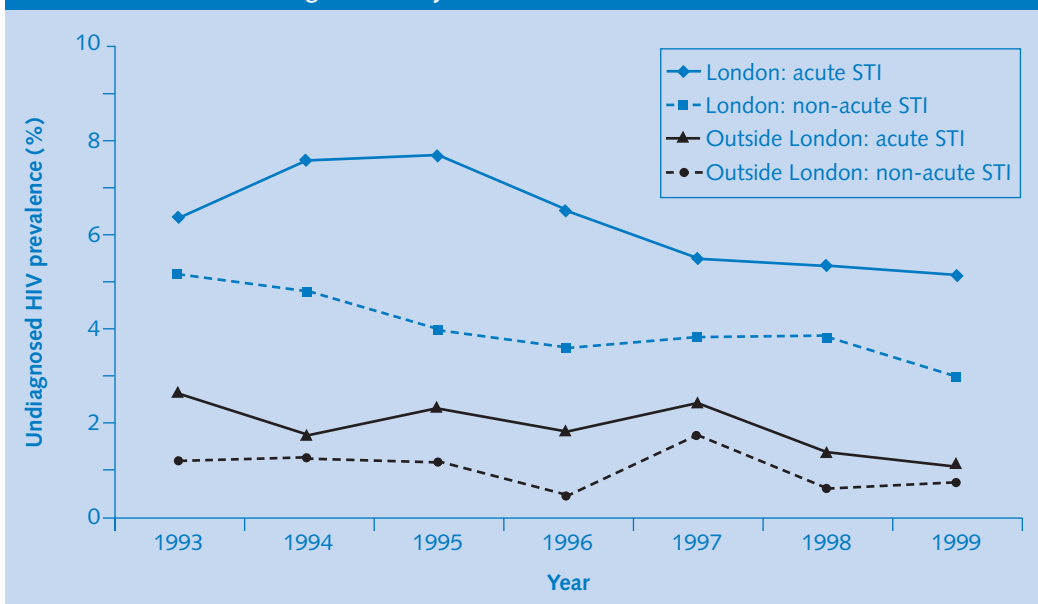
diagnosis of HIV infection have attracted considerable publicity, there was no decline in the proportion of undiagnosed infections between 1996 and 1999.

14. Of the 170 HIV-infected men in London whose HIV infection was undiagnosed prior to the clinic attendance, only 35% had their infection diagnosed at that clinic attendance and this proportion has not changed since 1996.
15. The prevalence of undiagnosed HIV infection in homosexual and bisexual men presenting with an acute sexually

transmitted infection has not fallen significantly since 1993, which suggests a high level of continuing transmission of HIV (Figure 3) [2]. One half of HIV-infected men attending a clinic who also had an acute sexually transmitted infection remained unaware of their HIV infection.

16. Techniques for monitoring the incidence of HIV infection are of critical importance and are being actively developed [3]. Using a novel laboratory testing technique, the rate of new HIV infections in homosexual and bisexual men in 1998 in England and Wales was found to be 2% per year [4].

**Figure 3: Prevalence of undiagnosed HIV infection among homosexual and bisexual males with or without acute sexually transmitted infection (STI) attending genitourinary medicine clinics: 1993–1999**



**Table 3: Prevention indicators for HIV and hepatitis transmission in homosexual/bisexual men**

	Area	Sub-category	
<b>Prevalence markers</b>			
New diagnoses of HIV infections	UK	≤24 ≥25 Total	
Prevalent diagnosed HIV infections receiving care	England & Wales Scotland	All All	
First HIV tests at six sentinel labs	England	Total Proportion positive	
Prevalence among those having voluntary confidential HIV tests	Scotland	All	
Prevalence of undiagnosed HIV infection in genitourinary medicine clinic attendees	London Elsewhere in England & Wales	≤24 ≤24	
<b>Incidence markers</b>			
Median age at diagnosis of HIV infection	UK	All	
Median CD4 counts at year of HIV infection diagnosis	England & Wales Scotland	≤24 ≥25 All	
Laboratory reports of acute hepatitis B acquired through sex between men	England & Wales	All	
<b>Markers of risk</b>			
Homosexually acquired gonorrhoea	England & Wales	All	
Acute sexually transmitted infection (STI) in HIV positive genitourinary medicine clinic attendees	England & Wales	Known HIV positive	Proportion with STI Number with STI Total
		Not known HIV positive	Proportion with STI Number with STI Total
	Scotland	Known HIV positive	Proportion with STI Number with STI Total
		Not known HIV positive	Proportion with STI Number with STI Total
Percentage reporting unprotected anal intercourse in the last year <sup>†</sup>	London	Any partners Partners of unknown or discordant HIV status	
<b>Markers of health care delivery</b>			
Attending genitourinary medicine clinic in the past year <sup>†</sup>	London	Proportion Number	
Having an HIV test in the last year <sup>†</sup>	London	Proportion Number	

\*Provisional, further reports are likely to be received

<sup>†</sup>Survey of men using commercial gay venues and genitourinary medicine clinics in London. Undertaken by the Department of Sexually Transmitted Infections at University College London. Dodds JP, Nardone A, Mercey DE, Johnson AM. Increase in high risk behaviour among homosexual men, London 1996-8: cross sectional, questionnaire study. *British Medical Journal* 2000; 320:1510-1511



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
	242	247	221	167	127	153	151	126	118	104*
	1444	1451	1406	1327	1341	1303	1373	1234	1203	1094*
	1686	1698	1627	1494	1468	1456	1524	1360	1321	1198*
	-	-	-	-	-	8320	8133	8891	9587	10591
	-	-	-	-	-	273	284	348	384	412
	1668	2275	2032	1634	1681	1869	1581	1876	2094	2036
	14.0%	9.3%	8.3%	8.1%	7.3%	7.3%	6.6%	7.4%	6.0%	5.9%
	4.7%	3.7%	4.3%	5.3%	5.2%	3.8%	4.2%	4.0%	4.9%	3.5%
	8.4%	6.4%	4.0%	2.7%	3.1%	2.5%	2.8%	2.7%	0.6%	1.6%
	4.3%	2.1%	0.6%	0.3%	0.5%	0.4%	1.2%	0.5%	0%	0.2%
	32.8	31.8	32.4	32.6	33.5	33.0	33.4	33.7	33.8	34.4*
	432	483	430	480	424	475	440	463	442	496
	299	302	320	280	300	334	312	330	328	356
	-	-	230	326	279	295	313	326	384	336
	86	90	97	125	111	71	60	53	62	53*
	-	-	-	-	-	1351	1687	1780	1682	1831
	-	-	-	19%	14%	15%	18%	25%	25%	34%
	-	-	-	81	58	58	61	75	66	67
	-	-	-	417	411	379	341	304	262	200
	-	-	-	34%	38%	48%	50%	48%	48%	54%
	-	-	-	48	71	105	87	80	68	64
	-	-	-	140	186	217	174	167	142	119
	-	26%	24%	20%	16%	43%	42%	58%	45%	52%
	-	8	7	5	3	6	8	7	5	11
	-	31	29	25	19	14	19	12	11	21
	-	53%	46%	38%	29%	60%	65%	53%	62%	53%
	-	8	6	6	2	6	11	9	8	8
	-	15	13	16	7	10	17	17	13	15
	-	-	-	-	-	-	32%	36%	38%	41%
	-	-	-	-	-	-	18%	19%	21%	22%
	-	-	-	-	-	-	50%	54%	56%	56%
	-	-	-	-	-	-	1166	1070	1112	1083
	-	-	-	-	-	-	29%	30%	33%	27%
	-	-	-	-	-	-	683	614	654	483

17. Between 1995 and 1999, the incidence of gonorrhoea due to homosexual exposure in men attending genitourinary medicine clinics in England and Wales rose by 36% [5], and the proportion of homosexual men in London reporting unprotected anal sex in the previous year increased from 32% in 1996 to 41% in 1999 (Table 3). This strongly suggests that the risk of HIV transmission between homosexual and bisexual men has been increasing in recent years.

### *Injecting drug users*

18. *England and Wales:* The prevalence of HIV infection among the injecting drug users attending specialist agencies in London during 1999 was 1 in 35 for men and 1 in 31 for women, and 1 in 330 for men and 1 in 640 for women elsewhere (Table 2). Since 1995 prevalence of HIV infection among injecting drug users has not fallen either within London or elsewhere. Of those who began injecting in the past three years, 1 in 850 was HIV infected, an indication of a continuing low rate of HIV transmission through injecting drug use.

19. Although a few of the male HIV-infected drug users had not had their HIV infection diagnosed clinically, all the HIV-infected female drug users

surveyed in 1999 were aware of their infection. These and other data suggest that the proportion of the HIV-infected injecting drug users who are aware of their infection is higher than in other groups at increased infection risk.

20. In 1999, direct sharing of needles and syringes was reported by 32% of drug users who had injected in the previous month. The level of direct sharing had not changed between 1992 and 1997, but had increased between 1997 and 1998 both in London and elsewhere. While the proportion sharing did not rise further outside London in 1999, there was a further increase in London from 35% in 1998 to 41% in 1999 (Figure 4, Table 4). The recent increase in direct sharing was seen in all age groups, and in both male and female injecting drug users.

21. Self-reported sharing of any injecting equipment in the past month increased to 69% in London during 1999, and 62% elsewhere (Table 4). These rates have been increasing over the past three years. Female and young drug users reported significantly higher rates of indirect sharing.

22. *Scotland:* In Scotland, prevalence of HIV infection among genitourinary medicine clinic attendees who reported

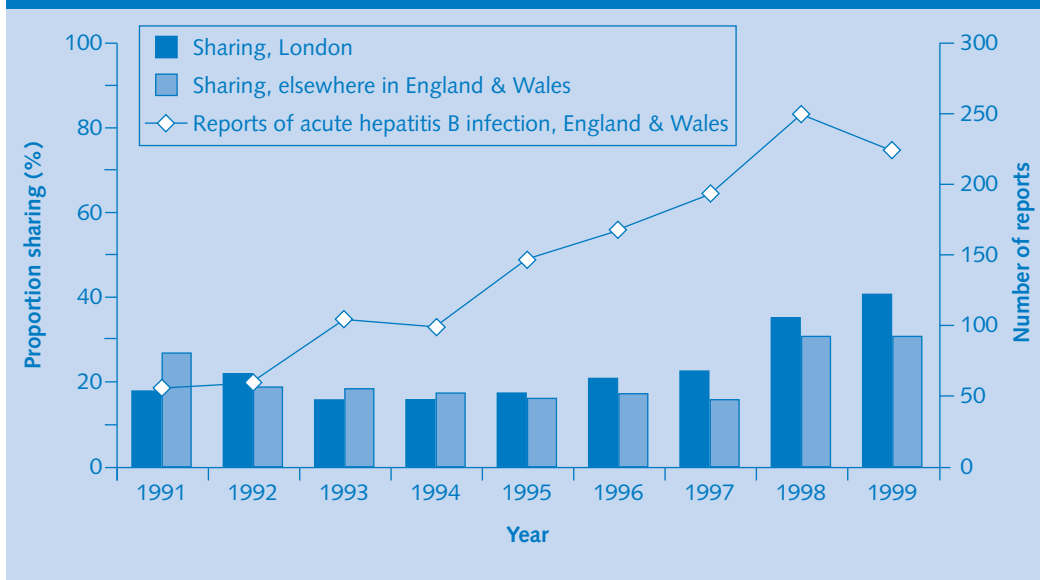
ever injecting drugs was 1 in 100 in men and 1 in 110 in women. This low prevalence was in keeping with the 1 in 150 injecting drug users who were found to be HIV infected in 1999 after they had a voluntary HIV test. This compares with prevalences of between 1 in 25 and 1 in 50 that were observed during the period 1989 to 1993 (Table 4). HIV infection among injecting drug users is now a relatively rare event in Scotland, where epidemic spread occurred among this population in the early to mid-1980s.

23. There are indications that the potential for HIV transmission among injecting drug users has increased recently (Table 4). According to Scotland's Drug Misuse Database, 32% of injecting drug users in 1998/1999 reported sharing a needle and syringe in the previous month compared with 28% in 1996/1997.

*Heterosexual men and women attending genitourinary medicine clinics*

24. Risk of acquiring another sexually transmitted infection, as measured indirectly by attendance at a

**Figure 4: Sharing of needles and syringes\*, and reports of acute hepatitis B# among injecting drug users in England and Wales**



\*Participants in the unlinked anonymous survey who had injected in previous four weeks

#Laboratory reports of acute hepatitis B to CDSC, 1999 data provisional

**Table 4: Prevention indicators for HIV and hepatitis transmission in injecting drug users**

	Area	Sub-category
<b>Prevalence markers</b>		
Reports of new diagnoses of HIV infection through injecting drug use	London	All reports <sup>#</sup>
	Scotland	All reports <sup>#</sup>
	Rest of UK	All reports <sup>#</sup>
	UK	Male <sup>#</sup> Female
Reports of HIV infections acquired through heterosexual contact with those infected through injecting drug use	UK	Male Female
Prevalent diagnosed HIV infections receiving care	England & Wales	Male Female
	Scotland	All
Prevalence among those having voluntary confidential HIV tests	Scotland	All
<b>Incidence markers</b>		
Median age at HIV diagnosis	UK	All reports
Proportion HIV antibody positive	England & Wales	First injected during the last 3 years
Proportion hepatitis B antibody positive <sup>~</sup>	England & Wales	First injected during the last 3 years
Proportion hepatitis C antibody positive <sup>~</sup>	England & Wales	First injected during the last 3 years
Median CD4 counts at year of diagnosis	England & Wales	≤24 ≥25
	Scotland	All
Laboratory reports of acute hepatitis B infections through injecting drug use	England & Wales	Infections attributed to injecting drug use
	Scotland	Infections attributed to injecting drug use
<b>Markers of risk</b>		
Passing on or receiving used needles or syringes in the last month — self reports	London	Current injectors
	England & Wales outside London	Current injectors
Sharing of needles and syringes in past month — agency reports (Scottish drug misuse database)	Scotland	Current injectors
Sharing of any injecting equipment <sup>†</sup> in past month — self reports	London	Current injectors
	England & Wales outside London	Current injectors
<b>Markers of health care delivery</b>		
Hepatitis B vaccine coverage — self reported	England & Wales	First injected during the last 3 years Current and former injectors

<sup>#</sup>Includes 336 also exposed to HIV infection through sex between men

<sup>~</sup>Denotes past or current infection (for hepatitis B the proportion with antibodies to hepatitis B core antigen)

<sup>\*</sup>Provisional, further reports are likely to be received

<sup>†</sup>Sharing of injecting paraphernalia including needles and syringes in the last 4 weeks

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
	139	151	134	111	110	122	113	83	76	64*
	30	53	27	53	29	22	35	32	20	17*
	68	77	59	67	68	66	69	67	59	40*
	189	206	161	179	163	154	164	137	121	88*
	48	75	59	52	44	56	53	45	34	33*
	9	13	8	7	5	9	9	15	9	5*
	19	27	30	36	26	32	24	34	33	15*
	-	-	-	-	-	611	547	552	591	632
	-	-	-	-	-	290	266	254	296	298
	-	-	-	-	-	409	372	398	409	402
	2.8%	3.2%	1.9%	2.9%	1.5%	1.5%	1.5%	1.6%	0.9%	0.7%
	29.0	29.2	30.1	30.8	31.0	32.2	33.2	32.8	33.6	33.3*
	0.77%	0%	0%	0.44%	0.15%	0.20%	0.31%	0.34%	0.40%	0.12%
	21%	6.9%	16%	13%	10%	5.2%	6.8%	3.4%	5.0%	5.4%
	-	-	-	-	-	-	-	-	8.5%	9.0%
	510	440	514	525	600	355	393	318	460	430
	338	308	314	305	336	360	250	280	280	290
	-	-	427	441	261	437	371	347	289	399
	84	58	63	108	102	147	166	192	251	230*
	52	50	21	17	17	14	20	24	58	115*
	-	17%	22%	16%	16%	18%	20%	21%	35%	41%
	-	27%	19%	19%	18%	17%	18%	17%	31%	31%
	-	-	-	-	-	-	30%	27%	28%	32%
	-	-	-	-	-	-	60%	59%	66%	69%
	-	-	-	-	-	-	57%	54%	62%	62%
	-	-	-	-	-	-	-	-	14%	17%
	-	-	-	-	-	-	-	-	25%	29%

genitourinary medicine clinic, continued to be a powerful predictor of risk for HIV infection in heterosexuals, particularly in those born in the UK. In 1999, HIV prevalence among heterosexual attendees at genitourinary medicine clinics in London was 1 in 130 among men and 1 in 140 among women (Table 2). Outside London, prevalence was 1 in 780 among men and 1 in 920 among women. In Scotland, HIV prevalence was 1 in 430 for men and 1 in 670 for women. HIV prevalence overall in this group has remained constant since 1990.

25. In those born abroad, the observed prevalence rate has been much higher than in those born in the UK. Among London clinic attendees during 1998/1999, 1 in 29 men and 1 in 20 women born in sub-Saharan Africa was HIV infected, compared with 1 in 240 men, and 1 in 570 women who were born in the UK.
26. The proportion of HIV infections in heterosexual men in London that had been diagnosed clinically fell from 61% in 1998 to 48% in 1999. In heterosexual women in London this proportion has risen gradually such that, in 1999, 58% of those who were HIV infected had been diagnosed clinically.

**Table 5: Prevention indicators for HIV and hepatitis transmission in heterosexual men and women**

	Area
<b>Prevalence markers</b>	
Reports of new diagnoses of heterosexually acquired HIV infection	UK
Prevalent diagnosed HIV infections receiving care	England & Wales
	Scotland
First HIV tests at six sentinel labs	England & Wales
Prevalence of undiagnosed HIV infection in genitourinary medicine clinic attendees	England & Wales
	Scotland
<b>Incidence markers</b>	
Median age at HIV diagnosis	UK
Median CD4 counts at year of diagnosis	England & Wales
	Scotland
<b>Markers of risk</b>	
Heterosexually acquired gonorrhoea	England
Known HIV-infected genitourinary medicine clinic attendees with an acute sexually transmitted infection (STI)	England & Wales

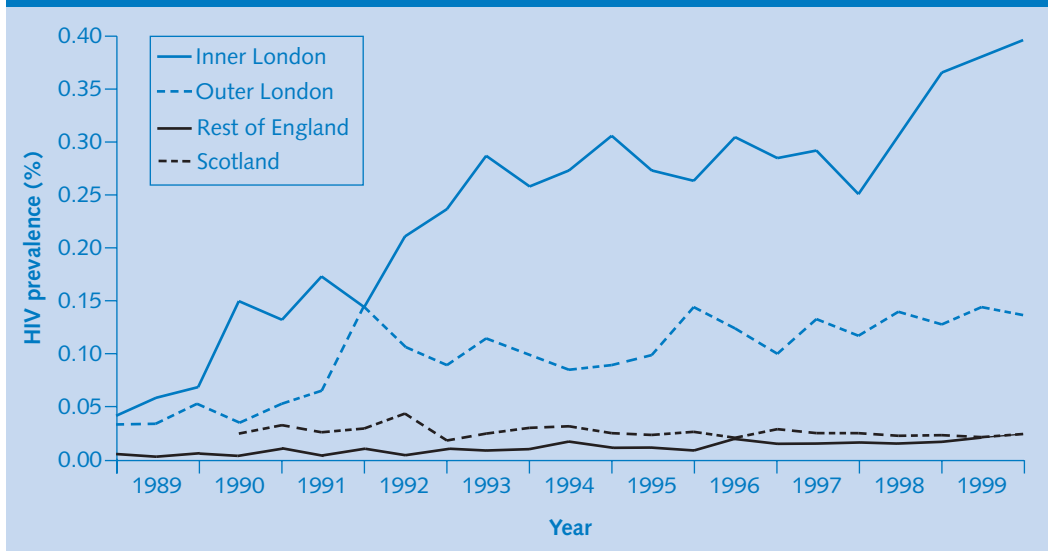
\*Provisional, further reports are likely to be received

Sub-category		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Probably acquired in the UK	Female	52	59	89	85	76	103	77	118	107	87*
	Male	17	30	23	37	43	35	38	59	51	59*
	Total	69	89	112	122	119	138	115	177	158	146*
Probably acquired abroad	Female	205	252	316	300	335	341	369	415	492	622*
	Male	222	262	307	298	290	324	302	363	422	442*
	Total	427	514	623	598	625	665	671	778	914	1064*
Female		-	-	-	-	-	1555	1655	2056	2508	3209
Male		-	-	-	-	-	1126	1292	1470	1857	2267
All		-	-	-	-	-	177	180	243	268	310
Number		7700	13,230	12,836	13,089	12,234	14,364	13,685	14,233	16,449	15,537
Proportion positive		0.010%	0.006%	0.007%	0.006%	0.006%	0.007%	0.007%	0.009%	0.009%	0.012%
Born in UK		-	-	-	-	-	-	0.12%	0.08%	0.07%	0.10%
Born in Africa		-	-	-	-	-	-	2.7%	2.1%	1.7%	1.9%
Born elsewhere		-	-	-	-	-	-	0.30%	0.20%	0.14%	0.15%
Born in UK		-	0.14%	0.11%	0.13%	0.14%	0.19%	0.13%	0.10%	0.10%	0.09%
Born in Africa		-	6.1%	8.3%	4.0%	4.6%	8.9%	4.4%	5.9%	2.4%	4.7%
Born elsewhere		-	0%	0.54%	0.19%	0.23%	0%	0.23%	0.18%	0%	0%
Female		26.6	28.4	28.4	29.2	29.6	30.2	30.7	31.6	31.3	31.9*
Male		33.3	32.5	32.9	33.7	34.1	35.1	35.1	36.3	36.2	36.7*
≤24		350	365	365	240	367	330	380	316	304	370
≥25		190	248	230	182	250	220	200	190	191	202
All		-	-	301	320	220	315	311	340	243	417
Female		-	-	-	-	-	3330	4004	4010	4090	4921
Male		-	-	-	-	-	5281	6238	6672	6729	8820
Number		-	-	-	65	87	116	144	109	93	72
Number with acute STIs		-	-	-	5	6	13	7	13	11	13

Much of this increase has been due to an improvement in the proportion having voluntary confidential HIV tests at genitourinary medicine clinics from 29% (28 of 98) of previously undiagnosed HIV infections in 1996 to 51% (46 of 90) in 1999. Elsewhere in England, Wales and Northern Ireland the proportion of HIV infections that had been diagnosed clinically in 1999 was 30% in men and 56% in women. Of the HIV-infected heterosexual clinic attendees in Scotland, 45% of the men and 62% of the women had been diagnosed clinically.

27. The number of new cases of acute sexually transmitted infections in heterosexuals diagnosed in genitourinary medicine clinics in England continued to rise in 1999 [6]. New cases of gonorrhoea rose by 25% between 1998 and 1999, the largest annual increase seen in the past 5 years (Table 5). The rise was greatest in teenagers, up by 39% in males and 25% in females.
28. For many HIV-infected heterosexual men and women, their HIV infection remained undiagnosed after their

Figure 5: Trends in prevalence of HIV infection among pregnant women\* by area of residence: 1989–1999



\*Newborn infant dried blood spots taken for metabolic screening



genitourinary medicine clinic attendance. A number of these HIV-infected heterosexuals (most commonly in London) also had evidence of an acute sexually transmitted infection (Table 5). The benefit may be considerable if clinicians routinely recommended an HIV test to all heterosexuals known or suspected to have another sexually transmitted infection.

## Those at lower or general risk of HIV infection

### *Pregnant women*

29. Prevalence of HIV infection amongst pregnant women in London in 1999 was 1 in 400, the highest level recorded so far, and a six-fold rise since the survey began in 1988 (Figure 5). Prevalence varied substantially according to maternal district of residence within London in 1999, ranging from none to 1 in 120.
30. Elsewhere in the UK, the prevalence of HIV infection has remained low (approximately 1 in 4,500). The distribution of births to HIV-infected mothers outside of London, however, varied substantially from year to year, making it difficult to identify higher prevalence areas [7].

31. The prevalence of HIV infection among pregnant women largely reflects migration of black African ethnic minority women who were probably infected in sub-Saharan Africa. Low levels of HIV infection have been reported in pregnant women who were born in the UK and South Asia [8]. Unlinked anonymous surveys remain important for monitoring the impact within the UK of the continuing pandemic.
32. One in 120 women undergoing pregnancy termination in London was HIV infected. This rate was double that seen in women who continued their pregnancy.

### *Mother to infant transmission*

33. In 1998, an estimated 330 births to HIV-infected women in the UK would have resulted in about 60 infected infants. An estimated 380 births would have resulted in 55 infected infants in 1999. If all maternal HIV infections had been diagnosed in 1999 and interventions offered to all HIV-infected mothers, fewer than 10 infant HIV infections would have occurred (Table 6).
34. Substantial efforts have been made recently to improve antenatal HIV diagnosis. National targets and objectives were set

that involve the offer and recommendation of an HIV test to all pregnant women throughout England. Increased antenatal HIV testing is the key factor contributing to a decrease in mother to infant HIV infections. It is anticipated that antenatal HIV testing should lead to an 80% reduction in the number of children acquiring HIV infection from their mothers by December 2002 [9,10].

35. Within Inner London the rate of maternal HIV diagnosis has improved (Figure 6). Some London hospitals have made considerable progress towards implementation of routine HIV testing [11]. In 1999, 76% of pregnant women

in Inner London had had their infection diagnosed before delivery, compared with 50% in 1998.

36. Within Inner London the antenatal diagnosis rate for HIV-infected women undiagnosed at the start of antenatal care was 60% in 1999, compared with 33% in 1998.
37. There was little improvement in 1999 in the rate of diagnosis of HIV infections in pregnant women in England and Wales outside London (Figure 6). Reports indicate, however, that progress with the implementation of routine antenatal testing is being made in these regions during 2000.

**Table 6: Estimated number of infant HIV infections avoided in 1999**

Area of residence	Births to HIV-infected women*	Estimated number of infants who would have acquired HIV infection from their mothers in the absence of maternal diagnosis (95% CI) <sup>†</sup>	Estimated number of infants acquiring HIV infection from their mothers in 1999 (95% CI) <sup>‡</sup>	Estimated number of infants who would acquire HIV infection if all maternal infections had been diagnosed before delivery <sup>§</sup>
London	260	70 (55–85)	30 (20–45)	5
Rest of UK	120	30 (25–35)	25 (15–30)	2
<b>Total</b>	<b>380</b>	<b>100 (80–120)</b>	<b>55 (35–75)</b>	<b>7</b>

\*Data obtained from the unlinked anonymous dried blood spot survey, adjusting for areas not covered in the programme

<sup>†</sup>An estimate of the number of infected infants in the absence of maternal diagnosis and applying a vertical transmission rate (VTR) of 26.5% for all infected women

<sup>‡</sup>An estimate of the current number of infected infants based on observed surveillance data in 1999, applying a VTR of 2.2% for women diagnosed before delivery and a VTR of 26.5% for women remaining undiagnosed

<sup>§</sup>An estimate of the number of infected infants assuming all maternal infections are diagnosed before delivery and applying a VTR of 2.2% for all infected women

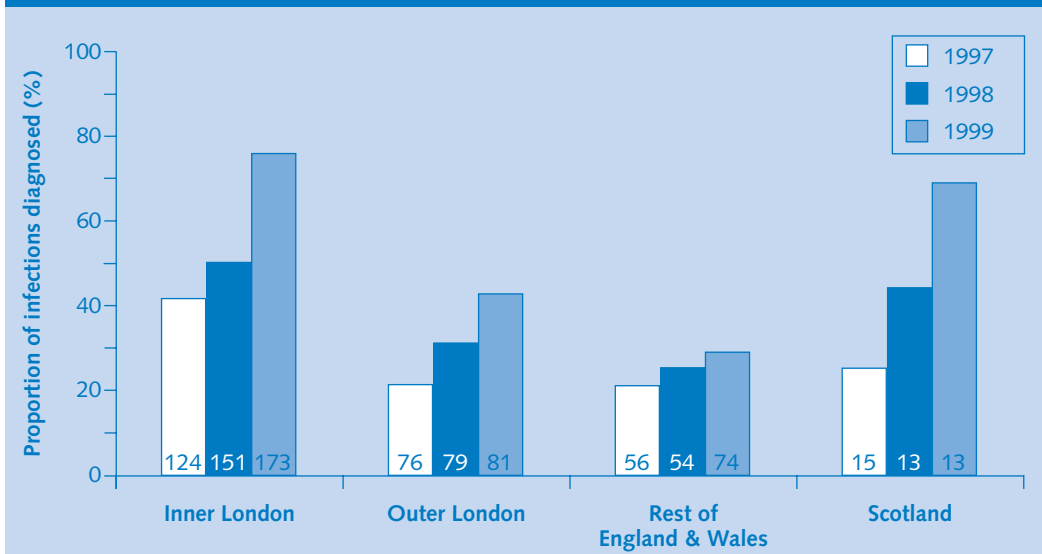
## Increasing numbers of HIV-infected persons requiring care

38. It has been estimated that, at the end of 1998, there were nearly 30,000 HIV-infected adults living in the UK, about one third of whom were apparently unaware of their infection [12]. In 2001, new data on the sizes of the populations at increased risk of HIV infection will become available from the second National Survey of Sexual Attitudes and Lifestyles. These data will be combined with the 1999 data from the Unlinked

Anonymous Prevalence Monitoring Programme to provide revised estimates of the number of infected individuals at the end of 1999 who were unaware of their HIV infection.

39. In the past three years there has been a substantial increase in the number of people diagnosed with HIV infection requiring HIV-related care (Figure 7). At the end of 1999 there were an estimated 22,000 requiring this care, an increase of over 40% from the 15,000 to 16,000 in 1995 and 1996. This increase in

Figure 6: Proportion of HIV infections diagnosed before birth amongst pregnant women\*



\* Alignment of dried blood spot survey data with confidential reports through the Royal College of Obstetricians and Gynaecologists — confidential reports subject to reporting delay, particularly for recent years  
Note: numbers at base of columns refer to total number of positive specimens

HIV-infected people requiring clinical monitoring, treatment and care is due both to the large fall in mortality following the introduction of highly active antiretroviral treatment (HAART) and the continuing high number of HIV infections diagnosed each year (Figure 7). If these trends continue unchanged, there will be a further large rise in the number of HIV-infected people requiring care in the coming three years.

### Continuing impact of the pandemic

40. In the UK a large proportion of the HIV infections attributed to heterosexual transmission is associated with having lived in or visited countries in sub-Saharan Africa. Further global changes in heterosexually transmitted HIV, particularly in Africa and South Asia, are likely to be reflected in the UK. Any increase in HIV prevalence in the UK associated with increases in other countries may be detected initially through the unlinked anonymous surveys.

## Hepatitis

### Hepatitis B

41. *Homosexual men*: Although the reported incidence of acute hepatitis B infection in homosexual men is less than it was in the early 1990s, transmission of the

virus is continuing in this group, with 50 to 60 reports occurring in each of the past four years (Table 3).

42. *Injecting drug users*: A quarter of the injecting drug users attending specialist agencies in London in 1999 had had hepatitis B, as had 1 in 6 of those attending agencies in the rest of England and Wales. Hepatitis B continues to be transmitted among injecting drug users even though there is an effective vaccine. In 1999, of the injecting drug users who began injecting in the past three years, 1 in 18 had been infected with hepatitis B. Reports of acute hepatitis B among injecting drug users in England and Wales have risen four-fold since 1992 (Figure 4). Only 29% of injectors reported being vaccinated against hepatitis B in 1999, a slight increase from 25% in 1998 (Table 4).
43. In Scotland, there has also been an increase in reports of acute hepatitis B infection among injectors, from 14 in 1995 to 115 in 1999 (Table 4). This increase has been focused in the North East of Scotland.

### Hepatitis C

44. *Injecting drug users*: One-third of injecting drug users attending specialist agencies in England and Wales had

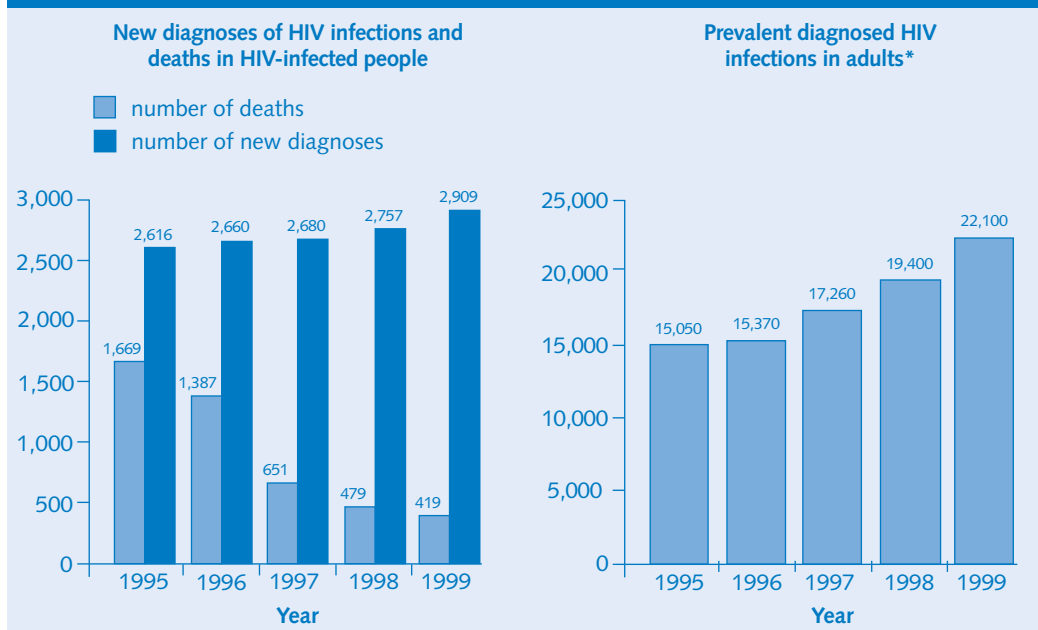
antibodies to hepatitis C (Table 7) [13]. One in 11 of injecting drug users who began injecting in the past three years had hepatitis C infection, indicating ongoing transmission (Table 4). The prevalence of hepatitis C among injecting drug users varied by region, being highest in London and the North West (Figure 8).

45. In Scotland, 62% of 1905 specimens from injectors who originally underwent HIV antibody testing in 1995/1996

were hepatitis C antibody positive; prevalences among Glasgow, Edinburgh, Dundee and Aberdeen injectors were 74%, 47%, 64% and 37%, respectively.

46. There is evidence that the prevalence, and thus the incidence, of hepatitis C among injecting drug users in Scotland declined during the 1990s, the era of harm-reduction interventions. A community-wide survey in Glasgow in 1999, however, revealed that nearly 25% of those who began injecting drugs after

**Figure 7: New HIV diagnoses, HIV deaths and adults with diagnosed HIV infection at year end: United Kingdom 1995–1999**



\*Data from the Survey of Prevalent HIV Infections Diagnosed (SOPHID) (England, Wales and Northern Ireland) and CD4 monitoring (Scotland)

1996 were hepatitis C antibody positive. Thus, hepatitis C remains highly incident among this population.

47. *Pregnant women:* A total of over 40,000 specimens from antenatal clinics collected during 1996 were tested for antibody to hepatitis C virus. After taking into account the differential sampling of the serum archive, the adjusted overall prevalence of antibodies to hepatitis C was 0.43% in London and 0.21% in the Northern and Yorkshire region (Table 7) [14]. Among women over 30 years of age, hepatitis C prevalence was significantly higher in London than in Northern and Yorkshire region. The prevalence of 0.43% in London is consistent with a more recent London-based study in which hepatitis C antibody prevalence rates of 0.38% and 0.20% were seen in Inner and Outer London districts, respectively [15]. This more recent study also found a particularly high prevalence (1.6%) of

antibodies to hepatitis C in women from Southern Europe compared with women born elsewhere.

48. These prevalence estimates are somewhat lower than the 0.8% reported recently from pregnant women attending an Inner London obstetric department [16]. That study found that hepatitis C positive women were significantly more likely to have a history of drug misuse, although most had no identified risk factors for hepatitis C infection.

49. The importance of injecting drug use as the main route of transmission of the hepatitis C virus was shown by the study of antenatal specimens from the 1996 serum archive. The distribution of hepatitis C genotypes that was found showed a high frequency of type 3 infections [14]. Injecting drug use is the main source of genotype 3 infections seen in the UK. This is consistent with

**Table 7: Prevalence of hepatitis C antibody in injecting drug users and pregnant women**

Survey group	Year	Area	Hepatitis C prevalence
Injecting drug users <sup>+</sup>	1998–1999	England & Wales	34%
Antenatal clinic attenders <sup>¶</sup>	1996	London	0.43%
		Northern & Yorkshire	0.21%

<sup>+</sup>Oral fluid (saliva) samples: oral fluid hepatitis C test has a sensitivity of 80%

<sup>¶</sup>Using samples from the antenatal survey serum archive, results adjusted for differential sampling

injecting drug use being the principal hepatitis C exposure category in pregnant women.

50. *Hepatitis C incidence*: Promising initial results have been obtained in a pilot study of a technique for measuring hepatitis C incidence in unlinked anonymous serum specimens collected from injecting drug users in 1995 and 1996. A qualitative polymerase chain reaction is used to detect the presence of hepatitis C RNA in serum during the period shortly after infection and before the appearance of hepatitis C antibody (the 'window' period). Sera that were

hepatitis C-antibody negative were tested for the presence of hepatitis C RNA in pools of 10. Data analysis is under way and the technique will be applied to sera from later years.

## Conclusions

51. The Unlinked Anonymous Prevalence Monitoring Programme is vital for effective and efficient measurement of HIV transmission in the UK. The surveys are based upon sound ethical and legal principles and are used to provide information for which there is a justifiable public health need.

Figure 8: Prevalence of antibodies to hepatitis C in injecting drug users by NHS Executive region: 1998–1999



52. The 1999 data from the programme show that HIV transmission and unsafe sexual behaviour are continuing among homosexual and bisexual men of all ages. Prevalence of HIV infection in injecting drug users remains low, but there has been an increase in sharing of injecting equipment. Transmission of HIV between non-drug injecting heterosexuals in this country is continuing to occur at low levels, with little change in 1999. The prevalence of HIV infection among

genitourinary medicine clinic attendees born in the UK is greater than in the population overall; however, the risk of HIV transmission between heterosexuals within the UK may be increasing as indicated by recent rises in the incidence of gonorrhoea in heterosexuals.

53. A substantial number of HIV infections remain undiagnosed, so that many of those who are infected are not benefiting from recent therapeutic advances.

### Priorities for Commissioners

In purchasing services, appropriate priority should be given to:

Prevention activity and local needs assessment for

- homosexual and bisexual men;
- people from sub-Saharan African countries with high HIV prevalence;
- heterosexuals at behavioural risk of acquiring sexually transmitted infections;
- needle exchange and other harm minimisation services for injecting drug users (and users likely to progress to injecting);
- people who are HIV positive.

Developing services for African men and women and African families affected by HIV infection.

Increasing the uptake of HIV testing by all pregnant women to meet national targets.

Treatment and care of other sexually transmitted infections and the promotion of voluntary confidential HIV testing.



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## Appendix One

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Seng C  
Shafi M S  
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Siddons A  
Simmons S  
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Smith C  
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Struthers K  
Stubbs E  
Subramanian G  
Sutehall G  
Sutton G C  
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Teall A  
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Tilzey A  
Tomlinson D  
Tookey P  
Travis A  
Turner A  
Venebles I  
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Waters A H

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Welch S  
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## Appendix Three

### Supplementary data:

The following tables of data and figures are available at

<http://www.phls.co.uk/facts/HIV/hiv.htm>

#### Overall Tables

*Centres and Districts Contributing Specimens Each Year: 1990–1999*

*Total Number of Specimens: 1990–1999*

*Number of HIV-1 Positive Specimens: 1990–1999*

*Number of HIV-2 Positive Specimens: 1990–1999*

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Table Overall-2

Table Overall-3

Table Overall-4

#### Survey of Genitourinary Medicine Clinic Attendees

*HIV Prevalence by Year: Male Homosexuals by Age Group*

*HIV Prevalence by Year: Male & Female Heterosexuals by Age Group: London*

*HIV Prevalence by Year: Male & Female Heterosexuals by Age Group:*

*England & Wales Outside London*

*HIV Prevalence by Year: Male & Female Heterosexuals by Age Group: Scotland*

*HIV Prevalence by Year: Injecting Drug Users attending Genitourinary*

*Medicine Clinics*

*HIV Prevalence by Geographic Region of Birth: England & Wales:*

*1998–99 combined*

*Prevalence by Nationality: Scotland: 1998–99 combined*

*HIV Prevalence by Acute Sexually Transmitted Infection status: 1993–1999*

*HIV Prevalence in Heterosexuals by World Region of Birth & Sexually*

*Transmitted Infection status: 1998 & 1999*

*Clinically Diagnosed HIV Infections by Year*

*Proportion of HIV-Infected Genitourinary Medicine Clinic Attendees*

*with Evidence of Probable Recent High-Risk Sexual Behaviour*

*Undiagnosed HIV Prevalence by Year: Homosexual and Bisexual Men*

*Aged Under 25: England & Wales*

*Undiagnosed HIV Prevalence by Year: Homosexual and Bisexual Men*

*Aged Under 25: Scotland*

*Undiagnosed HIV Prevalence by Year: Heterosexual Men and Women:*

*England & Wales*

*Undiagnosed HIV Prevalence by Year: Heterosexual Men and Women: Scotland*

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Table GUM-2a

Table GUM-2b

Table GUM-2c

Table GUM-3

Table GUM-4a

Table GUM-4b

Table GUM-5

Table GUM-6

Table GUM-7

Table GUM-8

Table GUM-9a

Table GUM-9b

Table GUM-10a

Table GUM-10b

#### Survey of Injecting Drug Users

*HIV Prevalence in Injecting Drug Users by Year: with subdivisions by gender and age*

*Hepatitis B (anti-HBc) Prevalence in Injecting Drug Users by Year:*

*with subdivisions by gender and age*

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