

Part one: HIV infection

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3 HIV – The state of the UK epidemic

3.1 Key points

- **The estimated prevalence of diagnosed HIV infections in adults increased between 2001 and 2002 by 20% to 34 300, and undiagnosed HIV infections by 17% to 15 200**
- **The total number of HIV-infected patients seen for care in the UK has risen by 20% since 2001, to 31 861. This rise has been particularly marked in areas bordering London**
- **Three-quarters of heterosexually acquired HIV infections diagnosed in the UK in 2002 were probably acquired in Africa**
- **The STARHS technique suggests HIV incidence has risen in homo/bisexual men to 3.5% per annum; the prevalence of previously undiagnosed HIV infection in young homo/bisexual men attending 15 GUM clinics was 4% in 2002**
- **Overall, HIV infection in pregnant women increased to 0.14%**
- **Amongst sub-Saharan African born heterosexuals attending 15 GUM clinics previously undiagnosed HIV prevalence reached 4.9% in 2002**
- **Prevalence of previously undiagnosed HIV infection has increased three-fold in UK born heterosexual men attending 15 GUM clinics since 1997 to 0.3% in 2002**

3.2 Diagnosed HIV infections

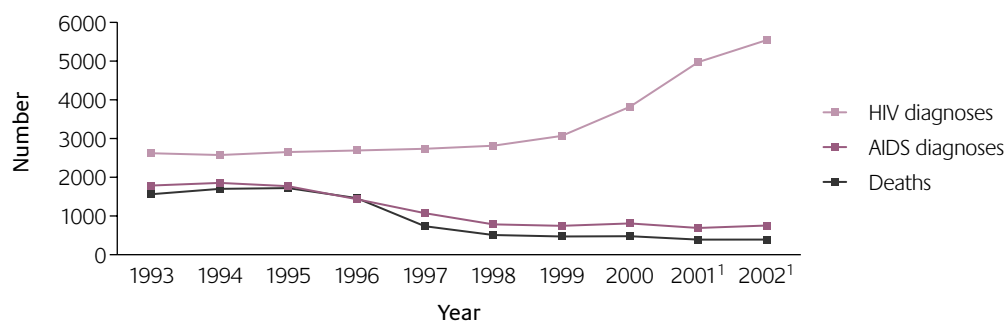
3.2.1 Trends in HIV diagnosis

The large rise in the number of new HIV diagnoses each year continued so that the total of 5542 diagnoses in 2002^a was almost double the 2814 diagnoses in 1998 (Table 1). By contrast, the numbers of AIDS diagnoses and deaths in HIV-infected individuals declined after the introduction of effective therapies in the mid-1990s, and in more recent years have remained relatively constant (Figure 1) with 753 reports of AIDS and 390 deaths so far reported for 2002.

The major component of the rapid increase in numbers of new HIV diagnoses in recent years has been in heterosexually acquired infections (Coreslide 1). Since 1999, the number of new HIV diagnoses in heterosexuals has exceeded the number of new diagnoses of homo/bisexual men (Coreslide 1). The 3152 new HIV infections diagnosed in 2002 that were heterosexually acquired represent a greater than three-fold increase from 1996 when less than 900 such infections were diagnosed annually (Table 1).

Nevertheless, in 2002 there were 1617 diagnoses attributable to sex between men and this number will rise, as further reports are received and as follow-up continues (Table 1). Once the data for 2002 are complete, it is probable that a steady rise in HIV diagnoses in homo/bisexual men since 1999 will be apparent (Coreslide 1).

Figure 1: HIV and AIDS diagnoses and deaths in HIV-infected individuals by year of occurrence in the United Kingdom, 1993-2002



¹Numbers will rise, for recent years, as further reports are received.

Data source: HIV/AIDS reports. Reports received by the end of June 2003.

Table 1: Exposure category of HIV infections diagnosed in the United Kingdom, 1992-2002

Year of diagnosis	Homo/bisexual men	Heterosexual men and women	Injecting drug users	Mother to infant	Blood/blood products	Other/undetermined ²	Total (100%)
1992 or earlier ¹	14 429	3037	2493	176	1521	580	22 236
1993	1502	769	204	66	17	62	2620
1994	1482	796	167	65	17	47	2574
1995	1472	851	183	61	20	64	2651
1996	1545	835	173	62	20	56	2691
1997	1401	1005	168	81	29	51	2735
1998	1355	1160	130	94	10	65	2814
1999	1347	1427	112	82	21	78	3067
2000	1498	1981	109	102	23	107	3820
2001 ³	1714	2829	128	82	25	196	4974
2002 ³	1617	3152	98	99	25	551	5542
Total	29 362	17 842	3965	970	1728	1857	55 724

¹Surveillance began in 1982.

²The proportion with route of infection undetermined is always higher for the most recent year because of the time needed to complete follow up.

³Numbers will rise for recent years, as further reports are received.

Data source: HIV/AIDS Reports. Reports received by the end of June 2003.

Two-thirds (1993/3152) of the heterosexually acquired HIV infections diagnosed in 2002 were in women, and three-quarters of the total (2338) were probably infected in Africa (Table 2). Infections acquired in Eastern Africa^b, especially in Uganda, predominated in earlier years (Coreslide 2). Since 1999, however, infections acquired in South Eastern Africa, and in particular Zimbabwe, have dominated. Numbers of infections acquired heterosexually in Latin America, the Caribbean and Asia continue to rise, though remain at a relatively low level compared with the numbers probably infected in Africa (Table 2).

Over the past five years there has been a steady increase in the number of diagnoses of HIV infection in people thought to have acquired their infection heterosexually within the UK, from 147 diagnoses in 1998, to 275 reported for 2002

by the end of June 2003 (Table 2). The majority of these individuals were probably infected through partners who acquired their infections outside Europe.

By the end of 2002, a cumulative total of almost 56 000 diagnoses of HIV infection had been reported in the UK since the epidemic began in the early 1980s (Table 1). Just over half of this total had probably acquired their HIV infection through sex between men. There has been a change, however, in the distribution of HIV diagnoses across exposure categories over the past 10 years; in 1993 only 29% of new diagnoses had been in heterosexuals compared with 57% in 2002 (Table 1).

Table 2: Sub-category of HIV infections diagnosed in the United Kingdom that were probably acquired heterosexually, 1992-2002

Heterosexual sub-category	1992 or earlier	1993	1994	1995	1996	1997	1998	1999	2000	2001 ¹	2002 ¹
Exposure to 'high risk' partner(s) infected through:											
Male homosexual intercourse	109	24	21	12	11	10	11	12	13	23	17
Injecting drug use	199	37	31	41	33	49	48	23	22	36	16
Blood/blood products	75	5	2	4	9	6	4	5	2	4	3
Exposure to presumed heterosexually infected partner(s):											
Exposure abroad											
in Africa	1938	506	534	559	549	642	745	994	1478	2151	2338
in Latin America/Caribbean	62	24	27	14	25	28	32	62	67	82	108
in Asia	66	28	18	39	44	53	78	76	110	97	95
in North America	56	16	9	8	8	10	15	7	6	9	4
in Europe	127	38	36	42	42	50	42	49	46	46	41
in Australasia	6	2	0	2	1	2	4	6	2	5	2
in country(ies) not known	24	0	0	2	7	3	17	0	2	1	1
Exposure in the UK to partner(s) presumed infected:											
outside Europe	91	17	38	48	42	71	81	90	127	155	153
within Europe	108	42	44	38	29	39	41	48	47	51	35
in country(ies) not known	152	28	30	32	28	31	25	30	27	56	87
Partner(s) exposure category undetermined:											
Investigation continuing/closed	24	2	6	10	7	11	17	25	32	113	252
Total	3037	769	796	851	835	1005	1160	1427	1981	2829	3152

¹Numbers for recent years will rise as further reports are received. Table will include some records of (a) the same individuals, which are unmatchable because of differences in the information supplied and (b) of individuals who left the United Kingdom at some date after diagnosis.
Data source: HIV/AIDS Reports. Reports received by the end of June 2003.

^bCountries in United Nations Geographical Regions of Africa: **South Eastern Africa:** Malawi, Zambia, Zimbabwe; **Eastern Africa:** Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Mozambique, Reunion, Rwanda, Seychelles, Somalia, Tanzania, Uganda; **Central Africa:** Angola, Cameroon, Central African Rep, Chad, Congo, Equatorial Guinea, Gabon, Sao Tome & Principe, Congo/Zaire; **Northern Africa:** Algeria, Egypt, Libya, Morocco, Sudan, Tunisia; **Southern Africa:** Botswana, Lesotho, Namibia, South Africa, Swaziland; **Western Africa:** Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, St Helena, Togo, Mali.

3.2.2 Numbers seen for care

The number of HIV-infected patients seen for care annually has doubled over the past five years (Coreslide 3). In England, Wales and Northern Ireland, a total of 30 281 HIV-infected patients were seen for care during 2002 (Table 3), an increase of 20% on 2001 data⁷, and a 101% increase since 1997 (15 074). With the addition of data from Scotland, the total number of HIV-infected individuals seen for care throughout the UK during 2002 was 31 861 (Table 4). These increases reflect both the rise in numbers of new HIV diagnoses and the decrease in HIV-related deaths (Figure 1) since the introduction of more effective therapies. These figures have not been adjusted for under-reporting or failure to access services within a given year.

Homo/bisexual men remain the population sub-group with the greatest number of HIV-infected patients seen for care. During 2002, in England, Wales and Northern Ireland a total of 13 976 (46%) of patients seen were infected through sex between men (Table 4); the equivalent figure for Scotland was 546 (38%). This compares to 12 501 (41%) patients infected heterosexually, and 894 (3%) infected through injecting drug use, and in Scotland, 504 (35%) infected heterosexually and 391 (27%) infected through injecting drug use.

Of the 13 258 homo/bisexual men in 2002 with ethnicity reported, a large majority (88%, 11 728) were white, 5% (627) were mixed or other ethnicity, and 2% (294) were black-Caribbean (Table 3).

Between 1997 and 2002, there was a 252% increase in patients seen for care who had been infected heterosexually (Coreslide 3). Within this sub-group, the largest increase has been in black-African patients (Figure 2). Of the 12 203 heterosexual men and women seen for care in England, Wales and Northern Ireland in 2002 for which ethnicity was reported, 68% (8262) were black-African, 21% (2580) were white, and 4% (501) black-Caribbean (Table 3).

Table 3: Diagnosed HIV-infected patients seen for care in England, Wales & Northern Ireland, by exposure category and ethnicity, 2002

Ethnicity	Exposure Category												Total
	Homo/ bisexual men		Heterosexual men and women		Injecting drug users		Mother to infant ¹		Blood/blood products		Other/ not reported		
White	11 728	88%	2580	21%	759	89%	103	11%	346	81%	643	53%	16 159
Black-Caribbean	294	2%	501	4%	8	1%	24	2%	6	1%	45	4%	878
Black-African	191	1%	8262	68%	23	3%	724	75%	46	11%	394	33%	9640
Black-Other/ Black Unspecified	185	1%	251	2%	4	0%	2	0%	0	0%	21	2%	463
Indian/Pakistani/ Bangladeshi	86	1%	186	2%	3	0%	11	1%	13	3%	35	3%	334
Other Asian/Oriental	147	1%	155	1%	6	1%	4	0%	4	1%	21	2%	337
Other/mixed	627	5%	268	2%	52	6%	97	10%	13	3%	53	4%	1110
Total	13 258	-	12 203	-	855	-	965	-	428	-	1212	-	28 921
Not reported	718	-	298	-	39	-	14	-	27	-	264	-	1360
Grand total	13 976	-	12 501	-	894	-	979	-	455	-	1476	-	30 281

¹Includes 271 children born to HIV-infected mothers in 2002 whose HIV infection status had not yet been confirmed.

Data source: SOPHID.

Table 4: Diagnosed HIV-infected patients seen for care in the United Kingdom, by exposure category and residence, 2002

Residence ¹	Exposure category						Total
	Homo/ bisexual men	Heterosexual men and women	Injecting drug users	Mother to infant ²	Blood/ blood products	Other/ not reported	
Yorkshire & Humberside	382	463	43	29	46	34	997
North East	184	185	12	7	10	11	409
East Midlands	344	565	42	44	34	37	1066
West Midlands	499	523	23	56	20	36	1157
North West	1390	628	75	55	58	122	2328
Eastern	427	943	51	47	36	45	1549
London	8115	7019	455	586	121	906	17 202
South East	1473	1340	115	98	66	138	3230
South West	569	365	43	26	18	50	1071
England total ³	13 398	12 047	860	950	409	1380	29 044
Wales	253	153	16	8	30	8	468
Northern Ireland	82	52	5	1	1	2	143
E, W & NI total	13 733	12 252	881	959	440	1390	29 655
Outside E, W, & NI	15	17	1	0	1	5	39
Not known	228	232	12	20	14	81	587
SOPHID Survey total	13 976	12 501	894	979	455	1476	30 281
Scotland ⁴	546	504	391	51	40	40	1572
Overall UK total⁵	14 522	13 005	1285	1038	495	1516	31 861

¹ Government Office Region of residence.

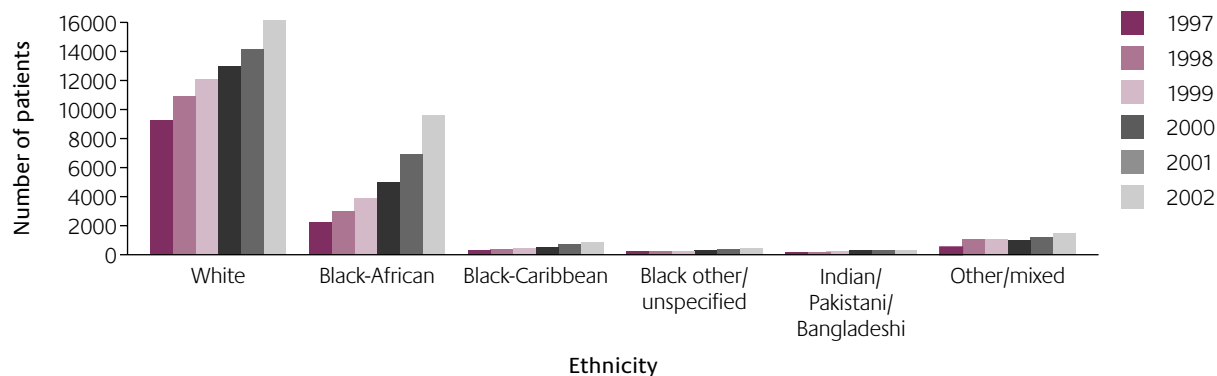
² Includes 293 children born to HIV-infected mothers in 2002 whose HIV infection status had not yet been confirmed.

³ Includes 35 individuals resident in England and for whom region of residence is not known.

⁴ Scottish data relates to those who had a CD4 count during the year.

⁵ Includes the Channel Islands and Isle of Man, or those resident abroad and eight individuals seen for care in Scotland but whose country of residence was not known.

Data source: SOPHID.

Figure 2: Ethnicity of diagnosed HIV-infected patients seen for care in England, Wales & Northern Ireland, 1997-2002

Data source: SOPHID.

HIV in the UK continues to be concentrated in London, with 54% (17 202/31 861) of individuals diagnosed, resident in the city (Table 4). The numbers of heterosexually infected individuals resident throughout the rest of England and Wales has increased almost four-fold between 1998 and 2002 from 1332 to 5181. These increases have been particularly marked in Strategic Health Authorities bordering London (Coreslide 4). While steadily increasing, diagnosed HIV infections in homo/bisexual men have remained concentrated in London, Edinburgh, Glasgow and the South East and North West of London (Coreslide 5).

3.3 Prevalence of HIV infection in pregnant women

In pregnant women, overall HIV prevalence includes those with previously diagnosed infections, those diagnosed through antenatal screening and those remaining undiagnosed at delivery.

Overall HIV prevalence of women giving birth in England and Scotland increased in 2002, and London, where the prevalence was 0.38% (422/105 817), remained the region with the greatest number of births to HIV-infected women (Coreslide 6). Between 2001 and 2002 there was a marked increase in HIV prevalence in inner London to 0.53% (251/47 075) while in outer London the prevalence remained steady at 0.29% (171/58 742). Elsewhere, the prevalence rose to 0.06% for both the rest of England (186/294 236) and Scotland (30/51 288).

Women giving birth in 2002 who were born in sub-Saharan Africa had the highest HIV prevalence with 2.47% (239/10 526) infected. The prevalence in this group has increased from the 1.5% observed in 1997 (Coreslide 7). The figure for those born in the UK was 0.03% (42/121 833) and was unchanged since 1997.

Of those born in sub-Saharan Africa the highest prevalence occurred in women born in Central Africa and Eastern Africa^b (3.4%; 36/1054 and 181/5346 respectively). Outside sub-Saharan Africa the highest prevalence of 0.37% (7/1887) was in women born in Central America and the Caribbean.

Amongst women terminating their pregnancy in seven inner London centres, the HIV prevalence in 2002 was 0.93% (27/2907), a figure that has remained stable since 2000. Those aged 25-29 had the highest prevalence. The prevalence of HIV in all women receiving antenatal care at the same seven centres remained lower in 2002 at 0.59% (273/29 386).

3.4 Undiagnosed HIV infections

3.4.1 Homo/bisexual men

In 2002, the prevalence of previously undiagnosed^c HIV infection amongst homo/bisexual men attending 15 GUM (genitourinary medicine) clinics was 5.4% (280/5222) in London and 2.4% (51/2158) elsewhere in England, Wales and Northern Ireland (Table 5). This was the highest level of previously undiagnosed HIV infection seen in this population since 1997.

The prevalence of previously undiagnosed HIV infection in homo/bisexual men aged 24 years or under is an indicator of relatively recent HIV transmission (Figure 3). After falling to close to 2% (11/548) in 1999, in London, this prevalence has since doubled to around 4% in 2001 (24/594) and 2002 (27/672).

^cPreviously undiagnosed HIV infection includes those who were diagnosed at the clinic visit as well as those who remained unaware of their infection, but excludes those with previously diagnosed HIV infection.

Table 5: Previously undiagnosed HIV infection¹, through unlinked anonymous testing, 2002

Area		Genitourinary medicine ² clinic attendees			Pregnant women
		Homo/bisexual men	Heterosexual men	Heterosexual women	
London	Undiagnosed HIV infection (%)	5.4%	1.0%	0.7%	0.1% ⁵
	Number positive/number tested ³	(280/5222)	(170/17 058)	(159/23 201)	(105/105 500)
Scotland	Undiagnosed HIV infection (%)	1.8%	0.1%	0.3%	
	Number positive/number tested ³	(23/1290)	(11/7738)	(13/6543)	0.01% ⁵
Elsewhere in the UK ⁴	Undiagnosed HIV infection (%)	2.4%	0.3%	0.3%	(33/345 341)
	Number positive/number tested ³	(51/2158)	(51/17 257)	(54/17 591)	

¹Undiagnosed on arrival at clinic. This category is the best indicator of the prevalence of undiagnosed HIV infection in these sections of the community, although a proportion of these infections will be diagnosed during this episode of clinical care.

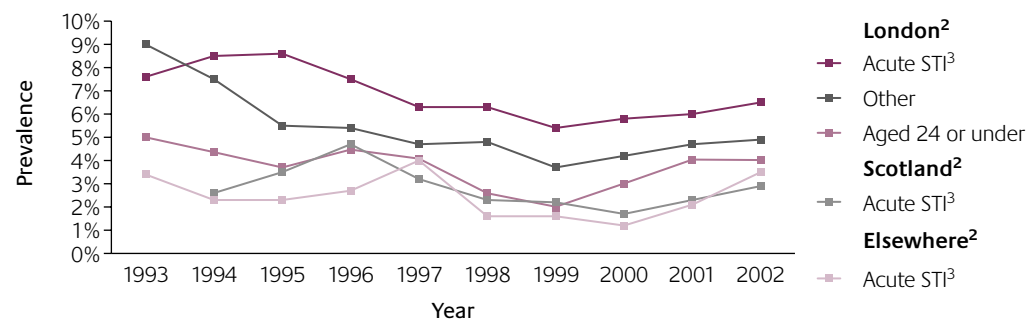
²Attending 15 GUM clinics in England, Wales, Northern Ireland (seven in London, eight elsewhere) and 12 GUM clinics in Scotland.

³Excludes HIV-infected attendees who were previously diagnosed.

⁴Northern and Yorkshire region data for pregnant women come from the Unlinked Anonymous antenatal survey, the majority of data are from the UA neonatal dried blood spot survey.

⁵Calculated using reports of live births to HIV-infected mothers from the Royal College of Obstetricians and Gynaecologists (RCOG) to the National Study of HIV in Pregnancy and Childhood (NSHPC). Includes reports received by the end of September 2003, these figures are subject to reporting delay and should be considered preliminary minimum estimates.

Data source: Unlinked Anonymous Programme.

Figure 3: Prevalence of previously undiagnosed¹ HIV infection in homo/bisexual men²: by clinical presentation and age group in the United Kingdom, 1993-2002

¹Excludes HIV-infected attendees who were previously diagnosed.

²Attendees at 15 GUM clinics in England, Wales, Northern Ireland (seven in London, eight elsewhere) and 12 GUM clinics in Scotland.

³Acute STI is defined as presenting with one of the following diagnoses: infectious syphilis, gonorrhoea, chancroid/donovanosis/LGV, chlamydia, NSU, trichomoniasis, scabies/pediculosis, HSV & HPV first attack or molluscum contagiosum.

Data source: Unlinked Anonymous Programme.

Previously undiagnosed HIV infection in those co-infected with an acute STI^d is of particular concern since these individuals may be at higher risk of passing on their HIV infection to others. Between 2000 and 2002 there was a marked increase in previously undiagnosed HIV infection in those co-infected with an acute STI, from 5.8% (80/1369) to 6.5% (97/1495) in London and from 1.2% (8/643) to 3.5% (25/719) elsewhere in England, Wales and Northern Ireland (Figure 3).

Amongst homo/bisexual men attending 12 GUM clinics in Scotland, provisional data indicate that the prevalence of previously undiagnosed HIV infection was 1.8% (23/1290) in 2002 compared to 2.4% (23/959) in 2001.

3.4.2 Heterosexual men and women

In attendees of seven GUM clinics in London the prevalence of previously undiagnosed^e HIV infection in all heterosexuals was 0.8% (329/40 259) in 2002, compared to 0.6% (196/34 027) in 1997. In eight clinics elsewhere in England, Wales and Northern Ireland the prevalence of previously undiagnosed infection more than tripled from 0.09% (31/32 853) in 1997 to 0.3% (105/34 848) in 2002. This may be due to the recent dispersal of migrant populations from countries with high levels of HIV infection to areas outside London, as most of this increase was seen in heterosexual GUM clinic attendees born in sub-Saharan Africa. (Coreslide 7) The ratio of undiagnosed HIV infection in UK born heterosexuals to sub-Saharan African born was 1:11 inside London and 1:79 outside London.

For the first time, there was an indication that the prevalence of previously undiagnosed HIV infection may have risen amongst heterosexual GUM clinic attendees who were born in the UK, although only one in 500 had previously undiagnosed infection in 2002. This increase was concentrated in men in whom prevalence rose from 0.12% (30/24 465) to 0.3% (72/24 040) between 1997 and 2002 ($P < 0.0001$, adjusted analysis), while in women prevalence was unchanged. In London, previously undiagnosed HIV prevalence in heterosexuals infected with an acute STI^d was 0.8% (90/10 733) in 2002 compared to 0.6% (60/10 539) in 2001; equivalent figures for heterosexuals elsewhere in England, Wales and Northern Ireland were 0.3% (34/12 280) and 0.1% (12/12 236).

Provisional data show that the prevalence of previously undiagnosed HIV infection in heterosexuals attending 12 GUM clinics in Scotland was 0.17% (24/14 281) in 2002 compared to 0.14% (16/11 225) in 2001.

3.4.3 Women giving birth

Of all women giving birth in London an estimated 0.10% (105/105 500) had an undiagnosed HIV infection at delivery (Table 5). This accounts for 25% (105/422) of all HIV infections amongst pregnant women in this region. Elsewhere in England and Scotland it was estimated that the proportion of pregnant women with an undiagnosed HIV infection was 0.01% (33/345 341).

3.5 Injecting drug users in contact with services

One in 28 injecting drug users (IDUs) in contact with services in London and one in 547 outside London had antibodies to HIV in 2002. Although these rates are lower than those measured in the early 1990s, since 1994 the rates have not changed significantly. In 2002 there was one HIV infection amongst the 400 recently initiated^e IDUs. While most HIV-infected IDUs have had their infection diagnosed, one in five were still unaware they were infected.

In 2002, 6.8% (28/412) of recently initiated IDUs had antibodies to hepatitis B core antigen (anti-HBc), a marker of current or past infection. (Coreslide 8) The prevalence of anti-HBc amongst all IDUs in 2002 was 22% (619/2827). In 2002, amongst recently initiated IDUs, the prevalence of antibodies to hepatitis C (anti-HCV) was 14% (57/415). Although lower than the prevalence in 2001 this is substantially higher than the prevalence in 2000 and earlier years. Over one in three of all IDUs were anti-HCV positive. Of those with antibodies to HCV, 57% (544/952) were unaware of their infection. Amongst IDUs attending 15 GUM clinics in England, Wales and Northern Ireland the prevalence of previously undiagnosed HIV infection remained steady at 0.7% (4/575) in 2002.

^dAcute STI is defined as presenting with one of the following diagnoses: infectious syphilis, gonorrhoea, chancroid/donovanosis/LGV, chlamydia, NSU, trichomoniasis, scabies/pediculosis, HSV & HPV first attack or molluscum contagiosum.

^eThose who had started injecting in the last three years.

3.6 HIV prevalence estimates

3.6.1 Total number of HIV-infected adults in the United Kingdom: 2002

Estimates of the total number of undiagnosed HIV infections in the population were calculated through combining the data from Unlinked Anonymous surveys with estimates of the size of the population in various exposure categories derived from the National Survey of Sexual Attitudes and Lifestyles (Natsal 2000)³³ and Census 2001 population estimates (National Statistics). The total population of England and Wales aged 16-44 was divided into mutually exclusive behavioural categories relevant to HIV infection risk. The undiagnosed HIV prevalence for each group was multiplied by its population size to get the total number of undiagnosed HIV infections. These were then added to the prevalent diagnosed HIV infections within each group, derived from SOPHID. These estimates were then scaled up to include adults aged over 44 and elsewhere in the UK. Since

undiagnosed HIV estimates were not available for each of the behavioural groups, prevalence estimates were derived through adjusting the Unlinked Anonymous estimates using behavioural survey data.

At the end of 2002 an estimated 49 500 adults aged over 15 were living with HIV in the UK, 15 200 (31%) of whom were unaware of their infection (Table 6). [This compares to 31% of an estimated 41 700 in 2001^f.] In 2002, just under half (46%) of the HIV infections in adults were in homo/bisexual men. Of homo/bisexual men, 24% (5500) were unaware of their infection, accounting for 36% of the estimated 15 200 undiagnosed prevalent infections.

An estimated 24 500 adults who had acquired their infection through heterosexual sex were living in the UK in 2002, and 9400 (38%) of these were unaware of their infection. The highest proportion of undiagnosed infection was in this category, with

Table 6: Estimates of prevalent HIV infections amongst adults in the United Kingdom at the end of 2001 and 2002

Exposure Category	2001 ¹			2002		
	Number Diagnosed ²	Number Undiagnosed ^{3,4}	Total	Number Diagnosed ²	Number Undiagnosed ^{3,4}	Total
Homo/bisexual men	15 300	4500 (23%)	19 800	17 100	5500 (24%)	22 600
Injecting drug use						
Males and females	1400	300 (18%)	1700	1400	300 (18%)	1700
Heterosexuals						
Male	4400	4500 (51%)	8900	5800	4800 (45%)	10 600
African	2700	2400	5100	3800	2500	6300
Non-African	1700	2100	3800	2000	2300	4300
Female	6900	3700 (35%)	10 600	9300	4600 (33%)	13 900
African	4900	2000	6900	6800	2300	9100
Non-African	2000	1700	3700	2500	2300	4800
Total	11 300	8200 (42%)	19 500	15 100	9400 (38%)	24 500
Blood Products ⁵						
Males and females	700	0	700	700	0	700
Grand Total	28 700	13 000 (31%)	41 700	34 300	15 200 (31%)	49 500

¹2001 re-estimated using newly developed adjustments.

²Numbers diagnosed were obtained from SOPHID and SCIEH, adjusted for under-reporting and failure to access services.

³Numbers undiagnosed derived for England, Wales and Scotland using data from Natsal 2000 (32) and the Unlinked Anonymous programme in an extension of the method previously described (Petrukevitch *et al. Genitourinary Medicine* 1997; 73:348-54).

⁴Numbers undiagnosed for Northern Ireland derived by using exposure specific factors.

⁵All cases infected through blood and blood products or tissue were assumed to be diagnosed.

Data sources: Multiple sources above, 2-5.

^fEstimates for 2001 and 2002 were updated using a revised methodology in 2003.

33% of female and 45% of male heterosexuals unaware of their infection. Black-African men and women accounted for 63% (15 400) of the total prevalent infections in heterosexuals and 51% (4800) of the undiagnosed heterosexual infections.

There were an estimated 1700 IDUs living with HIV infection in 2002, of whom 300 were unaware of their infection. It was assumed that the number of undiagnosed HIV infections acquired through blood and blood product treatment was very low.

3.7 HIV incidence estimates

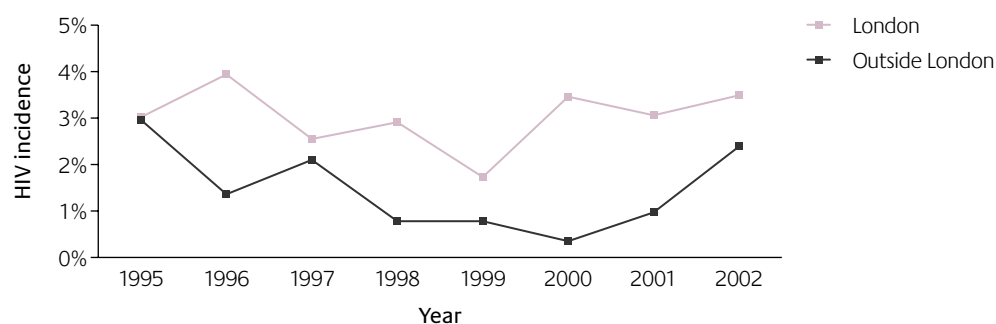
The incidence of HIV infection in homo/bisexual men attending 15 GUM clinics in England, Wales and Northern Ireland between 1995 and 2001 has been determined by application of the serological testing algorithm for recent HIV seroconversion (STARHS)^{16,17}. The STARHS technique has been validated for use with HIV subtype B infections, the subtype found in almost all UK born homo/bisexual men. Reliable application of the STARHS technique to heterosexuals is problematic because of the high degree of HIV subtype diversity in this population.

Median age and median CD4 count at diagnosis can also be used as an indirect indicator of HIV incidence. Both can be used to indicate whether newly diagnosed infections are either predominantly recent or long-standing, and to assess how this changes over time.

3.7.1 Incidence estimates in homo/bisexual men

Between 1995 and 2001 annual HIV incidence among men attending GUM clinics and having syphilis serology varied between 2% to 3%. Despite the large increase in the use of combination anti-retroviral therapy (ARV) and health promotion campaigns over this period, there has been no evidence of a decline in transmission of HIV. Indeed, in 2002, HIV incidence increased to approximately 3.5% in this sub-group (Figure 4). During 2000 and 2001 incidence in London was more than three times higher than elsewhere, but in 2002 this ratio fell to 1.7 (London: 4.0%, 95% confidence interval, 95%CI 2.8-5.5; elsewhere: 2.4%, 95%CI 1.2-4.3). Recent HIV infections were found in all the age groups in 2002, with the highest incidence seen in those aged 35-44 (5.9%, 95%CI 3.7-8.8).

Figure 4: Annual HIV incidence¹ in homo/bisexual men² in England, Wales & Northern Ireland, 1995-2002



¹Estimated using the serological test algorithm for recent HIV seroconversion (STARHS) Murphy G., *et al.* in press, 2004.

²Attending 15 GUM clinics in England, Wales and Northern Ireland (seven in London and eight elsewhere).

3.7.2 Indirect indicators of incidence in homo/bisexual men

Median CD4 cell counts at HIV diagnosis have increased gradually from 320 to 401 cells per mm³ over the last ten years (Coreslide 9). Median age at diagnosis has also increased from 32 to 36 years. The interpretation of these data are not straightforward. If most of the newly diagnosed infections come from infection acquired many years previously, and few new infections were being added to the undiagnosed prevalent pool, then one would expect an 'ageing cohort effect' with a much larger increase in median age over the ten year period and a decrease in median CD4 cell counts at diagnosis. Instead, the data suggest appreciable numbers of new infections are being added to the undiagnosed prevalent pool each year. The rise in CD4 cell counts at diagnosis would indicate that newly diagnosed HIV infections are being detected earlier in the course of infection.

Since other surveillance systems show that many heterosexuals probably acquired their HIV infection abroad, they may have lacked the opportunities to have been diagnosed in the UK at an earlier stage of their infection. Therefore median CD4 count and age at diagnosis in the UK is difficult to interpret for this population.

3.8 HIV in children and other population sub-groups

3.8.1 Children

By the end of December 2002, of the 1325 HIV diagnoses reported in children under 14, 73% (968) were reported to have acquired their infection from their mother (Table 7). Most of the remainder were children infected with HIV through blood or blood product treatment. Since the introduction of viral inactivation of blood products in 1985 there have been no reported transmissions by this route in the UK.

From the National Study of HIV in Pregnancy and Childhood it is estimated that by the end of June 2003⁹, 3576 children born to HIV-infected mothers had been reported in the UK, of whom 28% (998) were known to be HIV-infected and 48% (1700) uninfected. The status of the remainder was unresolved or unreported.

3.8.2 Health Care Workers

Since 1984 there have been five documented cases of occupationally acquired HIV infections in healthcare workers (HCWs) in the UK, including one case where the HCW seroconverted despite post-exposure prophylaxis (PEP) with triple therapy^{18,19}. Fourteen HCWs with probable occupational acquisition of HIV have been diagnosed in the UK²⁰. These are HCWs with no risk factors other than an occupational exposure, but they do not have a baseline HIV negative test. All of these

Table 7: Diagnosed HIV infections¹ and deaths² in children³ by exposure category and sex in the United Kingdom: cumulative data to end 2002

Exposure Category	HIV Infections			Total (<i>deaths</i>)
	Male	Female	Unknown	
Mother to infant ⁴	492	474	2	968 (<i>188</i>)
Blood factor (e.g. for haemophilia)	285	0	0	285 (<i>123</i>)
Blood/tissue transfer (e.g. transfusion)	23	20	3	46 (<i>14</i>)
Other/undetermined	13	11	2	26 (<i>0</i>)
Total	813	505	7	1325 (<i>325</i>)

¹Includes all children with AIDS, or with virus detected, or with HIV antibody at age 18 months or over.

²Deaths in HIV-infected children without AIDS are included.

³Infected when aged 14 years or under.

⁴The number of diagnosed HIV-infected children in the mother to infant category who were alive at end 2002 differs from the numbers in tables 3 & 4 because 293 are excluded as their infection status had not yet been confirmed and not all the remainder will have been "seen for care" in 2002.

Data source: National Study of HIV in Pregnancy and Childhood (NSHPC).

⁹This includes all reports received to June 2003.

HCWs had worked in countries of higher HIV prevalence than the UK, with 11 of the 14 working in sub-Saharan Africa.

3.8.3 Recipients of blood and blood products

In the UK a total of 1356 people have been reported as having acquired HIV through blood product treatment, some of whom had received blood products in countries other than the UK. In addition, 372 have been reported as having been infected through receipt of blood transfusions. These routes of transmission have not occurred since the introduction of viricidal heat treatment in 1985. A small number of new cases attributed to receipt of blood transfusions continue to be diagnosed; almost all of these have received transfusions in countries outside the UK where exclusion or screening procedures for donors are less rigorous than the UK. In the UK, four incidents of transfusion-associated transmission from two donors have occurred since screening began in 1985. Both donors were within the “window period” between infection and the development of HIV antibody. One incident occurred in Scotland in 1986 and the other three in Manchester in 1996 where components from the donated unit were given to three recipients²¹.

4 HIV/AIDS – Effectiveness of interventions

4.1 Key points

- **Homo/bisexual men at higher risk of HIV infection were less likely to have had a voluntary confidential HIV test; in 2002 HIV prevalence was 7.7% in those not accepting an HIV test compared to 2.6% in those accepting a test**
- **HIV diagnosis rates in pregnant women have increased since the introduction of the universal offer and recommendation of an HIV test in 1999**
- **Uptake of antiretroviral therapy is high and there is no evidence that exposure category is associated with access to treatment**
- **High rates of equipment sharing continue amongst injecting drug users; over half of current injecting drugs users reported sharing injecting equipment in 2002**

4.2 HIV testing trends

4.2.1 Uptake of voluntary confidential testing

In 2001, the English *National Strategy for Sexual Health and HIV*¹⁵ set a standard for genitourinary medicine (GUM) clinics to offer a voluntary confidential test (VCT) for HIV antibody to all clinic attendees on their first screening for STIs^h. Amongst attendees of 15 GUM clinics, uptake of VCT has increased in homo/bisexual men and heterosexuals respectively from 45% (2724/6019) and 25% (16 886/66 880) in 1997 to 62% (4604/7372) and 54% (40 746/74 935) in 2002. In 2002, acceptance of VCT was higher amongst sub-Saharan African born heterosexuals (60%, 2704/4509) than amongst UK born heterosexuals (52%, 26 966/51 816).

Although the gap is narrowing, uptake of VCT remained lower in attendees diagnosed with an acute STI in 2002, compared to those with no such diagnosis; 54% (1204/2214) and 66% (3400/5158) in homo/bisexual men and 46% (10 509/22 973) and 58% (30 237/51 962) in heterosexuals respectively (Figure 5). This may be because those infected with an acute STI^d may be motivated to attend GUM clinics primarily for the treatment of a symptomatic infection, whereas those without an acute STI may be attending for a general sexual health screen including a diagnostic HIV test.

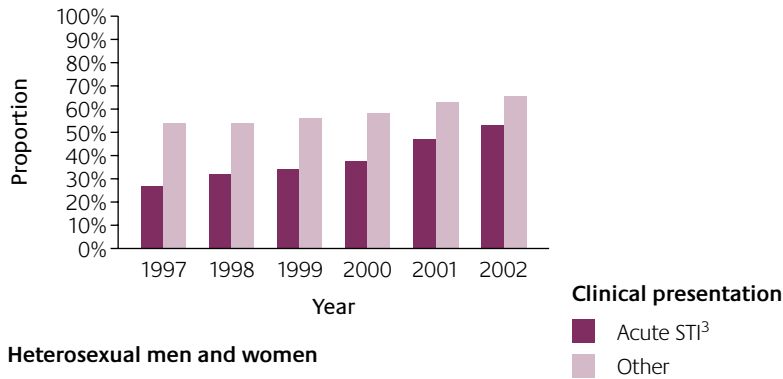
Interestingly, homo/bisexual men at higher risk of HIV infection were less likely to accept a voluntary confidential HIV test; in 2002 HIV prevalence was 7.7% (213/2768) in those not accepting an HIV test compared to 2.6% (118/4604) in those accepting a test. Also, in 2002 of all HIV-infected homo/bisexual men and heterosexuals whose HIV infection could have been diagnosed, 59% (194/331) and 43% (187/434) left the clinic unaware of their infection respectively; equivalent figures for those co-infected with an acute STI were 66% (80/122) and 56% (70/124) (Coreslide 10).

In Scotland, provisional data indicate that amongst attendees of 12 GUM clinics, uptake of VCT has increased in homo/bisexual men and heterosexuals respectively from 47% (454/959) and 23% (2624/11 223) in 1997 to 59% (761/1290) and 36% (5142/14 281) in 2002. Of all HIV-infected homo/bisexual men and heterosexuals, whose infection could have been diagnosed, 74% (17/23) and 50% (12/24) respectively, left the clinic unaware of their infection in 2002.

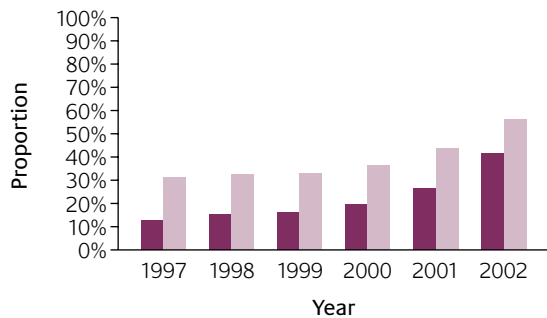
^hFrom 2003 modified data will be collected on the uptake of Voluntary Confidential HIV Tests that will allow better monitoring of this initiative.

Figure 5: Effectiveness of GUM clinic¹ HIV testing policy² in the United Kingdom: Proportion of GUM clinic attendees having a voluntary confidential HIV test at the clinic attendance by sexual orientation and clinical presentation, 1997-2002

Homo/bisexual men



Heterosexual men and women



¹Attending 15 GUM clinics in England, Wales, Northern Ireland (seven in London and eight elsewhere) and 12 GUM clinics in Scotland.
²Excludes HIV-infected attendees who were previously diagnosed.
³Acute STI is defined as presenting with one of the following diagnoses: infectious syphilis, gonorrhoea, chancroid/donovanosis/LGV, chlamydia, NSU, trichomoniasis, scabies/ pediculosis, HSV & HPV first attack or molluscum contagiosum.
 Data source: Unlinked Anonymous Programme.

4.2.2 CD4 counts at HIV diagnosis – an indicator of early/late diagnosis

Diagnosis at an earlier stage of infection extends the opportunities for treatment to postpone further illness, combination therapy to reduce viral load and for earlier behaviour change to reduce onward HIV transmission. Overall in 2002, 35% of newly diagnosed HIV-infected individuals had CD4 counts below 200 mm³ (the recommended threshold at which therapy should have commenced). Over recent years, however, the data show a trend for homo/bisexual men to be tested at earlier stages of their infection (Coreslide 11). Heterosexuals were more likely to

be diagnosed late compared to homo/bisexual men, although a high proportion of heterosexuals may have been infected abroad and lacked the opportunity to have had an earlier UK diagnosis.

4.2.3 Antenatal HIV testing

Live births to diagnosed HIV-infected women in the UK are reported to the National Study of HIV in Pregnancy and Childhood. These reports are aligned with the overall prevalence estimates for HIV in pregnant women by geographical area to produce estimates of the proportion of women giving birth who were previously diagnosed, diagnosed through antenatal screening and remained undiagnosed at delivery.

Diagnosis rates of HIV in pregnant women have increased since the introduction in 1999 of the universal offer and recommendation of an HIV test to pregnant women in England^{22,23} as a routine part of antenatal care and the subsequent introduction of similar policies elsewhere in the UK.

In 2002 there were an estimated 686 births to HIV positive women in England, Wales and Scotland of which at least 79% (539/686) were reported as diagnosed before delivery. Overall HIV detection rates in 2002 are currently estimated at 75% (318/422) for London (Coreslide 12); 85% (199/234) elsewhere in England and Wales (Figure 6); and 73% (22/30) in Scotland. These minimum estimates are subject to reporting delay and are likely to rise as more diagnosed infections in pregnancies are reported.

The improved HIV detection rates have reduced the proportion of exposed children who go on to acquire the infection vertically. In London in 2002, based on the current estimated detection rates, the estimated proportion of children exposed to vertical HIV transmission who were themselves infected was 8% compared with 19% in 1997. In the rest of the UK this proportion decreased from 22% in 1997 to 6% in 2002.

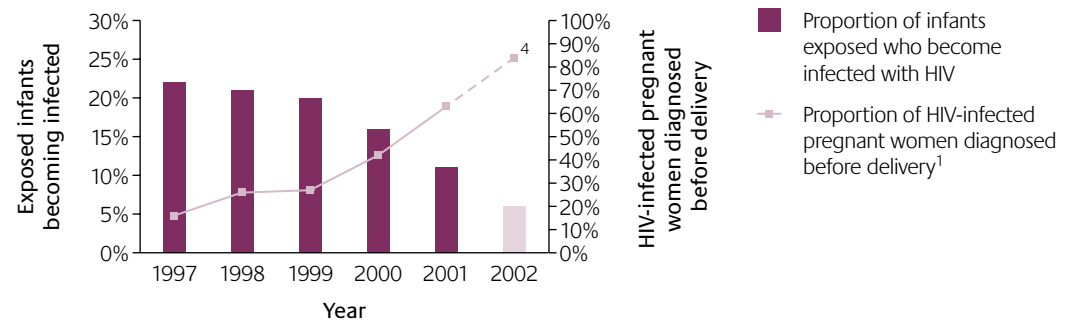
4.3 Uptake of anti-retroviral therapy

Of the 13 976 homo/bisexual men seen for care in 2002, 67% (9344) were reported to be on anti-retroviral therapy (ARV) (Coreslide 13). Of those who were infected through heterosexual contact, 63% were on therapy (7885/12 501) and 64% (574/894) of IDUs were receiving therapy. This suggests that there is little difference in the uptake of therapy between exposure categories and similar findings were observed in Scotland.

In all exposure categories, a high proportion of those eligible for anti-retroviral therapy (i.e. those with a CD4 cell count ≤ 200 cells/mm³) were on medication in 2002. Of the 1708 homo/bisexual men with CD4 counts of 200 cells/mm³ or below, 78% were on therapy; of the 2433 heterosexuals, 78% were on therapy, and of the 211 IDUs, 73% were on therapy.

Figure 6: Estimated proportion of HIV-infected women diagnosed before delivery¹ and of exposed children becoming infected with HIV^{2,3}, 1997-2002

Outside London – England, Wales and Scotland



¹Includes those previously diagnosed and those diagnosed through antenatal testing.

²Assumes a vertical transmission rate of 26.5% in undiagnosed women and 2.2% in diagnosed women (Duong T, Ades A, Gibb DM et al. Vertical transmission rates for HIV in the British Isles: estimates based on surveillance data. *BMJ* 1999; 319: 1227-1229).

³These data contain reports received by the end of September 2003.

⁴Data for 2002 should be considered preliminary minimum estimates, and as the number of reports rise, estimates of infants becoming HIV-infected will fall.

Data source: Unlinked Anonymous Programme and the National Study of HIV in Pregnancy and Childhood (NSHPC).

4.4 Injecting drug users: behaviour and service use

4.4.1 Behaviour

In 2002, 36% (126/346) of currentⁱ injecting drug users (IDUs) in contact with services in London reported sharing needles and syringes. The equivalent figure elsewhere in England Wales and Northern Ireland was 33% (475/1428) (Coreslide 8). These levels of “direct sharing” were similar to those found since 1998, indicating that the increased level of direct sharing first seen in the late 1990s continues. Similar trends were observed amongst recently initiated^e IDUs. The sharing of injecting equipment other than needles or syringes such as spoons or filters (indirect sharing) was much more common; in 2002 55% (1000/1821) of IDUs reported this behaviour.

4.4.2 Service use

In 2002, 90% (2508/2800) of IDUs reported they had accessed a needle exchange service at some point in their injecting career. Overall, 64% (1359/2131) of IDUs had accessed a needle exchange within two years of first injecting. The numbers of IDUs reporting that they had been vaccinated against hepatitis B has increased modestly from 37% (1087/ 2899) in 2001 to 43% (1201/ 2761) in 2002.

ⁱThose who reported injecting in the previous four weeks.