RIVM report 441100024/2006

HIV and Sexually Transmitted Infections in the Netherlands in 2005

IM de Boer[1], ELM Op de Coul[1], FDH Koedijk[1],
MG van Veen[1], AI van Sighem[2], MJW van de Laar[1,3]

[1] RIVM, Center for Infectious Disease Control
[2] HIV Monitoring Foundation
[3] Currently: ECDC Stockholm

Contact: I.M. de Boer
Center for Infectious Disease Control
Soahiv@rivm.nl

This investigation has been performed by order and for the account of Ministry of Health, Welfare and Sports, within the framework of the project Epidemiology and surveillance of HIV and STI.

Report prepared by:

Center for Infectious Disease Control, National Institute for Public Health and the Environment, with special thanks to Michel Wagemans.

In collaboration with:

HIV Monitoring Foundation & HIV treatment centres
STI sentinel surveillance network
ISIS laboratory surveillance at the National Institute for Public Health and the Environment
ISIS/Osiris – General Health Inspectorate

Rapport in het kort

Hiv en seksueel overdraagbare aandoeningen in Nederland in 2005

De stijgende trend van enkele seksueel overdraagbare aandoeningen (soa) lijkt in 2005 te zijn gestabiliseerd in het soa-peilstation. Bij mannen die seks hebben met mannen (MSM) is het aantal soa in 2005 echter onverminderd hoog en neemt het percentage positieve hiv-testen toe. Ook in de landelijke hiv-registratie (Stichting HIV Monitoring) is in 2005 het aantal hiv-diagnoses opnieuw het hoogst bij MSM. Daarnaast is het aantal hiv-diagnoses bij autochtone heteroseksuelen de laatste jaren licht gestegen. Continue alertheid en innovatieve methoden in preventie en interventie zijn nodig om verdere verspreiding van soa en hiv te voorkomen.

Per juni 2006 zijn 11866 personen met hiv bij de SHM geregistreerd, waarvan 970 in 2005. MSM vormen hierin nog steeds de grootste groep (52%, n=501). Het aantal hiv-diagnoses bij allochtone heteroseksuelen daalde van 341 diagnoses in 2002 naar 258 in 2005. Het aantal hiv-diagnoses bij autochtone heteroseksuelen steeg van 86 in 2002 naar 116 in 2005.
In het soa-peilstation nam het absolute aantal gevallen van chlamydia en hiv toe in 2005 met 15% en 25%, maar ook het aantal testen steeg. Gonorroe en syfilis daalden licht met 2% en 7%. Vijftien procent van alle chlamydia, gonorroe en syfilis in MSM werd gezien bij hiv-positieve personen. In 2005 is de resistentie tegen ciprofloxacine bij gonorroe verder toegenomen tot 26%. In Nederland is het aantal nieuwe LGV-gevallen in 2005 sterk afgenomen en daarmee lijkt de epidemie over zijn hoogtepunt heen te zijn.

Trefwoorden**:** hiv/aids, soa, surveillance, trends, Nederland

Abstract

HIV and Sexually Transmitted Infections in the Netherlands in 2005

The trend of increasing Sexually Transmitted Infections (STI) has partly stabilised in 2005 in the STI sentinel surveillance network. Among men having sex with men (MSM), the number of STI diagnoses remained high and the HIV positivity rate has increased. Moreover, in the national HIV registry (HIV Monitoring Foundation), the number of HIV diagnoses was again highest among MSM. The number of HIV diagnoses among Dutch heterosexuals also slightly increased the last few years. Permanent alertness and innovative prevention and intervention methods are required to prevent further spread of STI and HIV.

As of June 2006, a total of 11866 HIV cases were reported in the Netherlands; 970 diagnoses in 2005. MSM still accounted for the majority of the cases (52%, n=501). The number of HIV diagnoses among heterosexual of non-Dutch origin declined from 341 diagnoses in 2002 to 258 in 2005. The number of diagnoses among Dutch heterosexuals slightly increased from 86 in 2002 to 116 in 2005.
In the STI sentinel surveillance network, the number of chlamydia and HIV cases increased by 15% and 25%, however the number of consultations increased as well. Gonorrhoea and syphilis slightly declined with 2% and 7%, respectively. Fifteen percent of all chlamydia, gonorrhoea, and syphilis cases among MSM were seen in HIV positives. Furthermore, in 2005 the percentage of ciprofloxacin resistance in gonococci has further increased up to 26%. In 2005, the evolution of the LGV outbreak in the Netherlands appears to have slowed down.

Key words**:** HIV/AIDS, STI, surveillance, trends, the Netherlands

Preface

This report presents the annual surveillance data and a review of the epidemiology of sexually transmitted infections (STI) and HIV/AIDS in the Netherlands.
In this report, we have aimed to produce an overview of recent trends and current developments in the field of STI and HIV/AIDS from the available sources. We do not pretend to cover STI and HIV/AIDS in great depth but focus on the issues relevant for the current status of HIV and STI in the Netherlands with commentaries and interpretation of the data. Detailed data supplements are provided in the appendices.

We hope that this report will contribute to a better understanding of the distribution and determinants of STI and HIV/AIDS in the Netherlands and also to improved effectiveness of prevention measures. The information is made accessible for policy makers, researchers in the HIV/AIDS field and anyone with an interest in HIV/AIDS and STI in the Netherlands. More information on HIV/AIDS and STI in the Netherlands is available at www.soahiv.nl and www.hiv-monitoring.nl.
A copy of this report can also be downloaded in PDF format from www.soahiv.nl.

Acknowledgements
We gratefully acknowledge the collaboration with physicians, public health doctors and nurses, microbiologists, epidemiologists, dermatologists, behavioural scientists, prevention workers and other professionals working in the field of STI and HIV/AIDS. We would like to thank organisations for their continuing collaboration: HIV Monitoring Foundation (HMF), STI sentinel surveillance network, STI clinics and municipal health services, SOA AIDS Nederland, GGD Nederland, Rutgers Nisso group, NIGZ, HIV Vereniging and Schorer.

Further information
Any comment or suggestions that would improve the usefulness of this report are appreciated and should be sent to soahiv@rivm.nl.

Contents

Samenvatting

Hiv/aids
Het aantal volwassenen (15-49 jaar) met hiv/aids in leven is voor 2005 geschat op 18500. In juni 2006 waren in totaal 11866 personen met hiv in Nederland geregistreerd. In 2005 zijn 970 nieuwe hiv-diagnoses gesteld, waarvan 52% bij mannen die seks hebben met mannen (MSM). Vanaf 2002 neemt het aandeel MSM toe. Het aandeel van heteroseksueel geïnfecteerden bleef in 2005 gelijk (39%), maar binnen de groep heteroseksuelen zijn verschuivingen waargenomen. Het aantal hiv-diagnoses bij allochtone heteroseksuelen daalde van 341 diagnoses in 2002 naar 258 in 2005, terwijl het aantal diagnoses bij autochtone heteroseksuelen steeg van 86 in 2002 naar 116 in 2005. Het aandeel van injecterende druggebruikers is klein (1%).
Bij de soa-centra worden de hoogste percentages hiv-infecties gezien bij MSM (5-6%, 2005). Hiv bij heteroseksuelen varieert van 0,2% tot 0,4%. In de anonieme hiv-surveys onder risicogroepen zijn de hiv-prevalenties het hoogst bij druggebruikende- en transgender prostituees: 11-22%, respectievelijk 17-20%. Bij migranten uit gebieden met een generaliseerde hiv-epidemie werden hiv-prevalenties van 0-2% waargenomen.

Seksueel overdraagbare aandoeningen
In het soa-peilstation nam het absolute aantal gevallen van chlamydia en hiv toe in 2005 met 15% en 25%, maar ook het aantal testen steeg. Gonorroe en syfilis daalden licht met 2% en 7%. De meeste gevallen van syfilis werden gevonden bij MSM (85% van de infecties bij mannen). Bij MSM nam het percentage positieve hiv-testen toe tussen 2003 en 2005.
Chlamydia blijkt nog steeds de meest voorkomende soa in het peilstation. Bij vrouwen worden de meeste chlamydia en gonorroe infecties gevonden bij vrouwen jonger dan 25 jaar (70%). Gonorroe werd, in vergelijking met chlamydia, vaker gezien bij MSM en bij patiënten die eerder een soa hebben gehad. Enkele etnische groepen (onder andere afkomstig uit Suriname, de Nederlandse Antillen en Aruba) hebben relatief vaker een positieve testuitslag voor chlamydia en gonorroe. In 2005 bleek dat de resistentie tegen ciprofloxacine bij gonorroe verder is toegenomen tot 26%.
Het beeld van de virale soa is in 2005 niet erg veranderd. Het aantal genitale wratten - de meest voorkomende virale soa binnen het peilstation - bleef gelijk, evenals hepatitis B, maar het aantal gevallen van genitale herpes steeg. De incidentie van acute hepatitis B in de aangifte is ongeveer gelijk gebleven; er werd alleen een lichte stijging in het aandeel besmettingen door heteroseksueel contact gezien.
De epidemie van LGV bij - overwegend hiv-positieve - MSM heeft tot intensivering van de surveillance geleid en tot eind 2005 zijn 179 gevallen gerapporteerd. In Nederland is het aantal nieuwe LGV-gevallen in 2005 sterk afgenomen en daarmee lijkt de epidemie over zijn hoogtepunt heen te zijn.

Soa bij bekend hiv-positieve personen

Bekend hiv-positieve personen nemen een belangrijk deel van de soa voor hun rekening: 15% van alle gonorroe, chlamydia en syfilis in MSM werd gevonden bij bekend hiv-positieven. In 60%, respectievelijk 51% van de chlamydia en gonorroe gevallen betrof dit een anorectale infectie. Het seksuele risicogedrag bij MSM lijkt onverminderd hoog met een reëel risico op verdere verspreiding van soa en hiv. Continue alertheid en innovatieve methoden in preventie en interventie zijn nodig om verdere verspreiding van soa en hiv te voorkomen.

Summary

HIV/AIDS
By the end of 2005, an estimated 18500 adults (15-49 years) were living with HIV/AIDS in the Netherlands. As of June 2005, a cumulative total of 11866 HIV cases had been reported in the Netherlands. Of the 970 new HIV diagnoses in 2005, MSM accounted for 52%. The proportion of heterosexually acquired infections remains the same in 2005, although within the group of heterosexuals different trends were observed. The number of HIV diagnoses among non-Dutch heterosexuals declined from 341 diagnoses in 2002 to 258 in 2005, while the number of diagnoses among Dutch heterosexuals increased from 86 in 2002 to 116 in 2005. The proportion of IDU remains fairly small (1%).
At the STI clinics, the highest HIV positivity rates were observed among MSM (5-6%, 2005). HIV positivity rates among heterosexuals varied from 0.2% to 0.4%. Anonymous unlinked HIV surveys showed high prevalence rates among drug using – and transgender CWS: 11-22%, respectively 17-20%. Among migrants from high prevalence countries, HIV prevalence varied between 0% and 2%.

Sexually Transmitted Infections
The increasing trend of STI has continued further in 2005 for chlamydial infections and HIV with 15% and 25% in the STI sentinel surveillance network. However, there was a rise in the number of consultations. Gonorrhoea and syphilis declined slightly with 2% and 7%. MSM accounted for 85% of diagnoses of syphilis in men. Women younger than 25 years had the highest positivity rate of genital chlamydial infection or gonorrhoea. Compared with genital chlamydial infection, gonorrhoea tended to be a more concentrated among MSM and individuals with a prior STI. Specific ethnic minorities (for instance from Surinam, the Netherlands Antilles and Aruba) had higher positivity rates for genital chlamydial infection and gonorrhoea.
In 2005, the percentage of ciprofloxacin resistance in gonococci further increased up to 26%.
Diagnoses of viral STI did not change significantly in 2005. The number of diagnosed genital warts - the most common viral STI in the sentinel surveillance network - and hepatitis B infections remained stable, but the number of genital herpes slightly increased.
The incidence of notified cases of acute hepatitis B remained stable; only the proportion of transmission by heterosexual contact increased to some extent.
Enhanced surveillance of LGV was started in a response to an outbreak of LGV among predominantly HIV positive MSM. By the end of 2005, a total number of 179 cases had been reported. In the Netherlands, the number of LGV cases significantly declined in 2005, suggesting that the epidemic has already peaked.

Concurrent STI and HIV

Known HIV infected individuals accounted for an important part of STI: 15% of all cases of gonorrhoea, genital chlamydial infection and syphilis in MSM were seen in known HIV infected MSM. Among these, anorectal infections were seen in 60% of the chlamydial infections and in 51% of the gonorrhoea infections. Unsafe sex practices seem to be ongoing in MSM with a potential risk of a further spread of STI and HIV. Permanent alertness and innovative prevention and intervention methods will be needed to prevent a further spread of STI and HIV.

1. Introduction

This report summarizes surveillance data for HIV/AIDS and STI in the Netherlands. In this report, we have aimed to monitor trends in STI and HIV in the Netherlands and to identify determinants of infection to provide insight in the occurrence of these diseases. It is prepared by the Centre for Infectious Disease Control (CIb) at the National Institute for Public Health and the Environment (RIVM). The CIb collaborates with numerous partners in the field of STI and HIV to collect data for surveillance, for instance STI clinics, municipal health services, the HIV Monitoring Foundation (HMF), public health laboratories and other health care providers.

Available data on HIV and STI from surveys, national registries and cohort studies are compiled in this report and provide an overview of the current status of HIV and STI in the Netherlands. Preliminary data have been presented at the annual expert meeting on the surveillance of STI and HIV. The objective of the expert meeting is to review the current trends in STI and HIV in the Netherlands and to identify gaps in our knowledge. Based on this evaluation, modifications in current surveillance activities or new surveillance initiatives are suggested to the steering committee of STI and HIV/AIDS surveillance. The steering committee reviews the suggestions and advises the Ministry of VWS to improve the response to the actual HIV and STI situation in the Netherlands. Recommendations for 2006 included the implementation of a national surveillance of resistance in gonococci as well as the design for behavioural surveillance among subgroups, for instance STI clinic attendees, men having sex with men (MSM), HIV infected persons, ethnic minorities, young people and hard drug users. Finally, a feasibility study was suggested to investigate the contribution of recently acquired HIV infections among newly diagnosed HIV infections.
The information is made accessible for policy makers, researchers in the HIV/AIDS field and anyone with an interest in HIV/AIDS and STI in the Netherlands. More information on HIV/AIDS and STI in the Netherlands is available at www.soahiv.nl and www.hiv-monitoring.nl.

In chapter 2-7 the results of HIV surveillance are described and in chapter 8-17 the results of STI surveillance. Sources and methods of STI and HIV surveillance are described in Appendix A and B. In Appendix C and D detailed tables and figures are presented. Appendix E describes the methods used for estimating the number of people living with HIV/AIDS in the Netherlands. In Appendix F and G all collaborating partners were listed.

Limitations of data
The data from the STI sentinel surveillance network for 2005 are not completed yet, due to technical problems to extract data from the patient registry at the STI clinic in Amsterdam. Preliminary data on Amsterdam are included in the SOAP database (internet based application for

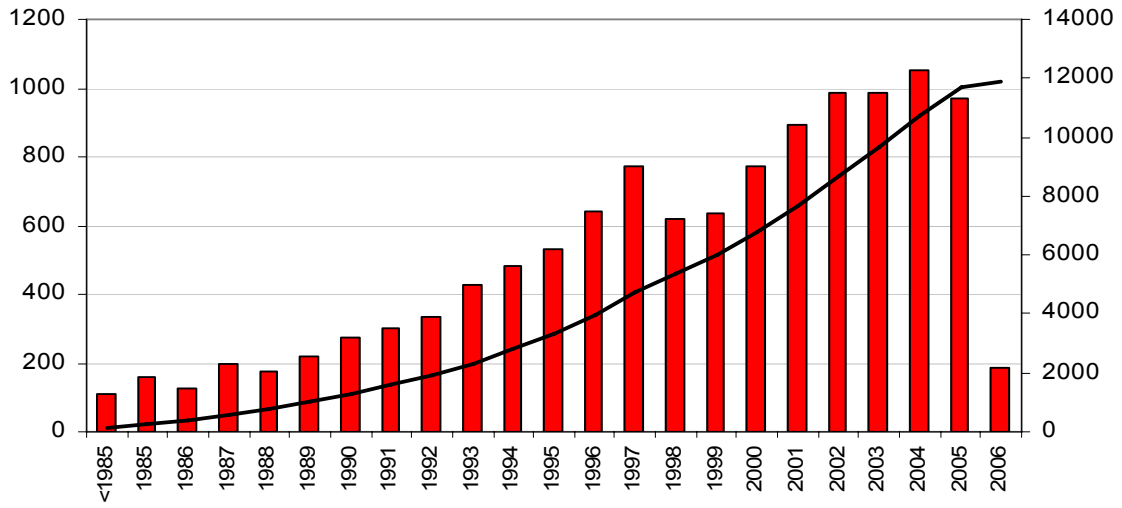
registration of STI consultations), but data on various parameters are still missing (prior STI, prior HIV test, ethnicity, intravenous drug use, client of CSW).
NA Amsterdam: indicates that data for Amsterdam STI clinic were not available.

2. Diagnosed cases of HIV and AIDS

Key points

- The total number of adults (15-49 years) living with HIV/AIDS in the Netherlands in 2005 is estimated at 18500 [10000-28000]. The estimated adult prevalence rate was 0.23% [0.1-0.4%].
- A cumulative total of 11866 HIV cases had been reported up to June 2006. In 2005, 970 new HIV cases were diagnosed (2.7 diagnoses/day).
- In 2005, the proportion of MSM of the annual number of diagnoses was highest (52%).
- The number of diagnoses among heterosexuals of Dutch origin increased for both men and women. Heterosexuals accounted for 39% of the new diagnoses in 2005 and IDU for 1%.
- An increasing proportion of MSM and heterosexuals reported to have acquired the HIV infection in the Netherlands.
- At of end 2005, a cumulative total of 6931 AIDS cases and 4398 deaths among HIV patients were reported.
- HIV prevalence was highest among MSM (0-32%) and IDU (1-26%). HIV prevalence among heterosexuals varied between 0–1.4%.
- Anonymous unlinked surveys showed HIV prevalence rates of 0-3% among female CSW, 11-22% among drug using CSW and 17-20% among transsexual CSW. HIV prevalence among migrant populations varied between 0-2%.

2.1 HIV cases



Footnote: only HIV patients with a known date of diagnosis are included (ATHENA: 1996-2001, national registration from 2002 to date, 2006: patients registered by June 1st)

Figure 1: Number of HIV cases (right axis: cumulative), by year of HIV diagnosis

In June 2006, a cumulative total of 11866 HIV cases with a known year of diagnosis had been registered by the HIV treatment centres in the national database of the HIV Monitoring Foundation (HMF) [www.hiv-monitoring.nl].[1] For 197 cases the year of diagnosis was unknown (excluded from the analysis). In 2005, 970 new cases of HIV were diagnosed. Of all registered cases, 9170 (77%) were men and 2696 (23%) were women. 98.7% of the individuals were infected with HIV-1, 0.6% with HIV-2 and 0.7% with both HIV-1 and HIV-2.

Geographical differences

Forty two percent of all HIV infected individuals were seen in treatment centres in Amsterdam (Table C.1). Rates of HIV infections per 100000 inhabitants in 2005 are shown for each province in Figure 2.

The province of 'Noord-Holland' had the highest HIV rate (12.4/100000), followed by the province of 'Zuid-Holland' (7.6/100000). In 2005, the number of HIV diagnoses in Amsterdam remained stable around 300 diagnoses per year. The number of HIV diagnoses out of Amsterdam increased between 1999 and 2004 (in particular in Utrecht and Rotterdam) but seems to have levelled off in 2005 (incomplete due to reporting delay, Figure 3).

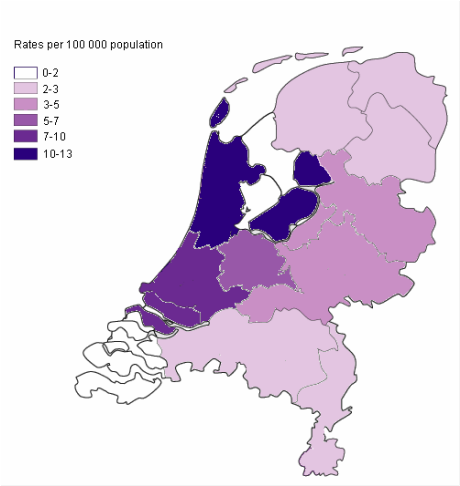
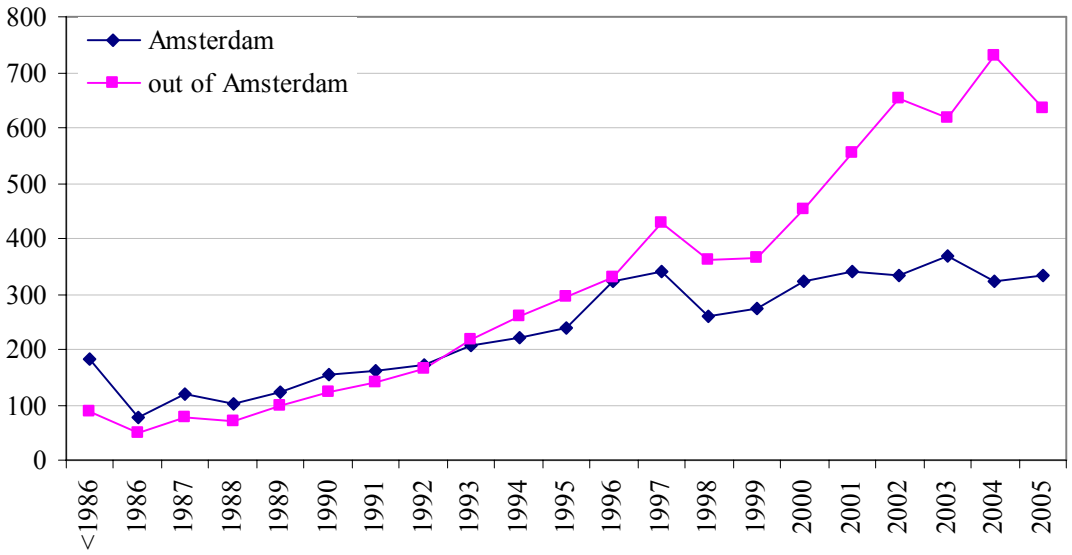
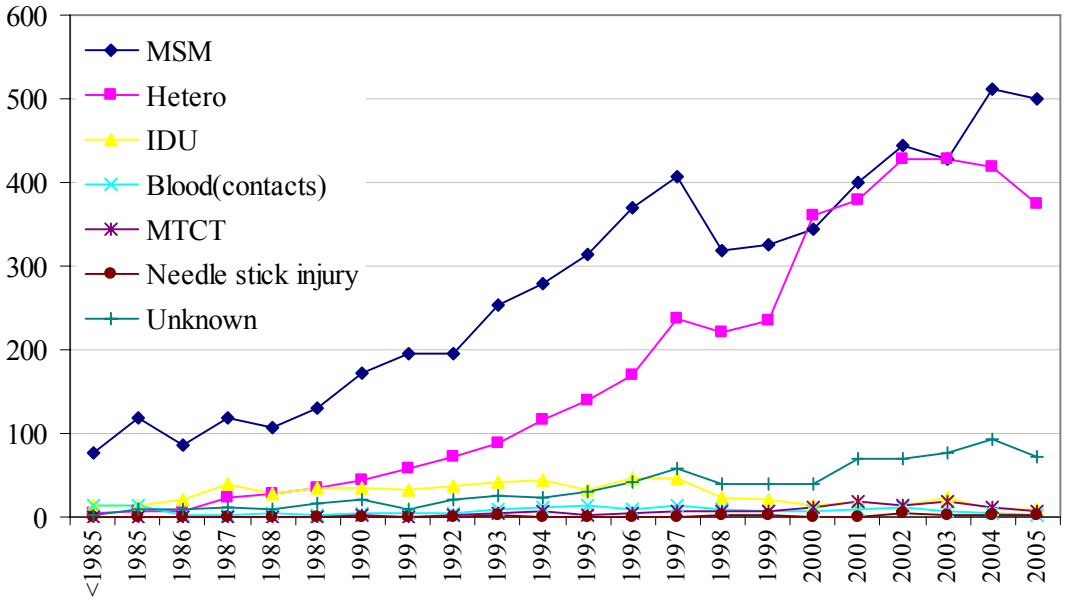


Figure 2: Number of HIV diagnoses in 2005 per 100000 inhabitants; calculations based on HIV infections diagnosed in the various HIV treatment centres in each province



Footnote: only HIV patients with a known date of diagnosis are included (ATHENA: 1996-2001, national registration from 2002 to date)

Figure 3: Number of new HIV diagnoses in Amsterdam and out of Amsterdam, by year of HIV diagnosis

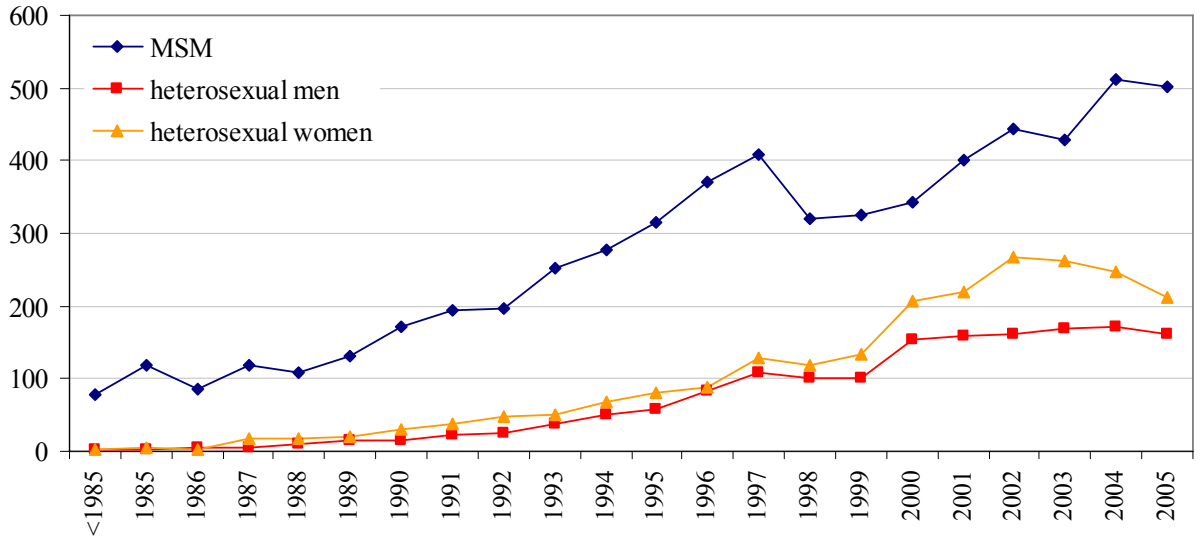


Footnote: only HIV patients with a known date of diagnosis are included (ATHENA: 1996-2001, national registration from 2002 to date; MSM: men having sex with men, IDU: injecting drug use, MTCT: mother to child transmission

Figure 4: Number of HIV cases, by year of HIV diagnosis and transmission risk group

Transmission risk groups

Until 2000, the most frequently reported transmission route for HIV infection was male-to-male sexual contact (Figure 4). Thereafter, the number of HIV diagnoses among heterosexuals increased up to the same level as MSM. In 2004, however, the absolute number of HIV diagnoses among MSM increased again and exceeded the number of diagnoses among heterosexuals (Table C.8, Figure 4). In 2004, HIV diagnoses only increased among MSM (up to 512, Figure 5). In 2005, 501 HIV infections were diagnosed among MSM, but this number may further increase due to the reporting delay. The total number of HIV diagnoses among heterosexual men remained stable since 2000. The total number of diagnoses among heterosexual women decreased slightly after 2002. Only five percent of the HIV infections were diagnosed in IDU. Mother-to-child transmission and risk through blood (products) both accounted for 1% of the infections (Table C.2). No likely route of transmission could be identified in 7% of the HIV cases.



Footnote: only HIV patients with a known date of diagnosis are included (ATHENA: 1996-2001, national registration from 2002 to date).

Figure 5: Number of HIV cases by year of HIV diagnosis and sex and sexual preference

The relative contribution of each risk group to the annual number of diagnoses changed over time (Figure 6). The proportion of MSM declined from 58% of the new diagnoses in 1996 to 44% in 2000, and increased thereafter to 52% in 2005. The proportion of heterosexuals increased from 26% in 1996 to 47% in 2000 (particularly among women), and declined again to 39% in 2005 (chi-sq, $P < 0.0001$).

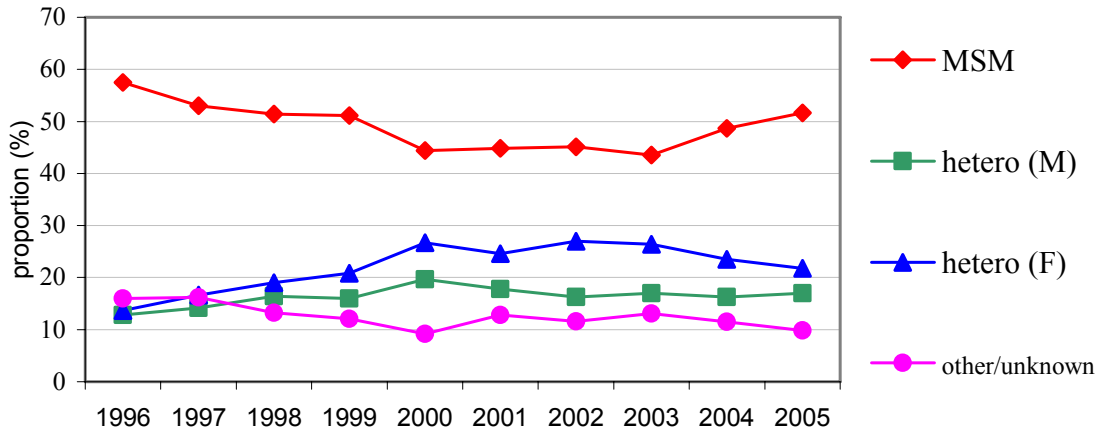


Figure 6: Proportion of annual diagnoses per transmission group, by year of diagnosis

Region of origin

Overall, more than half (56%) of the HIV infected individuals originated from the Netherlands. The largest non-Dutch group consisted of sub-Saharan Africans (SSA), 18% of the HIV cases. The second largest non-Dutch group (11%) comprised individuals from the Caribbean and Latin America, predominantly Surinamese and Antilleans (67%). Most HIV infected men originated from the Netherlands (65%), whereas the largest group among women were those from sub-Saharan Africa (45%, Figure 7).

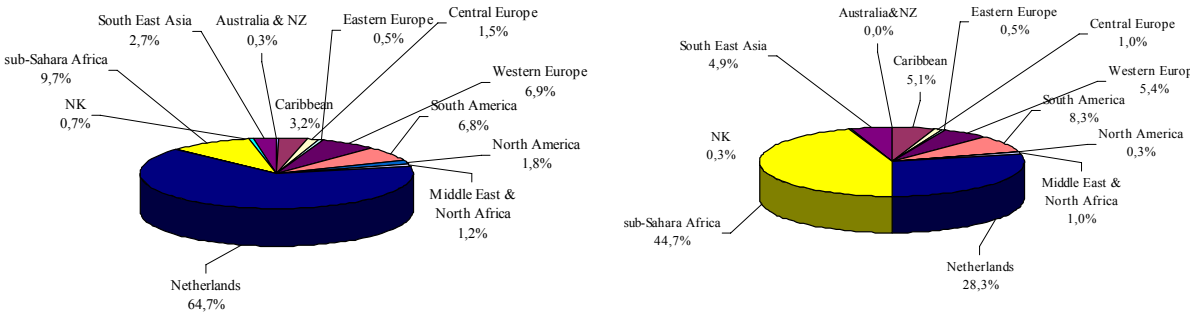


Figure 7: Geographic distribution of HIV cases, by sex (men: left, women: right)

The majority of MSM originated from the Netherlands (74%, Table 1). Other frequently reported regions were Western Europe (8%), Latin America (6%), the Caribbean (3%) and South (East) Asia (3%). Most IDU were from the Netherlands (67%), other Western European countries (17%), and

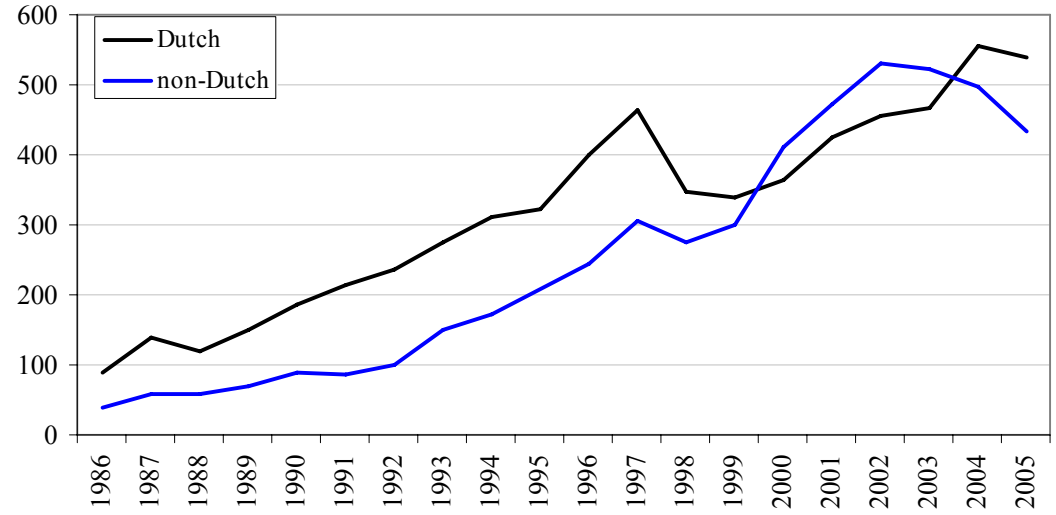
Latin America (4%). The majority of the heterosexuals originated from sub-Saharan Africa (44%) and the Netherlands (30%, Table 1).

Table 1: Number of HIV cases, by transmission risk group and region of origin

Region of origin	MSM (%)	Heterosexual (%)	IDU (%)
The Netherlands	4593 (74%)	1179 (30%)	403 (67%)
Western Europe	474 (8%)	132 (3%)	101 (17%)
Central Europe	69 (1%)	63 (2%)	9 (1%)
Eastern Europe	22 (0.4%)	15 (0.4%)	15 (2%)
Sub-Saharan Africa	82 (1%)	1759 (44%)	7 (1%)
Caribbean	174 (3%)	217 (5%)	9 (1%)
Latin America	389 (6%)	375 (9%)	23 (4%)
North America	145 (2%)	6 (0.2%)	6 (1%)
North Africa & Middle East	32 (0.5%)	61 (2%)	13 (2%)
Australia & Pacific	20 (0.3%)	1 (0%)	1 (0.2%)
South (East) Asia	176 (3%)	163 (4%)	12 (2%)
Not reported/not known	39 (0.6%)	9 (0.2%)	8 (1%)
Total	6235	3989	607

Footnote: MSM: men having sex with men; IDU: injecting drug user

The proportion of Dutch HIV infected individuals gradually decreased from 71% in 1992 to 46% in 2002. After 2002, the proportion of Dutch individuals increased again up to 55% in 2005 (Figure 8).

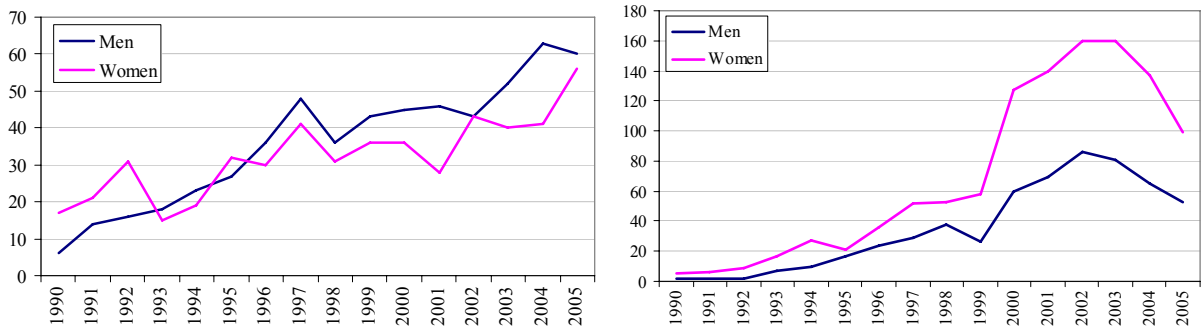


Footnote: only HIV patients with a known date of diagnosis are included (ATHENA: 1996-2001, national registration from 2002 to date)

Figure 8: Number of HIV cases, by region of origin and year of HIV diagnosis

Most HIV infected individuals were between 25 and 49 years of age at diagnosis (66%). Men had a median age of 36 years, whereas women were younger: 30 years. In general, non-Dutch individuals were younger than Dutch (Table C.6).

After 2002, the number of HIV diagnoses among heterosexual men of Dutch origin started to rise from approximately 40 HIV diagnoses to 60 cases per year ($p<0.001$). After 2004, a similar pattern was observed for women of Dutch origin. An opposite trend during that same period was observed for heterosexual men and women originating from SSA ($p<0.001$) (Figure 9).
Of the heterosexual men of Dutch origin diagnosed after 2002, the majority was ≥ 30 years (90%) at time of diagnosis and 54% was ≥ 40 years. Seventy three percent of these men reported to have acquired the infection in the Netherlands. Another country frequently reported as country of infection was Thailand (12%). Of the Dutch heterosexual women who were recently diagnosed (2004 or thereafter), 67% was ≥ 30 years and 42% was ≥ 40 years. Of these women, 89% reported the Netherlands as most likely country of HIV infection and 11% reported risk abroad.



Footnote: only HIV patients with a known date of diagnosis are included (ATHENA: 1996-2001, national registration from 2002 to date)

Figure 9: Number of HIV cases among heterosexual men and women, by region of origin (left: the Netherlands, right: sub-Saharan Africa) and year of HIV diagnosis

2.2 New HIV diagnoses in 2005

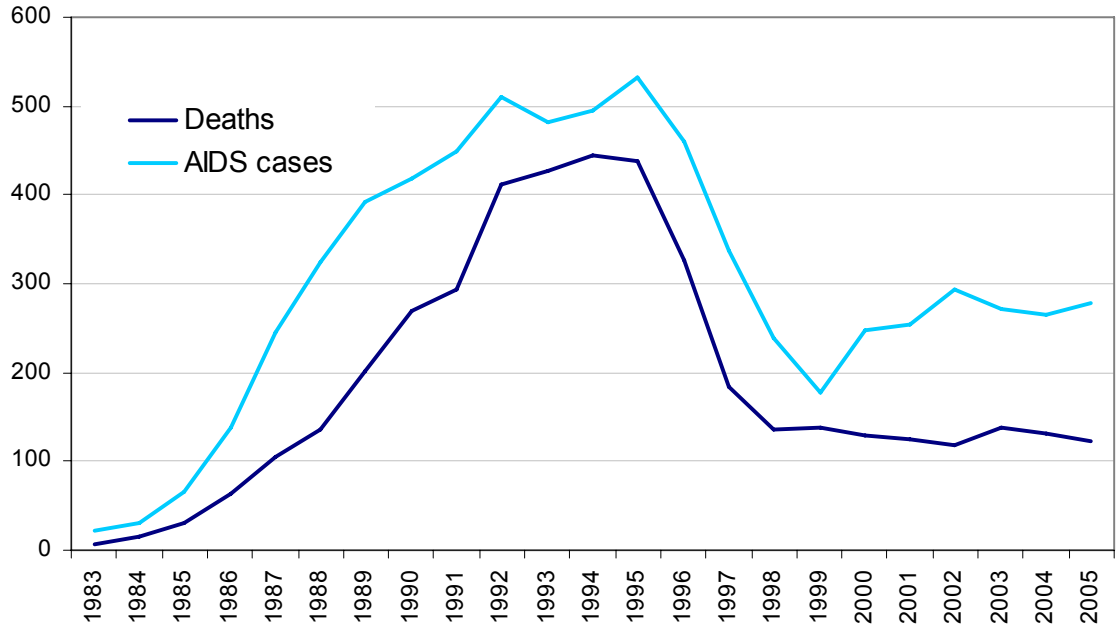
Of the 970 new HIV diagnose in 2005, 746 (77%) were male and 224 (23%) were female. Of those, 90% were infected sexually: 39% through heterosexual contact and 52% through MSM. Of all men, 67% acquired the infection through sex with men. Of all women, 95% acquired the infection through heterosexual contact. Of all heterosexual cases, 57% were female. Injecting drug use accounted for 1% (n=10) of the new diagnoses and risk through blood (products) for 0.3% (n=3). For 8%, the transmission risk group was undetermined (Table 2).
In 2005, 35% of the cases were diagnosed in Amsterdam (2004: 31%) and 38% (2003: 42%) in Rotterdam, The Hague and Utrecht (Table C.11). Of the newly diagnosed cases, 55% came from the Netherlands, 18% from sub-Saharan Africa, 11% from Latin America and the Caribbean (Table C.12). Seventy six percent of the cases diagnosed in 2005 were between 25 and 49 years of age. Eighteen cases (1%) were identified among young people (0-19 years). The median age at diagnosis in 2005 was 38 years and differed per risk group: the median age in MSM was 40 years, in heterosexuals 35 years and in IDU 39 years (Table C.13-16).

Table 2: Number of HIV cases diagnosed in 2005, by sex and transmission risk group

Transmission risk group	Men (%)	Women (%)	Total (%)
MSM	501 (67%)	0 (0%)	501 (52%)
Heterosexual contact	162 (21%)	212 (95%)	374 (39%)
IDU	8 (1%)	2 (0.9%)	10 (1%)
Blood (products)	1 (0.1%)	2 (0.9%)	3 (0.3%)
Mother to child	4 (0.5%)	4 (0.5%)	6 (0.6%)
Needle stick injury	1 (0.1%)	2 (0.9%)	3 (0.3%)
Other/NK	69 (9%)	4 (2%)	73 (8%)
Total	746	224	970

NK: not known

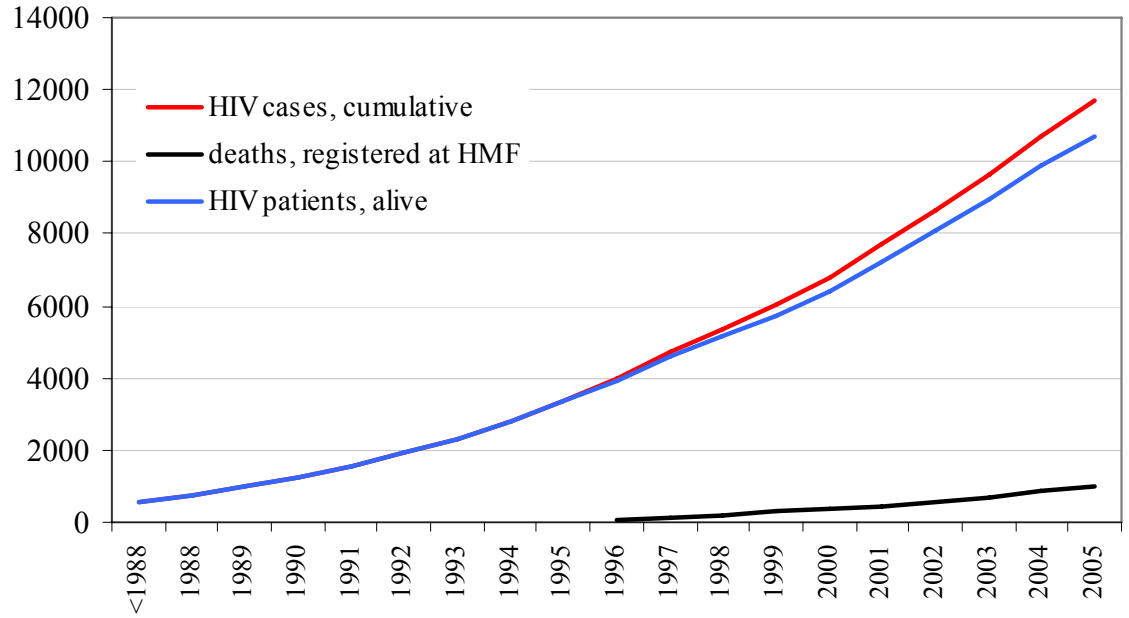
2.3 AIDS cases and AIDS related deaths



Footnote: the low value in 1999 is caused by the change in data sources of AIDS cases (sources AIDS cases: AIDS registration Health Inspectorate <2000, HMF ≥2000. Sources deaths: CBS <2002, HMF ≥2002)

Figure 10: Number of AIDS cases and AIDS related deaths

By the end of 2005, a cumulative total of 6931 AIDS cases was registered in the Netherlands (Table C.17-18). The number of new AIDS cases peaked in 1995, and declined sharply over the subsequent four years (Figure 10). Since 1999, the rate of decline had slowed and the curve stabilised around 280 cases per year. The decline of AIDS cases is mainly due to the availability of highly active antiretroviral therapy (HAART), which slowed progression to AIDS.[2]
The proportion of MSM among reported AIDS cases declined from 77% in 1988 to 43% in 2005. Conversely, the proportion of AIDS cases among heterosexuals increased from 6% in 1988 to 40% in 2005. The proportion of IDU with AIDS fluctuated over the years between 2% and 14%. Overall, in 4% of the AIDS cases the route of transmission remained unknown (Table C.18). The median age at AIDS diagnosis in 2005 was 41 years; men were older than women, respectively 42 and 35 years. On average, Dutch individuals were older at AIDS diagnosis than individuals of African origin: 44 and 32 years (Table C.19-20).
The number of AIDS related deaths showed a similar trend (Figure 10). Between 1983 and 2005, a cumulative total of 4398 HIV infected individuals died of whom 122 died in 2005. HAART had a major effect on AIDS related deaths[3] and, as a consequence, the number of people living with HIV and AIDS increased. The estimated numbers of registered HIV- and AIDS patients alive are 10.600 and 2.500, respectively (Figure 11, Figure 12).



* based on individuals with a known year of HIV diagnosis (see also: national report HMF 2006[1]).

Figure 11: Cumulative number of HIV cases, deaths, and HIV patients alive, by calendar year

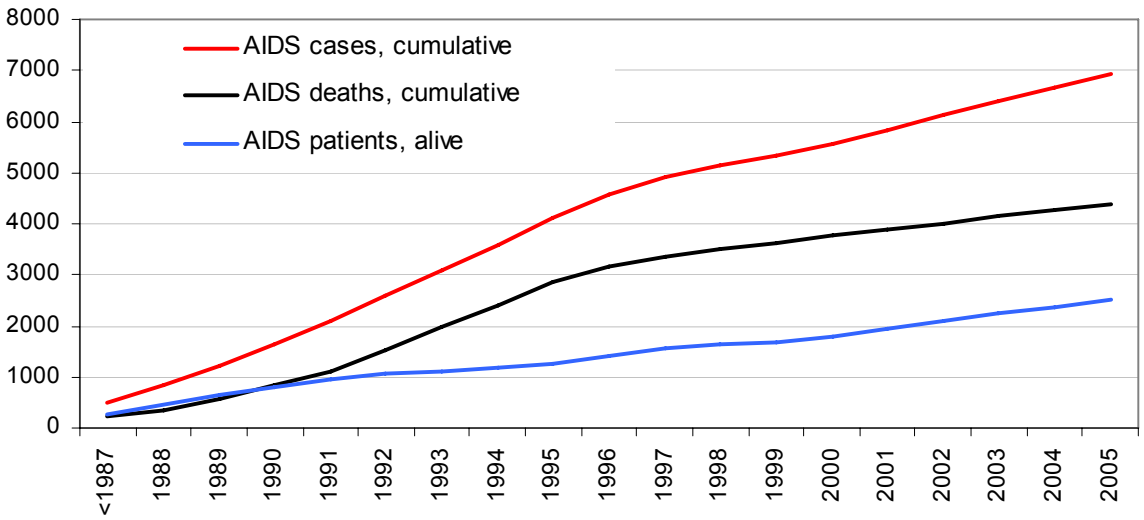
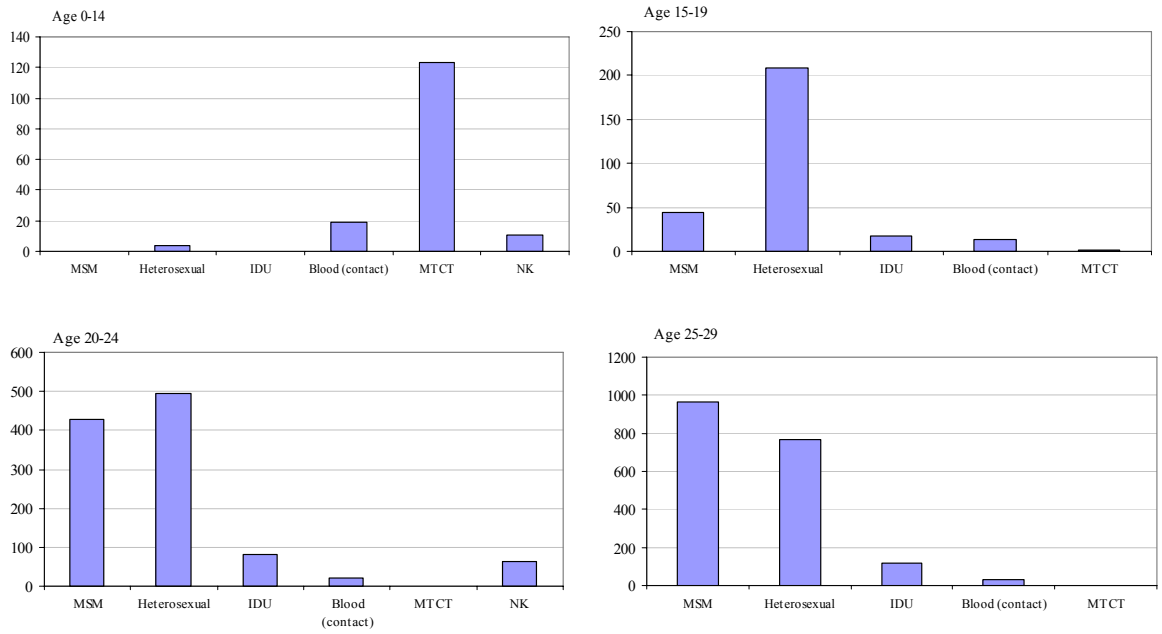


Figure 12: Cumulative number of AIDS cases, AIDS deaths, and AIDS patients alive, by calendar year

3. Focus on risk groups

3.1 Young people

Of all registered HIV cases, 157 are children between 0 and 14 years (1%), 313 (3%) were teenagers between 15 and 19 years, 1088 (9%) were young adults (20-24 years) and 1997 (17%) were individuals aged 25-29 years. The distribution of the transmission risk groups differed per age group. Children aged 0-14 most often acquired the infection from their mother. Among teenagers aged 15-19, the majority was infected through heterosexual contact; whereas among individuals above 20 years sex between men became increasingly important (Figure 13).



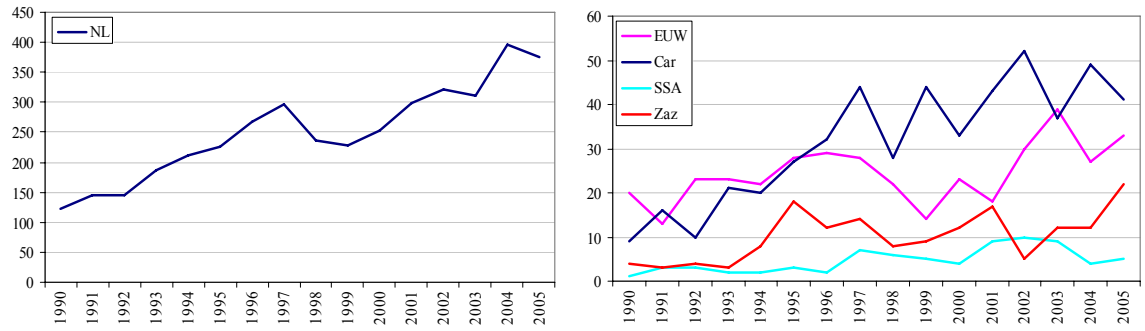
Footnote: MTCT=mother to child transmission, blood(contact): blood(products/needle stick injury); NK: not known/ other

Figure 13: Number of HIV infected individuals, by age group and transmission risk group

Sixty one percent of the children <15 years were Dutch and 29% were from sub-Saharan Africa. Of children aged 15-19, 58% were from sub-Saharan Africa. Young adults (20-29 years) were from the Netherlands (39%), sub-Saharan Africa (29%) and Latin America/Caribbean (14%).

3.2 Men who have sex with men

The majority of HIV infected MSM was Dutch (74%, Table 1). The absolute number of Dutch MSM increased since 1999 from 228 to 376 in 2005 (Figure 14). The number of MSM from Latin America/Caribbean also showed a slightly increasing trend, despite the fluctuations.
For 71% of the MSM, the country of infection was known (Table C.23). The majority of the MSM (89%) were infected in the Netherlands (Figure 15); 96% among Dutch MSM and 60% among non-Dutch.



Footnote: only HIV patients with a known date of diagnosis are included (ATHENA: 1996-2001, national registration from 2002 to date; NL=Netherlands, EUW=Western Europe, Car=Caribbean, SSA=sub-Saharan Africa, Zaz=South East Asia)

Figure 14: Numbers of HIV diagnoses among MSM from the Netherlands (left) and other geographic regions (right), by year of diagnosis

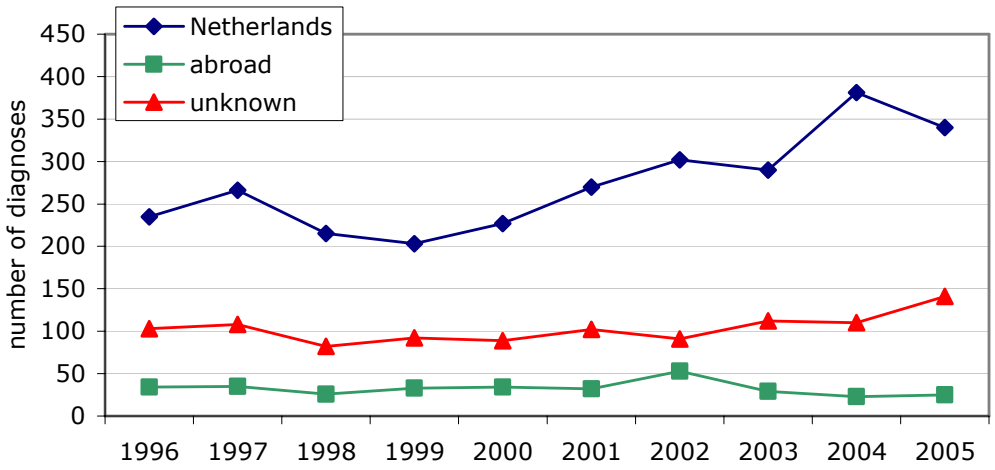


Figure 15: Reported country of infection MSM, by year of diagnosis

Of all MSM, 8% was younger than 25 years at HIV diagnosis (Table C.5). Ten percent was 50 years or older. MSM were, on average, younger at HIV diagnosis than heterosexual men (Table 3, Table 4). MSM from the Caribbean and Latin-America were the youngest: 32 years. The oldest were MSM from the Netherlands: 38 years. Over time, age at HIV diagnosis has increased considerably (Figure C.6). For Dutch MSM, the age increased from 32 in 1987 to 41 years in 2005. In 2000, 31% of the MSM were diagnosed at age ≥40. In 2005, this percentage increased up to 47% (Table C.13).

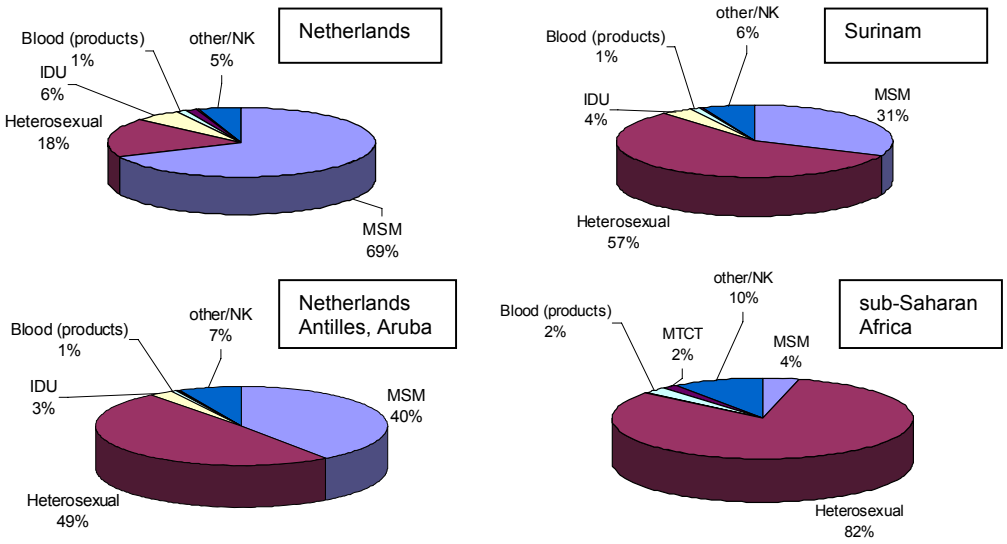
Table 3: Median age (years) of MSM population, by region of origin

Region of origin	Age (IQR)
The Netherlands	37.5 (31.5-44.4)
Western Europe	33.3 (28.5-40.0)
Sub-Saharan Africa	32.1 (27.5-38.4)
Caribbean	31.7 (26.9-37.1)
Latin America	31.8 (27.0-37.3)
South (East) Asia	34.1 (28.6-40.0)

Footnote: IQR= interquartile range

3.3 Migrant populations

Of all registered HIV patients, 43% were born abroad. The majority (41%) of the migrants originated from sub-Saharan Africa, 25% from Latin America/Caribbean, 15% from Western Europe and 7% from South (East) Asia.
Figure 16 shows the distribution of transmission risk groups among HIV patients for different regions of origin. The largest risk group among the Dutch population was MSM (68%), while MSM only accounted for 4% of the infections among sub-Saharan Africans. The proportions of MSM among individuals from Surinam and the Netherlands Antilles were 32% and 40%, respectively.



Footnote MTCT: mother to child transmission; IDU: injecting drug use; MSM: men having sex with men; NK: not known

Figure 16: HIV infected individuals, by transmission risk group and region of origin

Seventy-seven percent of the individuals from sub-Saharan Africa, for whom the country of infection was known (71%), were infected in sub-Saharan Africa. Among Surinamese individuals (country of infection known: 61%), only 25% were infected in Surinam and 73% in the Netherlands (Figure 17). Thirty-eight percent of the individuals from the Netherlands Antilles/Aruba were infected in their region of origin. Most people from Turkey and Morocco reported to have been infected in the Netherlands.

For HIV patients from Surinam or the Netherlands Antilles, the country of infection differed between risk groups: MSM from Surinam or the Netherlands Antilles and heterosexuals from Surinam more often acquired the infection in the Netherlands; whereas heterosexuals from The Netherlands Antilles/ Aruba more often became infected in the country of origin (Figure 18).

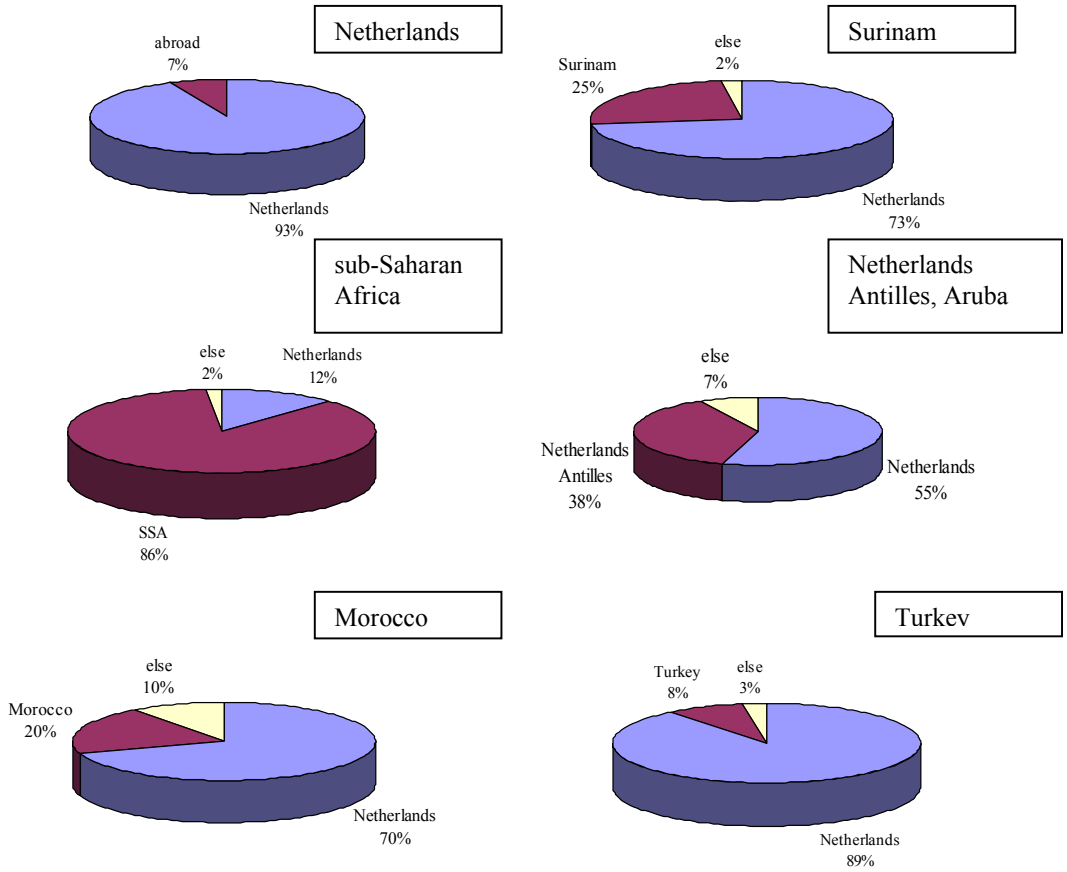


Figure 17: HIV patients, by country of birth (textbox) and country of infection (pie)

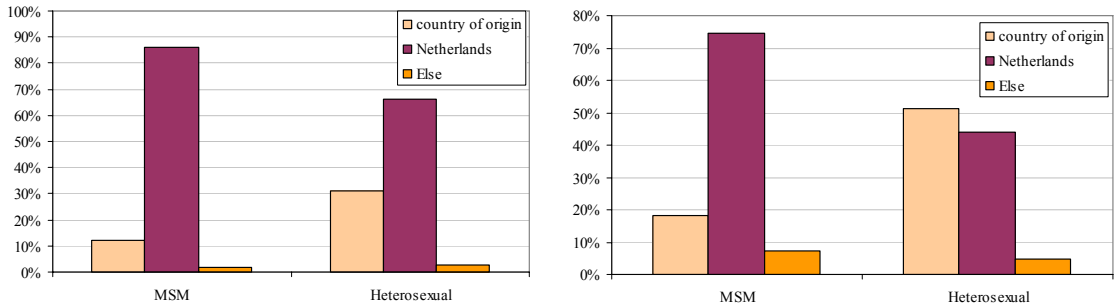


Figure 18: HIV infected persons from Surinam (left) and the Netherlands Antilles/Aruba (right), by transmission risk group and country of infection

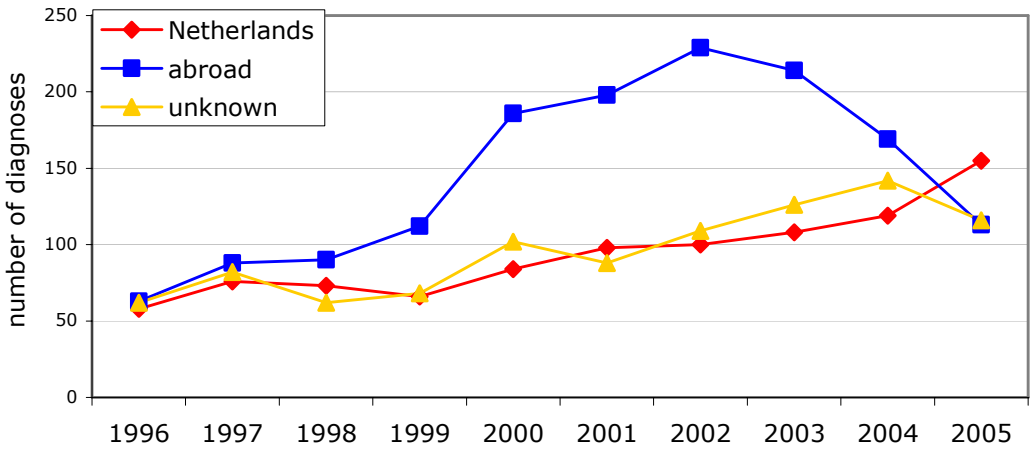


Figure 19: Reported country of infection heterosexuals, by year of diagnosis

Age at diagnosis

Among heterosexual women, African women were the youngest at diagnosis (median age: 28.7 years). Dutch and Western European women were the oldest: 32 and 33 years. Among heterosexual men, Asian men were the oldest (42 years), and African the youngest (34 years) (Table 4). The median age at diagnosis showed no clear trend over time between 2000-2005 for heterosexuals from sub-Saharan Africa, Latin America/Caribbean and the Netherlands (Figure C.5). The median age of MSM clearly increased over time, from 32 years in 1987 to 41 years in 2005 for Dutch men and from 28 years in 1987 to 36 years in 2005 for non-Dutch MSM (Figure C.6).

Table 4: Median age (years) of heterosexual population, by region of origin and sex

Region of origin	Men (age/IQR)	Women (age/IQR)	Total (age/IQR)
The Netherlands	40.4 (33.1-48.9)	32.3 (26.2-42.2)	36.5 (29.2-46.0)
Western Europe	35.9 (32.5-45.6)	32.7 (28.2-40.5)	35.1 (29.9-42.8)
Sub-Saharan Africa	33.7 (28.3-38.5)	28.7 (24.0-34.1)	30.6 (25.0-35.8)
Caribbean	36.4 (30.4-42.9)	30.9 (24.7-39.0)	33.2 (26.9-40.1)
Latin America	37.5 (32.1-46.5)	30.9 (26.8-37.9)	34.1 (28.5-41.5)
South (East) Asia	42.1 (35.3-48.9)	30.5 (27.4-34.9)	32.4 (28.1-39.7)

Footnote: IQR= interquartile range

Anonymous unlinked HIV surveys

Sub-Saharan Africans, Surinamese and Antilleans form relatively large migrant populations in the Netherlands. However, little is known about these groups and the determinants of risk

behaviour in the country of origin. To obtain more insight in risk behaviour, 'intercultural mixing' (sexual contact between various ethnic groups), and the potential to further spread of HIV, anonymous unlinked surveys were conducted among these populations.
In 2002, the RIVM started HIV surveys among Surinamese, Antilleans and sub-Saharan Africans. Inclusion criteria were as follows:

1. Participant or (at least) one parent is born in Surinam, the Netherlands Antilles or sub-Saharan Africa;
2. Currently living in the Netherlands;
3. Aged between 18-55 years.

Locations for recruitment (for instance festivals, churches, sports events, and community centres) were determined in the course of social mapping together with migrant organizations and the local municipal health service. Between 2002 and 2005, three surveys were conducted in Rotterdam, Amsterdam and The Hague, in collaboration with the local municipal health services.[4-6] Results are summarized in Table 5.

Table 5: HIV prevalence and risk behaviour amongst migrants

	Region	Year of survey	HIV prevalence	Condom use ^{V} steady partner	Condom use ^{V} casual partner	Condom use ^{V} casual partner in country of origin
Surinamese	Rotterdam	2002/2003	0.0%	9%	43%	77%
	Amsterdam	2003/2004	0.7% [0.1-2.5%]	15%	53%	65%
	The Hague	2005	0.7% [0.2-2.0%]	12%	46%	73%
Antilleans/ Arubans	Rotterdam	2002/2003	0.0%	9%	36%	26%
	Amsterdam	2003/2004	0.0%	9%	44%	67%
	The Hague	2005	0.6% [0.1-2.1%]	12%	53%	73%
Cape Verdeans	Rotterdam	2002/2004	1.0% [0.1-3.8%]	12%	51%	81%
Ghanaian	Amsterdam	2003/2004	0.6% [0-3.1%]	26%	57%	42%
	The Hague	2005	1.8% [0.6-4.3%]	12%	71%	75%

^{V} Condom use: last 6 months always used condoms

3.4 Injecting drug users

Between 1994 and 2003, 16 surveys among IDU were conducted in the Netherlands. The primary objectives were to monitor HIV prevalence and risk behaviour to assess the potential for further spread of HIV. IDU were enlisted through health care institutions, supplemented by recruitment at street and detainment sites. The study population consists of IDU who use hard drugs regularly and ever injected drugs. Respondents were asked to give a saliva or blood sample for HIV antibody testing and a questionnaire on demographics and risk behaviours.[7] Approximately, 3500 IDU participated in the surveys in various cities in the Netherlands. HIV prevalence ranged from 0.5% to 26% (Table 6). The highest prevalence rates were found in Amsterdam (26%) and Heerlen ('Zuid-Limburg', 22%). HIV prevalence remained stable in all cities except for Heerlen (1994: 11%, 1996; 16%, 1998/99: 22%).

In the six months preceding the survey, a considerable proportion of the IDU had borrowed syringes or needles from someone else (11-30% of current injectors) and not always used condoms with steady partners (76-96%), casual partners (39-73%) or clients (13-50%).
The percentage of IDU reporting recent borrowing of drug equipment decreased in all cities where repeated surveys were conducted. No new surveys among IDU were conducted in the Netherlands after 2003.[7]

Table 6: HIV prevalence and risk behaviour amongst IDU

Region	Year of survey	HIV prevalence	Borrowing [I]	Condom use [V] steady partner	Condom use [V] casual partner	Condom use [V] clients
Amsterdam	1996	26%	18%	24%	60%	70%
	1998	26%	12%	15%	53%	71%
Rotterdam	1994	12%	18%	9%	53%	80%
	1997	9%	10%	16%	46%	69%
	2002/2003	10%	8%	15%	57%	68%
Zuid-Limburg[II]	1994	10%	19%	14%	39%	87%
	1996	12%	17%	13%	61%	83%
	1999	14%	10%	11%	51%	75%
Utrecht	1996	5%	17%	16%	55%	83%
Arnhem	1991/1992	2%	42%	na	na	60%
	1995/1996	2%	39%	10%	49%	79%
	1997	1%	16%	4%	47%	78%
Groningen	1997/1998	1%	11%	11%	43%	76%
Brabant[III]	1999	5%	17%	12%	39%	83%
The Hague	2000	2%	21%	16%	27%	60%
Twente[IV]	2000	3%	30%	8%	32%	50%

Footnote: IDU: ever injected drugs and using hard drugs at least once a week (i.e. heroine, cocaine products, amphetamine or methadone) in the six months prior to recruitment I. Percentage of IDU that borrowed used syringes or needles in the last six months. II. Percentage of IDU infected with HIV in Maastricht: 8% (1994), 3% (1996), 5% (1999); in Heerlen: 11% (1994), 17% (1996) en 22% (1999). III. Eindhoven, Helmond, Den Bosch. IV. Almelo, Hengelo, Enschede. V. Condom use: last 6 months always used condoms. NA= not available

3.5 Commercial sex workers and clients

Commercial sex workers (CSW) have many sexual contacts, and their clients may form a bridge to the general population. The anonymous unlinked HIV surveys were also targeted at these potential risk groups. The main purpose was to investigate HIV prevalence, sexual risk behaviour with clients and non-commercial partners, and the mobility of CSW. Between 2002 and 2005, three surveys were conducted in Rotterdam, Amsterdam and The Hague, in collaboration with the local municipal health services.[4-6] CSW were recruited in street-based and establishment-based prostitution venues. Results show that condoms were frequently used with clients, although condom failure was often reported. Condom use with private partners was low (Table 7). In 2004, a pilot among 52 clients of CSW was conducted in Amsterdam to assess the feasibility of an HIV survey in this group. None of the clients were HIV infected

and clients regularly used condoms with CSW (82%). However, condom use with steady and casual partners was relatively low. The results from these surveys among CSW and their clients suggest a potential risk for transmission of HIV to the general population, in particular through drug using and transsexual CSW.

Table 7: HIV prevalence and risk behaviour amongst CSW in Rotterdam and Amsterdam

Region	HIV prevalence	Condom use [v] clients	Condom failure with clients*	Condom use [v] steady partner	Condom use [v] casual partner
Rotterdam (2002/2003)					
Total population CSW	7.5% [2.5-12.5%]	88%	49%	15%	25%
Street-based CSW	12.7% [3.9-21.5%]	84%	59%	15%	33%
Establishment-based CSW	1.9% [0.0-10.3%]	92%	38%	15%	17%
Amsterdam (2003/2004)					
Total population CSW	6.6% [3.5-9.7%]	79%	35%	10%	40%
Female CSW	3.1% [1.0-7.2%]	94%	31%	10%	36%
Drug using CSW	11.3% [2.8-19.9%]	40%	41%	0%	25%
Transsexual CSW	17.2% [5.8-35.8%]	70%	45%	17%	64%
The Hague (2005)					
Total population CSW	3.5% [1.5-6.8%]	79%	39%	11%	36%
Female CSW	0.0% [0-1.8%]	80%	38%	11%	37%
Drug using CSW	22.2% [3.9-56.2%]	78%	33%	0%	0%
Transsexual CSW	20.0% [7.7-38.9%]	68%	44%	17%	40%

[v] Condom use: last 6 months always used condoms
* Regular condom failure with clients: last 6 months 'sometimes' or 'often' condom failure with clients

3.6 STI clinic attendees and other test sites

STI clinic attendees are, in general, at higher risk of HIV infection. HIV testing is recommended whenever a person is examined for or diagnosed with an STI. Table 7 shows trends in HIV positive test results obtained from surveys at STI clinics in Amsterdam and Rotterdam, the STI sentinel surveillance network (since 2003) and Checkpoint, a one-hour HIV testing facility in Amsterdam that started in 2002 and focuses on MSM.[8] (www.hivnet.org)

Among MSM, HIV prevalence rates varied between 0-32% (Table 8). HIV prevalence in the anonymous surveys was higher than that in regular HIV tests by name. In the anonymous survey among MSM in Amsterdam, an increase of HIV prevalence was observed over time. The increase, however, was mainly caused by known HIV positive MSM attending the STI clinic. At Checkpoint the HIV prevalence among MSM was 5.7% in 2005, which is comparable to the prevalence at the regular screening at the STI clinic in Amsterdam and Rotterdam (6.0% and 6.3%, respectively). In total, 860 rapid HIV tests were done at Checkpoint in 2005; a decrease of 8% compared with 2004 and probably caused by the introduction of rapid HIV tests in regular STI clinics.[9] HIV prevalence among heterosexual visitors of STI clinics was low (0.2-0.5%) and stable over time.

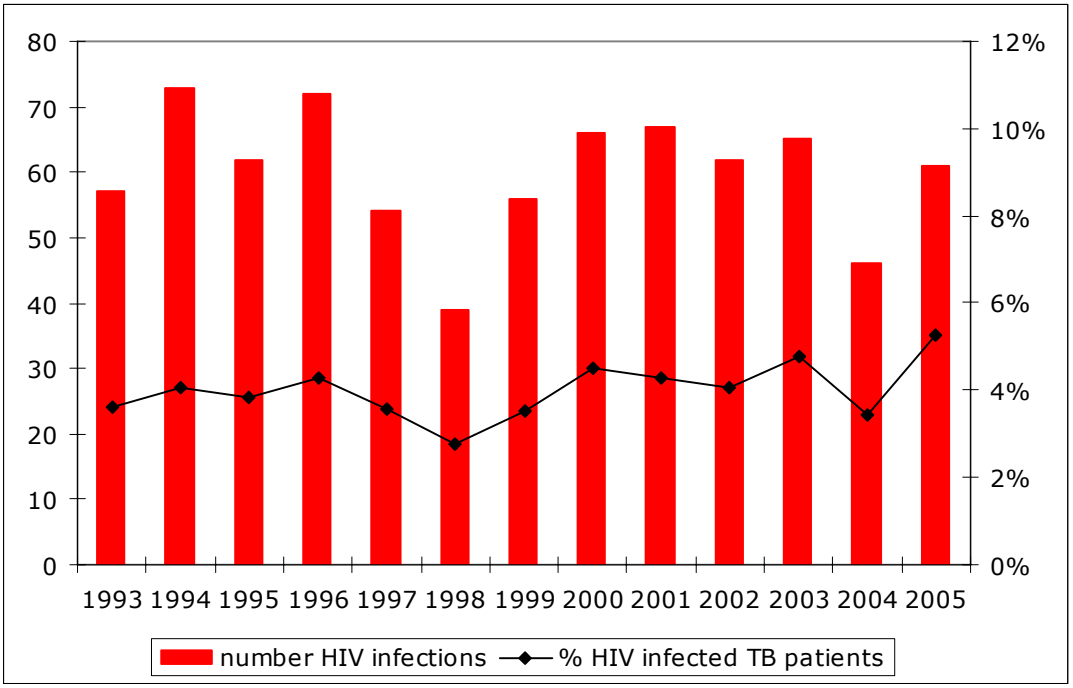
Table 8: HIV prevalence among STI clinic attendees and other test sites

Region and source	1998	1999	2000	2001	2002	2003	2004	2005
MSM								
STI clinic Amsterdam								
- Regular	4.1 %	4.3 %	5.7 %	4.7 %	3.8 %	4.2%	5.7%	6.0%
- Anonymous*	9.5 %	12.7 %	16.9 %	14.6 %	20.3 %	20.1%	18.8%#	19.4%
Alternative test site Amsterdam	3.8 %	3.5 %	3.7 %	8.0 %	7.2 %	3.5%	1.8%	Ended
STI clinic Rotterdam								
- Regular	4.4 %	4.3 %	1.6 %	2.9 %	6.2 %	1.7%	4.5%	6.3%
- Anonymous*	0 %	7.2 %	10.8 %	12.0 %	13.4 %	22.4%	32.1%	25.7%
STI sentinel surveillance network	-	-	-	-	-	3.3%	4.2%	5.0%
Checkpoint	-	-	-	-	6.8%	4.8%	4.6%	5.7%
Heterosexual risk groups								
STI clinic Amsterdam	0.4 %	0.2 %	0.3 %	0.6 %	0.5 %	0.3%	0.2%	0.3%
- Regular, men	0.3 %	0.3 %	0.9 %	0.4 %	0.4 %	1.0%	0.5%#	0.0%
- Anonymous, men	0.3 %	0.5 %	0.2 %	0.3 %	0.4 %	0.3%	0.3%	0.4%
- Regular, women	1.1 %	0.7 %	0.6 %	0.3 %	0.8 %	0.5%	0.2%#	0.4%
- Anonymous, women								
Alternative test site Amsterdam								
- Men	1.0 %	0.8 %	0.4 %	0 %	0.5 %	0%	1.8%	Ended
- Women	0 %	0.6 %	0.5 %	0.6 %	0.8 %	0%	0%	Ended
STI clinic Rotterdam								
- Regular, men	0.4 %	0.6 %	0.7 %	0.4 %	0.3 %	0.5%	1.0%	0.3%
- Anonymous, men	1.4 %	0.2 %	0.2 %	0.8 %	0.5 %	1.0%	0.9%	0.4%
- Regular, women	0.8 %	0 %	0.2 %	0.4 %	0.3 %	0.3%	0.3%	0.2%
- Anonymous, women	0.8 %	0.5 %	0.3 %	0.8 %	0.9 %	1.0%	0.7%	0.5%
STI sentinel surveillance network								
- Men	-	-	-	-	-	0.3%	0.3%	0.3%
- Women	-	-	-	-	-	0.3%	0.2%	0.2%
Checkpoint								
- Men	-	-	-	-	0.8%	0.3%	0.4%	0.7%
- Women	-	-	-	-	1.1%	1.0%	0.5%	0.0%

* Known HIV infected included, # based on 1 research period

3.7 HIV co-infections in Tuberculosis patients

Infections with tuberculosis (TB) are notifiable by law in the Netherlands. Information on the epidemiology and surveillance of TB is collected by the KNCV Tuberculosis Foundation (www.tuberculose.nl). In 2005, 1157 cases diagnosed with TB were notified at the KNCV. Most TB cases were diagnosed among first generation migrants (2004: 65%), of whom the majority originates from African and Asian countries. Of the registered TB patients in 2005, 61 (5.3%) were co-infected with HIV (Figure 20).[10] HIV prevalence among TB patients is relatively stable over time. Simultaneous infections of HIV and TB are important to monitor, since TB increases the HIV viral burden, accelerates the clinical course of infection and might interfere with treatment effectiveness. Newly diagnosed TB can therefore be an important event in the identification and treatment of HIV infected persons.



Source: KNCV Tuberculosis Foundation

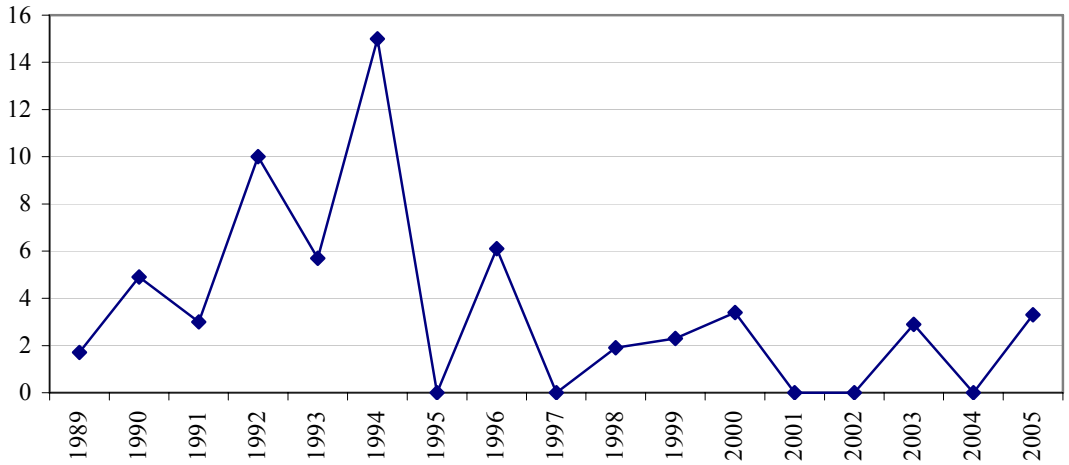
Figure 20: Number and % of HIV co-infections in TB patients in the Netherlands

4. General population

In the Netherlands, the only nationwide ongoing serosurveillance is that of blood donors and pregnant women. These populations are often studied to identify HIV trends in populations at low and moderate risk of HIV infection.

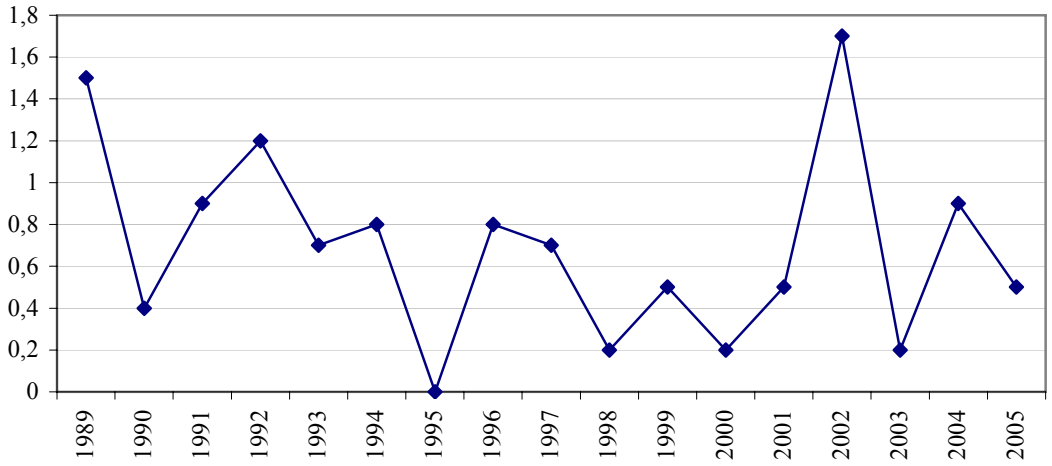
4.1 Blood donors

In 2005, 464138 blood donors were registered in the Netherlands. In total, three HIV infections were found, two in repeat donors and one in a new donor. The overall prevalence and incidence of HIV antibodies was low: new donors: 3.3 per 10^5 donors (prevalence), regular donors: 0.5 per 10^5 donor years (incidence). No marked trend over time was observed (Figure 21, Figure 22).



Source: Sanquin Blood Supply Foundation, Amsterdam

Figure 21: HIV prevalence (per 10^5 donors) among new blood donors in the Netherlands



Source: Sanquin Blood Supply Foundation, Amsterdam

Figure 22: HIV incidence (per 10^5 donor years) among regular blood donors in the Netherlands

4.2 Pregnant women

Amsterdam

Since 1988, pregnant women in Amsterdam are tested for HIV in a sentinel surveillance study. Until 2002, HIV prevalence was slightly increasing; the last few years mainly due to an increase of known HIV positive women becoming pregnant (Figure 23). In 2005, HIV prevalence in this sentinel surveillance was 1.5% (26/1701) which was slightly higher compared with 2004 (1.1%; 19/1752) and 2003 (1.2%; 24/1952).

Since 2003, all pregnant women in Amsterdam are offered an HIV test (opting out method). In 2005, 13239 women were offered an HIV test in Amsterdam (0.05% refused). The total HIV prevalence was 0.25% (33/13232). Of these 33 women, 21 knew their HIV positive status (64%); 27 had a non-Dutch origin (21 sub-Saharan Africa, 2 Surinam/the Netherlands Antilles, 1 Morocco, 1 South America, 1 Thailand and 1 England).[11]

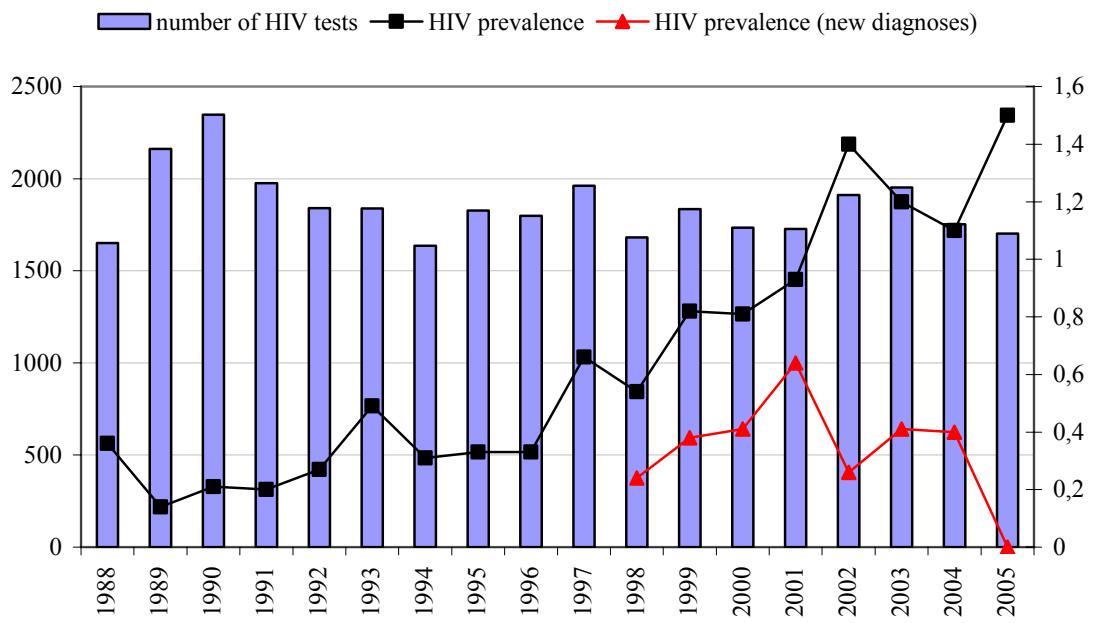
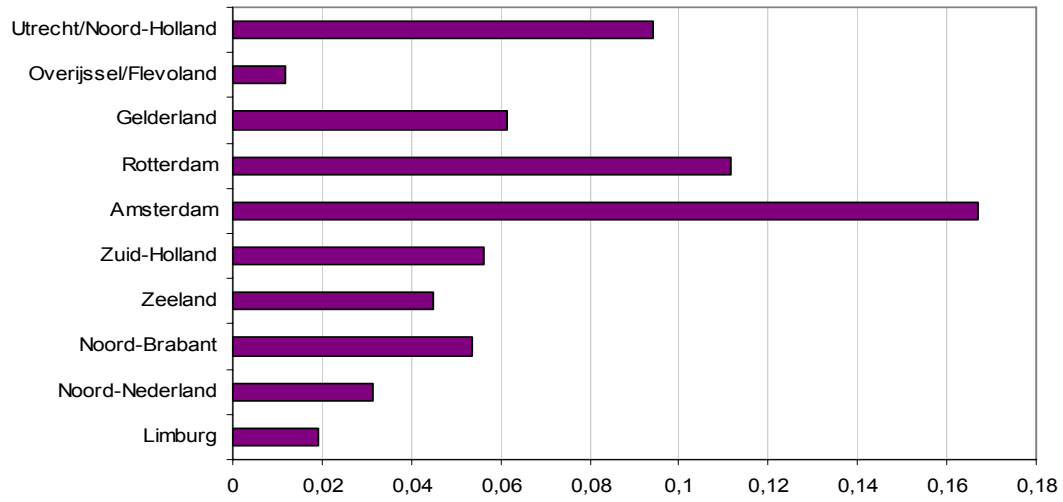


Figure 23: HIV prevalence (%) and number of tests among pregnant women in Amsterdam (sentinel study)

The Netherlands

Since January 2004, standard screening for HIV is offered to all pregnant women in the Netherlands (opting out method). The HIV test is offered as part of the prenatal screening. The National Vaccination Administration Centre (Landelijke Vereniging Entadministratie) collects the information on HIV test results from the regional vaccination administration centres. Most recent data available is from the first six months of 2004 (published in report 2005). Approximately 95000 women were tested for HIV. Of those women, 60 were HIV positive (HIV prevalence: 0.06%). The highest prevalence was observed in Amsterdam: 0.17% (9/5385) (Figure 24). New data are not available yet, due to difficulties in different reporting systems. Data will be completed in the next surveillance report in 2007.



Source: preliminary data regional vaccination administration centres; M. Witteveen personal communication, CVZ

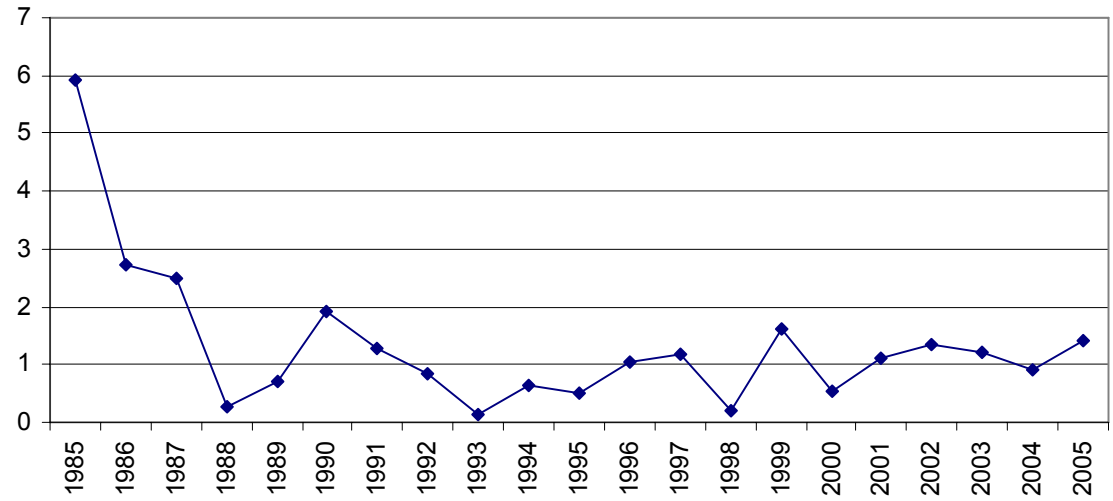
Figure 24: HIV prevalence (%) among pregnant women in the Netherlands (first 6 months 2004), by geographic region

5. HIV incidence

The yearly HIV incidences among MSM and drug users are obtained from the Amsterdam Cohort Studies (ACS) on HIV/AIDS. The study population consists of MSM and drug users living in Amsterdam and surroundings. The first enrolment of MSM took place in 1984 including men aged 18-65 years. From June 1995, recruitment was focused on young MSM (≤30 years). However, since April 2006, participation is possible for MSM of all ages with at least one sexual partner in the preceding 6 months.[12] For more details: www.amsterdamcohortstudies.org.

MSM

The HIV incidence among MSM in the ACS in 2005 was estimated at 1.4 per 100 person-years (PY). The last decade, the HIV incidence was relatively stable in the range of 0-2 per 100 PY (Figure 25).[12]

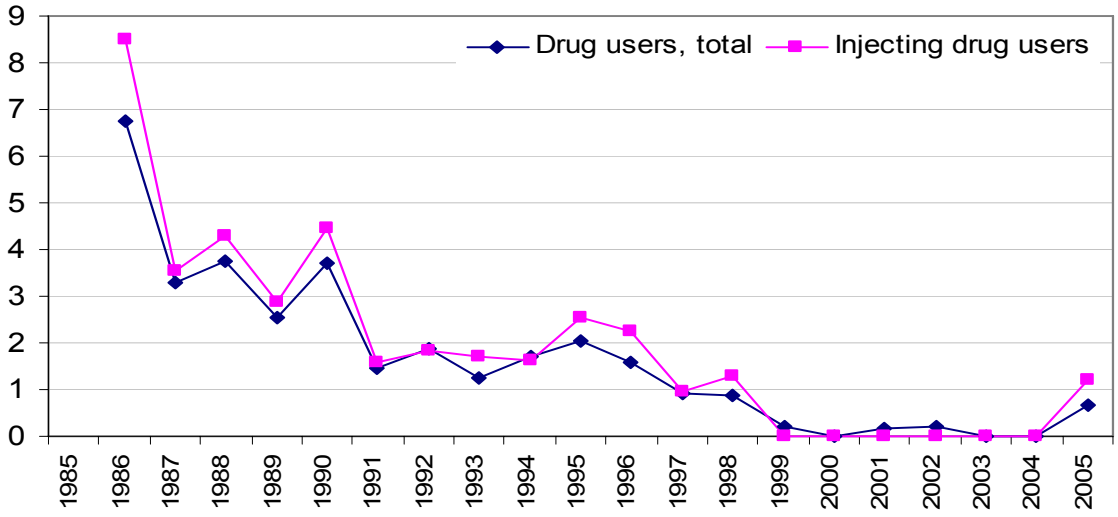


Source: Overview of the Amsterdam Cohort Studies among homosexual men and drug users, Health Service, Amsterdam, February 2006

Figure 25: Yearly HIV incidence among MSM in Amsterdam Cohort Studies

Drug users

The first enrolment of IDU in the ACS took place between 1985 and 1990. From 1998, recruitment was focused on young drug users (≤30 years). No HIV infections were found among IDU from 1999 until 2004. In 2005, two IDU were tested positive (incidence 1.2 per 100 PY). No HIV infections were found among non-injecting drug users in 2005. Among all drug users (including non-injecting) the incidence was 0.7 PY (Figure 26).[12]



Source: Overview of the Amsterdam Cohort Studies among homosexual men and drug users, Health Service, Amsterdam, February 2006

Figure 26: Yearly HIV incidence among IDU (30 years or younger at entry) in Amsterdam Cohort Studies

6. International trends of HIV/AIDS

An estimated 38.6 million people worldwide were living with HIV at the end of 2005. An estimated 4.1 million became newly infected with HIV and an estimated 2.8 million died because of AIDS.[13]

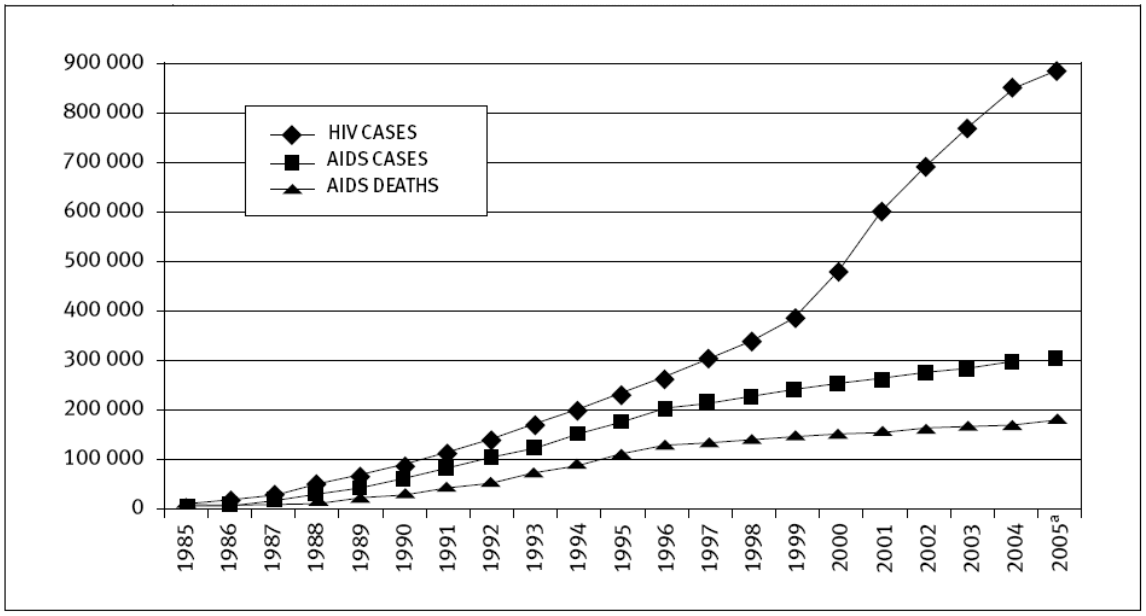
Europe
In Europe, rates of new HIV diagnoses vary greatly between countries. In 2004, a total number of almost 75000 newly diagnosed cases of HIV were reported in the WHO European Region. The numbers of HIV cases reported in Western (n=23000) and central Europe (n=1600) were low compared to Eastern Europe (n=50000).[14] In the Netherlands, HIV prevalence among adults was estimated at 0.2%,[15] which is comparable to the HIV prevalence in other Western and central European countries. The widespread use of HAART resulted in a substantial decline in numbers of AIDS cases and AIDS related deaths in Europe. As a consequence, after 1998 the number of people living with HIV/AIDS continued to rise. While AIDS incidence has been declining in Europe as a whole, it has increased continuously in Eastern Europe and for the first time in 2004 has exceeded that of the west (27.4 versus 19.5 per million).[16]

In the European region, the majority of newly diagnosed HIV cases in 2004 from which the transmission route was reported (data missing for 23%) were infected through heterosexual contact (56%), 31% were in MSM and 12% in IDU. Since 2001, there has been an increase in the number of cases with a reported heterosexual transmission group, especially among individuals originating from countries with generalised epidemics and amongst MSM. Recent increases in HIV and AIDS in some Western European countries raise important concerns about the vulnerability of migrants, treatment adherence, weakening government commitment or ineffective prevention efforts.[17]

After a long period of continuing decline, the number of new HIV diagnoses among MSM has continued to increase since 2000. HIV prevalence studies suggest levels among specific populations of MSM are in the range of 10-20% in Western Europe, but much lower in Eastern Europe (< 5%).[14] Increases in risky sexual behaviour in a highly prevalent HIV population, together with rising trends in STI, may have lead to an expansion of HIV transmission among MSM.

In most Western European countries, steady declines in HIV prevalence among injecting drug users (IDU) occurred throughout the 1990s, reflecting the success in past prevention interventions. Also in Eastern Europe, after several years of rapid spread of HIV among IDU,

the number of new diagnoses is now declining. However, the situation in the east remains alarming due to the fast increasing number of people living with HIV, including large numbers of young people. These people can potentially transmit HIV to their sex partners and indeed, the number of heterosexual infections is rising in Eastern Europe. Reporting rates were the highest in Estonia, Latvia, the Russian Federation and Ukraine.[14] In Eastern Europe, the HIV prevalence among adults was estimated at 0.8%.[18]



[a] Data as of 1 October 2005, based on partial and preliminary national reports.

Source: Sexually transmitted infections HIV/AIDS programme, unpublished data, 2005.

Figure 27: Cumulative number of reported HIV, AIDS and AIDS deaths in all of WHO/Europe countries per year (source: WHO Europe, 2006)

Other regions

Sub-Saharan Africa remains the worst-affected region in the world (Figure 28). HIV prevalence is highest in sub-Saharan Africa with an estimated prevalence in adults of 6.1%. In some (mainly southern) countries the estimated national HIV prevalence among adults is more than 30% (for instance Swaziland). An estimated 25 million people are living with HIV/AIDS in sub-Saharan Africa, which is almost 64% of all people worldwide living with HIV. Overall, HIV prevalence in this region appears to be levelling off, albeit at exceptionally high levels in southern Africa. Such apparent 'stabilization' of the epidemic reflects situations where the numbers of people being newly infected with HIV roughly match the numbers of people dying of AIDS related illnesses.[13] The major transmission route in sub-Saharan Africa is heterosexual contact.

Latest estimates show some 8.3 million people were living with HIV in Asia at the end of 2005, more than two-thirds of them in one country, India. The epidemic in Asia remains largely concentrated in IDU, sex workers, their clients and (largely hidden) in MSM. The overlap between paid sex and injecting drug use has a significant impact on HIV spread. There is an urgent need for strategies that reduce needle-sharing and sexual risk-taking. Thailand has been successful in fighting HIV. However, Thailand's prevention efforts appear not to be matching recent changes in its epidemic. New infections occur in women infected by their long-term partners and in MSM. Meanwhile, condom use during paid sex is levelling off.[13]
In the Caribbean, high HIV prevalence rates (>3%) were observed in the Bahamas, Haiti, and over 2% in Trinidad and Tobago. Overall, with a few exceptions, the Caribbean's epidemics have stayed relatively stable in recent years. Unprotected heterosexual intercourse is the main mode of HIV transmission. Yet, one in ten of the reported HIV infections in this region is attributable to unprotected sex between men.[13]

Latin America's biggest epidemics are in the countries with the largest populations, notably Brazil. The most intense epidemics, however, are underway in the smaller countries of Belize and Honduras. The epidemic in Latin America is concentrated among populations at high risk of HIV infection: IDU and MSM. HIV transmission between female sex workers and their clients is another significant, though less prominent factor in the spread of HIV.[13]

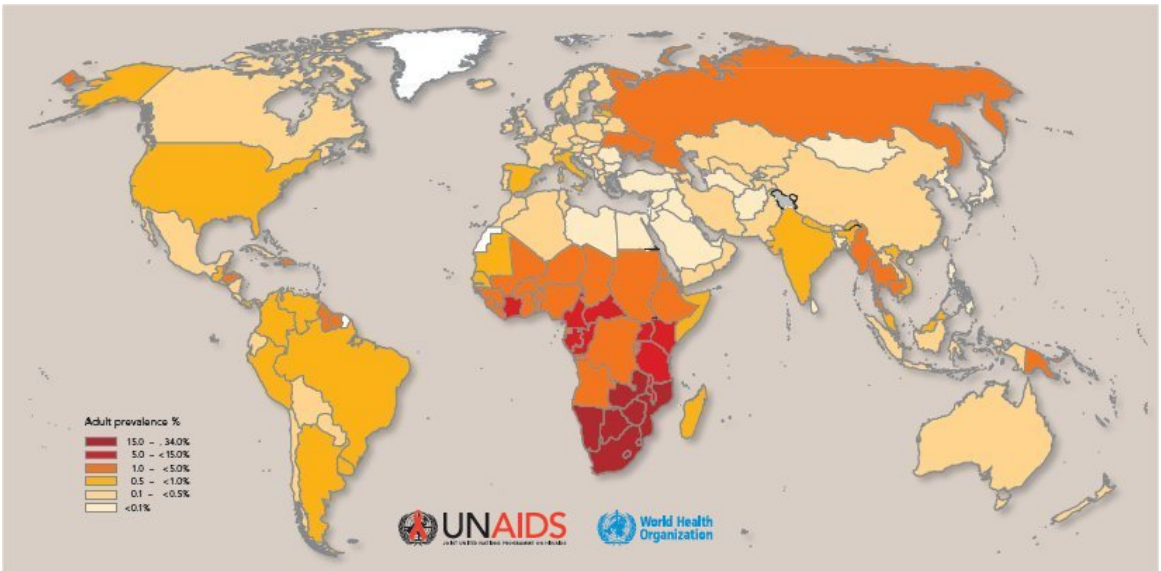


Figure 28: Global view of adult HIV prevalence, 2005 (source: UNAIDS/WHO, 2006)

7. National estimate of people living with HIV/AIDS in 2005

The Point Prevalence workbook, developed by UNAIDS/WHO, was used to estimate the number of people living with HIV and AIDS (PLWHA) in the Netherlands in 2005. The workbook program is useful for estimates and short term projections of HIV/AIDS in countries with low level and concentrated epidemics.[19] Estimating the number and distribution of PLWHA is important in deciding how prevention and surveillance resources should be allocated, as well as planning care and support needs on a national scale.

The workbook approach focuses on defining populations highly exposed to HIV and the spread of HIV to groups less exposed. Estimates of population sizes and HIV prevalence rates were used to calculate the number of PLWHA in the Netherlands.[19] The total estimate of the number of PLWHA is the sum of the number of PLWHA among the high risk groups and among populations at lower risk.
For the estimate, we divided the Netherlands into two different geographical regions: Amsterdam and the remaining regions. The following high-risk groups were included: IDU, MSM, migrant populations from high prevalence countries, CSW, and STI clinic attendees. HIV prevalence in low-risk groups was calculated by using HIV data from pregnant women. For details on methods and results: Appendix E.

Table 9: Estimate of PLWHA in the Netherlands in 2005 and 2003

National Estimates for year:	**2005**	**2003**
Number of Adults (15-49) LWHA	18500	16400
Adult Prevalence (15-49)	0.23%	0.20%
Number of Women (15-49) LWHA	6400	5400
% of adults (15-49) who are women	35%	33%

The total number of adults (15-49 years) living with HIV/AIDS in the Netherlands in 2005 was estimated at 18500 [10000 - 28000] (Table 9).[15] The number of heterosexuals and MSM were estimated at respectively 9000 and 8500.
HIV prevalence among adults in 2005 was estimated at 0.23% [0.1%-0.4%] and slightly increased over time. In 2003, 1999 and 1991, HIV prevalence rates were estimated at respectively 0.20% (16400), 0.19% (15000) and 0.11% (7000) (Figure 29). HIV prevalence among IDU, MSM and CSW were estimated at 8.6%, 5.3% and 2.7%, respectively.[15]

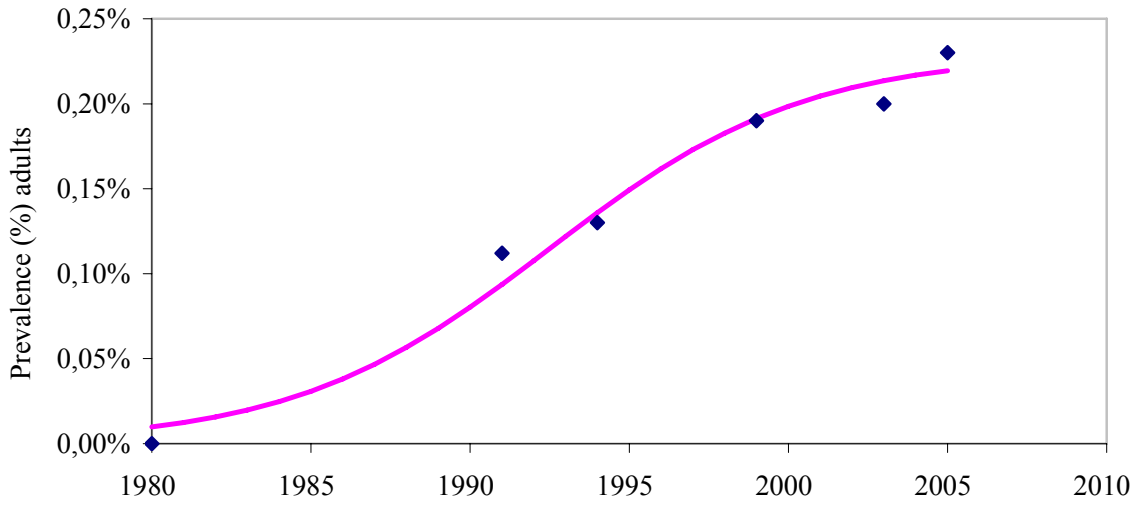


Figure 29: Epidemic curve based on the estimated HIV prevalence in adults (15-49 years) in the Netherlands

8. STI clinic attendees

Key points

- In 2005, 52278 new consultations were registered in the STI sentinel surveillance network.
- In 2005, the number of consultations increased by 5% compared with 2004.
- Characteristics of clinic attendees were as follows: young age (39% below 25 years), Dutch origin (76%), MSM (29%) and commercial sex workers (9%), 18% had a history of STI and 64% was not previously tested for HIV.

NB. Limitations of data: data from the Amsterdam STI clinic are incomplete for 2004 en 2005. Data on clients of CSW, history of STI, prior HIV testing, injecting drug use and reason for consultation (among other presence of symptoms) and part of the data about ethnicity in 2004 are missing. For this reason, national comparison for these variables with preceding years is hampered.
NA Amsterdam = data not available for STI clinic Amsterdam.

8.1 Recent trends

In 2005, 52278 new consultations (increase of 5% compared to 2004 and 23% compared to 2003) were registered within the STI sentinel surveillance network; 27461 (53%) among men, 24795 (47%) among women and 22 (0.0%) among transsexuals (Table D.1). Forty-two percent of these were reported by the STI clinic in Amsterdam. Twenty three percent of the attendees had an STI examination, 57% had both an STI examination and an HIV test (2003: 43%; 2004: 53%) and 1% had only an HIV test (Figure 30).

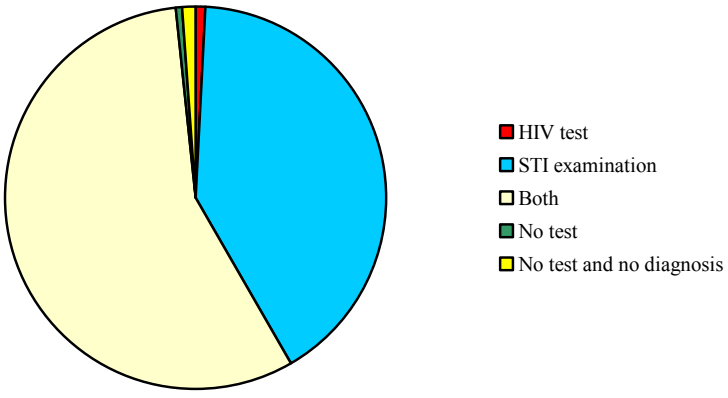


Figure 30: Consultations by STI examination, HIV test or both, 2005

The most common reported reason for STI consultation (Table D.10, NA Amsterdam) was risk behaviour (29% of all reported reasons), followed by symptoms (24%) and a new sexual relationship (12%). Other reasons for consultations were uncertainty, anxiety or concern (11%), risk behaviour and partner has symptoms (5%), notification by (ex)partner or social worker (5%), (periodic) screening (4%), hepatitis B vaccination (2%), HIV test (2%), condom failure (2%) or else (1%, Figure 31).
STI clinic attendees were on average young: 39% were younger than 25 years of age. The age distribution differed by sex with the highest peak among 20-24 years and 25-29 years (both 22%) for men (followed by 30-34 years: 16%) and among 20-24 years (41%) for women (followed by 25-29 years: 23% and 15-19 years: 13%) (Table D.3). About 76% of the clinic attendees were of Dutch origin (2004: 77%); this was the same for women and men. Other groups originated from Surinam (6%), sub-Saharan Africa (2%), Asia (2%), Eastern Europe (2%), other European countries (2%), the Netherlands Antilles (2%), Latin America (2%), Morocco and other North African countries (2%), Turkey (1%) and other (4%) (Table D.4). Furthermore, a total of 146 different foreign countries were reported (NA Amsterdam).

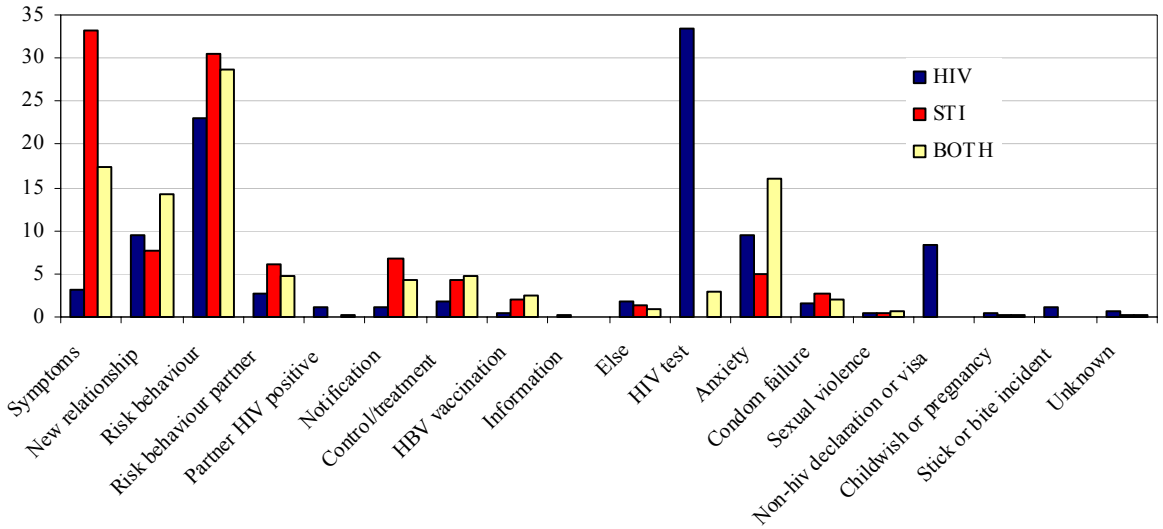
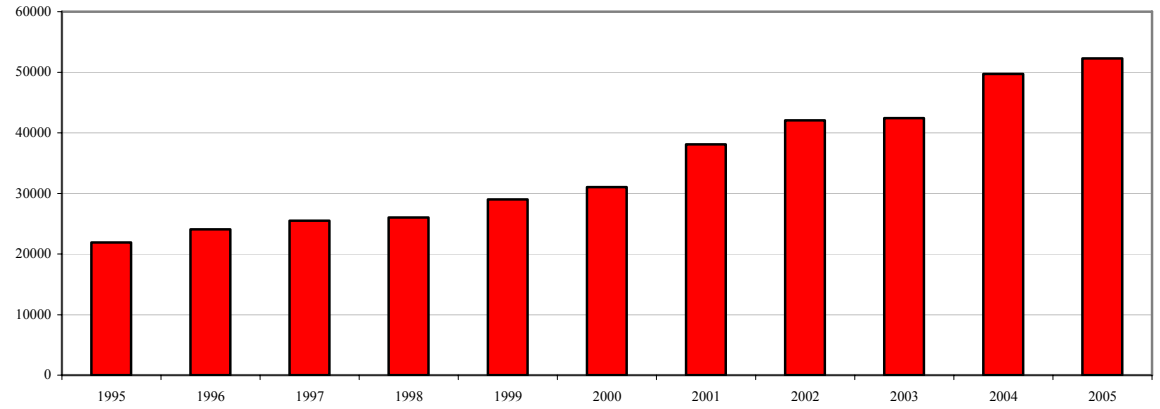


Figure 31: Reasons of consultation by STI examination, HIV test or both, 2005 (NA Amsterdam)

Over the past years the number of consultations has risen continuously (Figure 32). This increase overwhelmed the capacity of most STI clinics and municipal health services; and this may have affected the trend in consultations. In January 2003, the surveillance system has been changed into the STI sentinel surveillance network. The resultant lack of comparable data hampered proper comparison of data with years before 2003, so results should be interpreted with caution. See limitations of surveillance data (Appendix B).



Footnote: 1995-2002: STI registration; 2000*: STI clinic of Erasmus Medical Centre Rotterdam was included; 2003**: Implementation of STI sentinel surveillance network

Figure 32: Number of consultations in the STI registration (STI clinics and municipal health services) and the STI sentinel surveillance network, 1995-2005

8.2 Characteristics of attendees

Of all male attendees, 29% (n=7929) reported sex with men (Table D.5). Of all female attendees, 9% (n=2204) worked as a CSW the past 6 months and 6% (n=840) of all men reported visiting CSW the past 6 months (Table D.6, NA Amsterdam). Recent injecting drug use (past 6 months, NA Amsterdam) was reported by 0.2% of the attendees (n=53) and these data were missing for 1% (Table D.7). On average 18% (n=5462) of the attendees (NA Amsterdam) reported a history of STI (gonorrhoea, infectious syphilis or genital chlamydial infection); 20% of all men and 16% of all women.

Of the attendees, 64% (n=19259, NA Amsterdam) were never tested for HIV antibodies. Thirty one percent (n=9497) were previously tested HIV negative (33% men, 30% women) and 1.2% (n=365, 2004: 1.2%) were previously tested HIV positive (2.3% men, 0.1% women) (Table D.8). Due to underreporting in Amsterdam, the real number of HIV infected individuals attending STI clinics is expected to be higher than the number reported here. More than half of the attendees who were never tested for HIV (59%) were tested in the current consultation.

9. Genital chlamydial infection

Key points

- Genital chlamydial infection was the most common diagnosis (n=5146) made in the STI sentinel surveillance network in the Netherlands in 2005 (men: 52%, women: 48%).
- Diagnoses of genital chlamydial infection increased by 15% between 2004 and 2005.
- Individuals younger than 25 years of age were at highest risk for genital chlamydial infection, in particular women.

9.1 Recent trends

In 2005, 5146 genital chlamydial infections were diagnosed (2696 in men and 2450 in women) in the STI sentinel surveillance network (Table D.11a). The number of diagnoses increased with 15% compared with 2004 (n=4458; 2003 n=3741); in men 13%, in women 19%. In 2004, there was an increase of 19% compared to 2003. In MSM, 52% of the infections were anorectal and 45% urethral. In women, 6% of the diagnoses were anorectal (Table D.11b). Genital chlamydial infection was the most common diagnosis. Rates of diagnoses were fairly unevenly distributed across the Netherlands (range: 16-286 per 100000) with the lowest rates being seen in the region Brabant, the Northern provinces, and Twente (Figure 33).

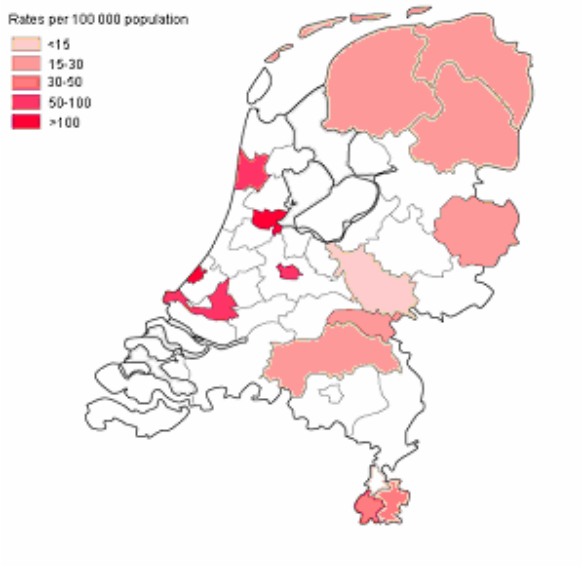
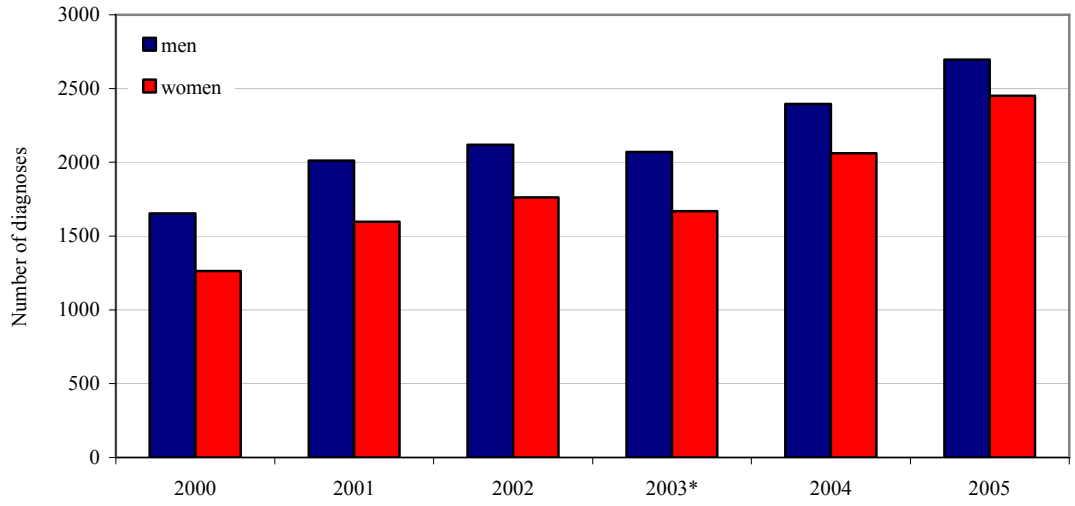


Figure 33: Rates of diagnoses of genital chlamydial infection by region, STI sentinel surveillance network, the Netherlands, 2005

Most chlamydial infections among men and women were diagnosed in the groups aged 20-24 (M: 28%, F: 41%); for women followed by those aged 15-19 (22%) and for men aged 25-29 (25%). In older age groups the number of infections was lower (Table D.12).
Over the past six years, the number of diagnoses of genital chlamydial infection has increased consistently, by 76% between 2000 and 2005; the increase was greater for women (93%) than for men (63%, Figure 34).



Footnote: 2000-2002 STI registration (including STI clinic Amsterdam); 2003* Implementation of the STI sentinel surveillance network

Figure 34: Number of genital chlamydial infections by sex, 2000-2005

9.2 Characteristics of infection

Among men, 28% (n=756) of the genital chlamydial infections were diagnosed in MSM. This percentage of MSM was fairly small compared with that in gonorrhoea (68%) and infectious syphilis (85%) (Table D.14). Among men, 3% of the infections were diagnosed in men who had recent (past 6 months) contact with CSW, whereas in women 6% of the chlamydial infections were diagnosed in CSW (Table D.15). About 68% of the diagnoses in men were made in Dutch men, 74% in Dutch women. Most diagnoses among non-Dutch men were in men from Surinam, the Netherlands Antilles and Aruba (16%); this percentage was 12% for women (Table D.13).
In 2% (n=52, 2004: 1%) of the cases of chlamydial infection (NA Amsterdam) the diagnosis was made in individuals who reported a prior positive HIV test (known HIV infected). Two third of the individuals diagnosed with chlamydial infection were never tested for HIV before (Table D.17). A history of gonorrhoea, infectious syphilis or chlamydial infection was reported by 21% of the individuals (NA Amsterdam) with genital chlamydial infection:

25% for men and 18% for women. This percentage was relatively small compared with gonorrhoea (39%), and syphilis (47%) (Table D.18).
Rates of positive test results (the percentage of positive tests related to the total number of CT tests) were almost equal for MSM (10%), heterosexual men (11%) and women (10%). The highest rate was found among MSM aged 25-39 years (11-12%). In women, the highest rate was found in those aged 15-19 years (17%), followed by those aged <15 years (14%). In heterosexual men, the rate was highest in those <15 years (17%; only 1 case) followed by 15-24 years (14-15%). (Table D.19). The positivity rate of chlamydial infections increased in heterosexuals from 2003 to 2005 (Men: 9.3%-10.5%; Women: 9.2-10.3%). In MSM the positivity rate did not change (Figure 35).

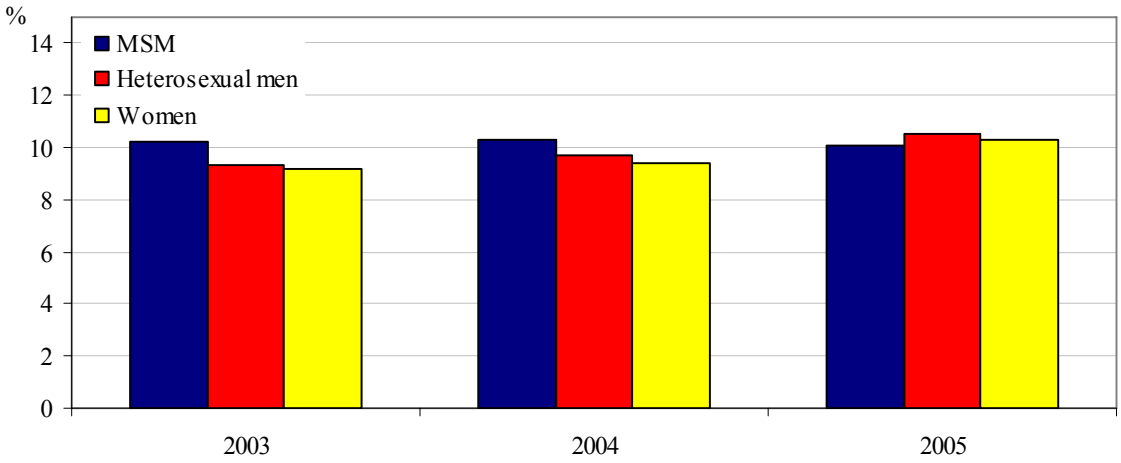


Figure 35: Rates of positive chlamydial test results by risk groups: heterosexual men, MSM, women, STI sentinel surveillance network, 2003- 2005

9.3 Laboratory surveillance

Within the laboratory surveillance of the ISIS project, the surveillance diagnosis of genital chlamydial infection is defined as follows: culture positive or PCR positive or hybridisation test (including Genprobe) positive. All test results are counted only once per individual and an individual can only be counted as positive once in 60 days.

Between 2001 and 2005, 80165 tests to diagnose infection with *Chlamydia trachomatis* were carried out of which 5761 were positive (7.2%). The percentage of positive tests increased continually (Table 10). In women, the percentage of positive tests was 6.2% and in men 9.6%.

Table 10: Number of tests and positive results for chlamydial infections by laboratories (Source: RIVM-ISIS)

	2001	2002	2003	2004	2005
Number of tests	15417	16047	16765	18680	13256
Positive test result	993	1102	1108	1334	1224
Percentage positive	6.4	6.9	6.6	7.1	9.2

*In May 2005 one large laboratory was disconnected
NB Calculations are based on the full retrospective inclusion of the database of current participating laboratories. Therefore, due to changes in participation, the here presented numbers may differ from those presented before.

Laboratory data by age group for young people (<24 years) demonstrated an increasing trend over time in the number of tests in all age groups (Figure 36). In 2005 the number of tests decreased. This is due to a laboratory that was disconnected in 2005 due to technical problems. The percentage of positive test results by age group shows an increasing trend for all age groups in 2005. This is probably due to the exclusion of the laboratory in 2005. It reveals that the overall percentage of positive test results for young people (16-24) was consistently almost three times as high as the average percentage (Figure 37).

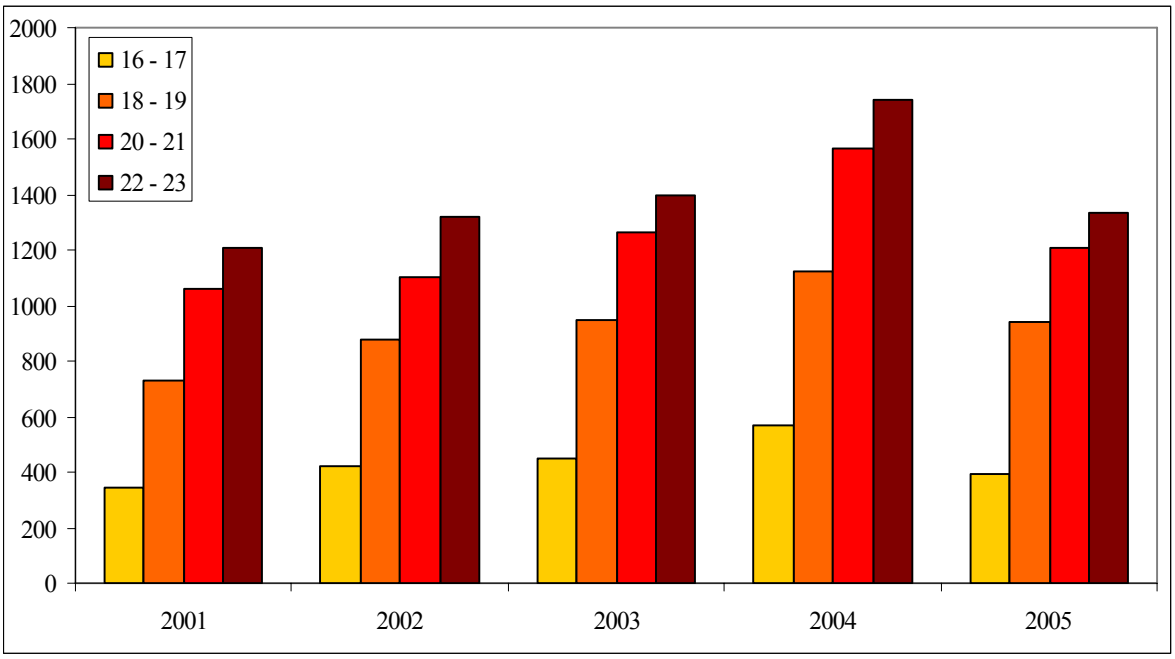


Figure 36: Total number of tests for Chlamydia trachomatis by age, 2001-2005. In the total number of tests, tests for age >23 are not shown (Source: RIVM- ISIS laboratory surveillance)

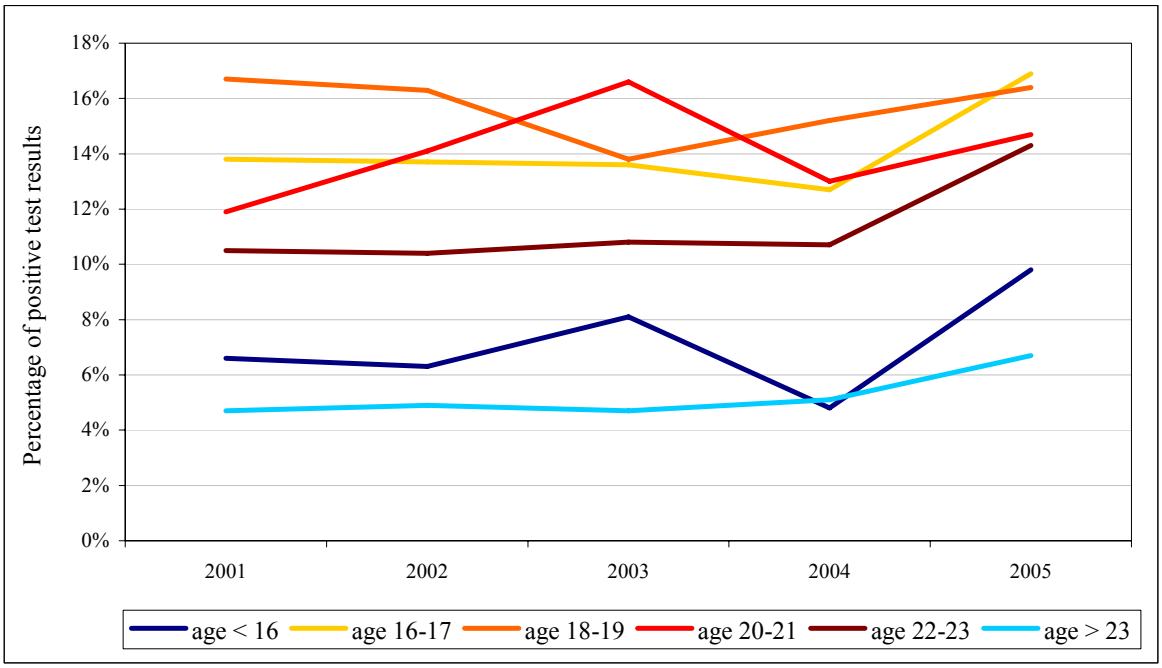
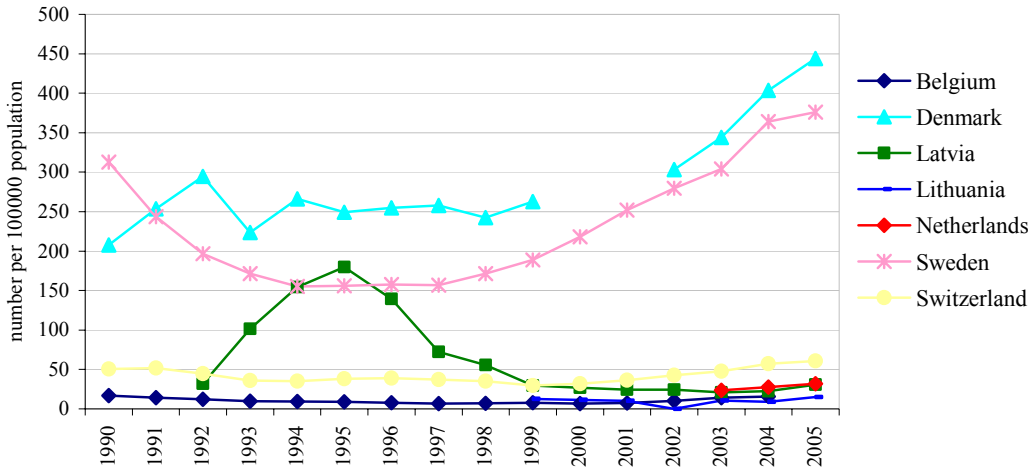


Figure 37: Percentage of positive test results for Chlamydia trachomatis by age, 2001-2005 (Source: RIVM-ISIS laboratory surveillance)

9.4 International trends of genital chlamydial infection

In most European countries genital chlamydial infection is not a notifiable disease. From different surveillance sources genital chlamydial infection is the most reported bacterial STI and increasing trends have been observed since the mid-1990s. Comparison between countries is difficult due to differences in surveillance methods and targeted patient groups. In Figure 38 incidences per 100000 population of the CISID database (WHO/European region) are presented. No detailed information is available on data collection in various countries. Most countries show an increase in chlamydia cases since 2000.[20] In Denmark, between 13000 and 14000 cases were reported in the 1990s; in 2005 23800 cases were reported. In Scotland, a further increase in diagnoses of genital chlamydial infection was observed in 2005: 17289 were reported, a 7.6% increase compared with 2004, and a 62% increase on that recorded for 2001.[21] In Sweden, the number of cases has increased considerably since 1997; the number increased by 23% between 2003 and 2005. In the United Kingdom, an increase was seen since mid-1990s and rose by 206% between 1996 and 2005.[22]



Footnote: Some countries do not report on the number of diagnoses of *Chlamydia trachomatis*; others contributed only for a selected number of years.

Figure 38: Number of reported cases of genital chlamydial infection per 100000 population in EU-Countries, 1990-2005[20]

10. Gonorrhoea

Key points

- In 2005, 1495 diagnoses of gonorrhoea were made in the STI sentinel surveillance network in the Netherlands (men: 80%, women: 20%).
- Diagnoses of gonorrhoea decreased slightly by 2% between 2004 and 2005.
- Most diagnoses were found among women younger than 25 years and men and women from the Netherlands followed by Surinam, the Netherlands Antilles and Aruba.
- 814 diagnoses of gonorrhoea were made in MSM, accounting for 68% of the cases in men.
- In a survey among public health laboratories, an increase of resistance to ciprofloxacin was reported from 6.6% in 2002 to 26.4% in 2005.

10.1 Recent trends

In 2005, 1495 diagnoses of gonorrhoea were made (1201 in men and 294 in women) and declined with 2% compared to 2004 (n=1531; 2003: n=1398)); in men 2%, in women 1% (Table D.11). In MSM, 40% of the infections were anorectal and 44% urethral. In women, 19% of the diagnoses were anorectal (Table D.11c). Rates of diagnoses were unevenly distributed across the Netherlands (range: 1-117 per 100000) with the highest rates in Amsterdam, followed by The Hague and Rotterdam. In the other regions, the rates were relatively low (Figure 39).

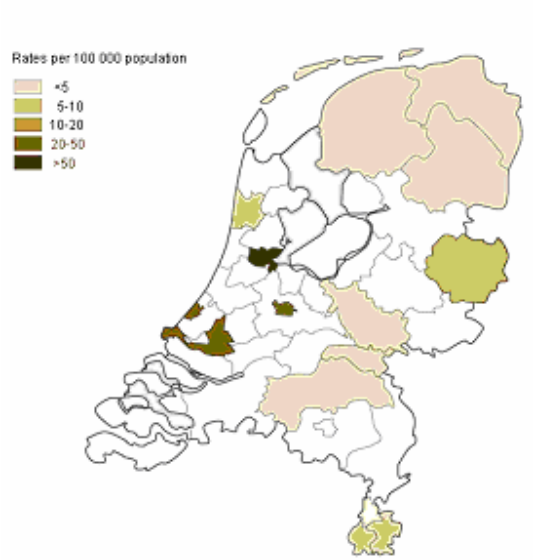
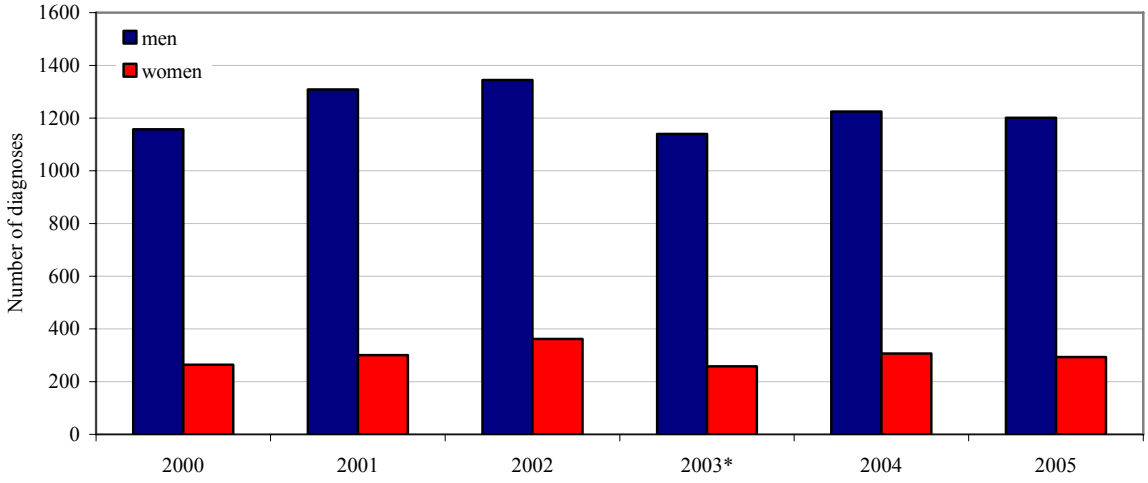


Figure 39: Rates of diagnoses of gonorrhoea by region, STI sentinel surveillance network, the Netherlands, 2005

Most diagnoses were found among women aged 20-24 (41%) and 15-19 (31%) and women aged 25-29 (22%). In the older age groups the number of infections was lower (Table D.12). Over the past six years, the number of diagnoses of gonorrhoea only seems to increase between 2000 and 2002 (Figure 40).



Footnote: 2000-2002 STI registration (including STI clinic Amsterdam); 2003* Implementation of STI sentinel surveillance network

Figure 40: Number of diagnoses of gonorrhoea by sex, 2000-2005

10.2 Characteristics of infection

Compared with genital chlamydial infection, gonorrhoea tends to be a more concentrated disease with higher rates among urban areas and certain subgroups, such as MSM, individuals with a history of STI, and specific ethnic minorities.
Among men, 68% (n=814) of the gonorrhoea cases were seen in MSM (Table D.14); 5% of the infections were diagnosed in men who had recent (past 6 months) contact with CSW, whereas for women 14% were diagnosed in CSW (Table D.15). About 62% of the diagnoses in men were made in Dutch men, 58% in Dutch women. Among migrant populations, most diagnoses were made in men from Surinam, the Netherlands Antilles and Aruba (14%); this percentage was 27% for women (Table D.13). In 8% (n=49) of the gonorrhoea cases (NA Amsterdam) the diagnosis was made in individuals who reported a prior positive HIV test. (i.e. known HIV infected); in 2004 6% (n=36). Fifty two percent of the individuals diagnosed with gonorrhoea were never previously tested for HIV, 36% had a prior negative HIV test result (Table D.17). A history of gonorrhoea, infectious syphilis or genital chlamydial infection was reported by 39% of the individuals (NA Amsterdam) with

gonorrhoea (M: 41%; F: 33%). This percentage was lower than that in syphilis (47%) but higher than that in genital chlamydial infection (21%) (Table D.18).

Rates of positive test results (the percentage of positive tests to the total number of gonorrhoea tests) were much higher among MSM (11%) than among heterosexual men (2%) and women (1%). The highest positivity rate was found in MSM aged 30-34 years (15%), but overall rates were high: 11-13% in MSM aged 25-29 years (16%). In heterosexual men, the highest percentages were found in the age group 15-19 years: 4% and 5%; in women the highest percentage was found in age <15 (5%) followed by 15-19 years (3%) (Table D.19). Positivity rates did not change significantly between 2003 and 2005 (Figure 41).

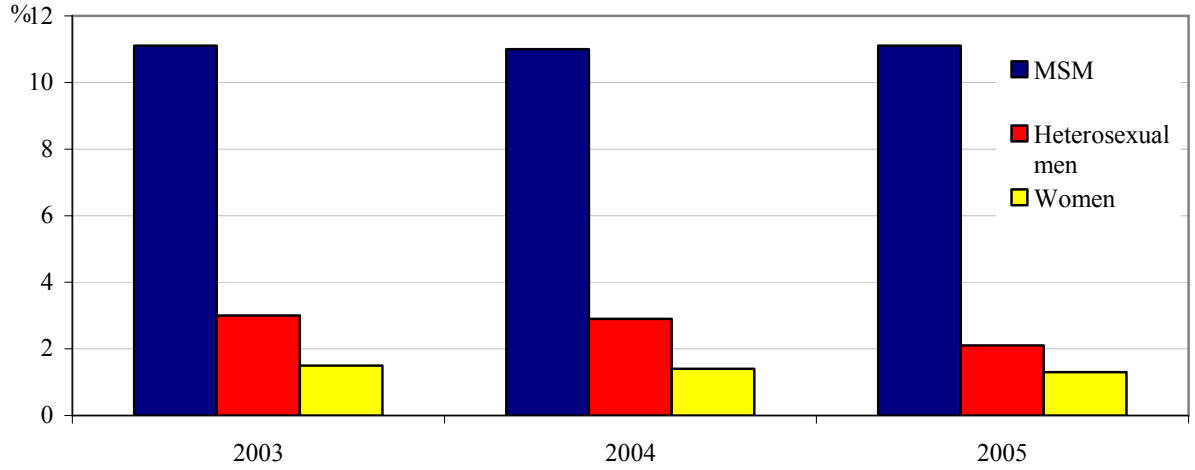


Figure 41: Rates of positive gonorrhoea test results by risk groups: heterosexual men, MSM, women, STI sentinel surveillance network, 2003- 2005

10.3 Laboratory surveillance

Within the laboratory surveillance of the ISIS project, the surveillance diagnosis of gonorrhoea is defined as follows: culture positive or hybridisation test (including Genprobe) positive or amplification test positive. All test results are counted only once per individual and an individual can only be counted as positive once in 30 days.

In 2001-2005, 68003 tests for gonorrhoea were carried out of which 1297 were positive (1.9%). In women, the percentage of positive tests was 0.8% and in men 4.3%. The number of tests increased in 2004, but decreased in 2005 due to the exclusion of one large laboratory. The percentage of positive test results increased until 2002 and then decreased again. In 2005 the percentage of positive tests levelled off (Table 11).

Table 11: Number of tests and positive results for gonorrhoea diagnosed by laboratories (Source: RIVM-ISIS)

	2001	2002	2003	2004	2005
Number of tests	12173	13294	13789	15659	13088
Positive result	246	310	276	247	218
Percentage positive	2.0	2.3	2.0	1.6	1.7

* In May 2005 one laboratory was disconnected.
NB Calculations are based on the full retrospective inclusion of the database of current participating laboratories. Therefore, due to changes in participation, the here presented numbers may differ from those presented before.

Laboratory data by age group demonstrated an increasing trend in the number of tests in all age groups, except in 2005 due to the exclusion of one laboratory (Figure 42). The percentage of positive test results by age group was stable for age group 22-23 years (around 2%) and decreased for all other age groups between 2002 and 2004. In 2005, the percentage increased again. The overall percentage of positive test results for young people (16-23 years of age: 2% or higher) was higher than the percentage of the age group above 23 (2.0%).

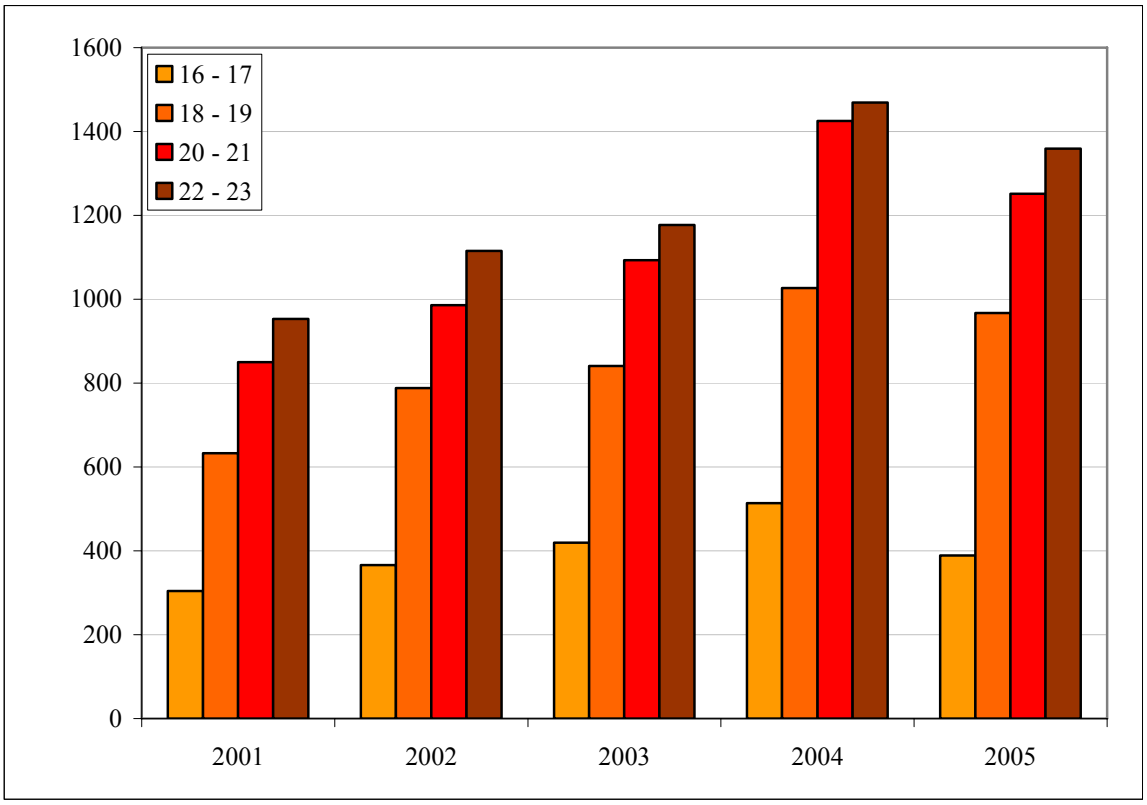


Figure 42: Total number of tests for gonorrhoea by age in years, 2001-2005. The tests for age >23 are not shown (Source: RIVM- ISIS laboratory surveillance)

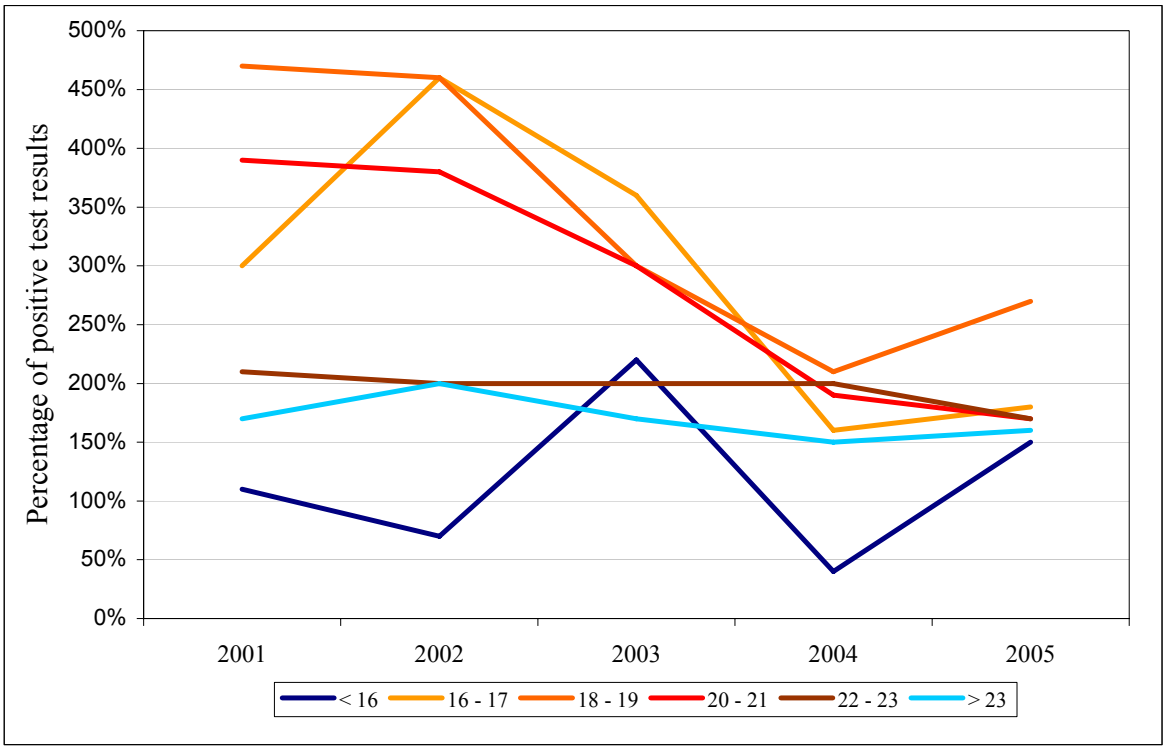


Figure 43: Percentage of positive test results for gonorrhoea by age in years, 2001-2005 (Source: RIVM- ISIS laboratory surveillance)

10.4 Gonococcal resistance in the Netherlands

In 1999, the surveillance of antibiotic resistance of gonococci was stopped at national level and insight in gonococcal susceptibility patterns was lacking. Concern for increasing resistance to quinolones at an (inter)national level led to a survey of resistance of gonococci (carried out by RIVM).[23-25]

A questionnaire was sent to the public health laboratories to collect information on diagnostic and susceptibility methods, the number of positive results and susceptibility patterns of the strains over the years 2002-2005. Complete data on the number of diagnosis and results of antimicrobial susceptibility testing for 2002-2005 were provided by 25 laboratories.[26]

A remarkable increase in resistance to quinolones (recommended first line therapy until September 2003[27]) was observed: from 6.6% (2003) to 26.4% in 2005 (Figure 44). Resistance to cephalosporins was still rarely found and could not be confirmed. Remarkable regional differences were observed: in Amsterdam, Rotterdam and The Hague, resistance for quinolones was lower than in the rest of the country (24.1% in Amsterdam, Rotterdam and The Hague and 37.4% in the remaining regions in 2005).

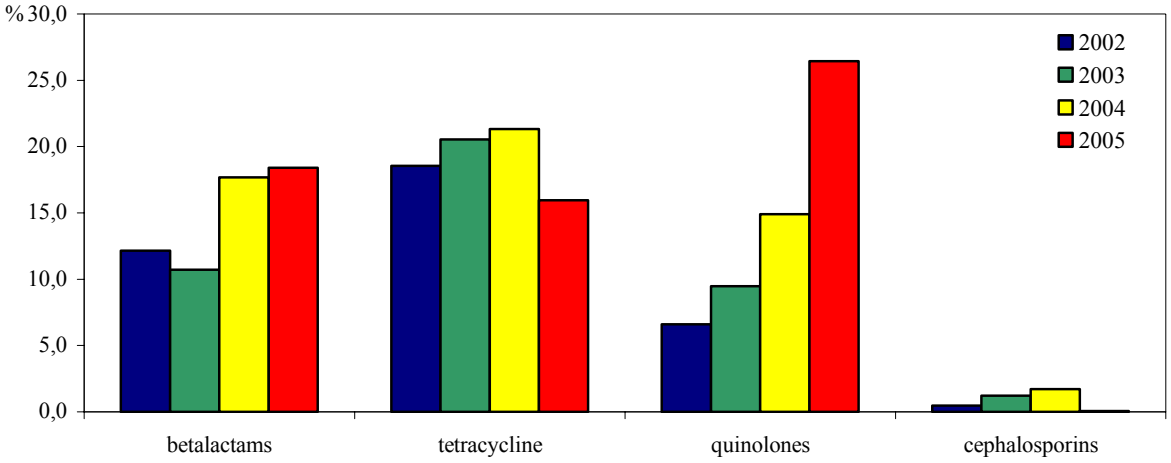


Figure 44: Gonococcal resistance in the Netherlands as reported by public health laboratories, 2002-2005

The results from the survey demonstrated the need for a nationwide surveillance of gonococcal antimicrobial resistance. In 2006, a new Gonococcal Resistance to Antimicrobials Surveillance programme (GRAS) has been implemented in the Netherlands. This surveillance consists of systematically collected data on gonorrhoea and resistance patterns through a GRAS protocol linked with epidemiological data. Participants are STI clinics and associated laboratories that identify the majority of STI in high risk populations.

10.5 International trends of gonorrhoea

A decline in gonorrhoea rates was observed in most Western EU countries starting in the 1970s with a sharp decline during the second half of the 1980s. However, EU-wide increases in diagnoses of gonorrhoea have been observed since the late 1990s (Figure 45).[20,28] In 2005, the number of gonorrhoea infections diagnosed in England, Wales, and Northern Ireland decreased with 14% since 2004. This comprised of an 11% decrease among all men and a 19% decrease among women. However, a 9% increase in gonorrhoea diagnoses was seen among MSM.[29]
In Scotland, there was a 7% increase in gonorrhoea diagnoses in 2005 compared with 2004.[21] In Denmark, the incidence has increased from 3.3 in 1996 to 8.3/100000 in 2005. In Switzerland, an increase was seen between 1996 and 2005, from 3.6 to 9.5/100000. In Sweden, the rate increased from 2.4/100000 in 1996 to 7.9/100000 in 2005.[20] Not all countries have observed these increases: in Estonia, Latvia and Lithuania, incidence of gonorrhoea decreased considerably. In the Czech Republic, the incidence of gonorrhoea decreased from 61.5 in 1990 to 7.3/100000 in 2005. In Norway there was a decrease from 22.3 in 1990 to

6.1/100000 population in 2005.[20] However, international comparisons are hampered by differences in methods of data collection between countries.

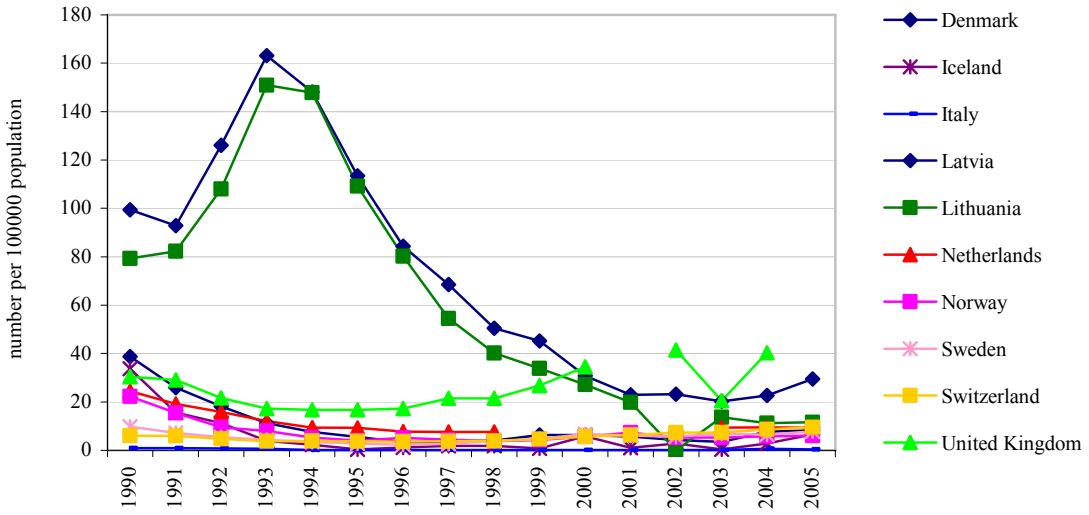


Figure 45: Number of reported cases of gonorrhoea per 100000 population in EU-countries, 1990-2005 [20]

Antimicrobial resistance in *Neisseria gonorrhoeae* in Europe

Data on gonococcal antimicrobial resistance across the EU is not comprehensive, and this remains an area for future investment. By the mid-1990s, high levels of penicillinase producing *Neisseria gonorrhoeae* (PPNG) were reported across Europe: 13% in Sweden, 6% in Finland, 3% in England, 14% in France, and 15–30% in the Netherlands.[30] At that time, sporadic resistance to fluoroquinolones was documented. More recently, increases in fluoroquinolone resistance have been reported in many EU states. In 2004, a sentinel surveillance study was conducted for antimicrobial resistance in *Neisseria gonorrhoeae* in 12 countries in Western Europe.[31] Resistance was found to be high to ciprofloxacin (30.9%), but also present to penicillin (21.3%) and tetracycline (59.8%). Azithromycin resistance was above 5%, the first time this has been documented in Europe.

In Denmark, prevalence of quinolone resistance increased from 13% in 1998 to 39% in 2004.[32,33] In Austria, an increase of the resistance to ciprofloxacin has been documented from 3.9% in 1999 to 59.4% in 2004.[34] Data from the Gonococcal Resistance to Antimicrobials Surveillance Programme (GRASP) in England and Wales also confirm recent increases in ciprofloxacin resistance. In 2005, the overall prevalence of ciprofloxacin resistance was 21.7%, an increase of 52% compared to 2004 (14.1%).[35] Similar increases were reported in Scotland (from 19.1% in 2004 to 23.6% in 2005),[36] Ireland (from 3.8% in 1997 to 15% in 2003,[37] Switzerland (from 7% in 2002 to 26% in 2004)[38], and in Sweden the ciprofloxacin resistance increased from 10% in 1998 up to 48% in 2004[39] (Figure 46).

Also in the United States resistance against ciprofloxacin increased. In 1999, 0.4% ciprofloxacin-resistant GISP (Gonococcal Isolate Surveillance Project) isolates was identified in 5 GISP clinics. In 2004, resistance had risen to 7.6%.[40] Data on the Australian Gonococcal Surveillance Programme in 2005 shows that 30.6% of the isolates were resistant for ciprofloxacin, compared with 21.4% in 2004.[41]

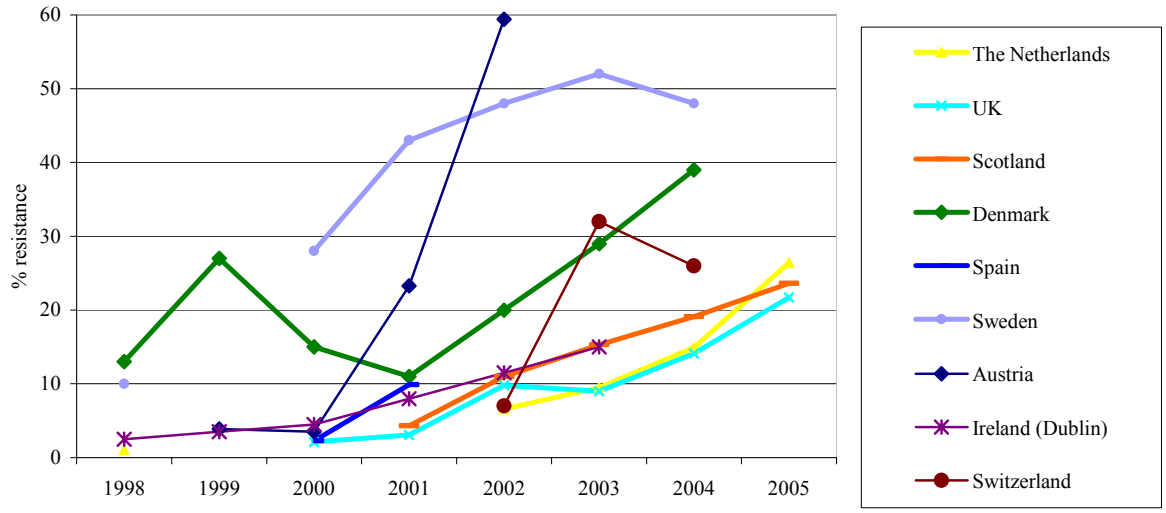


Figure 46: Quinolone resistant N. gonorrhoeae in 9 European countries, 1998-2005.

11. Syphilis

Key points

- In 2005, 588 diagnoses of infectious syphilis were made in the STI sentinel surveillance network in the Netherlands (men: 93%, women: 7%).
- Diagnoses of syphilis decreased slightly by 7% between 2004 and 2005. Between 2000 and 2005 syphilis diagnoses increased by 320% in MSM and 75% in heterosexual men.
- 467 diagnoses of syphilis were made in MSM, accounting for 85% of the cases in men.

11.1 Recent trends

In 2005, 588 diagnoses of infectious syphilis were made (547 in men and 41 in women), a decrease of 8% compared with 2004 (n=631; 2003: n=503)). Of all syphilis diagnoses (n=698), lues I represented 33% (n=227), lues II 21% (n=150), lues latens recens 30% (n=211), and lues latens tarda 13% (n=88) of the diagnoses.

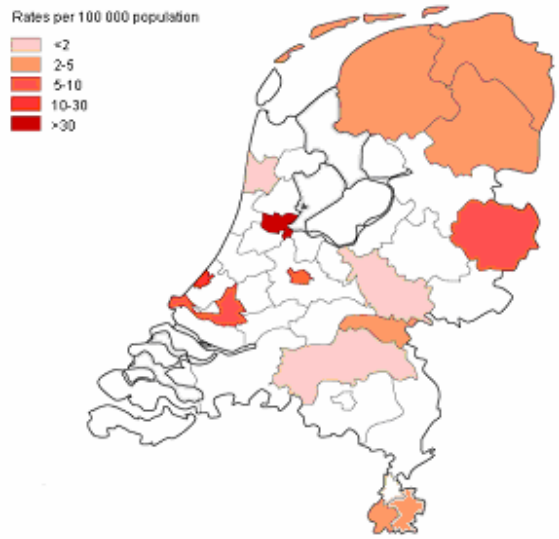


Figure 47: Rates of diagnosis of infectious syphilis by region, STI sentinel surveillance network, the Netherlands, 2005

Rates of diagnoses were unevenly distributed across the Netherlands (range: 0-33 per 100000) with the highest rates in Amsterdam, followed by The Hague, Rotterdam, Utrecht and Twente region. In the other regions, the rates were relatively low (Figure 47). The age distribution for syphilis in men was rather skewed with the highest rates, unlike other

bacterial STI, seen in the older age groups. Most diagnoses were made in men aged 35-39 and 40-44 (both 18%) followed by age 30-34 (17%).

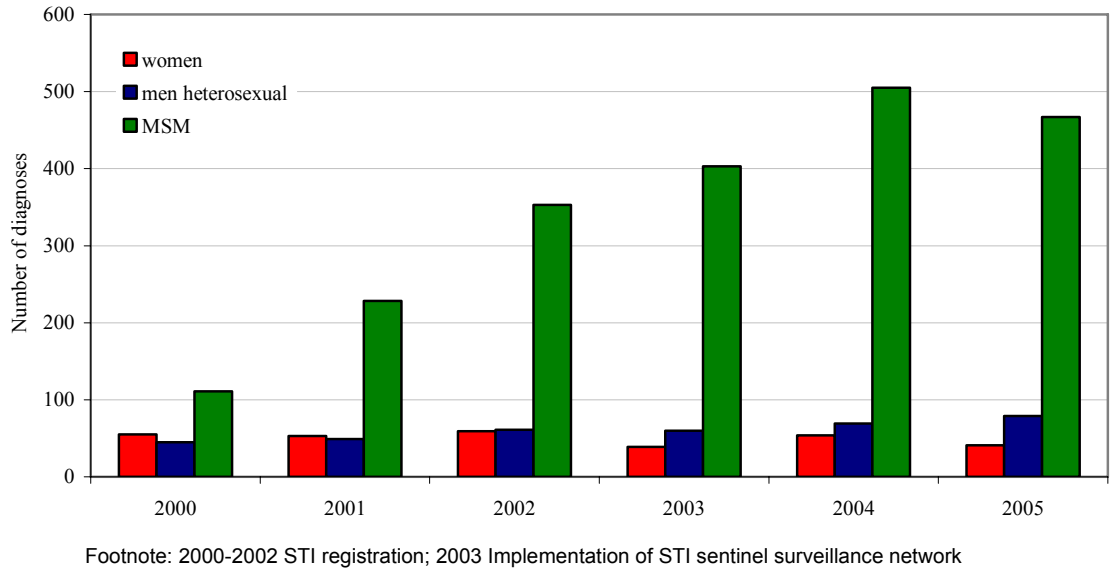


Figure 48: Number of diagnoses of infectious syphilis by sex and sexual preference, 2000-2005

Since 2000, the total number of diagnoses of infectious syphilis increased up to 2004 by 199% (from 211 to 631 diagnoses); in MSM with 355%, in heterosexual men 53%. In women the number remained stable around 50 cases per year (Figure 48).[42] In 2005, the number decreased slightly in MSM with 8% and in women with 24%. In heterosexual men the number increased with 14%.
The number of infectious syphilis diagnoses decreased for the first time since 5 years. From 2000-2004, a number of outbreaks in cities in the Netherlands occurred which gave rise to the number of infectious syphilis diagnoses.[43 44]

11.2 Characteristics of infection

Among men, 85% (n=467) of the syphilis cases were diagnosed in MSM. This percentage of MSM was the highest of all STI, and was high in contrast with gonorrhoea (68%) and genital chlamydial infection (28%) (Table D.14). Among men, only 3% of the infections were diagnosed in men who had recent (past 6 months) contact with CSW, whereas for women 39% of the syphilis was diagnosed in CSW. About 74% of the diagnoses in men were made in Dutch men, 44% in Dutch women (Table D.13a-b). Among MSM, the proportion of Dutch was even higher (84%).
In 21% (n=70) of the syphilis cases (NA Amsterdam) the diagnosis was made in individuals who reported a prior positive HIV test (known HIV positives); in 2004 16% (n=61).

Thirty four percent of the individuals diagnosed with syphilis was never previously tested for HIV, 42% had a prior negative HIV test result (Table D.17). The percentage of HIV positives among syphilis patients was the highest of all STI, as others were all below 10% (possibly biased by the missing data). A history of gonorrhoea, infectious syphilis or genital chlamydial infection was reported by 47% of the individuals (NA Amsterdam) diagnosed with syphilis: 49% for men and 27% for women. This percentage was higher than that in gonorrhoea (39%) and chlamydial infection (21%) (Table D.18a-b).
Rates of positive test results (the percentage of positive tests to the total of syphilis tests) were higher among MSM (6%) than among heterosexual men and women (both ≤0.5%) (Table D.19a-c). The highest rate was found in MSM aged 45-49 years (8%), followed by age groups 30-34, 40-44, 50-54 and ≥55 years (all 7%) (Figure D.7). The positivity rate showed no clear trend between 2003 and 2005 (Figure 49).

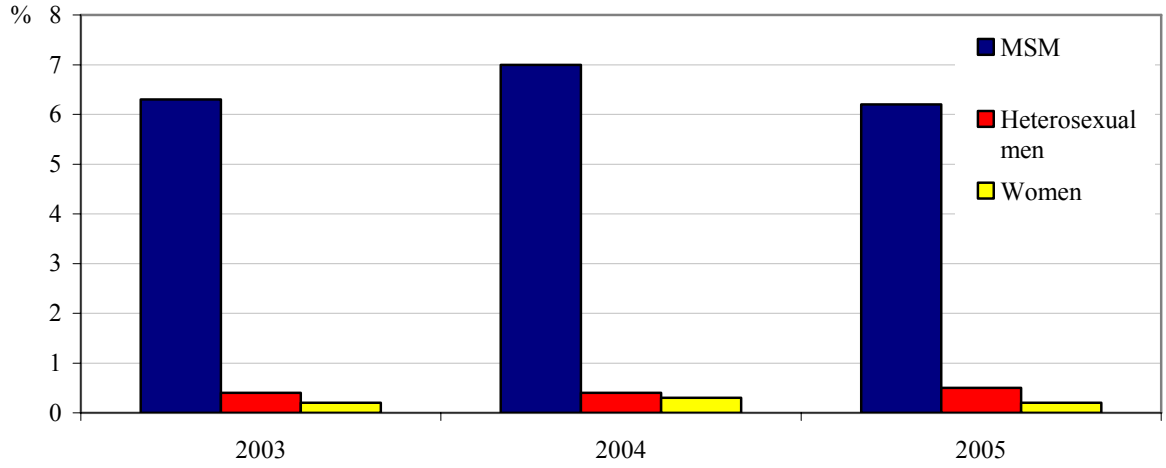


Figure 49: Rates of positive syphilis test results by risk groups: heterosexual men, MSM, women, STI sentinel surveillance network, 2003- 2005

11.3 International trends of syphilis

Since the 1980s, the rates of syphilis have decreased to a very low level, following the HIV epidemic. Early '90s, the number of notifications dropped below 300 cases per country.[45] However, since 1996, syphilis began to rise again (Figure 50).[20,45] Several European countries have reported outbreaks of syphilis in the last 10 years, especially in MSM in large cities. Overall, 70-80% of syphilis cases were seen in MSM with high rates of HIV infection (range between 10-50%).[46] Similar trends of syphilis cases were seen simultaneously in Western Europe.[20,47-54] The characteristics of the outbreaks were white ethnicity, MSM, older age group (above 35 years), concurrent HIV infection, and high rate of partner change.[54]

In the United Kingdom, the number of syphilis diagnoses increased with 23% from 2278 in 2004 to 2807 in 2005, especially by an increase of 35% in MSM.[22] In Ireland there was a decrease of 39% between 2003 and 2004.[55] In France, an 18% decrease was seen between 2004 and 2005.[56]

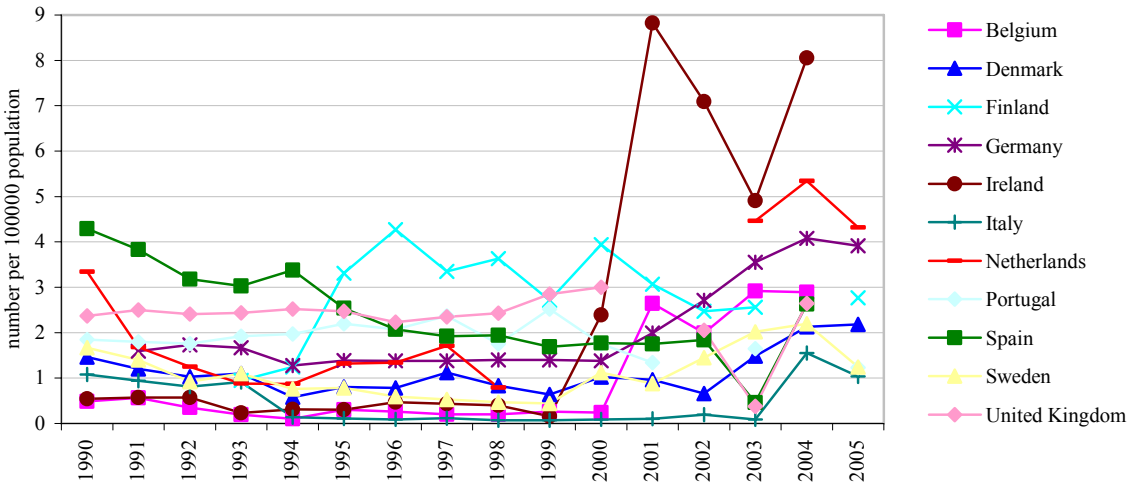


Figure 50: Number of reported syphilis cases per 100000 population in EU-countries [20]

12. Hepatitis B

Key points

- In 2005, the incidence of notified cases of acute HBV was 1.8 per 100000 inhabitants and was higher in men (2.9) than in women (0.8).
- Unprotected sexual contact was the most important risk factor for acute hepatitis B.
- Mother-to-child transmission was the most import risk factor for chronic hepatitis B.
- Import of infection plays a key role in the epidemiology of hepatitis B in The Netherlands
- Genotype A was most common in the Netherlands in acute HBV patients. Among chronic carriers genotype D was most common.

12.1 Recent trends

In 2005, 299 cases of acute hepatitis B were diagnosed in the Netherlands (2004: 293 cases, 2003: 219 cases), of which 231 in men (77%) and 68 in women (23%). The incidence rate for acute HBV in 2005 was 1.8 per 100000 and was higher in men (2.9) than in women (0.8).[57] In 2005, the mean age at diagnosis for men was 38 years (range: 9-67) and for women 31 years (range: 12-60). The incidence in men has increased by 56% since 2001. The incidence of acute HBV is unevenly distributed across the Netherlands, (range: 0.2 – 5.1 per 100000) with the highest rates being seen in Rotterdam (5.1) and Amsterdam (4.4) (Figure 52). In 2005, the mean age at diagnosis for men was 38 years (range: 9-67) and for women it was 31 years (range: 12- 60).

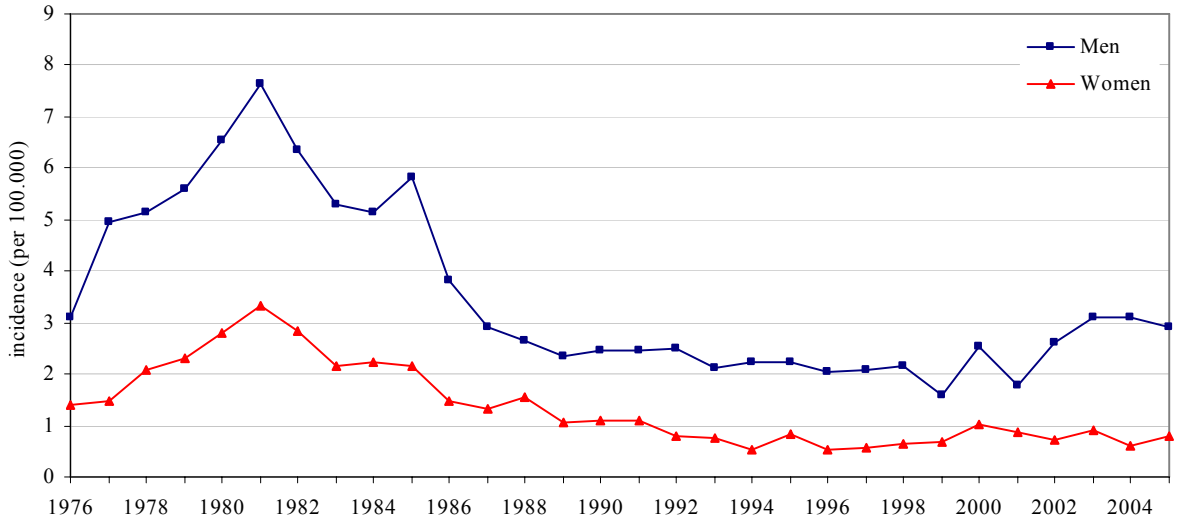


Figure 51: Incidence rate per 100000 of notified cases of acute hepatitis B virus infection, the Netherlands, 1976-2005 (Source: RIVM-Osiris, notification data)

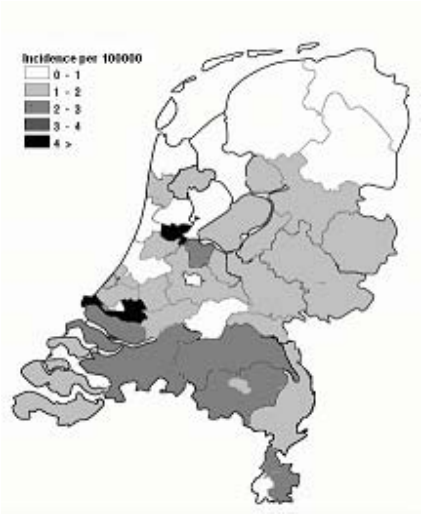


Figure 52: Incidence of acute hepatitis B per 100000 population by region, 2005 (Source: RIVM-Osiris, notification data)

12.2 Characteristics of acute hepatitis B

Of the acute HBV cases, 75% (n=225) was born in the Netherlands, 22% (n=67) was born abroad and in 2% the country of birth was unknown. Of the cases born abroad, 24% came from HBV high endemic regions (HBsAg prevalence ≥ 8%), 67% from intermediate endemic regions (HBsAg 2-7%) and 9% from low endemic regions (HBsAg ≤ 1%). Seventy-nine percent of all acute HBV cases reported to be infected in the Netherlands, 15% reported an infection abroad and in 6% of the cases the country of infection was unknown. Sexual contact was the most reported transmission route (64%) of HBV in the Netherlands (Table 12). In 2005, 53% of these cases were seen in MSM (2004: 57%). Among those, 77% acquired the infection through a casual partner. Forty five percent of the infections were heterosexually acquired (2004: 38%). Among those, 59% acquired the infection through a casual partner (Table 13). Figure D.3 also shows the decrease of the transmission route ‘else/unknown’. This is possibly caused by the improved surveillance since 2002.

12.3 Chronic hepatitis B

In 2005, 1443 cases diagnosed with chronic hepatitis B were notified. The proportion of men increased from 46% in 2002 to 56% in 2005. The rate of chronic infections per 100000 population was 8.8 in 2005 and has decreased slightly since 2002. In men, there was an increase, from 8.5 in 2002 to 10.1 in 2005. In women, rates decreased from 9.7 in 2002 to 7.6 in 2005. In 2005, the mean age at diagnosis for men was 38 years (range: 1-86) and for women it was 34 years (range: 2- 80).

Table 12: Most probable route of transmission for acute HBV, 2005 (Source: RIVM-Osiris, notification data)

Route of transmission	**2005 (%)**	**2004 (%)**
Sexual contact	190 (63.6%)	176 (60.1%)
Injecting drug use	0 (0.0%)	3 (1.0%)
Occupational accidents	4 (1.3%)	7 (2.4%)
Vertical (MTCT)	4 (1.3%)	2 (0.7%)
Else	21 (7.0%)	30 (10.2%)
Unknown	80 (26.8%)	75 (25.6%)
Total	299	293

Table 13: Source and kind of sexual contact, acute HBV, 2005 (Source: RIVM-Osiris, notification data)

Source/ kind sexual contact	**Steady partner**	**Casual Partner**	**Unknown**	**Total 2005 (%)**	**Total 2004 (%)**
MSM	10	78	13	101 (53.2%)	100 (56.8%)
Heterosexual	34	50	2	86 (45.3%)	68 (38.6%)
Unknown	0	1	2	3 (1.6%)	8 (4.6%)
Total (%)	44 (23.1%)	129 (67.9%)	17 (9.0%)	190	176

Unlike acute hepatitis B, the most probable route of transmission remains unknown in 32% of the cases in 2005. Among cases whose transmission route was known, mother-to-child transmission was the most common risk factor (71%), followed by sexual transmission (12%). In 2005, the number of chronic HBV carriers born abroad was 76%. Ninety-nine percent of these patients came from HBV high or intermediate endemic regions. Sixty-nine percent of the chronic HBV carriers reported to be infected abroad and 19% were infected in the Netherlands. From the cases infected abroad, 99% reported to be infected in a country with a high or intermediate endemicity. Import of HBV infections seems to play an important role in the epidemiology of HBV in the Netherlands.[58]

HBV in the STI sentinel surveillance network

In 2005, 9324 tests for hepatitis B virus infections were registered in the STI sentinel surveillance network; 64 of those (0.7%) were tested positive for HBV (22 acute, 42 chronic infections). Also, 354 individuals appeared to have markers of recovered HBV infection. The HBV prevalence was highest in MSM with 1.9%. In heterosexual men the prevalence was 0.8% and in women 0.3%.

12.4 Molecular epidemiology of HBV

The Netherlands is a low endemic country with a higher prevalence of HBV in specific risk groups and import of infection. To increase HBV protection, a vaccination programme was started in 2002 targeted at MSM, hard drug users, sex workers, and heterosexuals with multiple sex partners, in addition to individuals working in medical professions, pregnant women, newborns with migrant parents (HBV highly endemic regions), and children with Down syndrome. The vaccination programme for risk groups is co-ordinated by The Netherlands Association for Community Health Services (GGD Nederland). In 2004, a study was initiated to evaluate the success of the HB vaccination among risk groups, in collaboration with the Municipal Health Services of Amsterdam and Rotterdam. Trends in HBV infections are studied and additionally blood samples are collected from all newly diagnosed acute HBV patients for genotypic analysis. This information will provide more insight in the transmission networks within and between HBV risk groups in the Netherlands, and the effectiveness of the vaccination campaign.

Between October 2005 and June 2006, additional blood samples of chronic carriers were collected. Little is known about the genotypes of chronic carriers, while this group importantly contributes to the distribution of HBV in the Netherlands.
In 2005, 299 acute HBV patients were notified, and the genotypes of 159 have been determined yet.[59] There were 156 blood samples of chronic HBV patients collected, and the genotype of 101 patients has been determined up to now. When comparing the route of transmission of acute and chronic HBV patients, differences were found (Table 14). Half of the chronic HBV patients was infected by vertical transmission and only 17% by sexual contact; this in contrast to acute HBV patients of whom 60% was infected by sexual contact. Of the acute HBV patients, 81% was born in the Netherlands; compared to 25% of the chronic carriers. Turkey (19%) and China (12%) were common countries of birth for chronic carriers.

Table 14: Genotype distribution of acute case of HBV infection, 2005

	Acute (2005)		**Chronic (October '05- June'06)**	
Route of transmission	**N**	**%**	**N**	**%**
MSM	54	34	5	5
Heterosexual contact	42	26	12	12
Sexual contact unspecified	1	1	-	-
Injecting drug use	-	-	-	-
Occupational accident	4	3	-	-
Vertical (MTCT)	-	-	51	51
Else	12	8	5	5
Unknown	46	29	28	28
Total	159	100	101	100

Genotypes

Figure 53 presents the genotype distribution for both acute and chronic HBV patients. Two third of the acute HBV patients was infected with genotype A and 22% were infected with genotype D. Genotype D was most common in chronic carriers (39%), followed by genotype A (30%). Forty eight percent of the chronic carriers with genotype D were born in Turkey. Genotype B was common in chronic carriers, while this was sporadic in acute HBV patients. Chronic carriers with genotype B were mainly coming from China. Other genotypes were found less frequently in both chronic as acute HBV patients in the Netherlands.

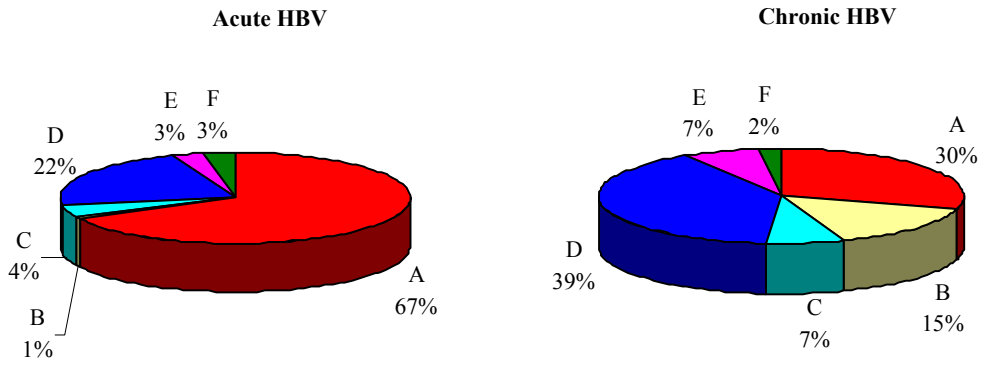


Figure 53: Genotype distribution for acute and chronic HBV patients[59]

12.5 International trends of Hepatitis B

Worldwide, 2 billion people are infected with Hepatitis B virus. More than 350 million of them are chronic carriers of HBV.[60] The disease is relatively rare in Western countries (1% chronic carriers), whereas it is common in Asia and most of Africa (8 to 10 % chronic carriers).[61,62] Intermediate endemicity is found in Eastern and Southern Europe, Middle East, Japan and part of South America (2-7% chronic carriers).[62,63]

Within the EU, Estonia, Lithuania and Latvia show high numbers of hepatitis B virus infection. Since 2001, these countries show a downward trend whereas Belgium and Austria show an upward trend (Figure 54).[20] In the Netherlands, the incidence of acute HBV was low but increased since 2001 to 1.8 per 100000 population in 2004.[64] In Denmark, the incidence has declined from 190 cases per year in 1982-1986 to less than 50 cases in 2001.[65] In England and Wales, the incidence was estimated at 7.4 per 100000 per year in 1995-2000.[66] In the United Kingdom, the total number of HBV diagnoses in 2005 decreased with 2% compared to 2004[22] and in Sweden it decreased with 19%.[67]

However, country specific data are difficult to compare because surveillance systems may differ in case definitions, completeness and methods.[68]

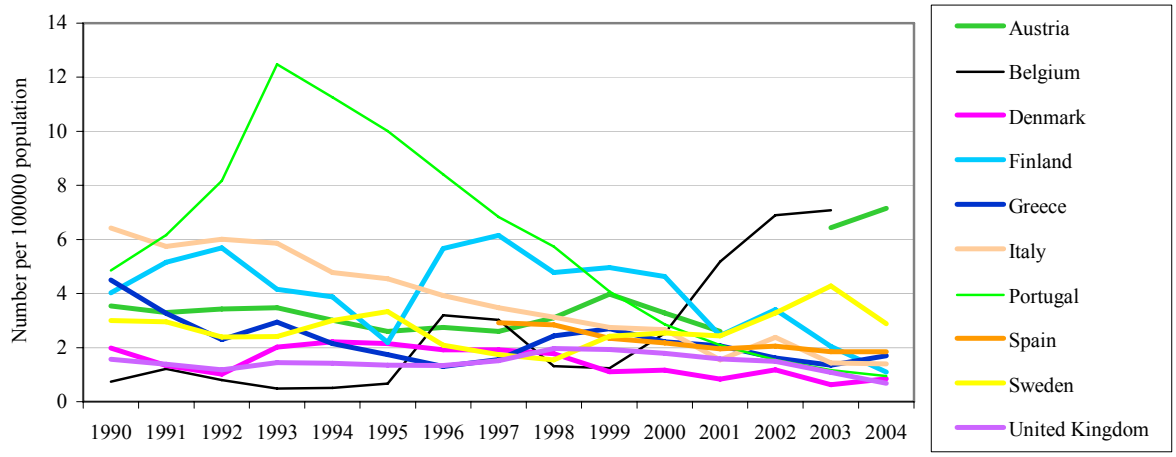


Figure 54: Number of new hepatitis B notifications per 100000 population in EU-countries[20]

Effect of vaccination

Since 1992, WHO recommends all countries to integrate hepatitis B vaccine into their national immunization programmes by 1997. The implementation of such a program resulted in a decline of HBV prevalence in various countries.[63] The United Kingdom, Ireland, the Netherlands and the Scandinavian countries did not introduce such a program, because of low numbers of HBV.[69] In Catalonia, vaccination of pre-adolescents led to a reduction in the prevalence of HBV in 15-24 year olds (0.9% in 2001; 9.3% in 1986).[70] In Italy, mandatory vaccination of all newborns and adolescent (since 1991) led to a decline in the incidence from 5.4 in 1990 to 2/100000 in 2000. The reduction was even greater among 15-24 year olds.[71] In Poland, an intensive vaccination program for newborns and children was launched in 1993, which reduced the incidence from 35 by 1993 to less than 15/100000.[72]

The United States and Taiwan also reported reduced rates of HBV after the introduction of vaccination programs for children.[73,74]

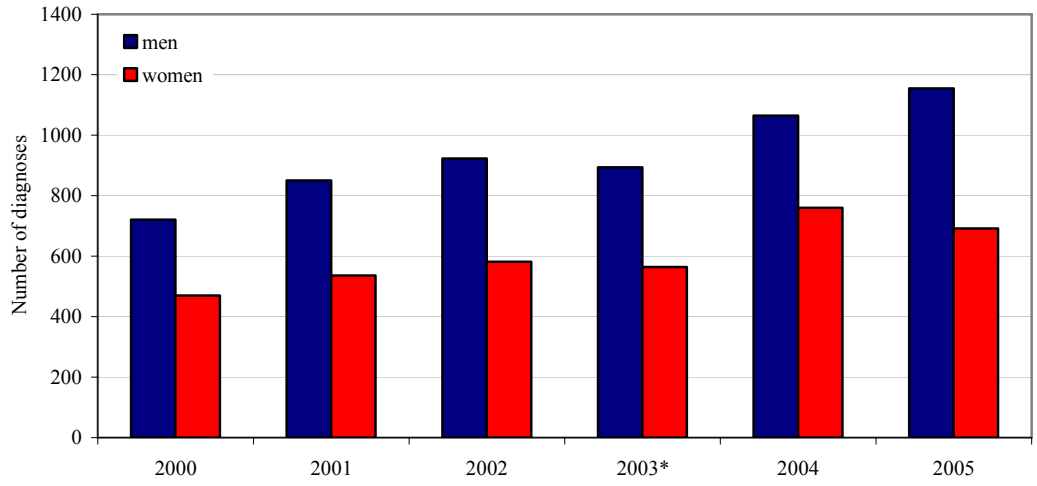
13. Genital warts

Key points

- In 2005, 1847 diagnoses of genital warts were made in the STI sentinel surveillance network in the Netherlands (men: 63%, women: 37%).
- Diagnoses of genital warts did not change between 2004 (n=1825) en 2005.
- Genital warts were the most prevalent viral STI diagnosed in the Netherlands.
- 395 diagnoses were made in MSM accounting for 34% of the cases in men.

13.1 Recent trends

In 2005, 1847 diagnoses of genital warts were made (1155 in men and 692 in women) (Figure 55), which is comparable with 2004 (n=1825) but higher than in 2003 (n=1458). Over the past five years, the number of diagnoses of genital warts increased with 55%; this increase was seen in men (60%) and women (47%). Compared to 2004, the number of diagnoses for men increased and for women decreased in 2005.



Footnote: 2000-2002 STI registration; 2003* Implementation of the STI sentinel surveillance network

Figure 55: Number of diagnoses of genital warts by sex, 2000-2005

Rates of diagnoses were unevenly distributed across the Netherlands (range: 2-82 per 100000) with the highest rates in Amsterdam, Utrecht and The Hague (Figure 56). Most diagnoses were made among men aged 25-29 years (25%) and women aged 20-24 years (41%). In the older age groups the number of infections is lower.

Figure 56: Rates of diagnoses of genital warts by region, STI sentinel surveillance network, the Netherlands, 2005

13.2 Characteristics of infection

Among men, 34% (n=395) of the genital warts were acquired through sex with men (Table D.14). Three percent of the infections were diagnosed in men who had recent (past 6 months) contact with CSW (NA Amsterdam), whereas for women 5% of the genital warts were diagnosed in CSW (Table D.15a-b).
About 74% of the diagnoses (NA Amsterdam) in men were made in Dutch men, 83% in Dutch women. Among migrants, most diagnoses were made in men and women from Surinam, the Netherlands Antilles and Aruba (8% and 5%, respectively). In 3% (n=38) of the cases of genital warts (NA Amsterdam) the diagnosis was made in individuals who reported a prior positive HIV test (known HIV positives). Fifty eight percent of the individuals diagnosed with genital warts were never previously tested for HIV, 34% had a prior negative HIV test result (Table D.17). A history of gonorrhoea, infectious syphilis or chlamydial infection was reported for only 21% of the individuals (NA Amsterdam) diagnosed with genital warts. This percentage was the same as for chlamydial infections (21%) diagnoses.

13.3 International trend of genital warts

Only a few EU-countries routinely collect surveillance data on genital warts.[47] In the United Kingdom genital warts are the most common viral STI diagnosed at genitourinary medicine (GUM) clinics. They account for 10% (81203 of 790387) of all diagnoses in 2005.[22]

Between 1996 and 2005, the amount of diagnoses in the United Kingdom increased by 26%. In Ireland, the notifications of genital warts increased to 4168 in 2004, which was an increase of 4.7% between 2003 and 2004.[55] In the United States, the number of initial visits to physicians' offices because of genital warts fluctuated around 240000 since the end of the 1970s (with a peak of 351000 in 1987) and showed a downward trend during the 1990s. However, the number of visits has been rising again in recent years increasing from 145000 in 1997 to 316000 in 2004.[75]

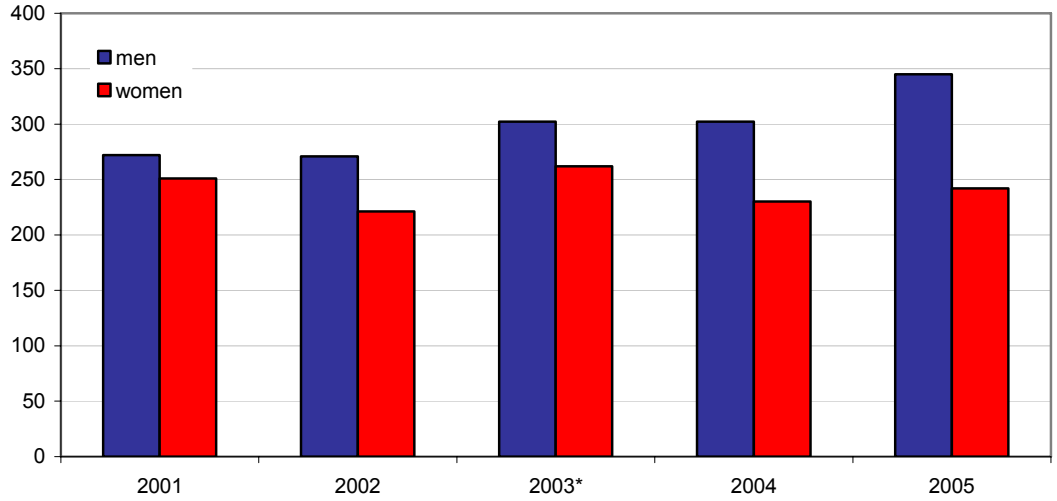
14. Genital herpes

Key points

- In 2005, 587 diagnoses of genital herpes were made in the STI sentinel surveillance network (men: 59%, women: 41%).
- Diagnoses of genital herpes increased slightly with 10% since 2004.
- 108 diagnoses were made in MSM accounting for 30% of the cases in men.

14.1 Recent trends

In 2005, 587 diagnoses of genital herpes were made (345 in men and 242 in women) (Figure 57). This was an increase compared to 2004 (n=532; 2003: n=564). Of all diagnoses, HSV type 1 accounts for 39% (n=226) HSV type 2 for 52% (n=305) and HSV type 1 or 2 for 10% (n=56). Over the past five years, the number of diagnoses of genital herpes has increased by 12%; in men by 27%; women it increased by 12% (Figure 57).



Footnote: 2000-2002 STI registration; 2003* Implementation of STI sentinel surveillance network

Figure 57: Number of new diagnoses of genital herpes (primary infections only), 2001-2005

Rates of diagnoses were unevenly distributed across the Netherlands (range: 0 -34 per 100000) with the highest rates in Amsterdam, The Hague and Utrecht. In the other regions the rates of diagnoses were quite low (range: 0 -10 per 100000) (Figure 58)**.** Among men, the diagnoses of genital herpes were evenly distributed among the age groups 20-44 years (82%); in women most diagnoses were made among women aged 20-24 years (30%). In the older age groups the number of infections is lower.

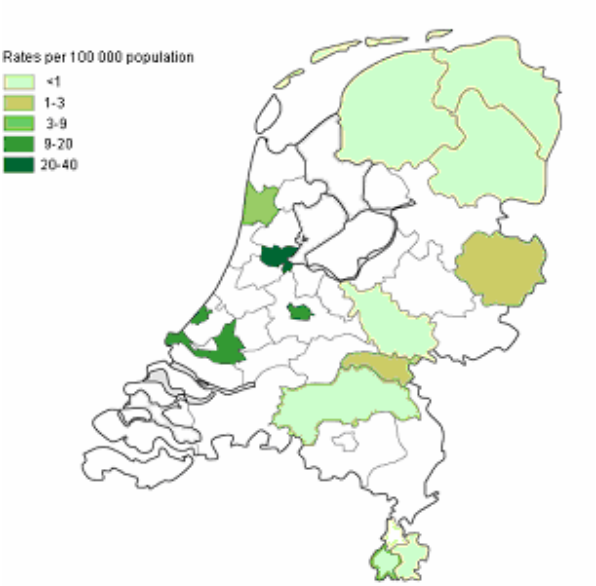


Figure 58: Rates of diagnoses of genital herpes by region, STI sentinel surveillance network, the Netherlands, 2005

14.2 Characteristics of infection

Among men, 29% (n=100) of the genital herpes were seen in MSM. About 66% of the diagnoses in men (NA Amsterdam) were made in Dutch men, 74% in Dutch women. The next highest percentage of diagnosis in migrants was made in men and women from Surinam (10%). In 2% (n=4) of the cases of genital herpes (NA Amsterdam) the diagnosis was made in individuals who reported a prior positive HIV test. (known HIV positives); 60% of the individuals diagnosed with genital herpes was never previously tested for HIV, 34% had a prior negative HIV test result. A history of gonorrhoea, infectious syphilis or chlamydial infection was reported by only 15% of the individuals (NA Amsterdam) diagnosed with genital warts. This percentage was the lowest of all STI diagnoses, next to Chlamydia with 21%.

14.3 International trend of genital herpes

Relatively little is known about viral STI in Europe, because these are not notifiable. Between 1996 and 2005, the number of diagnoses in the United Kingdom increased by 18%[22] and in Scotland there was an increase of 6.5% between 2004 and 2005.[21] Between 2003-2004, the number of reported genital herpes increased in Ireland by 36%.[55]

In a European serological survey, prevalence of antibodies against HSV-1 and HSV-2 varied greatly. In the Netherlands, age-standardized seroprevalence was 57% but varied from 52% in Finland to 84% in Bulgaria. For HSV-2, the prevalence was 9% in the Netherlands but ranges from 4% in England and Whales to 24% in Bulgaria.[76] The prevalence in Africa and the Americas seem to be higher than in Europe, the same in North America and lowest in Asia.[77] In the CISID database limited data is available.[20] There is no clear trend in numbers of HSV. From the CDC there are no data on reported HSV cases. From data of general practitioners of the National Disease and Therapeutic Index an increasing trend can be seen from 132000 in 1992 to 269000 in 2004.[78]

15. Lymphogranuloma venereum

Key points

- In 2004, an outbreak of LGV was detected in MSM in the Netherlands.
- At the end of 2005, 179 confirmed cases of LGV were reported; 65 in 2003, 76 in 2004 and 38 in 2005. The majority was reported by the STI clinic Amsterdam (68%).
- The LGV outbreak is slowly declining now, with yet unknown dynamics, and with clinical signs that easily could be misinterpreted.

15.1 Outbreak of LGV

In 2004, a cluster of LGV cases was reported among MSM who were predominantly HIV positive. Laboratory results confirmed infection with *Chlamydia trachomatis* serovar L2. The majority of the men reported unprotected sexual contact with numerous partners from several European countries. Alerts were sent to STI and HIV clinics, gastroenterologists and public health services. Enhanced surveillance of LGV was started was started in January 2004.

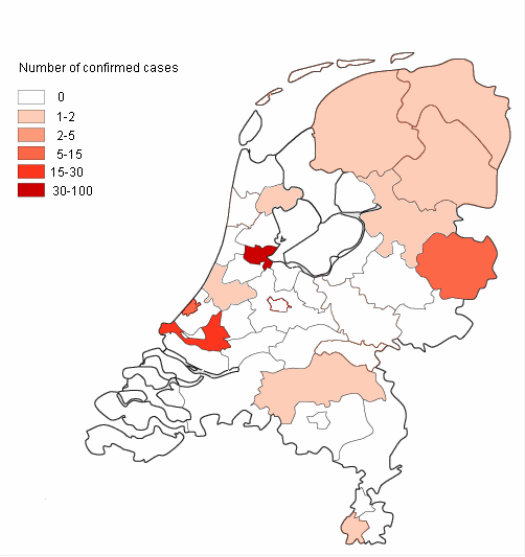


Figure 59: Number of confirmed LGV cases in the Netherlands, December 2005 (Source: RIVM- enhanced surveillance of LGV)

15.2 Current status of the LGV outbreak

Enhanced surveillance of LGV was launched in 2004 and 2005, and 114 confirmed cases were reported with additional epidemiological information, although not yet complete.[79] Routine STI surveillance data are available for 92% (104/114) of the confirmed LGV cases; additional data from the enhanced surveillance was available for 33% (34/104). Preliminary evaluation suggests the following characteristics: 97% were MSM, at least 67% were HIV positive (HIV status was as yet unknown in 16 cases); 86% were of Dutch origin, and the mean age was 40 years (range 26-58). Concurrent STI were frequently diagnosed: 24% (25/104) had gonorrhoea, 15% had infectious syphilis, 10% had hepatitis C, 6% had genital chlamydial infection and 21% were diagnosed with another STI.[79]
The majority of the cases (82%) attended because of clinical signs. The majority (n=95) were diagnosed with LGV proctitis and 6 with the inguinal syndrome. Most cases presented with proctitis symptoms: rectal discharge (85%, rectal pain (74%) and bloody rectal discharge (65%). Genital symptoms were reported less frequently: swollen lymph nodes (24%) or systemic symptoms, including general malaise (41%).[79]

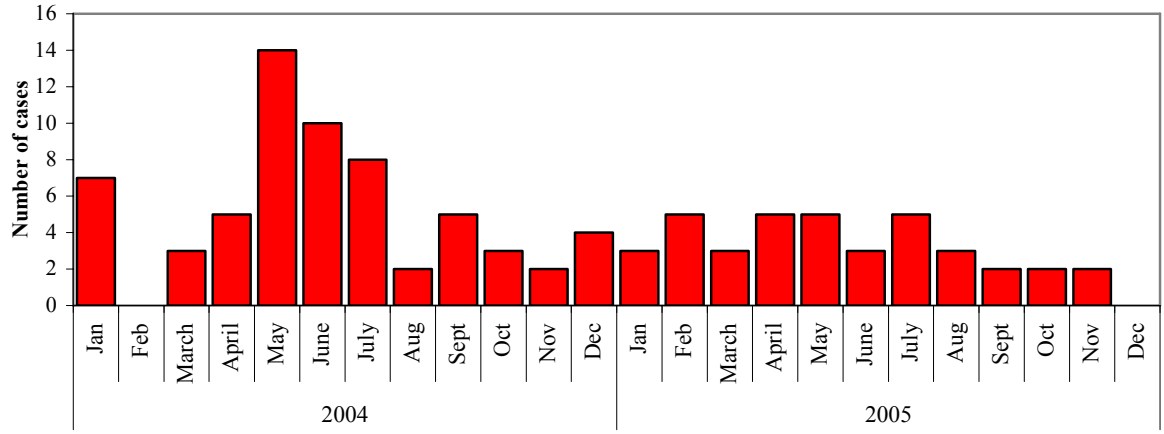


Figure 60: Number of LGV cases by date of consultation, January 2004 - December 2005 (Source: RIVM –enhanced surveillance of LGV)

Detailed information on sexual behaviour was only obtained for 24 cases. The mean lifetime number of partners was 275 (range: 6-1000), the mean number of new partners in the last 12 months was 18 (range: 0-100), and the mean number of partners in the last 6 months was 11 (range: 0-50). Half (11/24) reported unprotected anal intercourse, 18/24 reported oral sex without the use of a condom; 29% reported having shared sex toys without using protection or cleaning the toys while sharing. Another 55% (12/22) reported having taken part in group sex; most of them did not change condoms between partners.[79]

The epidemic curve of cases, by date of consultation from January 2004, shows a slowly increasing outbreak, and the highest number reported during the summer in 2004 (Figure 60). A retrospective study of MSM diagnosed with *Chlamydia trachomatis* proctitis between January 2002 and December 2003 yielded 45/74 LGV cases.[80] Genotyping demonstrated that all positive L2 samples contained a new variant, L2b. This genotype was identified in both symptomatic and asymptomatic patients.[80]

16. Concurrent STI and HIV

Key points

- In 2005, 365 HIV positive individuals were registered in the STI sentinel surveillance network (1% of total number of consultations), of which 87% are MSM (NA Amsterdam).
- In 2005, 271 individuals were newly diagnosed with HIV (men: 87%, women: 13%)
- 19% of diagnoses of gonorrhoea, genital chlamydial infection and syphilis in MSM were diagnosed in 2005 in known HIV infected MSM (NA Amsterdam).
- In 2005, the number of newly diagnosed HIV infections increased with 25%.
- 199 HIV infections were diagnosed in MSM, accounting for 85% of the cases in men.

16.1 Known HIV infected individuals

Among the STI clinic attendees (NA Amsterdam), 1% had a prior positive HIV test (n=365); 95% men (n=345) and 5% women (n=20). In 2004, a prior positive HIV test was also reported in 1% of the attendees (n=342). The real number of known HIV infected individuals is likely to be larger than the number reported here, due to underreporting. Of the HIV infected men, 91% was MSM (n=315). The majority of the HIV infected was between 30-44 years of age (22%); 77% of them was Dutch, 5% from Surinam or the Netherlands Antilles and 5% from sub-Saharan Africa. The most important reasons for consultation among the HIV infected were symptoms (49%), risk behaviour (18%) and periodic screening (10%).

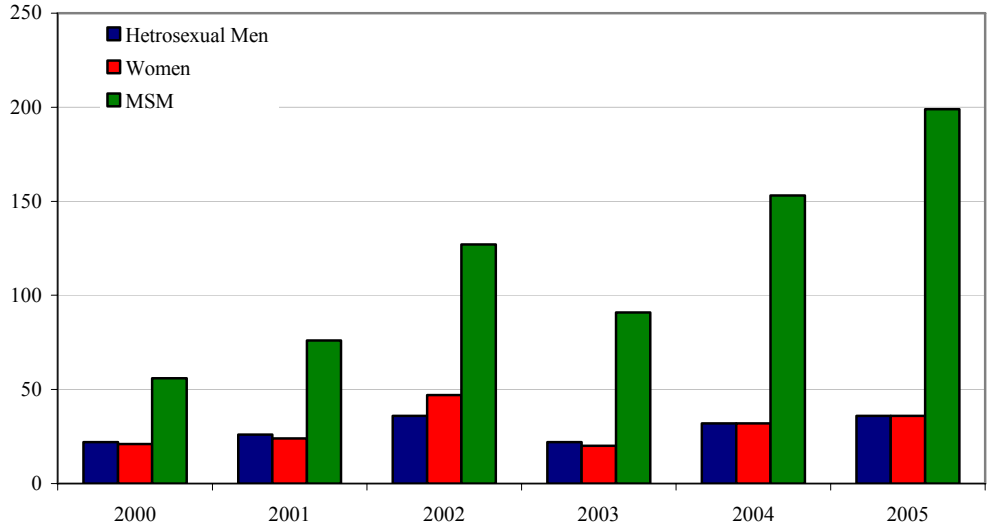
Table 15: Concurrent STI diagnosed in known HIV infected individuals in 2005 (NA Amsterdam), (% of total known HIV infected individuals N=365)

Diagnosis	Men (%)	Women (%)	Total (%)
Gonorrhoea	48(14)	1(5)	49(13)
Chlamydia	50(14)	2(10)	52(14)
Infectious syphilis	69(20)	1(5)	70(19)
Genital warts	35(10)	3(15)	38(10)
Genital herpes	4(0.3)	0(0)	4(1)

Of the known HIV infected clinic attendees, 48% had no present infection. Genital chlamydial infection, gonorrhoea and infectious syphilis were the most common diagnoses. Anorectal chlamydial infection was more often diagnosed than anorectal gonorrhoea, 60% and 51% of the diagnoses in known HIV infected MSM, respectively. There were no significant changes compared to 2004.

16.2 Newly diagnosed HIV infections

In 2005, 271 individuals were newly diagnosed with HIV (235 men and 36 women), an increase of 25% compared with 2004 (n=217) (Figure 61). The increase in diagnoses of HIV might be related to the increase of HIV tests in 2005 or underreporting of HIV diagnoses in 2003. Among men, 57% were aged 30-44 years. Most diagnoses in women were made among women aged 20-24 years (28%) followed by 25-29 years (25%) (Table D.12).



Footnote: 2000-2002 STI registration (including STI clinic Amsterdam); 2003* Implementation of STI sentinel surveillance network

Figure 61: Number of newly diagnosed HIV infections by sex, 2000-2005

Among men, 85% (n=199) of the HIV infections were seen in MSM (Table D.14). Sixty one percent of the HIV infections in men were found in Dutch, 13% in men from Surinam, the Netherlands Antilles and Aruba, and 5% from sub-Saharan Africa. In women, 33% were Dutch and 44% from sub-Saharan Africa. (Table D.13). Forty two percent (n=46) of all HIV infections were found among individuals (NA Amsterdam) who were never tested for HIV, 49% had a prior negative HIV test. (Table D.17). A history of STI was reported by 52% of the men (NA Amsterdam) with HIV and 13% of the women with HIV (Table D.18).
Rates of positive HIV test results (the percentage of positive tests to the total number of HIV tests) were higher in MSM (5.0%) than in heterosexual men and women (M: 0.3%; F: 0.2%). The highest rate was found in MSM aged 40-44 (6.7%; Table D.19). The positivity rate increased in MSM from 3.2% in 2003 to 5.0% in 2005; in heterosexuals it did not change over last three years (Figure 62).

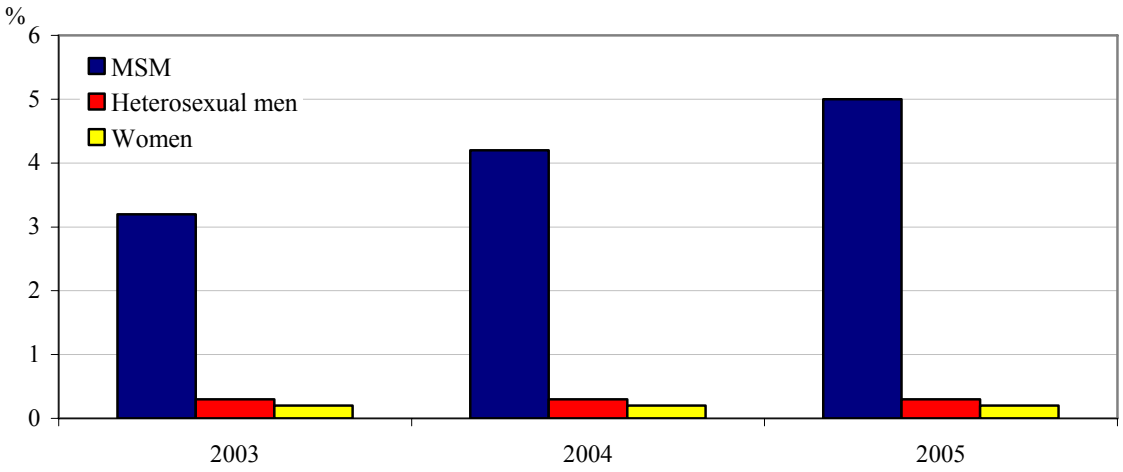


Figure 62: Rates of positive HIV test results by risk groups: heterosexual men, MSM, women, STI sentinel surveillance network, 2003- 2005

17. Focus on young people, migrant populations, MSM

17.1 Young people (16-24 years)

Key points
- More than half of the female clinic attendees were younger than 25 years.
- Young women accounted for 71% of all female chlamydial diagnoses, 72% of gonorrhoea, 53% of genital warts and 46% of genital herpes diagnosed in 2005.
- Young men accounted for 33% of all male chlamydial diagnoses, 18% gonorrhoea, 22% of genital warts and 20% of genital herpes diagnosed in 2005.
- STI are a major public health problem in young people as they carry a disproportionate proportion of the burden of disease.

Young people are more at risk for acquiring STI due to a complex interaction of behavioural, biological, and social factors. They are more at risk because they tend to have a higher number of partners and more concurrent partnerships than older age groups. They also tend to use less condoms than older groups.[42,81]

Recent trends
In 2005, 39% of the STI clinic attendees (n=20285) were aged between 16-24 years (M: 25%, F: 54%). The reason mostly reported was risk behaviour (31%), followed by symptoms (22%) and new relationship and anxiety (both 12%) of reported reasons. A total of 5384 diagnoses (39% of all diagnoses) were made in young people. Most diagnoses (75%) were made in adolescents aged 20-24 years, for gonorrhoea and genital chlamydial infection a considerable proportion was diagnosed in those aged 16-19 years (Table D.20a-c).
The most common diagnosis in young people was genital chlamydial infection (n=2620), followed by genital warts (624), gonorrhoea (426) and genital herpes (n=179). Infectious syphilis (n=40) and HIV infection (n=31) were less often diagnosed in young people. Young women accounted for 71% of all female chlamydial diagnoses, 72% of gonorrhoea, 53% of genital warts and 46% of genital herpes diagnosed in 2005, which is similar to 2004 (Figure 63). Young men accounted for 33% of all male chlamydial diagnoses, 18% gonorrhoea, 22% of genital warts and 19% of genital herpes diagnosed in 2005, which is also similar as in 2004. Young people accounted for 11% (n=31) of all new HIV diagnoses in 2005 (15% in 2004). Forty five percent of them were in MSM which is lower than in older age groups in which 73% of HIV infections were seen in MSM.

Characteristics of infection

The ethnicity of young people diagnosed with an STI varied across the STI, with a fairly high percentage of Dutch (> 60%) among genital chlamydial infection, genital warts and genital herpes (Table D.21a-b). For gonorrhoea, 22% of the young men and 26% of young women were Surinamese or Antillean.

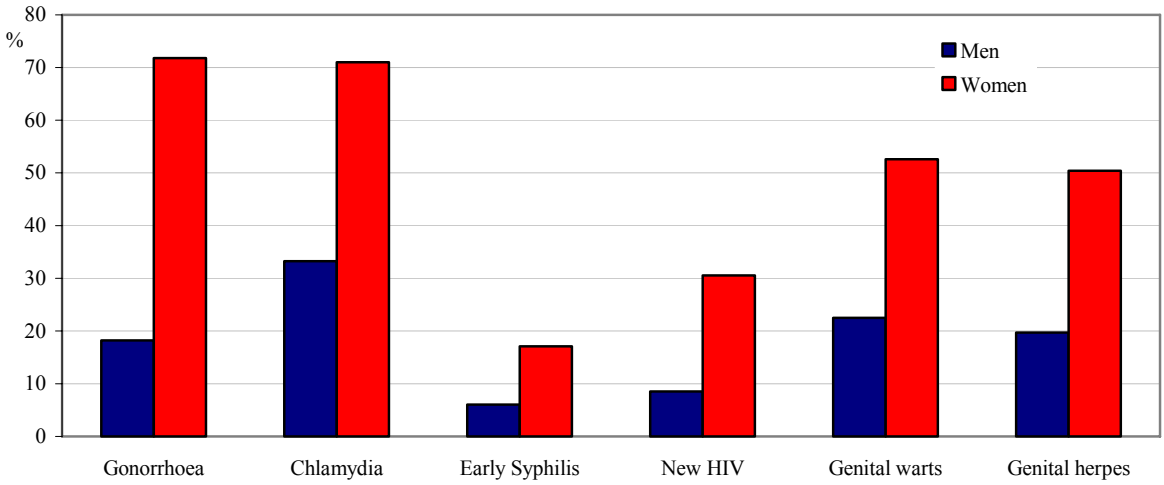


Figure 63: Proportion of total number of STI diagnosed in young people (16-24 years) by sex, STI sentinel surveillance network, 2005

For both gonorrhoea and genital chlamydial infection, the most common location in young people was urethral (75% for gonorrhoea, 95% for chlamydial infections). A history of gonorrhoea, infectious syphilis or genital chlamydial infection was reported in 13% of all cases younger than 25 years (NA Amsterdam). Of the young people with a history of STI, 76% were Dutch and 12% were Surinamese or Antillean.

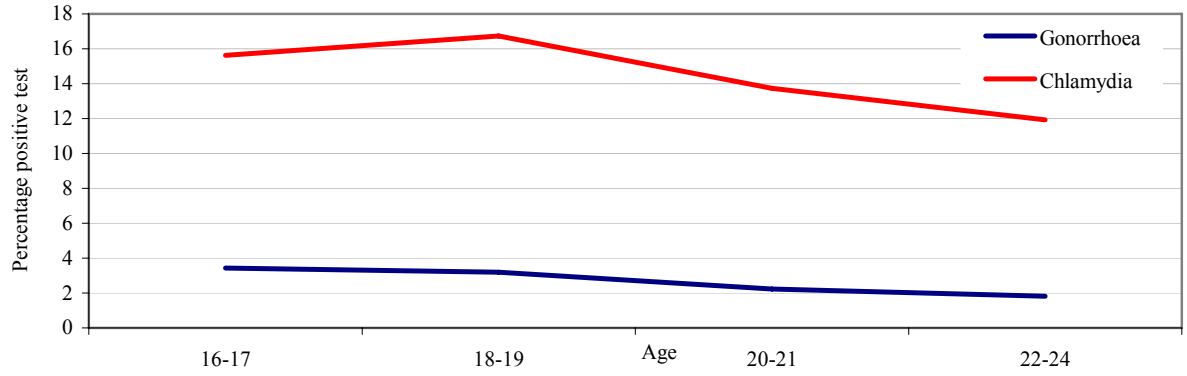


Figure 64: Percentage of positive tests results by age, STI sentinel surveillance network, 2005

Positive diagnostic rates for genital chlamydial infection in young people are in general higher than in older age groups but, lower for gonorrhoea (chlamydial infections: 10%, gonorrhoea: <4%). Rates of positive test results were the highest in the age group 18-19 years for chlamydial infections (15%) and for gonorrhoea in the age group 16-18 years with a percentage of 3.4%.

17.2 Migrant populations

Key points

- The 'traditional' ethnic minority populations, from Surinam and the Netherlands Antilles, Turkey and Morocco, accounted for 11% of the consultations; another 6% by relatively 'new' populations, for instance from sub-Saharan Africa, Eastern Europe and Latin America.
- Migrant populations accounted for a disproportionate high percentage of STI, especially of bacterial STI and HIV (higher for women than men).
- Male migrants reported more often a history of STI (25%) than Dutch men (19%); for female migrants this percentage was 21% compared to 16% in Dutch women.

Consultations

In 2005, 12120 consultations were registered in the STI sentinel surveillance network among migrant populations; 23% of all consultations. Migrants from Surinam and the Netherlands Antilles were the largest group for men and women (8%) followed by migrants from sub-Saharan Africa and other European (not Eastern) countries. In men, Turkey and Morocco, and in women, other Europe countries, also accounted for a significant part of the population. For both male and female migrants, the most important reason for consultation was having symptoms (M: 34%, F: 26%), followed by own risk behaviour in men (28%) and periodic control in women (19%). A history of STI (gonorrhoea, infectious syphilis or chlamydial infection) was reported by 18% of the migrants (M: 20%, F: 16%), with the highest percentages in Surinamese (M: 33%, F: 29%) and Antilleans (M: 37%, F: 26%). In the Dutch population this percentage was lower: 17% (M: 19%, F: 16%).

Diagnoses

Genital chlamydial infection and gonorrhoea were the most common diagnoses in migrant populations. Women from Surinam and the Netherlands Antilles accounted for 27% (n=79) of all female gonorrhoea cases and 12% (n=299) of all chlamydial diagnoses. Furthermore, 67% of these cases were diagnosed in women younger than 25 years. Men from Surinam or the Netherlands Antilles accounted for 16% (n=433) of all male chlamydial diagnoses and 14% (n=168) of the gonorrhoea cases.

Dutch men accounted for 74% of all male syphilis cases (Table D.13a); 8% were diagnosed in men from Surinam and the Netherlands Antilles; 6% in men from Latin America and Asia. Among those, a relatively high percentage was homosexually acquired: 72%, 45%, 82% and 81%, respectively.
About 61% of all diagnoses were made in migrants who never had been previously tested for HIV. This information was missing in 6%. In 3% of the cases (n= 36), the diagnosis was made in individuals who reported to have had a positive HIV test.
Rates of positive test results in migrants were slightly higher than in the Dutch population; the highest rates were found for genital chlamydial infection (M: 13%; F: 19%). For gonorrhoea, these rates were 6% and 2%, respectively.

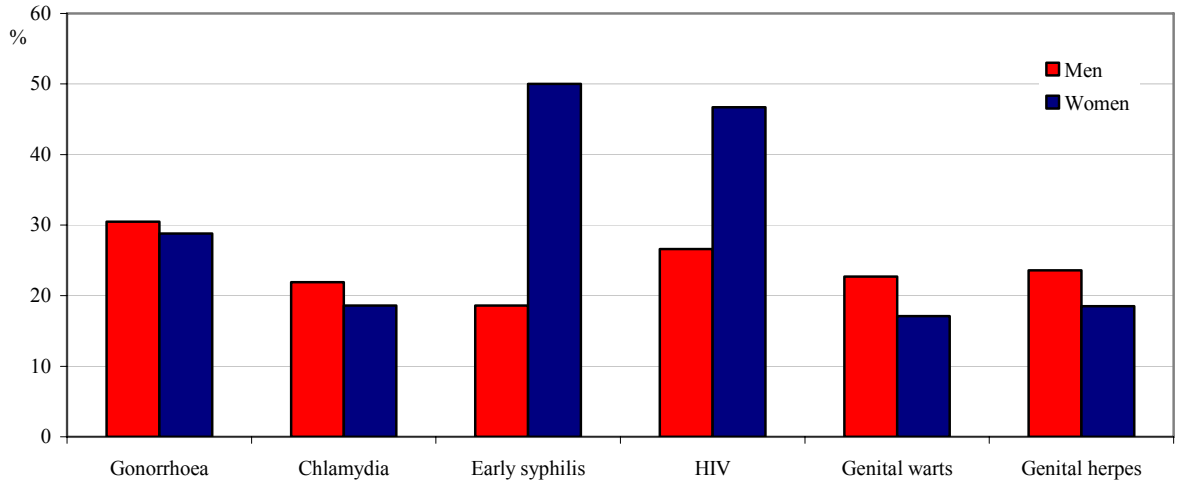


Figure 65: Proportion of total number of STI diagnosed in migrant populations by sex, STI sentinel surveillance network, 2005

17.3 Men who have sex with men

Key points

- In 2005, MSM accounted for 29% of all male consultations and for 44% of all male diagnoses.
- In 2005, 315 MSM were known HIV infected, accounting for 87% of the known HIV infected individuals registered in the STI sentinel surveillance network.
- 52% of the genital chlamydial infections in MSM were anorectal; in known HIV infected MSM 60%.

Consultations

In 2005, 7929 consultations by MSM were registered (29% of all male consultations) and increased by 3% compared with 2004. The majority of MSM was older than 30 years (>40: 29%, 30-39: 48%). In MSM the most important reason for consultation was risk behaviour (29%), followed by symptoms (28%) and uncertainty or fear (8%). Twenty two percent of the MSM were non-Dutch: 3.3% from Surinam and the Netherlands Antilles, 2% European (not East) countries and 5% from Latin America and Asia. 315 of all MSM (9%) were known HIV positives, of which more than half was 40 years or older (55%). A history of STI was reported by 38% of MSM.

Diagnoses and characteristics of infection

In total, 3279 diagnoses were made in MSM in 2005, accounting for 44% of all male diagnoses. Nineteen percent of the diagnoses of gonorrhoea, genital chlamydial infection and syphilis were made in HIV positive MSM. MSM accounted for 85% of all male syphilis diagnoses, 85% of HIV diagnoses, and 68% of gonorrhoea. For chlamydial infections, genital warts and genital herpes these percentages were lower, around 30%.

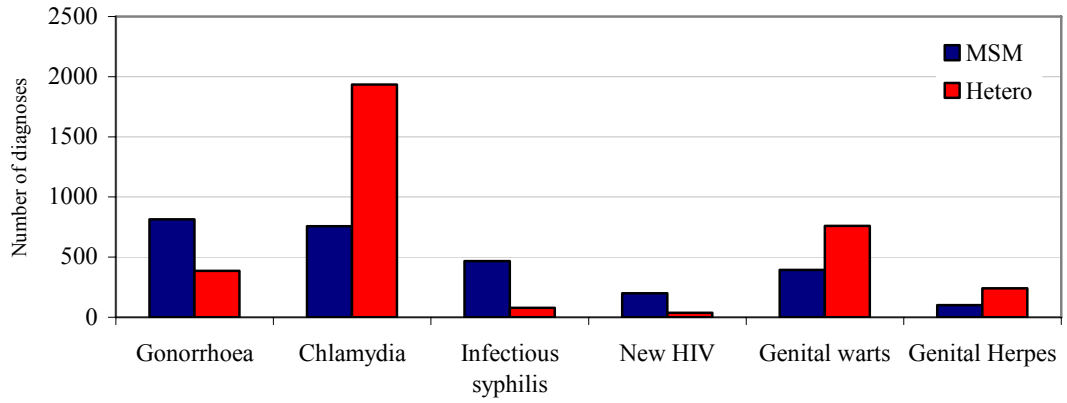


Figure 66: STI by sexual preference for men, STI sentinel surveillance network, 2005

Rates for positive test results were highest in the age groups 25-39 years. The highest rates were found in MSM with a positive test for gonorrhoea or chlamydial infections (Figure D.8). Anorectal chlamydial infection was more often diagnosed in MSM than anorectal gonorrhoea, 52% and 40%, respectively.

18. General conclusion and recommendations

HIV/AIDS

As of June 2006, a total of 11866 HIV cases were reported by 27 HIV treatment centres (including 4 children's centres) in the Netherlands. In 2005, 970 new HIV diagnoses were made. The increase of heterosexually acquired infections, as observed since 1996, was mainly due to individuals from countries with a generalized epidemic (for instance sub-Saharan Africa). After 2003, the number of diagnoses among heterosexuals declined, while the number of MSM started to rise. In 2005, the number of HIV diagnoses among MSM was as high as in 2004 and MSM remain the largest HIV infected group in the Netherlands. This group was mainly Dutch and most men acquired the HIV infection in the Netherlands. Surveillance data from other sources also suggest that HIV transmission in MSM is ongoing. HIV positivity rates among MSM attending the STI clinics in Amsterdam and Rotterdam increased up to 6% in 2005. In the STI sentinel surveillance network, HIV positivity rates among MSM showed a similar trend: 5% in 2005 (3.2% in 2003, 4.1% in 2004). Notably is the increasing median age of MSM at diagnosis. There was a significant increase of HIV diagnoses among MSM of 40 years or older, from 30% in 2000 to 47% in 2005 ($P<0.001$); suggesting that MSM might be infected at higher age. Part of the increase in the number of HIV diagnoses among MSM might be explained by more frequent testing for HIV. However, ongoing unsafe sex practices may have contributed to this increase.[82]

In contrast to the MSM population, the majority of the heterosexuals acquired the HIV infection abroad; in sub-Saharan Africa and to a lesser extent in Latin America and the Caribbean. The decline in HIV diagnoses among heterosexuals from countries with generalised epidemics is consistent with the declining number of immigrants from these countries since 2002, due to the more strict immigration policy in the Netherlands.[83] Furthermore, an increase in HIV diagnoses among Dutch heterosexuals was observed in recent years. Also, an increasing proportion of heterosexuals as well as MSM reported to have acquired the infection in the Netherlands. Among Dutch heterosexual men, unsafe sex in countries abroad (for instance Thailand) might play an important role in HIV transmission.

IDU are a relative small group within the HIV registry (5%). The number of newly diagnosed drug related infections in 2005 is also low (1%). However, anonymous unlinked surveys showed HIV prevalence rates of 11-22% among drug using commercial sex workers. The majority of the IDU in the HIV registry originates from the Netherlands or other West European countries. Despite the high HIV incidence among IDU in Eastern Europe,[84] the number of East European IDU in the HIV registry is still low (2.5%).
For more details: report 2006 HIV Monitoring Foundation.[1]

Sexually Transmitted Infections

In 2003, a new STI sentinel surveillance network was implemented in the Netherlands. In 2005, the number of new consultations increased by 5% compared to 2004. This is the sixth year in a row with an increasing number. However, it must be noted that comparison with previous years (before 2003) is hampered by the lack of comparable data. Whenever possible, comparisons are made based upon a selection of clinics of which previous data were available. Nevertheless, trends need to be interpreted with caution.

Genital chlamydial infection was the most commonly diagnosed STI in the STI sentinel surveillance network in the Netherlands in 2005. Women younger than 25 years of age represent a substantial proportion of both genital chlamydial infection and gonorrhoea, which is, to a lesser extent, also true for young men. Seventy percent of all female diagnoses of chlamydial infection and gonorrhoea are seen in women younger than 25 years. STI are a major public health problem in young people as they carry a disproportionate proportion of the burden of disease.

Compared with genital chlamydial infection, gonorrhoea tends to be a more concentrated disease among MSM (68% of male cases) and individuals with a history of STI (41% in men and 33% in women, NA Amsterdam). Specific ethnic minorities (for instance Surinam, the Netherlands Antilles and Aruba) represent a substantial proportion of both genital chlamydial infection and gonorrhoea. Migrant populations account for a disproportionate high percentage of STI (>30% of chlamydial and gonorrhoeal diagnoses), especially of bacterial STI and HIV.

In 2004-2005, the percentage of ciprofloxacin resistance in gonococci, as studied in a survey among public health laboratories, has increased rapidly again.[26] The high prevalence of resistant gonorrhoea in MSM indicates a changing epidemiology. High rates of resistance in prior data of ciprofloxacin resistance, but also in rates of penicillin or tetracycline resistance, were exclusively found in the heterosexual population.[85] These results demonstrated the need for a surveillance of gonococcal antimicrobial resistance at national level.

The rise in syphilis, as observed between 2000 and 2004, was associated with a number of outbreaks in Amsterdam, Rotterdam, The Hague, Utrecht, Groningen and Twente region. Similar outbreaks have also been reported among MSM in other European countries.[86,46,48,49,51,87,88] However, in 2005 syphilis positivity rates among MSM seemed to have stabilised; suggesting accurate prevention and intervention activities in this risk group.

Viral STI

Between 2004 and 2005, the number of diagnosed viral STI levelled off or increased slightly depending on the kind of STI. Genital warts was the most common viral STI seen in the STI sentinel surveillance network in 2005 which was the same as in 2004. The small increase in notifications of acute hepatitis B infection was observed in women only and the relative proportion of transmission by heterosexual contact has increased slightly. The interpretation

of current trends is complicated, as in coming years, effects of the behavioural risk group vaccination are to be expected on the epidemiology of hepatitis B. The campaign is monitored with an epidemiological genotyping study of all isolates of acute HBV patients in the Netherlands.

Positivity rates

Surveillance data demonstrate that the percentage of positive test results varies widely among STI and risk groups, with the highest rates found in MSM diagnosed with gonorrhoea or genital chlamydial infection. This requires further investigation. Results could contribute to design a method of pre-screening of patients that will eventually shorten waiting times at STI clinics, and subsequently the episode of disease, and will also increase the efficiency of STI clinics to see more patients in a cost effective manner. The positivity rates for different STI were approximately equal to those in 2003 and 2004 except for chlamydial infections, suggesting that the prevalence rates of STI remained fairly constant over time. In an in-depth investigation on the positivity rate of chlamydial infections, a slight increase was found. However, more sources of surveillance (for instance general practitioners) are needed to gain insight in the trend of chlamydial infections in the Netherlands.[89] Also, the HIV positivity rate among MSM increased from 3.2% in 2003 to 5.0% in 2005. We know that the number of HIV positive diagnoses was underreported in 2003, but we do not know if the HIV negative diagnoses were also underreported. Despite possible underreporting, it still might indicate a rise in HIV among MSM.

LGV

The outbreak of Lymphogranuloma venereum in the Netherlands is a highly unusual event with (inter)national implications for public health given the known sexual networks of MSM. Increases in several other STI among MSM, (for instance syphilis, rectal gonorrhoea, and quinolone resistant *N. gonorrhoeae*) have been reported before.[90,91] [92] The LGV outbreak among MSM in the Netherlands seems to have stabilised in 2005.

Concurrent STI and HIV

In 2005, 365 individuals (NA Amsterdam) registered in the STI sentinel surveillance network, were infected with HIV and were aware of their infection. This represents only 1% of the total number of consultations and is undoubtedly an underestimate of the real number due to underreporting. However, 19% of all diagnoses of gonorrhoea, chlamydial infection and syphilis in MSM are seen in known HIV infected MSM (2004: 14%) Among these, anorectal infections were seen in 60% of the chlamydial infections and in 51% of gonorrhoea. In general, MSM account for a considerable percentage of diagnoses in men (44%). More specifically, surveillance data indicate that unprotected anal intercourse is highly prevalent, as was also observed in the HIV prevention monitor among MSM.[93] In 2003, unsafe sexual practices, for instance anal sex, were more often reported than in the first Monitor in 2000.[93]

We may conclude that unsafe sex practices are ongoing in this group at risk for STI, with consequences for further spread of STI and HIV.[82]

Although STI seem to be on the rise again, as in other European countries, it must be kept in mind that the number of consultations has increased also. The prevalence rates for STI seem to be fairly stable over time with the exception of HIV.

Surveillance of STI and HIV/AIDS

The quality of the surveillance systems for both STI and HIV/AIDS in the Netherlands has improved considerably the past few years. Nevertheless, expansion of surveillance activities in some areas is needed. One of the major limitations of the current system is that most data do not represent recently acquired HIV infections, apart from the ACS and one study among MSM in Amsterdam.[94] Additional studies on recent HIV infections are needed to facilitate rapid detection of HIV transmission and to differentiate incident cases from prevalent ones in newly diagnosed HIV cases. Monitoring of resistance in gonococcal infection on a national level is required and is currently being implemented. Also, the coverage of the sentinel surveillance network for STI is not known in full detail. Studies among general practitioners are needed as well as studies on the incidence and prevalence of STI in the general population. Furthermore, the laboratory surveillance has expanded to a greater number of laboratories throughout the country. By the end of 2006, 19 laboratories will be linked to the system, so in the next few years trends can be followed more specifically.
Behavioural surveillance is being improved in our country. Currently, a pilot is being conducted within the STI surveillance network including key indicators for sexual risk behaviour. In the next surveillance reports, this new data will be included.

Recommendations

- STI show great variations in rates across populations at risk (for instance high rates in young people, MSM and migrant populations). Tailor-made prevention and intervention activities are needed for these specific groups.
- In 2000-2005, among MSM serious STI epidemics occurred simultaneously in this group. Efforts have been put into primary prevention in the past decade leading to a better understanding in the general population of STI and related risks.[81] However, these methods seem not to be effective for MSM at risk. The current situation requires innovative responses from public health. Also, prevention efforts should focus more on heterosexuals, especially men.
- As disease transmission greatly depends on the duration of infectiousness, secondary prevention should be re-enforced to ensure adequate treatment, i.e., to shorten the disease episode and to provide proper diagnostics and treatment. In 2006, the STI clinics' capacity has been improved, as launched by the Ministry of Health, Welfare

and Sports, in a national network of STI clinics. Also, innovative approaches should be realised, for example the method of pre-screening of patients.

- Currently, plans are made in the Netherlands to start a 3-year home-based screening programme for *Chlamydia trachomatis* among 16-29 years (men and women) in three regions. If this pilot project seems successful, it should be enrolled nationally to reduce the spread of chlamydia in this young age group.
- Surveillance data can be further improved, with respect to completeness and timeliness; other topics for improvement are: national surveillance of resistance in *N. gonorrhoea*, recent infections with HIV, monitoring of STI in general practitioners' offices, and behavioural surveillance.

References

1. Gras L, van Sighem A, Smit C, Zaheri S, de Wolf F. Monitoring of Human Immunodeficiency Virus (HIV) in the Netherlands, report 2006. Amsterdam, 2006.

2. Gilbart VL, Mortimer JY, Evans BG. Heterosexual transmission of HIV in Scotland. Sex Transm Infect 1998;74(4):306-7.

3. Health Protection Agency. HIV and other Sexually Transmitted Infections in the United Kingdom in 2003. An update: November 2004.

4. Veen MG van, Beuker RJ, Brito O de *et al*. HIV-surveys among high risk populations in Rotterdam 2002-2003. Bilthoven: National Institute for Public Health and the Environment (RIVM), 2005; RIVM report 441100019.

5. Veen MG van, Wagemans MAJ, Op de Coul ELM *et al*. HIV-surveys among high risk groups in Amsterdam 2003-2004. Bilthoven: National Institute for Public Health and the Environment (RIVM), 2005; RIVM report 441100021.

6. Veen MG van, Wagemans MAJ, Burg I van den, Tonino-van der Marel E, Leeuwen AP van, Laar MJW van de. HIV-surveys among high risk groups in the Hague 2005. Bilthoven: National Institute for Public Health and the Environment (RIVM), 2006; 441100023.

7. RIVM reports. Surveillance of HIV infection among injecting drug users in a number of cities in the Netherlands [in Dutch]. Bilthoven: Nationale Institute of Public Health and the Environment, 1995-2001.

8. Op de Coul ELM, Fennema JSA, Hoek JAR van der, et al. HIV-infecties en AIDS in Nederland: prevalentie en incidentie 1987-2002. Alphen aan de Rijn: Van Zuiden Communications b.v., 2003: 1-9.

9. Dutch HIV association. Checkpoint, Annual report 2005. 2006.

10. N Kalisvaart. KNCV Tuberculosis Foundation [personal communication]. 2006.

11. Bovée L, Hoek A van den. Annual Report 2005: department of Infectious Diseases. Amsterdam: Health Service Amsterdam, 2006.

12. Krol A. Overview of the Amsterdam Cohort Studies among homosexual men and drug users. Amsterdam : Health Service Amsterdam, 2006.

13. UNAIDS. 2006 Report on the global AIDS epidemic. UNAIDS may 2006.

14. European Centre for the Epidemiological Monitoring of AIDS WHO and UNAIDS Collaborating Centre on AIDS. HIV/AIDS Surveillance in Europe, Mid-year report 2005. Saint-Maurice (France): Institut de Veille Sanitaire, 2006; 72.

15. Op de Coul E, van Sighem A, van de Laar M. Schatting van het aantal volwassenen met hiv/aids in leven in Nederland in 2005. Infectieziekten Bulletin [Accepted] 2006.

16. Nardone A. Transmission of HIV/AIDS in Europe continuing. Euro Surveill 2005;10(11):E051124.1.

17. Matic S, Lazarus JV. Update on HIV/AIDS in the European Region. Ensuring universal access to prevention, treatment, care and support services. Copenhagen, 2006; Technical briefing document 01A/06.

18. UNAIDS. Report on the global HIV/AIDS epidemic, June 2004. 2004.

19. UNAIDS WHO. Workbook manual. Using the Workbook method in make HIV/AIDS estimates in countries with low-level or concentrated epidemics.

20. World Health Organization Regional Office for Europe. Centralized Information System for Infectious Diseases (CISID) [Web Page]. 2006; Available at http://data.euro.who.int/cisid/ . (Accessed 2006).

21. Health Protection Scotland. Genital herpes simplex, genital chlamydia and gonorrhoea infection in Scotland: laboratory diagnoses 1996 - 2005 [Web Page]. April 2006; Available at http://www.hps.scot.nhs.uk/Search/detail.aspx?id=5986891.

22. Health Protection Agency. Number of new diagnoses made at genitourinary medicine clinics by sex, 1996-2005. 2006; Available at http://www.hpa.org.uk/infections/topics_az/hiv_and_sti/epidemiology/datatables2005.htm.

23. Peerbooms PG, Spaargaren J, Fennema JS, Cairo I, Coutinho RA. [Increased Neisseria gonorrhoeae quinolone resistance in Amsterdam]. Ned Tijdschr Geneeskd 2001;145(39):1899-900.

24. Sarwal W, Wong T, Sevigne C, Ng LK. Increasing incidence of ciprofloxacin-resistant Neisseria gonorrhoeae infection in Canada. JAMC 2004;168(7):872-3.

25. Fenton KA, Ison C, Johnson AP *et al*. Ciprofloxacin resistance in Neisseria gonorrhoeae in England and Wales in 2002. Lancet 2003;361(9372):1867-9.

26. Koedijk FDH, Borgen K, van Loo IHM, van de Laar MJW. Gonokokken-resistentie tegen chinolonen neemt toe. 2006.

27. van Loo I. H. M., Spaargaren J., van de Laar M. J. W. Resistentie van gonokokken in Nederland; resultaten van een enquęte bij medisch-microbiologische laboratoria. Ned Tijdschr Geneeskd 2005;149(22):1217-22.

28. Konopnicki D., Mocroft A., de Wit S. *et al*. Hepatitis B and HIV: prevalence, AIDS progression, response to highly active antiretroviral therapy and increased mortality in the EuroSIDA cohort. 19. 2005:593-601.

29. Health Protection Agency. Recent trends in gonorrhoea in England, Wales, and Northern Ireland. CDR Weekly 2006;16(39).

30. van Duynhoven YTHP. The epidemiology of Neisseria gonorrhoeae in Europe. Microbes and Infection 1999;1(6):455-64.

31. Martin IM, Hoffmann S, Ison CA. European Surveillance of Sexually Transmitted Infections (ESSTI): the first combined antimicrobial susceptibility data for Neisseria gonorrhoeae in Western Europe. J Antimicrob Chemother 2006.

32. Yearly reports in EPI-NEWS . Available at http://www.ssi.dk.

33. Hoffmann S. The laboratory surveillance system of Chlamydia trachomatis and Neisseria gonorrhoeae infections in Denmark. Euro Surveill 2001;6(5):86-90.

34. Uthman A, Heller-Vitouch C, Stary A *et al*. High-frequency of quinolone-resistant Neisseria gonorrhoeae in Austria with a common pattern of triple mutations in GyrA and ParC genes. Sex Transm Dis 2004;31(10):616-8.

35. Health Protection Agency London. GRASP Annual report 2005.

36. Health Protection Scotland. Gonococcal antibiotic surveillance in Scotland (GASS): prevalence, pattern and trends in 2005. HPS Weekly Report 2006;40(11).

37. Hopkins ES, Coleman C, Kelleher M *et al*. Increasing resistance to ciprofloxacin among isolates of Neisseria gonorrhoea in Dublin. Ir Med J 2005;98(7):208-9.

38. Aramburu C *et al*. A new STI in Geneva? Ciprofloxacine resistant *Neisseria gonorrhoea*. 2004.

39. Unemo M *et al*. Neisseria gonorrhoeae 2004. Neisseria gonorrhoeae 2004. Sweden, 2005.

40. CDC. GISP Annual report 2004.

41. Annual report of the Australian Gonococcal Surveillance Programme, 2005. Commun Dis Intell 2006;30(2):205-10.

42. Laar MJW van de, Veen MG van, Coenen AJJ. Registration of STI and HIV consultations at Municipal Health Services and STI clinics: Annual report 2002. Bilthoven: National Institute for Public Health and the Environment (RIVM), 2003; RIVM report 441100015.

43. Fennema JS, Cairo I, Spaargaren J, Dukers NH, Coutinho RA. [Syphilis epidemic and an increase of the number of HIV infections among homosexual men attending the Amsterdam venereal disease clinic]. Ned Tijdschr Geneeskd 2002;146(13):633-5.

44. van de Laar MJW, van Veen MG, Götz H, Nuradini B, Meijden WI van der, Thios B. Continued transmission of syphilis in Rotterdam, the Netherlands. Eurosurveillance Weekly 2003;7:39.

45. Marcus U, Hamouda O, Kiehl W. Reported incidence of gonorrhoea and syphilis East and West Germany 1990-2000-effects of reunifications and behaviour change. Eurosurveillance Weekly 2001;5(43).

46. Cowan S. Syphilis in Denmark - Outbreak among MSM in Copenhagen, 2003-2004. Eurosurveillance Monthly 2004;9(10-12):25-7.

47. Fenton KA, Lowndes CM. Recent trends in the epidemiology of sexually transmitted

infections in the European Union. Sex Transm Infect 2004;80(4):255-63.

48. Sasse A, Defraye A, Ducoffre G. Recent syphilis trends in Belgium and enhancement of STI surveillance systems. Eurosurveillance Monthly 2004;9(10-12):6-8.

49. Couturies E, Michel A, Janier M, Dupin N, Semaille C, syphilis surveillance network. Syphilis surveillance in France, 2000-2003. Eurosurveillance Monthly 2004;9(10-12):8-10.

50. Marcus U, Bremer V, Hamouda O. Syphilis surviellance and trends of the syphilis epidemic in Germany since the mid-90s. Eurosurveillance Monthly 2004;9(10-12):11-4.

51. Cronin M, Domegan L, Thornton L *et al*. The epidemiology of infectious syphilis in the Republic of Ireland. Eurosurveillance Monthly 2004;9(10-12):14-7.

52. Zakoucka H, Polanecky V, Kastankova V. Syphilis and Gonorrhoea in the Czech Republic. Eurosurveillance Monthly 2004;9(10-12):18-20.

53. Righarts AA, Simms I, Wallace L, Solomou M, Fenton KA. Syphilis surveillance and epidemiology in the United Kingdom. Eurosurveillance Monthly 2004;9(10-12):21-5.

54. Gill N. Syphilis transmission in homo/bisexual men: New outbreak in London, continuing outbreak in Dublin. Eurosurveillance Weekly 2001;5 (010628).

55. Health Protection Surveillance Centre. Sexual Transmitted Infections 2004. Ireland, 2005.

56. Institut de veille sanitaire. Surveillance de la syphilis en France, 2000-2005. 2006.

57. Koedijk FDH, Op de Coul ELM, Boot HJ, Van de Laar MJW. Surveillance van hepatitis B in Nederland, 2002-2005. 2006.

58. Veldhuijzen IK, Smits LJ, van de Laar MJW. The importance of imported infections in maintaining hepatitis B in The Netherlands. Epidemiol Infect 2005;133(1):113-9.

59. Koedijk FDH, Op de Coul ELM. Voortgangsrapportage HBV Vaccinatiebeleid. 2006; vol 6.

60. WHO. Hepatitis B. Available at http://www.who.org/

61. World Health Organization. Factsheet hepatitis B. 2000. Available at http://www.who.org/

62. Lavanchy D. Hepatitis B virus epidemiology, disease burden, treatment, and current and emerging prevention and control measures. J Viral Hepat 2004;11(2):97-107.

63. Hou J, Liu Z, Gu F. Epidemiology and Prevention of Hepatitis B Virus Infection. Int J Med Sci 2005;2(1):50-7.

64. Koedijk FDH, Op de Coul ELM, van de Laar MJW. Aangifte acute hepatitis B 2004. Infectieziekten Bulletin 2005;16(8):296-8.

65. Gjorup IE, Smith E, Borgwardt L, Skinhoj P. Twenty-year survey of the epidemiology of

hepatitis B in Denmark: effect of immigration. Scand J Infect Dis 2003;35(4):260-4.

66. Hahne S, Ramsay M, Balogun K, Edmunds WJ, Mortimer P. Incidence and routes of transmission of hepatitis B virus in England and Wales, 1995-2000: implications for immunisation policy. J Clin Virol 2004;29(4):211-20.

67. Swedish Institute for Infectious Disease Control . Hepatitis B. Available at http://gis.smittskyddsinstitutet.se/mapapp/build/11-104000/table/Hepatitis_B_eng_year_all.html.

68. Centre for the Evaluation of Vaccination. WHO Collaborating Center for Control and Prevention of Viral Hepatitis. Unit of Epidemiology and Social Medicine. University of Antwerp. Surveillance and Prevention of Vaccine Preventable Hepatitis. Data on surveillance and prevention of hepatitis A and B in 22 countries 1990's-2001. Available at EUROHEP.NET. (Accessed 2005).

69. Iwarson S. Why the Scandinavian countries have not implemented universal vaccination against hepatitis B. Vaccine 1998;16 Suppl:S56-7.

70. Salleras L, Dominguez A, Bruguera M *et al*. Dramatic decline in acute hepatitis B infection and disease incidence rates among adolescents and young people after 12 years of a mass hepatitis B vaccination programme of pre-adolescents in the schools of Catalonia (Spain). Vaccine 2005;23(17-18):2181-4.

71. Mele A, Stroffolini T, Zanetti AR. Hepatitis B in Italy: where we are ten years after the introduction of mass vaccination. J Med Virol 2002;67(3):440-3.

72. Magdzik WW. Hepatitis B epidemiology in Poland, Central and Eastern Europe and the newly independent states. Vaccine 2000;18 Suppl 1:S13-6.

73. CDC. Incidence of acute hepatitis B-United States, 1990-2002. MMWR 2004;52:1252-4.

74. Ni YH, Chang MH, Huang LM *et al*. Hepatitis B virus infection in children and adolescents in a hyperendemic area: 15 years after mass hepatitis B vaccination. Ann Intern Med 2001;135(9):796-800.

75. Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance, 2003. Atlanta, GA: U.S. Department of health and Human Services, 2004.

76. Pebody RG, Andrews N, Brown D *et al*. The seroepidemiology of herpes simplex virus type 1 and 2 in Europe. Sex Transm Infect 2004;80(3):185-91.

77. Smith JS, Robinson NJ. Age-specific prevalence of infection with herpes simplex virus types 2 and 1: a global review. J Infect Dis 2002;186 Suppl 1:S3-28.

78. Centers for Disease Control and Prevention. STD Surveillance 2003. 2004; Available at http://www.cdc.gov/std/stats/tablesselected.htm. (Accessed October 2005).

79. Van de Laar MJW, Koedijk FDH, Gotz HM, de Vries HJC. A slow epidemic of LGV in the Netherlands in 2004 and 2005. Eurosurveillance Monthly 2006;11(9).

80. Spaargaren J, Fennema HS, Morre SA, de Vries HJ, Coutinho RA. New lymphogranuloma

venereum Chlamydia trachomatis variant, Amsterdam. Emerg Infect Dis 2005;11(7):1090-2.

81. Bakker F, Vanwesenbeeck I, Zimbile F. Veilig vrijen en condoomgebruik bij jongeren en jongvolwassenen. Stand van zaken augustus 2003 en ontwikkelingen sinds september 1987. Rutgers Nisso Group, 2003.

82. Hospers HJ, Dörfler TT, Zuilhof W. Schorer Monitor 2006. 2006.

83. European Centre for the Epidemiological Monitoring of AIDS WHO and UNAIDS Collaborating Centre on AIDS. HIV/AIDS Surveillance in Europe, End-year report 2004. Saint-Maurice (France): Institut de Veille Sanitaire, 2005; ISSN: 1025-8965.

84. de Boer IM, Op de Coul ELM, Beuker RJ, de Zwart O, Al Taqatqa W, van de Laar MJW [Trends in HIV prevalence and risk behaviour among injecting drug users in Rotterdam, I994-2002]. Ned Tijdschr Geneeskd 2004;148(47):2325-30.

85. Rudd E, Fenton K, Ison C. Ciprofloxacin resistant gonorrhoea in England and Wales - a changing epidemiology? Eurosurveillance Weekly 2004;8 (33).

86. Marcus U, Hamouda O. Syphilis in Germany, 2004: diagnoses increasing, particularly in smaller cities and rural areas. Eurosurveillance Weekly 2005;10 (7).

87. Lynch A, Smyth B. Syphilis outbreak in Northern Ireland. Eurosurveillance Weekly 2003;7:24.

88. CDSC. Trends in infectious syphilis; update on national data to 2003 and current epidemiological data from the London outbreak. CDR Weekly 2004;31.

89. de Boer IM, Veldman-Ariesen MJ, Laar MJW van de. Trends in Chlamydia trachomatis: Data from the STI surveillance and laboratory surveillance 2001-2005 [in Dutch].

90. Centers for Disease Control and Prevention. Primary and secondary syphilis--United States, 2002. MMWR 2003;52:1117-20.

91. Rietmeijer CA, Patnaik JL, Judson FN, Douglas JM. Jr. Increases in gonorrhea and sexual risk behaviors among men who have sex with men: a 12-year trend analysis at the Denver Metro Health Clinic. Sex Transm Dis 2003;30(7):562-7.

92. Laar MJW van de, Götz HM, Zwart O de *et al*. Lymphogranuloma Venereum Among Men have Sex with Men - - The Netherlands; 2003-2004. MMWR 2004;53(42):985-8.

93. Hospers HJ, Dorfler TT, Zuilhof W. Monitoronderzoek 2003. Amsterdam: Schorerstichting, 2003.

94. Ameijden EJC van, Coutinho RA. Maximum impact of HIV prevention measures targeted at injecting drug users. AIDS 1998;12(6):625-33.

95. Rijlaarsdam J, Bosman A, van de Laar MJW. SOA-surveillance in Nederland. Bilthoven: RIVM, 2000; RIVM rapport 441500010.

96. van de Laar MJW. Gebruik van SOAP in de SOA-surveillance. Infectieziekten Bulletin 2004;15(8):291-3.

97. Gotz HM, Ossewaarde JM, Nieuwenhuis RF *et al*. [A cluster of lymphogranuloma venereum among homosexual men in Rotterdam with implications for other countries in Western Europe]. Ned Tijdschr Geneeskd 2004;148(9):441-2.

98. Götz H, Nieuwenhuis R, Ossewaarde T *et al*. Preliminary report of an outbreak of Lymphogranuloma venereum in homosexual men in the Netherlands, with implications for other countries in Western Europe. Eurosurveillance Weekly 2004.

99. van de Laar MJW, Götz HM, Fennema JSA *et al*. Epidemie van zeldzame SOA onder homoseksuele mannen: gevolgen voor de volksgezondheid. SOA Aids Magazine 2004;1:6-7.

100. Stichting HIV Monitoring. Jaarverslag 2005. 2006.

101. UNAIDS WHO. Overview of making estimates of HIV/AIDS and its impact in countries with low-level or concentrated epidemics: The Workbook Method. The models and methodology of the UNAIDS/WHO approach to estimating and projecting national HIV?AIDS epidemics. The UNAIDS Reference Group on Estimaties, Models and Projections, 2003.

102. Laar MJW van de, Boer IM de, Koedijk FDH, Op de Coul ELM . HIV and Sexually Transmitted Infections in the Netherlands in 2004. An update: November 2005. Bilthoven: National Institute for Public Health and the Environment, 2005; RIVM Report 441100022/2005.

103. Downs AM, Heisterkamp SH, Rava L, Houweling H, Jager JC, Hamers FF. Back-calculation by birth cohort, incorporating age-specific progression, pre-AIDS mortality and change in European AIDS case definition. AIDS 2000;14:2179-89.

104. Ouwehand AW , Alem VCM van, Mol A, Boonzajer Flae S. Kerncijfers verslavingszorg 2002. Houten: Stichting Informatievoorziening zorg, 2003.

105. van Brussel GHA, Buster MCA. OGGZ Monitor Amsterdam '02'03'04. Amsterdam, 2005.

106. Trimbos Instituut. Nationale drugmonitor. Jaarbericht 2003. Amsterdam.

107. Dutch HIV association. Checkpoint, annual report 2003. Amsterdam, 2004.

108. Veugelers PJ, Van Zessen G, Hendriks JC, Sandfort TG, Coutinho RA, Van Griensven GJ. Estimation of the magnitude of the HIV epidemic among homosexual men: utilization of survey data in predictive models. Eur J Epidemiol 1993;9(4):436-41.

109. Sandfort T, Vroome Ed. Homoseksualtiteit in Nederland: een vergelijking tussen aselecte groepen homoseksuele en heteroseksuele mannen. Tijdschrigt Voor Seksuologie 1996;20(3):232-45.

110. Laluan E, Mheen D van de. Klassieke risicogroepen hepatitis B. Omvangschattingen van homoseksuele mannen, prostitué(e)s, druggebruikers en bezoekers van SOA-

poliklinieken. Rotterdam, 2002.

111. Thiesbrummel HFJ. GGD Amsterdam SOA/HIV jaarrapportage 2005. Amsterdam, GGD Amsterdam.

112. Statistics Netherlands. Population 2005. May 2006; Available at http://statline.cbs.nl. (Accessed October 2006).

113. Walker N, Stanecki KA, Brown T *et al*. Methods and procedures for estimating HIV/AIDS and ints impact: the UNAIDS/WHO estimates for the end of 2001. 17. 2003:2215-25.

114. McGarrigle CA, Cliffe S, Copas AJ *et al*. Estimating adult HIV prevalence in the UK in 2003: the direct method of estimation. Sex Transm Infect 2006;82 Suppl 3:iii78-86.

115. Gezondheidsraad. Beraadsgroep Infectie en immuniteit. Herziening van het HIV testbeleid. 1999;2.

116. de Boer IM. Unpublished preliminary data (STI network) 2006.

Appendix A. Sources of STI and HIV/AIDS surveillance in the Netherlands

Surveillance	Institute	Monitoring of:	Period	In collaboration with	Number of cases (year)
HIV/AIDS registry	HIV Monitoring Foundation	HIV cases, AIDS cases, deaths (follow-up data)	2002 - present	HIV treatment centres, laboratory, RIVM	± 1000 HIV diagnoses ± 250-300 AIDS cases ± 120-130 deaths
STI sentinel surveillance network (SOAP)	RIVM	Consultations HIV and STI diagnoses determinants	2003 - 2005	STI clinics, MHS	40000-60000 consultations
Anonymous unlinked HIV surveys risk groups (migrants, CSW, clients of CSW, IDU)	RIVM	HIV infections, determinants	2002 - present	Various MHS and other organisations	Number of participants per survey ± 1500
Anonymous unlinked HIV surveillance STI clinics Amsterdam and Rotterdam	STI clinic, MHS Amsterdam STI clinic, EMC Rotterdam, MHS the Hague	HIV prevalence determinants	1991 - present		2500-3500 participants
Screening pregnant women	RIVM	2004 : HIV infections 1976 : HBV 1960 : Syphilis	NA	Regional vaccination bureaus	100000 women
ISIS laboratory surveillance	RIVM	Tests and diagnoses gonorrhoea, chlamydia, syphilis, HIV	2000 - present	ISIS laboratory	12-14000 tests
Continuous Morbidity Registry (CMR)	NIVEL	HIV/AIDS consultation	1988 - present	General practitioners	200-300 HIV consultations
Screening blood donors	Sanquin	HIV, HBV, Syphilis	1986 - present	Blood banks	± 45000-50000 donors
HBV notifications	Health Inspectorate RIVM	HBV, determinants	1976 - present	MHSs	200-300 acute cases
Behavioural surveillance Surveillance of STI in general practitioners (to be implemented)	RIVM			SOA AIDS Nederland NHG,NIVEL, RNG	

Appendix B. Methods of surveillance

HIV/AIDS registry

From January 2002, a new HIV/AIDS reporting system became the backbone of the HIV surveillance in the Netherlands. From this date, data of all newly diagnosed HIV infected individuals were collected by the HIV Monitoring Foundation (HMF). The goal of the HMF is to monitor HIV infected individuals seen in 28 HIV treatment centres (including 4 children's centres) in the Netherlands to study changes in the epidemic, the natural history of HIV and the effects of treatment.

The HIV/AIDS registry in the Netherlands is different from that in other European countries, as registered individuals form a cohort that is followed prospectively from the time of diagnosis. HIV infected individuals who were diagnosed prior to the start of the HMF, were included in the cohort retrospectively. The HMF largely follows the organisational structure that had been established for monitoring HIV in the ATHENA project, a clinical study following HIV infected individuals who are treated with HAART. The HIV cases diagnosed before 1996 only includes persons who survived up to the start of the ATHENA project in 1996. The epidemiological data on newly diagnosed HIV infections, as well as trends in new AIDS diagnoses after 2000, are reported in collaboration with the SU at the RIVM.

Between 1987 and 2002, AIDS cases were reported to the Inspectorate of Health (national AIDS registry, IGZ). Physicians voluntarily reported AIDS cases by using standardized report forms. With the start of the HIV/AIDS monitoring system in 2002 by the HMF, the national AIDS registry was ended. In this report, AIDS cases from 1999 or earlier are obtained from the AIDS registry. After 2000, AIDS cases from the HMF monitoring system were used since the AIDS registry was incomplete between 2000 and 2002. Data on deaths among HIV patients (including AIDS patients) were obtained through the HMF (≥2002 and previously from National Statistics Netherlands (CBS) <2002).

Anonymous unlinked HIV Surveys

Between 1994 and 2003, 16 HIV surveys among IDU were carried out in 9 areas. In 2002, new anonymous unlinked HIV surveys were initiated among migrant populations from HIV endemic areas (sub-Saharan Africa, Surinam, and the Netherlands Antilles), commercial sex workers (CSW), and their clients. The objectives of the HIV surveys are: (1) to assess the prevalence of HIV infection and the status of risk behaviour and (2) to monitor trends in the prevalence over time in repeated surveys and (3) to assess the potential for further spread to the general population. The surveys are conducted in collaboration with municipal health services and local organisations for CSW, IDU and migrant populations. Professionally

instructed interviewers carry out fieldwork in line with facility-based sampling procedures. This method entails recruiting population members from a variety of facilities frequented by the target population. Participation in the survey is voluntary and anonymous. Data on sexual behaviour, travel, HIV and STI testing history and injecting drug behaviour are collected within each survey. A saliva sample is collected for an HIV antibody test. The HIV surveys are approved by the Medical Ethics Committee of the University Medical Centre in Utrecht.

Other sources

HIV surveillance among STI clinic attendees is conducted since 1991 in Amsterdam and since 1994 in Rotterdam. In Amsterdam, two cross sectional studies including 1000 visitors each are conducted every year. In Rotterdam, visitors are included during the whole year (opting-out principle). Since 1997, HIV testing is promoted at all STI clinics in the Netherlands as part of an active HIV testing policy that was implemented following the accessibility of HAART.

The only nationwide HIV serosurveillance in the Netherlands is that of blood donors and pregnant women. Standard HIV screening is offered to all pregnant women since January 2004. The test is offered in the first trimester of pregnancy as part of the prenatal screening that includes also hepatitis B (since 1976) and syphilis (since 1960). In Amsterdam, pregnant women are tested for HIV from 1988 onwards in a sentinel surveillance study in two hospitals and an abortion clinic. Since 2003, all pregnant women in Amsterdam are screened for HIV.

HIV incidence data are obtained from the Amsterdam Cohort Studies (ACS) on HIV/AIDS, which started in 1984 among MSM and in 1985 among IDU. These cohorts give insight in HIV rises in an early state and are needed for prevention activities to respond effectively to the HIV epidemic. From 1995 and 1998, special recruitment started among young (<30 years) MSM and IDU, respectively. However, since April 2006 participation is open again for MSM of all ages with at least one sexual partner in the preceding 6 months. The ACS is a collaboration of the MHS, the Academic Medical Centre (AMC) and the CLB division of the Sanquin blood supply foundation in Amsterdam [www.amsterdamcohortstudies.org].

STI surveillance

Background

Until 2003 STI surveillance in the Netherlands consisted of the notification data for gonorrhoea, infectious syphilis (1976-1999), acute hepatitis B virus infections (1976-present), chronic hepatitis B virus infections (1999-present), the STI registration of consultations at public health services (1984-2002), and the registration of diagnoses at the free STI clinics and a number of low-threshold STI clinics (1991-2002). The notification data of gonorrhoea and infectious syphilis were considered to be the most reliable source in surveillance and to monitor trends in disease. The annual reports of the national STI registration and the STI

clinic in Amsterdam provided additional information on the determinants of transmission and risk groups.
On request of the Inspectorate of Health, a national working group reviewed the Dutch STI surveillance system and recommended the Ministry of VWS upon the future structure of the system[95]: a STI sentinel surveillance network was to be implemented, consisting of six free STI clinics and a number of public health services outside the large cities. Furthermore, the STI surveillance also should include the notification data of hepatitis B and the data of the laboratory surveillance of gonorrhoea, genital chlamydial infection and infectious syphilis. Additionally, it was suggested that the contribution of general practitioners in diagnosis and treatment of STI in the Netherlands needed to be reviewed with the objective to design a future STI monitor. Finally, a prevalence study of STI was recommended to assess the sensitivity of the STI surveillance in the Netherlands. In 2002, the RIVM was assigned to implement the new STI surveillance, with the STI sentinel surveillance network to be realised first.

STI sentinel surveillance network
The STI sentinel surveillance network was implemented in January 2003 after intensive preparation by various partners in the STI field in the Netherlands: the National Institute for STI and AIDS Control in the Netherlands (SOA AIDS Nederland), Netherlands Association for Community Health Services (GGD Nederland; for the public health services), STI clinic of Amsterdam (GGD Amsterdam; for the STI clinics), and the RIVM. Specific STI surveillance objectives were formulated by using the CDC evaluation guidelines (for instance quantity, comprehensiveness, simplicity, flexibility, representativeness of risk groups). A minimum set of epidemiological data was chosen and STI services were selected to meet the surveillance objectives. The unity of reporting is a ‘new consultation’, for instance an individual attends because of a new disease episode, which is not related to previous health conditions, and medical examination or laboratory testing is carried out.
The STI sentinel surveillance network consists of 13 participants. The sentinel network covers on average 80% of all consultations and 88% of all STI diagnoses as registered in the former STI registration. The reporting of consultations is facilitated by a web based application (SOAP). Individual reports contain epidemiological, clinical data and test results on a wide range of STI. SOAP was implemented at April 1, 2003. In 2004 a survey was carried out to study the satisfactoriness of SOAP and the timeliness in reporting. It was demonstrated that the timeliness of reporting (= days between date of consultation and date of reporting to RIVM) has decreased from on average 105 days in April 2003 to 22 days in March 2004.[96]

In this report, the results of the second year of the STI sentinel surveillance network are presented with respect to the number and nature of new consultations and diagnoses. We focus on the major STI, for instance genital chlamydial infection, gonorrhoea, infectious syphilis, viral STI and HIV infection.

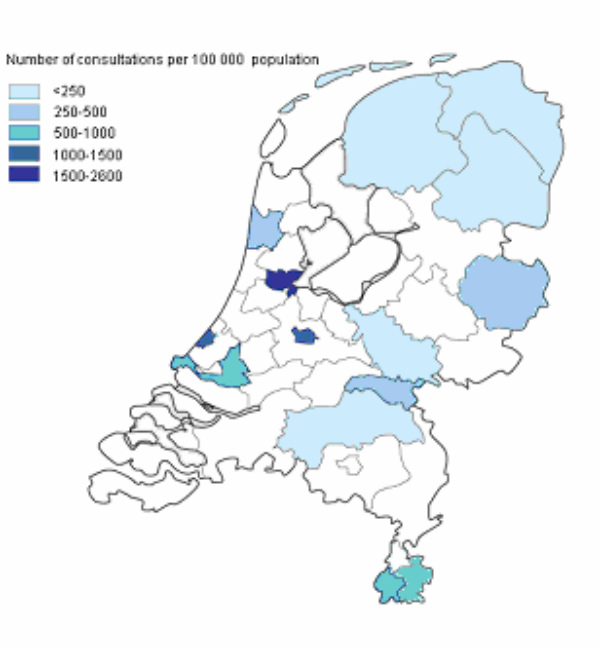


Figure B.1: Number of consultations per 100000 population, the STI sentinel surveillance network, the Netherlands, 2005

Limitations of data

Many consultations are reported, also consultations in which only information is acquired by a client. A selection was made of 'new consultations' in which laboratory research was done or a diagnosis was made. In 2003, this selection was not done, so data over 2003 can be different from data reported in earlier reports. Comparison of trends with previous years is hampered because the data of 2003 are incomplete for two large STI clinics due to initial technical difficulties and problems with the new surveillance system. For the years before 2003 data are not available for all participants of the STI sentinel network. For comparing trends in this report, a selection was made of clinics of which previous data were available. Nevertheless, trends should be interpreted with caution.

For the international comparison data were used from the CISID-database, in which notifications per 100000 per country are presented. It is unknown how the various countries calculated their data which hampers comparison of numbers. However, trends can still be seen in these data. Furthermore, not all countries reported every year. For the different STI a selection was made based on the geography and consistence of reporting. Other sources for international data are from the literature. This is limited because in most countries STI are not notifiable.

Data from Municipal Health Service Amsterdam (GGD Amsterdam)
Since April 2004 the Municipal Health Service (MHS) of Amsterdam implemented a new reporting system. Due to technical problems, the 2004 data for the MHS of Amsterdam are still incomplete. Minimal under- or over reporting exists in numbers of consultations and diagnoses. Furthermore, it was not possible yet to extract HIV status, ever STI, client of CSW and injecting drug use.

Notification of hepatitis B
The compulsory notification of newly diagnosed acute hepatitis B virus infections (since 1976) and chronic HBV infections (since April 1999) includes epidemiological data on the occurrence of disease within specific risk groups. Since 2002, all public health services notify HBV cases by using the web based application Osiris.

Laboratory surveillance of STI
The laboratory surveillance, as part of the Infectious Diseases Information System (ISIS), collects data on gonorrhoea, genital chlamydial infection and HIV with the objective to monitor trends and to detect changes in an early state (early warning). Data from all participating laboratories, including positive and negative test results, are obtained electronically overnight. Also a unique identifier, sex, date of birth, date of sampling, place of residence, material of sample and origin of sample are sent to ISIS. Reports are generated automatically; tables and reports are updated daily on the website.

Case definition
A surveillance diagnosis for each disease was formulated based on the specific diagnostic tests. Also, a period is established in which an individual can be counted positive only once and to allow re-infection after that specific period. The surveillance diagnoses of STI are described in the specific chapters on STI in this report.

Limitations of the data
The current laboratory surveillance is a (convenience) sample based system and has not been implemented nationally yet. Laboratory surveillance covers now approximately 2.2 million people in the Netherlands (total population: 16 million) and is expected to expand to cover 6-7 million people in 2006. In 2000 – 2005, the number of participating laboratories changed. For this report, laboratories are only included if they participated incessantly in the surveillance. In 2001, a large laboratory was included and in May 2005 a large laboratory was disconnected due to technical problems. To interpret the data positivity rates are calculated based on number of diagnoses divided by number of tests.

Enhanced surveillance of LGV

In December 2003, a cluster of LGV cases was reported in Rotterdam among, predominantly HIV infected MSM.[97,98] This is a highly unusual event with (inter) national implications for public health given the known sexual networks of MSM. Following the initial report, a team was formed to coordinate control and prevention activities. Alerts were sent to STI and HIV clinics, gastroenterologists and public health services. An LGV awareness campaign was targeted at the specific MSM subgroup via gay websites, e-mail newsletters and leaflets in gay venues.[99] The RIVM started an enhanced surveillance of LGV to assess the size and nature of this outbreak. The enhanced surveillance of LGV is currently being evaluated in the Netherlands.[79]

Appendix C. Tables and figures HIV/AIDS surveillance

HIV cases (total population)

Table C.1: Number of HIV cases, by region and sex

Region	Men (%)	Women (%)	Total (%)
Amsterdam	4149 (45%)	890 (33%)	5039 (42%)
North	517 (6%)	191 (7%)	708 (6%)
East	746 (8%)	221 (8%)	967 (8%)
South	885 (10%)	358 (13%)	1238 (10%)
West	2873 (31%)	1041 (39%)	3914 (33%)
Total	9170	2696	11866

Table C.2: Number of HIV cases, by sex and transmission risk group

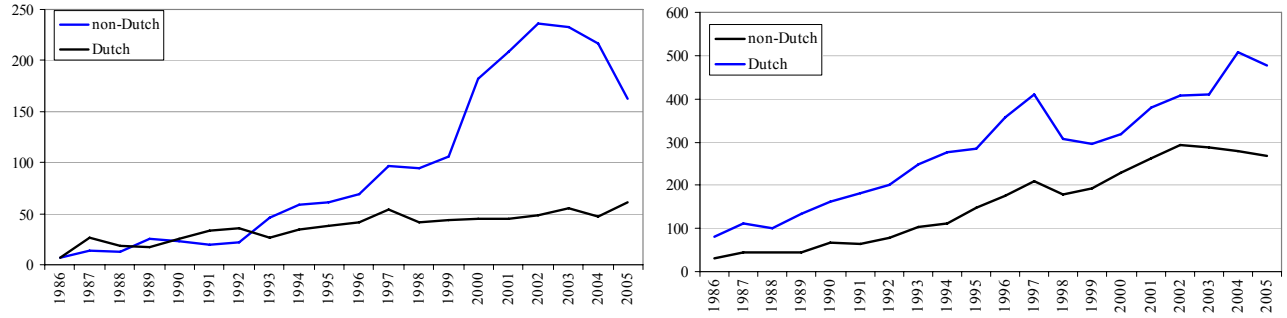
Transmission risk group	Men (%)	Women (%)	Total (%)
MSM	6211 (68%)	0 (0%)	6211 (52%)
Heterosexual contact	1643 (18%)	2291 (85%)	3934 (33%)
IDU	438 (5%)	158 (6%)	596 (5%)
Blood (products)	111 (1%)	56 (2%)	167 (1%)
Mother to child	66 (1%)	60 (2%)	126 (1%)
Needle stick injury	19 (0.2%)	8 (0.3%)	27 (0.2%)
Other/NK	682 (7%)	123 (5%)	805 (7%)
Total	9170	2696	11866

NK: not known

Table C.3: Number of HIV cases, by sex and region of origin

Region of origin	Men (%)	Women (%)	Total (%)
The Netherlands	5929 (65%)	762 (28%)	6691 (56%)
Western Europe	629 (7%)	146 (5%)	775 (7%)
Central Europe	134 (1%)	28 (1%)	162 (1%)
Eastern Europe	46 (0.5%)	13 (0.5%)	59 (0.5%)
Sub-Saharan Africa	888 (10%)	1206 (45%)	2094 (18%)
Caribean	294 (3%)	138 (5%)	434 (4%)
Latin America	624 (7%)	224 (8%)	848 (7%)
North America	163 (2%)	7 (0.3%)	170 (2%)
North Africa & Middle East	106 (1%)	27 (1%)	133 (1%)
Australia & New Zealand	26 (0.3%)	1 (0.04%)	27 (0.2%)
Oceania & Pacific	27 (0.3%)	4 (0.2%)	31 (0.3%)
South (East) Asia	244 (3%)	132 (5%)	376 (3%)
NK	60 (0.7%)	8 (0.3%)	68 (0.6%)
Total	9170	2696	11866

NK: not known



Footnote: only HIV patients with a known date of diagnosis are included (ATHENA: 1996-2001, national registration from 2002 to date)

Figure C.1: Number of HIV cases, by origin (Dutch / non-Dutch), year of HIV diagnosis and sex (left: M, right: women)

Table C.4: Number of HIV cases, by age group and sex

Age group	Men (%)	Women (%)	Total (%)
<15	86 (0.9%)	71 (3%)	157 (1%)
15-19	115 (1%)	189 (7%)	313 (3%)
20-24	638 (7%)	450 (17%)	1088 (9%)
25-29	1363 (15%)	634 (24%)	1997 (17%)
30-39	3810 (42%)	920 (34%)	4730 (40%)
40-49	2150 (23%)	282 (10%)	2432 (20%)
≥ 50	1007 (11%)	140 (5%)	1147 (10%)
NK	1 (0%)	1 (0%)	2 (0%)
Total	9170	2696	11866

NK: not known

Table C.5: Number of HIV cases, by transmission risk group and age group

Age group	MSM	Heterosexual contact	IDU	Blood (prod.)	Mother to child	Needle stick injury	Other/ NK	Total
<15	0 (0%)	4 (0.1%)	0 (0%)	19 (11%)	123 (98%)	0 (0%)	11 (2%)	157 (1%)
15-19	44 (0.7%)	208 (5%)	17 (3%)	13 (8%)	1 (1%)	0 (0%)	30 (4%)	313 (3%)
20-24	429 (7%)	495 (13%)	81 (14%)	18 (11%)	0 (0%)	2 (7%)	63 (8%)	1088 (9%)
25-29	963 (16%)	768 (20%)	115 (19%)	28 (17%)	0 (0%)	2 (7%)	121 (15%)	1997 (17%)
30-39	2641 (43%)	1477 (38%)	256 (43%)	54 (32%)	0 (0%)	8 (30%)	294 (37%)	4730 (40%)
40-49	1492 (24%)	626 (16%)	117 (20%)	16 (10%)	0 (0%)	6 (22%)	175 (22%)	2432 (21%)
≥ 50	642 (10%)	356 (9%)	10 (2%)	19 (11%)	0 (0%)	9 (33%)	111 (14%)	1147 (10%)
NK	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (2%)	0 (0%)	0 (0%)	2 (0%)
Total	6211	3934	596	167	126	27	805	11866

NK: not known

Table C.6: Median age (years) of HIV cases, by region of origin and sex

Region of origin	Men (age/IQR)	Women (age/IQR)	Total (age/IQR)
The Netherlands	37.5 (31.4-44.9)	31.3 (25.1-41.0)	37.0 (30.6-44.6)
Western Europe	33.8 (28.9-40.5)	30.1 (26.1-35.6)	33.1 (28.1-40.0)
Sub-Saharan Africa	33.3 (27.4-38.3)	28.5 (23.7-34.0)	30.6 (24.8-36.0)
Caribbean	33.0 (28.6-39.5)	30.9 (24.4-39.1)	32.4 (27.0-39.4)
Latin America	33.8 (28.4-40.0)	30.9 (26.5-37.9)	33.2 (27.8-39.5)
South (East) Asia	35.8 (28.9-43.5)	30.5 (27.7-34.6)	33.0 (28.5-40.3)

IQR: interquartile range

Table C.7: Number of HIV cases, by region and transmission risk group

Transmission risk group	Amsterdam	North	East	South	West	Total
MSM	3119	314	495	546	1737	6211
	(50%)	(5%)	(8%)	(9%)	(28%)	(52%)
Heterosexual contact	1210	312	354	509	1549	3934
	(31%)	(8%)	(9%)	(13%)	(39%)	(33%)
IDU	283	34	33	94	152	596
	(47%)	(6%)	(5%)	(16%)	(25%)	(5%)
Blood (products)	44	9	10	13	91	167
	(26%)	(5%)	(6%)	(8%)	(54%)	(1%)
Mother to child	45	7	0	1	73	126
	(36%)	(6%)	(0%)	(0.8%)	(58%)	(1%)
Needle stick injury	13	0	6	1	7	27
	(48%)	(0%)	(22%)	(4%)	(26%)	(0.2%)
Other/NK	325	32	69	74	305	805
	(40%)	(4%)	(9%)	(9%)	(38%)	(7%)
Total	5039	708	967	1238	3914	11866

NK: not known

Table C.8: Number of HIV cases, by year of diagnosis and transmission risk group

	≤1998	1999	2000	2001	2002	2003	2004	2005
MSM	3142	326	344	401	444	429	512	501
	(58%)	(51%)	(44%)	(45%)	(45%)	(44%)	(49%)	(52%)
Heterosexual	1255	235	360	379	427	429	419	374
contact	(23%)	(37%)	(46%)	(42%)	(43%)	(44%)	(40%)	(39%)
IDU	487	20	13	18	15	23	10	10
	(9%)	(3%)	(2%)	(2%)	(2%)	(2%)	(1%)	(1%)
Blood	116	8	6	9	11	8	4	3
(products)	(2%)	(1%)	(1%)	(1%)	(1%)	(0.8%)	(0.4%)	(0.3%)
Mother to child	40	7	12	18	13	19	11	6
	(0.7%)	(1%)	(2%)	(2%)	(1%)	(2%)	(1%)	(0.6%)
Needle stick	8	3	1	1	5	2	3	3
injury	(0.2%)	(0.5%)	(0.1%)	(0.1%)	(0.5%)	(0.2%)	(0.3%)	(0.3%)
Other/NK	329	39	39	69	70	77	93	73
	(6%)	(6%)	(5%)	(8%)	(7%)	(8%)	(9%)	(8%)
Total	5377	638	775	895	985	987	1052	970

NK: not known

Table C.9: Number of HIV cases, by region of origin and transmission group

Transmission risk group	The Netherlands	Sub-Saharan Africa	Surinam	Neth. Antilles/ Aruba	Western Europe
MSM	4579 (68%)	80 (4%)	162 (32%)	140 (40%)	472 (61%)
Heterosexual contact	1174 (18%)	1718 (82%)	295 (57%)	170 (49%)	130 (17%)
IDU	395 (6%)	7 (0.3%)	19 (4%)	9 (3%)	99 (13%)
Blood (products)	83 (1%)	50 (2%)	5 (1%)	2 (0.6%)	5 (0.7%)
Mother to child	82 (1%)	33 (2%)	1 (0.2%)	1 (0.3%)	2 (0.3%)
Needle stick injury	17 (0.2%)	4 (0.2%)	0 (0%)	1 (0.3%)	3 (0.4%)
Other/NK	361 (5%)	202 (10%)	22 (4%)	24 (7%)	64 (8%)
Total	6691	2094	514	347	775

NK: not known

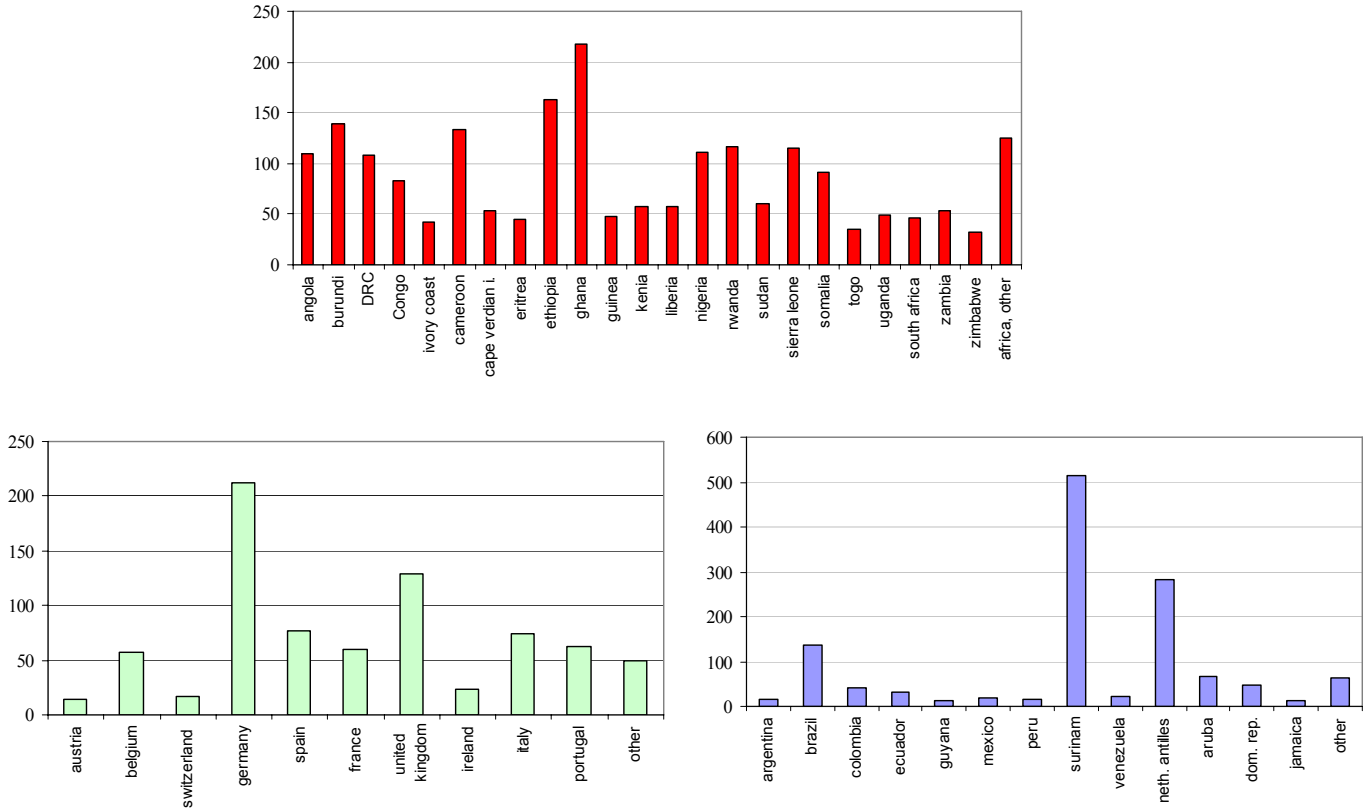


Figure C.2: Number of HIV cases, by sub-Saharan African Country, by West European country, and by Latin American/Caribbean country

HIV cases diagnosed in 2005

Table C.11: Number of HIV cases diagnosed in 2005, by region and sex

Region	Men (%)	Women (%)	Total (%)
Amsterdam	275 (37%)	60 (27%)	335 (35%)
North	40 (5%)	10 (4%)	50 (5%)
East	97 (13%)	22 (10%)	119 (12%)
South	67 (9%)	28 (13%)	95 (10%)
West	267 (36%)	104 (46%)	371 (38%)
Total	746	224	970

Table C.12: Number of HIV cases diagnosed in 2005, by sex and region of origin

Region of origin	Men (%)	Women (%)	Total (%)
The Netherlands	477 (64%)	61 (27%)	538 (55%)
Western Europe	44 (6%)	4 (2%)	48 (5%)
Central Europe	17 (2%)	4 (2%)	21 (2%)
Eastern Europe	6 (0.8%)	1 (0.4%)	7 (0.7%)
Sub-Saharan Africa	73 (10%)	102 (46%)	175 (18%)
Caribean	20 (3%)	19 (8%)	39 (4%)
Latin America	52 (7%)	15 (7%)	67 (7%)
North America	2 (0.3%)	0 (0%)	2 (0.2%)
North Africa & Middle East	12 (2%)	2 (0.9%)	14 (1%)
Australia & New Zealand	1 (0.1%)	0 (0%)	1 (0.1%)
Oceania & Pacific	4 (0.5%)	0 (0%)	4 (0.4%)
South (East) Asia	35 (5%)	16 (7%)	51 (5%)
NK	3 (0.4%)	0 (0%)	3 (0.3%)
Total	746	224	970

NK: not known

Table C.13: Number of HIV cases diagnosed in 2005, by transmission risk group and age group

Age group	MSM	Hetero sexual contact	IDU	Blood (products)	Mother to child	Needle stick injury	NK	Total
<15	0 (0%)	0 (0%)	0 (0%)	0 (0%)	6 (100%)	0 (0%)	0 (0%)	6 (0.6%)
15-19	2 (0.4%)	8 (2%)	1 (10%)	0 (0%)	0 (0%)	0 (0%)	1 (0%)	12 (1%)
20-24	28 (6%)	46 (12%)	1 (10%)	0 (0%)	0 (0%)	0 (0%)	7 (10%)	82 (8%)
25-29	51 (10%)	58 (16%)	1 (10%)	0 (0%)	0 (0%)	0 (0%)	9 (12%)	119 (12%)
30-39	183 (37%)	148 (40%)	3 (30%)	0 (0%)	0 (0%)	2 (67%)	22 (30%)	358 (37%)
40-49	166 (33%)	77 (21%)	2 (20%)	2 (67%)	0 (0%)	0 (0%)	18 (25%)	265 (27%)
≥ 50	71 (14%)	37 (10%)	2 (20%)	1 (33%)	0 (0%)	1 (33%)	16 (22%)	128 (13%)
Total	501	374	10	3	6	3	73	970

Table C.14: Number of HIV cases diagnosed in 2005, by age group and sex

Age group	Men (%)	Women (%)	Total (%)
<15	4 (0.5%)	2 (0.9%)	6 (0.6%)
15-19	6 (0.8%)	6 (3%)	12 (1%)
20-24	50 (7%)	32 (14%)	82 (8%)
25-29	71 (10%)	48 (21%)	119 (12%)
30-39	271 (36%)	87 (39%)	358 (37%)
40-49	233 (31%)	32 (14%)	265 (27%)
≥ 50	111 (15%)	17 (8%)	128 (13%)
Total	746	224	970

Table C.15: Median age (years) of HIV cases diagnosed in 2005, by region of origin and sex

Region of origin	Men (age/IQR)	Women (age/IQR)	Total (age/IQR)
The Netherlands	40.9 (34.7-47.1)	35.3 (27.2-45.4)	40.5 (33.8-47.1)
Western Europe	41.5 (32.0-48.9)	46.0 (37.2-55.5)	41.5 (32.8-49.3)
Sub-Saharan Africa	32.4 (26.7-38.5)	30.6 (25.8-34.3)	31.2 (26.2-36.2)
Caribbean	35.0 (30.5-41.2)	35.6 (24.9-41.6)	35.2 (27.0-41.6)
Latin America	35.4 (28.4-42.4)	29.5 (26.9-38.9)	35.3 (27.9-41.8)
South (East) Asia	38.5 (33.8-46.9)	32.7 (29.9-38.0)	30.6 (31.2-43.3)

IQR: interquartile range

Table C.16: Median age (years) of heterosexual population diagnosed with HIV in 2005, by region of origin and sex

Region of origin	Men (age/IQR)	Women (age/IQR)	Total (age/IQR)
The Netherlands	41.1 (35.8-47.2)	35.3 (27.4-45.5)	39.0 (32.6-46.0)
Sub-Saharan Africa	33.9 (25.6-39.3)	30.6 (25.8-34.3)	31.2 (25.7-35.8)
Caribbean	39.4 (38.2-43.5)	33.2 (24.9-39.7)	37.2 (25.1-42.4)
Latin America	35.4 (30.3-41.8)	29.5 (26.9-38.9)	35.3 (28.7-41.0)

IQR: interquartile range

AIDS cases and AIDS related deaths

Table C.17: Number of AIDS diagnoses and AIDS related deaths (cumulative, per year)

Year	AIDS diagnoses (Cumulative)	AIDS diagnoses (year)	Deaths (Cumulative)	Deaths (year)
≤ 1987	504	504	223	223
1988	829	325	358	135
1989	1220	391	560	202
1990	1639	419	829	269
1991	2089	450	1123	294
1992	2599	510	1535	412
1993	3080	481	1962	427
1994	3574	494	2406	444
1995	4107	533	2845	439
1996	4566	459	3172	327
1997	4903	337	3356	184
1998	5141	238	3492	136
1999	5319	178	3629	137
2000	5567	248	3761	132
2001	5822	255	3889	128
2002	6116	294	4008	119
2003	6388	272	4145	137
2004	6653	265	4276	131
2005	6931	278	4398	122
2006*	6971	40	4428	30

Source AIDS related deaths: Statistics Netherlands, CBS
< 2000: AIDS cases registered by Health Inspectorate, after 2000: data from the HMF
* First 5 months of 2006; NA = not available

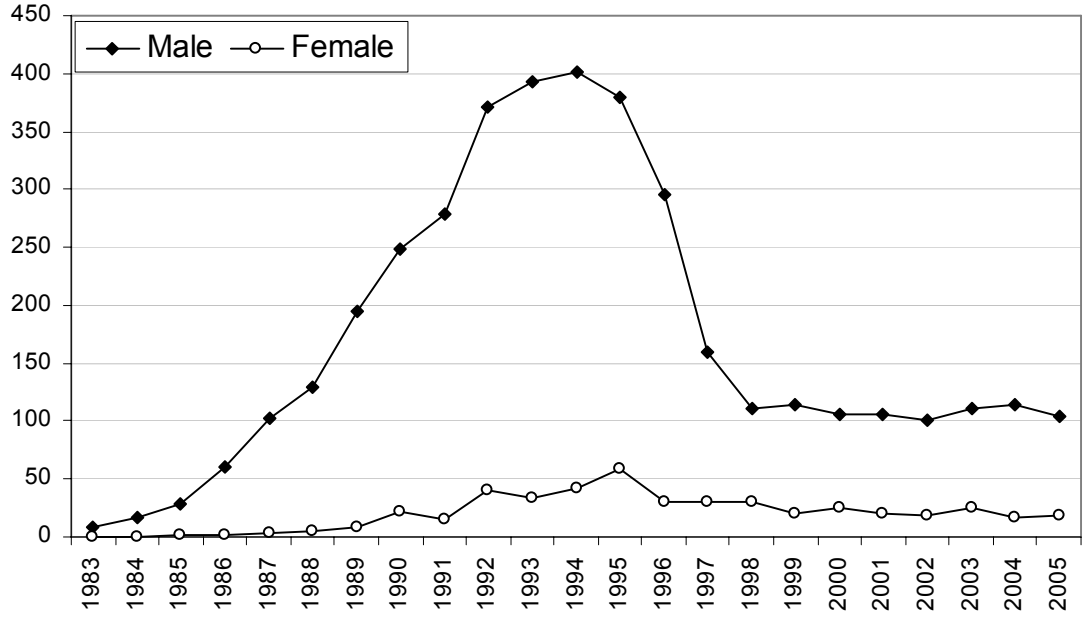


Figure C.4: Number of yearly HIV/AIDS related deaths, by sex

Table C.18: Number of AIDS patients, by year of AIDS diagnosis and transmission risk group

Year of diagnosis	MSM	Hetero-sexual contact	IDU	Blood (contacts)	Mother to child	NK/other	Total
≤ 87	424 (84%)	26 (5%)	28 (6%)	18 (4%)	3 (0.6%)	5 (1%)	504
1988	250 (77%)	18 (6%)	39 (12%)	13 (4%)	2 (0.6%)	3 (0.9%)	325
1989	305 (78%)	33 (8%)	36 (9%)	11 (3%)	1 (0.3%)	5 (1%)	391
1990	318 (76%)	34 (8%)	42 (10%)	17 (4%)	3 (0.7%)	5 (1%)	419
1991	335 (74%)	46 (10%)	43 (10%)	19 (4%)	2 (0.4%)	5 (1%)	450
1992	376 (74%)	51 (10%)	60 (12%)	12 (2%)	2 (0.4%)	9 (2%)	510
1993	317 (66%)	80 (17%)	61 (13%)	8 (2%)	3 (0.6%)	12 (2%)	481
1994	314 (64%)	94 (19%)	65 (13%)	14 (3%)	2 (0.4%)	5 (1%)	494
1995	314 (59%)	116 (22%)	74 (14%)	7 (1%)	9 (2%)	13 (2%)	533
1996	299 (65%)	95 (21%)	50 (11%)	5 (1%)	2 (0.4%)	8 (2%)	459
1997	174 (52%)	104 (31%)	43 (13%)	3 (1%)	2 (0.6%)	11 (3%)	337
1998	116 (49%)	78 (33%)	27 (11%)	1 (0.4%)	3 (1%)	13 (5%)	238
1999	81 (46%)	63 (35%)	24 (13%)	1 (0.6%)	2 (1%)	7 (4%)	178
2000	101 (41%)	102 (41%)	14 (6%)	4 (2%)	5 (2%)	22 (9%)	248
2001	102 (40%)	102 (40%)	9 (4%)	4 (2%)	6 (2%)	32 (13%)	255
2002	114 (39%)	135 (46%)	8 (3%)	3 (1%)	1 (0%)	33 (11%)	294
2003	110 (40%)	102 (38%)	13 (5%)	6 (2%)	6 (2%)	35 (13%)	272
2004	104 (39%)	105 (40%)	6 (2%)	1 (0.4%)	3 (1%)	46 (17%)	265
2005	119 (43%)	110 (40%)	17 (6%)	2 (1%)	0 (0%)	30 (11%)	278
Total	4273	1494	659	149	57	299	6931

< 2000: AIDS cases registered by Health Inspectorate, after 2000: data from the HMF
* 2005 data are incomplete, reported up to June

Table C.19: Number of AIDS cases, by year of AIDS diagnosis, age group and sex*

Age group	2000		2001		2002		2003		2004	
	M	F	M	F	M	F	M	F	M	F
<15	2	3	3	5	0	1	5	2	2	3
	(1%)	(6%)	(2%)	(9%)	(0%)	(1%)	(2%)	(3%)	(1%)	(3%)
15-19	1	1	4	4	5	7	2	2	2	2
	(0.5%)	(2%)	(2%)	(7%)	(2%)	(9%)	(1%)	(3%)	(1%)	(3%)
20-24	3	6	9	4	9	4	2	6	6	4
	(2%)	(12%)	(5%)	(7%)	(4%)	(5%)	(1%)	(10%)	(3%)	(7%)
25-29	20	5	8	7	13	11	11	13	15	10
	(10%)	(10%)	(4%)	(12%)	(6%)	(14%)	(5%)	(22%)	(7%)	(17%)
30-39	74	20	73	21	86	34	86	27	73	21
	(38%)	(38%)	(37%)	(36%)	(40%)	(43%)	(41%)	(45%)	(35%)	(36%)
40-49	71	10	51	12	59	10	63	4	66	13
	(36%)	(19%)	(26%)	(21%)	(27%)	(13%)	(30%)	(7%)	(32%)	(22%)
> 49	25	7	49	5	43	12	43	7	43	6
	(13%)	(13%)	(25%)	(9%)	(20%)	(15%)	(20%)	(10%)	(21%)	(10%)
Total	196	52	197	58	215	79	212	60	207	58

M: men, F: women
* Age at time of AIDS diagnosis

Table C.20: Median age (years) of AIDS patients at AIDS diagnosis, by region of origin and sex

Region of origin	Men (age/IQR)	Women (age/IQR)	Total (age/IQR)
The Netherlands	41.0 (34.9-48.1)	36.2 (29.5-44.3)	40.5 (34.4-47.8)
Western Europe	38.1 (32.6-43.7)	34.1 (30.8-38.7)	36.9 (32.3-43.0)
Sub-Saharan Africa	34.4 (28.5-38.8)	31.5 (26.3-36.2)	32.7 (27.4-37.9)
Caribbean	36.6 (32.3-43.9)	37.5 (29.4-42.5)	36.9 (32.1-43.9)
Latin America	37.3 (33.3-42.6)	33.4 (28.8-43.0)	36.8 (32.0-42.6)
South (East) Asia	39.2 (32.6-46.6)	32.2 (27.8-35.7)	35.5 (31.1-43.3)

IQR: interquartile range

Table C.21: Number of deaths among HIV/AIDS patients, by sex

	Men (%)	Women (%)	Total
2000	67 (84%)	13 (16%)	80
2001	69 (90%)	8 (10%)	77
2002	101 (85%)	18 (15%)	119
2003	111 (81%)	26 (19%)	137
2004	115 (88%)	16 (12%)	131
2005	104 (85%)	18 (15%)	122

Source deaths among HIV/AIDS patients: HIV Monitoring foundation

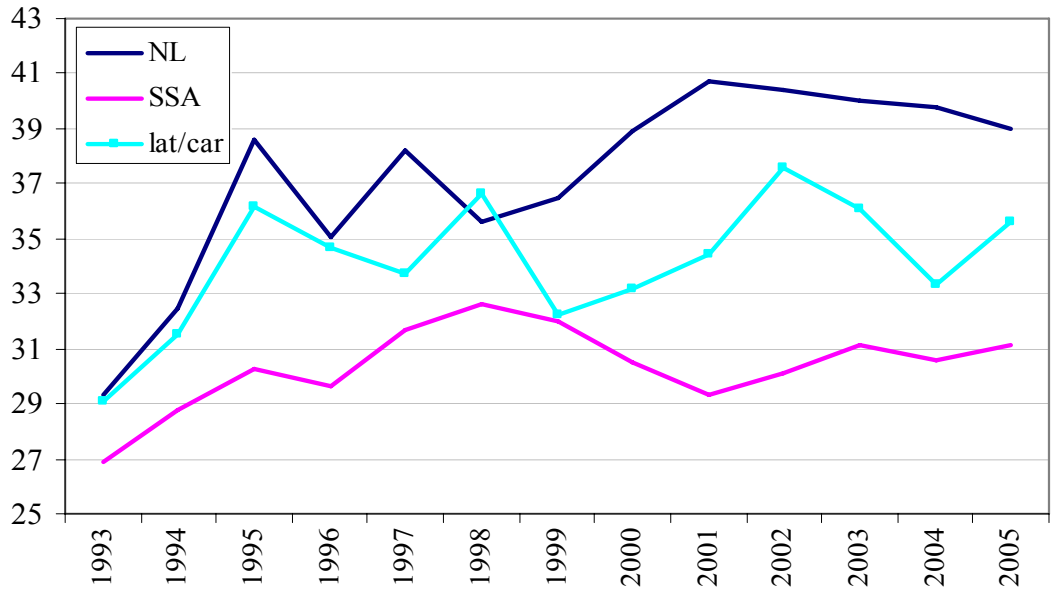
*Table C.22: Number of death among HIV/AIDS patients **, by year of death, age group* and sex*

Age group	2001		2002		2003		2004		2005	
	M	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
<20	2	0	0	0	1	2	0	0	0	0
	(3%)	(0%)	(0%)	(0%)	(1%)	(8%)	(0%)	(0%)	(0%)	(0%)
20-25	0	0	2	1	0	1	1	0	0	1
	(0%)	(0%)	(2%)	(6%)	(0%)	(4%)	(1%)	(0%)	(0%)	(6%)
25-30	0	0	3	2	3	1	6	0	1	2
	(0%)	(0%)	(3%)	(11%)	(2%)	(4%)	(5)	(0%)	(1%)	(11%)
30-35	6	2	6	4	8	1	16	3	9	5
	(9%)	(25%)	(6%)	(22%)	(8%)	(4%)	(14%)	(19%)	(9%)	(28%)
35-40	13	0	7	5	12	2	12	1	12	1
	(19%)	(0%)	(7%)	(28%)	(11%)	(8%)	(10%)	(6%)	(12%)	(6%)
40-45	8	1	7	0	10	3	12	3	14	1
	(12%)	(12%)	(7%)	(0%)	(9%)	(12%)	(10%)	(19%)	(14%)	(6%)
45-50	11	0	8	0	9	0	14	0	12	1
	(16%)	(0%)	(8%)	(0%)	(8%)	(0%)	(12%)	(0%)	(12%)	(6%)
50-55	6	0	5	0	11	2	10	2	7	0
	(9%)	(0%)	(5%)	(0%)	(10%)	(8%)	(9%)	(12%)	(7%)	(0%)
55-60	1	1	7	0	9	0	7	0	8	1
	(1%)	(12%)	(7%)	(0%)	(8%)	(0%)	(6%)	(0%)	(8%)	(6%)
>65	2	0	4	1	6	2	2	1	5	2
	(3%)	(0%)	(4%)	(6%)	(5%)	(8%)	(2%)	(6%)	(5%)	(11%)
NK	20	4	52	5	42	12	36	6	36	4
	(29%)	(50%)	(51%)	(28%)	(38%)	(46%)	(30%)	(38%)	(35%)	(22%)
Total	69	8	101	18	111	26	115	16	104	18

- age group at time of death, ** includes all causes of deaths
- Source: HIV Monitoring Foundation

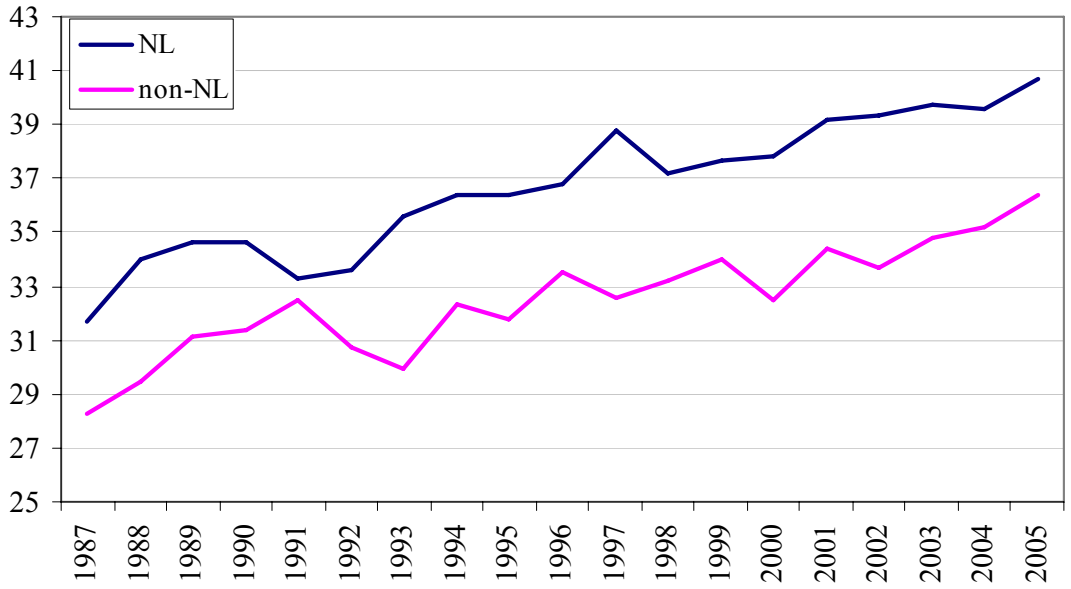
Table C.23: Number of HIV cases, by transmission risk group and known country of infection

Transmission risk group	Total number	Country of infection known (%)	Infected in the Netherlands (%)
MSM	6211	4428 (71%)	3931 (89%)
- Dutch	4579	3501 (76%)	3376 (96%)
- Non-Dutch	1632	927 (57%)	555 (60%)
Heterosexual contact	3934	2851 (72%)	1212 (43%)
- Dutch	1174	933 (79%)	731 (78%)
- Non-Dutch	2760	1918 (69%)	481 (25%)
IDU	596	469 (79%)	409 (87%)
- Dutch	395	335 (85%)	330 (99%)
- Non-Dutch	201	134 (67%)	79 (59%)
Blood (products)	167	156 (93%)	73 (47%)
- Dutch	83	75 (90%)	64 (85%)
- Non-Dutch	84	81 (96%)	9 (11%)



Footnote: only HIV patients with a known date of diagnosis are included (ATHENA: 1996-2001, national registration from 2002 to date)

Figure C.5: Median age (at diagnosis) of the heterosexual population over time, by geographic region; NL= Netherlands, SSA= sub-Saharan Africa, Lat/Car= Latin America and the Caribbean



Footnote: only HIV patients with a known date of diagnosis are included (ATHENA: 1996-2001, national registration from 2002 to date)

Figure C.6: Median age (at diagnosis) of the MSM population over time, by ethnicity (Dutch/non-Dutch)

Table C.24: Age groups of MSM, by year of HIV diagnosis

Age group	2000	2001	2002	2003	2004	2005
<15	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
15-19	2 (0.36)	0 (0%)	2 (0.5%)	2 (0.5%)	5 (1%)	2 (0.4%)
20-24	20 (6%)	18 (4%)	14 (3%)	21 (5%)	27 (5%)	28 (6%)
25-29	52 (15%)	45 (11%)	50 (11%)	48 (11%)	59 (12%)	51 (10%)
30-39	165 (48%)	172 (43%)	203 (46%)	173 (40%)	203 (40%)	183 (37%)
40-49	71 (21%)	111 (28%)	118 (27%)	111 (26%)	151 (29%)	166 (33%)
≥ 50	34 (10%)	55 (14%)	57 (13%)	74 (17%)	67 (13%)	71 (14%)
Total	344	401	444	429	512	501

Table C.25: Summary of HIV/AIDS figures, June 2006

Cumulative number of HIV cases [1]	11866
Men/women	9170/2696
Route of transmission [1]	
- MSM	6211 (52%)
- Heterosexual contact	3934 (33%)
- Injecting drug use	596 (5%)
- Blood (products)	167 (1%)
- Needle stick injury	27 (0.2%)
- Mother to child transmission	126 (1%)
- Other/ NK	805 (7%)
Newly diagnosed HIV cases (2005) [1]	970
Men/women	746/224
Route of transmission	
- MSM	501 (52%)
- Heterosexual contact	374 (39%)
- Injecting drug use	10 (1%)
- Blood (products)	3 (0.3%)
- Needle stick injury	3 (0.3%)
- Mother to child transmission	6 (0.6%)
- Other/NK	73 (8%)
Estimated number of adults (15-49 yr) living with HIV/AIDS in 2005	18.500
Cumulative number of AIDS cases since epidemic began [2]	6931
Newly diagnosed AIDS cases in 2005	265
Cumulative number of deaths from HIV/AIDS since epidemic began	4398
Cumulative number of deaths from HIV/AIDS in 2005 [3]	122
Cumulative number of AIDS patients alive in 2005	≈ 2540

* Age at diagnosis; 1: data source: HMF, 2: data source AIDS cases < 2000: Health Inspectorate, data source AIDS cases ≥ 2000: HMF
3: data source: HMF

Appendix D. Tables and figures STI Surveillance

Table D.1: Number of consultations by sex

Sex	Total (%)
Men	27461(52.5)
Women	24795(47.4)
Transsexuals*	22(0.0)
Total	52278

*Transsexuals are disregarded in the rest of the tables

Table D.2: Number of consultations per month

Month	Total (%)
January	4211(8.1)
February	3984(7.6)
March	4315(8.3)
April	4269(8.2)
May	4137(7.9)
June	4576(8.8)
July	4280(8.2)
August	4648(8.9)
September	4425(8.5)
October	4335(8.3)
November	4694(9.0)
December	4165(8.0)
Unknown	217(0.4)
Total	52256

Table D.3: Number of consultations by sex and age

Age (years)	Men (%)	Women (%)	Total (%)
Unknown	3(0.0)	6(0.0)	9(0.0)
≤14	9(0.0)	50(0.2)	59(0.1)
15-19	1047(3.8)	3218(13.0)	4265(8.2)
20-24	5918(21.6)	10102(40.7)	16020(30.7)
25-29	5923(21.6)	5643(22.8)	11566(22.1)
30-34	4277(15.6)	2420(9.8)	6697(12.8)
35-39	3611(13.1)	1412(5.7)	5023(9.6)
40-44	2696(9.8)	925(3.7)	3621(6.9)
45-49	1730(6.3)	565(2.3)	2295(4.4)
50-54	1024(3.7)	274(1.1)	1298(2.5)
≥55	1223(4.5)	180(0.7)	1403(2.7)
Total	27461	24795	52256

Table D.4: Number of consultations by sex and ethnicity

Ethnicity	Men (%)	Women (%)	Total (%)
The Netherlands	20475(74.6)	19346(78.0)	39821(76.2)
Turkey	449(1.6)	89(0.4)	538(1.0)
Northern Africa/ Morocco	632(2.3)	230 (1.0)	862(1.6)
Surinam	1659(6.0)	1396 (5.6)	3055(5.8)
The Netherlands Antilles	563(2.1)	403(1.6)	966(1.9)
Eastern Europe	309(1.1)	669(2.7)	978(1.9)
Sub-Saharan Africa	670(2.4)	436(1.8)	1106(2.1)
Latin America	519(1.9)	509(2.1)	1028(2.0)
Europe else	376(1.4)	593(2.4)	969(1.9)
Asia	512(1.9)	394(1.6)	906(1.7)
Unknown	177(0.6)	149(0.6)	326(0.6)
Else	1120(4.1)	581(2.3)	1701(3.3)
Total	27461	24795	52256

Table D.5: Number of consultations for men by sexual preference

Sexual preference	Total (%)
Heterosexual	19369(70.5)
Homo/bisexual	7929(28.9)
Unknown	163(0.6)
Total	27461

Table D.6: Number of consultations by client of CSW (M, NA Amsterdam)) or CSW (F)

Sex worker (or client)	Male client (%)	Female CSW (%)
No	13626(92.5)	22500(90.7)
Yes, in past 6 months	840(5.7)	2204(8.9)
Unknown	271(1.8)	91(0.4)
Total	14737	24795

Table D.7: Number of consultations by sex and injecting drug use (excluding GGD Amsterdam)

Injecting drug use	Men (%)	Women (%)	Total (%)
No	14533(98.6)	15395(98.9)	29829(98.8)
Yes, in past 6 months	21(0.1)	32(0.2)	53(0.2)
Unknown	183(1.2)	132(0.8)	315(1.0)
Total	14737	15559	30296

Table D.8: Number of consultations by sex and prior HIV test (excluding GGD Amsterdam)

Prior HIV test	Men (%)	Women (%)	Total (%)
No	9054(61.4%)	10205(65.6%)	19259(63.6%)
Yes, positive	345(2.3%)	20(0.1%)	365(1.2%)
Yes, negative	4786(32.5%)	4711(30.3%)	9497(31.3%)
Yes, result unknown	74(0.5%)	66(0.4%)	140(0.5%)
Unknown	478(3.2%)	557(3.6%)	1035(3.4%)
Total	14737	15559	30296

Table D.9: Number of consultations by sex and previous GO/CT/Lues in anamnesis (excluding GGD Amsterdam)

Previous GO/CT/Lues	Men (%)	Women (%)	Total (%)
Yes	2910(19.7)	2552(16.4)	5462(18.0)
No	11312(76.8)	12538(80.6)	23850(78.7)
Do not know	81(0.5)	55(0.4)	136(0.4)
Unknown	434(2.9)	414(2.7)	848(2.8)
Total	14737	15559	30296

Table D.10: Reported reasons for consultation (excluding GGD Amsterdam)

Reason	Men (%)	Women (%)	Total (%)
Symptoms	5099(27.0)	4254(21.2)	9353(24.0)
New relationship	2252(11.9)	2217(11.0)	4469(11.5)
Risk behaviour	5576(29.5)	5769(28.7)	11345(29.1)
Risk behaviour partner	661(3.5)	1390(6.9)	2051(5.3)
Partner HIV positive	23(0.1)	14(0.1)	37(0.1)
Notification	1206(6.4)	826(4.1)	2032(5.2)
Periodic screening	527(2.8)	1181(5.9)	1708(4.4)
HBV vaccination	465(2.5)	410(2.0)	875(2.2)
Only information	10(0.1)	7(0.0)	17(0.0)
Other	173(0.9)	231(1.2)	404(1.0)
HIV test	486(2.6)	411(2.0)	897(2.3)
Uncertainty, anxiety, concern	1920(10.2)	2544(12.7)	4464(11.4)
Condom failure	340(1.8)	517(2.6)	857(2.2)
Sexual violence	24(0.1)	214(1.1)	238(0.6)
Non HIV declaration or visa	61(0.3)	3(0.0)	64(0.2)
Child wish or pregnancy	27(0.1)	54(0.3)	81(0.2)
Needle Stick or bite incident	17(0.1)	5(0.0)	22(0.1)
Unknown	46(0.2)	31(0.2)	77(0.2)
Total consultations	18913	20078	38991

Table D.11a: Number of diagnoses by sex

Diagnosis	Men (%)	Women (%)	Total (%)
Gonorrhoea	1201(16.1)	294(4.7)	1495(10.9)
Chlamydia	2696(36.2)	2450(39.3)	5146(37.7)
Syphilis: primary	211(2.8)	16(0.3)	227(1.7)
“” : secondary	144(1.9)	6(0.1)	150(1.1)
“” : latens recens	192(2.6)	19(0.3)	211(1.5)
“” : latens tarda	53(0.7)	35(0.6)	88(0.6)
“” : not specified	15(0.2)	7(0.1)	22(0.2)
HIV +	235(3.2)	36(0.6)	271(2.0)
Genital warts	1155(15.5)	692(11.1)	1847(13.5)
Genital herpes: priem.: HSV type 1	113(1.5)	113(1.8)	226(1.7)
“” : prim.: HSV type 2	200(2.7)	105(1.7)	305(2.2)
“” : prim.: HSV type unknown	32(0.4)	24(0.4)	56(0.4)
“” : recurrent	25(0.3)	25(0.4)	50(0.4)
Hepatitis B: acute	19(0.3)	3(0.0)	22(0.2)
Hepatitis B: chronic	58(0.8)	20(0.3)	78(0.6)
Hepatitis B: recovered	237(3.2)	117(1.9)	354(2.6)
Non specified Uretritis	288(3.9)	19(0.3)	307(2.2)
Candidiasis	146(2.0)	910(14.6)	1056(7.7)
Bacterial Vaginosis/gardnerella	6(0.1)	1077(17.3)	1083(7.9)
Trichomoniasis	1(0.0)	200(3.2)	201(1.5)
Scabies	36(0.5)	4(0.1)	40(0.3)
Pubic Lice	12(0.2)	2(0.0)	14(0.1)
Ulcus e.c.i.	191(2.6)	52(0.8)	243(1.8)
Lymphogranuloma venereum	35(0.5)	0(0.0)	35(0.3)
Proctitis	137(1.8)	2(0.0)	139(1.0)
Total	7438(100.0)	6228(100.0)	13666(100.0)

Table D.11b: Location of chlamydial infection by sex and sexual preference

Location	Men hetero (%)	MSM (%)	Women (%)	Total (%)
Urethral/cervical	1933(99.9)	369(45.1)	2407(93.5)	4709(88.4)
Anorectal	0(0.0)	428(52.3)	142(5.5)	570(10.7)
Oral	1(0.1)	22(2.7)	25(1.0)	48(0.9)
Total	1934(100.0)	819(100.0)	2574(100.0)	5327(100.0)

Table D.11c: Location of gonorrhoea by sex and sexual preference

Location	Men hetero (%)	MSM (%)	Women (%)	Total (%)
Urethral/cervical	383(99.5)	427(43.9)	259(74.2)	1069(62.7)
Anorectal	0(0.0)	384(39.5)	65(18.6)	449(26.3)
Oral	2(0.5)	161(16.6)	25(7.2)	188(11.0)
Total	385(100.0)	972(100.0)	349(100.0)	1706(100.0)

Table D.12a: Diagnoses by age in years, men

Diagnosis	≤14(%)	15-19 (%)	20-24(%)	25-29(%)	30-34(%)	35-39(%)	40-44(%)	45-49(%)	50-54(%)	>55(%)	Total(%)
Gonorrhoea	0(0.0)	41(3.4)	178(14.8)	268(22.3)	194(16.2)	203(16.9)	159(13.2)	96(8.0)	31(2.6)	31(2.6)	1201(19.4)
Chlamydia	1(0.0)	143(5.3)	754(28.0)	661(24.5)	398(14.8)	306(11.4)	210(7.8)	115(4.3)	51(1.9)	57(2.1)	2696(43.7)
Syphilis	0(0.0)	4(0.7)	29(5.3)	74(13.5)	91(16.6)	99(18.1)	99(18.1)	74(13.5)	36(6.6)	41(7.5)	547(8.9)
HIV+	0(0.0)	1(0.4)	19(8.1)	34(14.5)	40(17.0)	49(20.9)	44(18.7)	23(9.8)	10(4.3)	15(6.4)	235(3.8)
Genital warts	0(0.0)	36(3.1)	224(19.4)	288(24.9)	207(17.9)	158(13.7)	118(10.2)	62(5.4)	23(2.0)	39(3.4)	1155(18.7)
Genital herpes	0(0.0)	10(2.9)	57(16.7)	61(17.9)	68(19.9)	44(12.9)	49(14.4)	17(5.0)	12(3.5)	23(6.7)	341(5.5)

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.12b: Diagnoses by age in years, women

Diagnosis	≤14(%)	15-19(%)	20-24(%)	25-29(%)	30-34(%)	35-39(%)	40-44(%)	45-49(%)	50-54(%)	>55(%)	Total(%)
Gonorrhoea	2(0.7)	90(30.6)	121(41.2)	43(14.6)	8(2.7)	14(4.8)	6(2.0)	6(2.0)	2(0.7)	2(0.7)	294(7.8)
Chlamydia	6(0.2)	535(21.8)	1205(49.2)	424(17.3)	146(6.0)	67(2.7)	36(1.5)	20(0.8)	7(0.3)	4(0.2)	2450(65.3)
Infectious syphilis	0(0.0)	0(0.0)	7(17.1)	4(9.8)	3(7.3)	9(22.0)	7(17.1)	6(14.6)	1(2.4)	4(9.8)	41(1.1)
HIV+	0(0.0)	1(2.8)	10(27.8)	9(25.0)	5(13.9)	6(16.7)	3(8.3)	0(0.0)	1(2.8)	1(2.8)	36(1.0)
Genital warts	1(0.1)	81(11.7)	283(40.9)	166(24.0)	72(10.4)	42(6.1)	22(3.2)	10(1.4)	9(1.3)	6(0.9)	692(18.4)
Genital herpes	0(0.0)	39(16.2)	73(30.3)	55(22.8)	27(11.2)	21(8.7)	13(5.4)	4(1.7)	7(2.9)	2(0.8)	241(6.4)

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.13a: Diagnoses by ethnicity, men (excluding GGD Amsterdam)

Diagnosis	The Netherlands (%)	Turkey (%)	North Africa/ Moroccan (%)	Sur./Ant./ Aruba (%)	Sub-Sah. Africa (%)	Eastern Europe (%)	Latin America (%)	Asia (%)	Europe other (%)	Else (%)	Unknown (%)	Total
Gonorrhoea	740(61.6)	26(2.2)	26(2.1)	168(14.0)	24(2.0)	17(1.1)	42(3.5)	32(2.7)	24(2.0)	91(7.6)	11(0.9)	1201
Chlamydia	1828(67.8)	42(1.6)	67(2.5)	433(16.1)	58(2.2)	28(1.0)	53(2.0)	62(2.3)	20(0.7)	87(3.2)	18(0.7)	2696
Inf. syphilis*	405(74.0)	7(1.3)	7(1.2)	41(7.5)	7(1.3)	7(1.3)	17(3.0)	16(2.9)	10(1.8)	28(5.1)	2(0.4)	547
HIV+	143(60.9)	3(1.3)	2(0.8)	30(12.7)	11(4.7)	2(0.9)	11(4.7)	10(4.3)	5(2.1)	17(7.2)	1(0.4)	235
Genital warts	859(7404)	29(2.5)	46(3.9)	89(7.7)	10(0.9)	11(1.0)	15(1.3)	17(1.5)	21(1.8)	42(3.6)	16(1.4)	1155
Genital herpes	224(65.7)	2(0.6)	4(1.2)	41(12.1)	13(3.8)	3(0.9)	19(5.6)	14(4.1)	2(0.6)	16(4.7)	3(0.9)	341

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.13b: Diagnoses by ethnicity, women (excluding GGD Amsterdam)

Diagnosis	The Netherlands (%)	Turkey (%)	North Africa/ Moroccan (%)	Sur./Ant./ Aruba (%)	Sub-Sah. Africa (%)	Eastern Europe (%)	Latin America (%)	Asia (%)	Europe other (%)	Else (%)	Unknown (%)	Total
Gonorrhoea	171(58.2)	1(0.3)	6(2.1)	79(26.9)	5(1.7)	11(3.7)	1(0.3)	4(1.4)	8(2.7)	7(2.4)	1(0.3)	294
Chlamydia	1808(73.8)	14(0.6)	33(1.4)	299(12.2)	36(1.5)	64(2.6)	37(1.5)	52(2.1)	50(2.0)	44(1.8)	13(0.5)	2450
Inf. syphilis*	18(43.9)	0(0.0)	2(4.8)	4(9.8)	1(2.4)	2(4.9)	5(12.2)	1(2.4)	3(7.3)	5(12.2)	0(0.0)	41
HIV+	12(33.3)	0(0.0)	0(0.0)	3(8.4)	16(44.4)	1(2.8)	2(5.6)	1(2.8)	0(0.0)	1(2.8)	0(0.0)	36
Genital warts	571(82.5)	10(1.4)	7(1.0)	39(5.6)	7(1.0)	10(1.4)	5(0.7)	15(2.2)	15(2.2)	12(1.7)	1(0.1)	692
Genital herpes	178(73.9)	0(0.0)	3(1.2)	28(11.5)	5(2.1)	2(0.8)	8(3.3)	7(2.9)	2(0.8)	8(3.3)	0(0.0)	241

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.14: Diagnoses by sexual preference, men

Diagnosis	Heterosexual (%)	MSM (%)	Unknown (%)	Total
Gonorrhoea	385(32.1)	814(67.8)	2(0.2)	1201
Chlamydia	1934(71.7)	756(28.0)	6(0.2)	2696
Infectious syphilis*	79(14.4)	467(85.4)	1(0.2)	547
HIV+	36(15.3)	199(84.7)	0(0.0)	235
Genital warts	758(65.6)	395(34.2)	2(0.2)	1155
Genital herpes	241(70.7)	100(29.3)	0(0.0)	341

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.15a: Diagnoses by client of CSW, men

Diagnosis	No	Yes, in past 6 months	Unknown	Total
Gonorrhoea	420(92.9)	21(4.6)	11(2.4)	452
Chlamydia	1313(94.7)	47(3.4)	26(1.9)	1386
Infectious syphilis*	287(93.8)	9(2.9)	10(3.3)	306
HIV+	94(100.0)	0(0.0)	0(0.0)	94
Genital warts	678(94.8)	22(3.1)	15(2.1)	715
Genital herpes	119(93.7)	5(3.9)	3(2.4)	127

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.15b: Diagnoses by CSW, women

Diagnosis	No	Yes, in past 6 months	Unknown	Total
Gonorrhoea	252(85.7)	41(13.9)	1(0.3)	294
Chlamydia	2288(93.4)	157(6.4)	5(0.2)	2450
Infectious syphilis*	24(58.5)	16(39.0)	1(2.4)	41
HIV+	29(80.6)	7(19.4)	0(0.0)	36
Genital warts	652(94.2)	37(5.3)	3(0.4)	692
Genital herpes	236(97.9)	5(2.1)	0(0.0)	241

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.16: Diagnoses by injecting drug use (excluding GGD Amsterdam)

Diagnosis	No	Yes, ever	Yes, in past 6 months	Unknown	Total
Gonorrhoea	579(96.8)	7(1.2)	5(0.8)	7(1.2)	598
Chlamydia	2917(98.7)	5(0.2)	2(0.1)	32(1.1)	2956
Infectious syphilis*	327(97.3)	1(0.3)	1(0.3)	7(2.1)	336
HIV+	106(97.2)	1(0.9)	2(1.8)	0(0.0)	109
Genital warts	1199(98.5)	3(0.2)	3(0.2)	12(1.0)	1217
Genital herpes	253(98.4)	0(0.0)	0(0.0)	4(1.6)	257

- Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.17: Diagnoses by previous HIV test (excluding GGD Amsterdam)

Diagnosis	No	Yes, positive	Yes, negative	Yes, result unknown	Unknown	Total
Gonorrhoea	312(52.2)	49(8.2)	215(36.0)	5(0.8)	17(2.8)	598
Chlamydia	1991(67.4)	52(1.8)	822(27.8)	7(0.2)	84(2.8)	2956
Infectious syphilis*	113(33.6)	70(20.8)	141(42.0)	0(0.0)	12(3.6)	336
HIV+	46(42.2)	0(0.0)	53(48.6)	5(4.6)	5(4.6)	109
Genital warts	707(58.1)	38(3.1)	419(34.4)	6(0.5)	47(3.9)	1217
Genital herpes	154(59.9)	4(1.6)	86(33.5)	1(0.4)	12(4.7)	257

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.18a: Diagnoses by previous GO/CT/Lues in anamnesis, men (excluding GGD Amsterdam)

Diagnosis	Yes	No	Don't know	Unknown	Total
Gonorrhoea	187(41.4)	251(55.5)	0(0.0)	14(3.1)	452
Chlamydia	347(25.0)	983(70.9)	10(0.7)	46(3.3)	1386
Infectious syphilis*	150(49.0)	137(44.8)	1(0.3)	18(5.9)	306
HIV+	49(52.1)	42(44.7)	1(1.1)	2(2.1)	94
Genital warts	171(23.9)	521(72.9)	2(0.3)	21(2.9)	715
Genital herpes	21(16.5)	99(78.0)	0(0.0)	7(5.5)	127

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.18b: Diagnoses by previous GO/CT/Lues in anamnesis, women (excluding GGD Amsterdam)

Diagnosis	Yes	No	Don't know	Unknown	Total
Gonorrhoea	48(32.9)	93(63.7)	1(0.7)	4(2.7)	146
Chlamydia	276(17.6)	1253(79.8)	5(0.3)	36(2.3)	1570
Infectious syphilis*	8(26.7)	20(66.7)	0(0.0)	2(6.7)	30
HIV+	2(13.3)	10(66.7)	1(6.7)	2(13.3)	15
Genital warts	89(17.7)	403(80.3)	2(0.4)	8(1.6)	502
Genital herpes	18(13.8)	110(84.6)	0(0.0)	2(1.5)	130

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.19a: Number of tests and percentage of positive tests by age, heterosexual men

Age (years)	HIV		Gonorrhoea		Chlamydia		Infectious syphilis*	
	Tests	% pos.	Tests	% pos.	Tests	% pos.	Tests	% pos.
0-14	2	0	6	0	6	16.7	5	0
15-19	491	0	870	3.8	881	15.4	810	0.2
20-24	3136	0.2	4931	2.2	5061	13.6	4713	0.2
25-29	2924	0.1	4424	2.0	4529	11.6	4284	0.3
30-34	1836	0.4	2808	2.2	2858	9.2	2762	0.4
35-39	1193	0.9	1938	1.6	1882	7.6	1898	0.8
40-44	763	0.9	1302	2.0	1323	6.9	1264	0.8
45-49	459	0.2	812	2.5	728	5.4	795	1.1
50-54	275	0	447	1.6	461	2.8	451	1.1
55 >	300	0	551	1.5	564	3.0	547	0.7
Total	11379	0.3	18089	2.1	18497	10.5	17529	0.5

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.19b: Number of tests and percentage of positive tests by age, MSM

Age (years)	HIV		Gonorrhoea		Chlamydia		Infectious syphilis*	
	Tests	% pos.	Tests	% pos.	Tests	% pos.	Tests	% pos.
0-14	2	0.0	2	0	2	0	3	0
15-19	88	1.1	115	7.0	121	5.8	125	1.6
20-24	488	2.7	621	11.1	649	9.7	649	2.9
25-29	742	4.0	1116	15.9	1141	11.7	1152	5.4
30-34	660	5.0	1151	11.5	1175	11.6	1180	6.7
35-39	666	5.7	1372	12.5	1393	11.0	1392	6.0
40-44	550	6.7	1182	11.2	1201	9.7	1195	7.4
45-49	348	6.3	767	9.9	776	9.0	796	8.0
50-54	200	5.0	453	5.3	476	7.8	470	6.6
55 >	267	5.6	529	4.3	536	7.5	545	6.8
Total	4010	5.0	7308	11.1	7470	10.1	7507	6.2

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.19c: Number of tests and percentage of positive tests by age, women

Age (years)	HIV		Gonorrhoea		Chlamydia		Infectious syphilis*	
	Tests	% pos.	Tests	% pos.	Tests	% pos.	Tests	% pos.
0-14	22	0	43	4.7	44	13.6	40	0
15-19	1713	0.1	3042	3.0	3106	17.2	2808	0
20-24	6096	0.2	9565	1.3	9818	12.3	9002	0.1
25-29	3638	0.2	5317	0.8	5428	7.8	5068	0.1
30-34	1507	0.3	2238	0.4	2277	6.4	2161	0.1
35-39	808	0.7	1288	1.1	1317	5.1	1237	0.7
40-44	515	0.6	832	0.7	853	4.2	795	0.9
45-49	329	0	520	1.2	529	3.8	491	1.2
50-54	165	0.6	250	0.8	252	2.8	239	0.4
>55	110	0.9	157	1.3	158	2.5	159	2.5
Unknown	0	0	4	0	6	0	2	0
Total	14903	0.2	23256	1.3	23788	10.3	22002	0.2

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.20a: Diagnoses in young heterosexual men

Diagnosis	16-17 (%)	18-19 (%)	20-21 (%)	22-24 (%)
Gonorrhoea	8(19.0)	25(15.3)	46(13.1)	62(9.0)
Chlamydia	21(50.0)	113(69.3)	231(66.0)	459(66.6)
Infectious syphilis*	1(2.4)	1(0.6)	4(1.1)	6(0.9)
HIV+	0(0)	0(0)	1(0.3)	5(0.7)
Genital warts	9(21.4)	18(11.0)	55(15.7)	120(17.4)
Genital herpes	3(7.1)	6(3.7)	13(3.7)	37(5.4)

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.20b: Diagnoses in young MSM

Diagnosis	16-17 (%)	18-19 (%)	20-21 (%)	22-24 (%)
Gonorrhoea	1(20.0)	7(31.8)	22(34.4)	47(30.1)
Chlamydia	1(20.0)	5(22.7)	17(26.6)	46(29.5)
Infectious syphilis*	0(0)	2(9.1)	5(7.8)	14(9.0)
HIV+	0(0)	1(4.5)	2(3.1)	11(7.1)
Genital warts	3(60.0)	6(27.3)	15(23.4)	34(21.8)
Genital herpes	0(0)	1(4.5)	3(4.7)	4(2.6)

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.20c: Diagnoses in young women

Diagnosis	16-17 (%)	18-19 (%)	20-21 (%)	22-24 (%)
Gonorrhoea	19(12.4)	67(11.7)	58(7.7)	63(6.7)
Chlamydia	109(71.2)	412(71.9)	543(71.7)	662(70.3)
Infectious syphilis*	0(0)	0(0)	2(0.3)	5(0.5)
HIV+	0(0)	1(0.2)	8(1.1)	2(0.2)
Genital warts	16(10.5)	65(11.3)	114(15.1)	169(17.9)
Genital herpes	9(5.9)	28(4.9)	32(4.2)	41(4.4)

* Infectious syphilis includes Lues I, Lues II and Lues latens recens

Table D.21a: Ethnicity in young men (<25) by STI

Ethnicity	Gonorrhoea (%)	Chlamydia (%)	Genital warts (%)	Genital herpes (%)
The Netherlands	101(46.1)	587(65.4)	185(71.2)	40(59.7)
Turkey	6(2.7)	12(1.3)	5(1.9)	0(0)
Northern Africa	8(3.6)	19(2.1)	8(3.1)	1(1.5)
Surinam/Neth. Antilles	67(30.6)	197(21.9)	33(12.7)	14(20.9)
Eastern Europe	6(2.7)	7(0.8)	2(0.8)	1(1.5)
Sub-Saharan Africa	7(3.2)	22(2.4)	4(1.5)	3(4.5)
Latin America	5(2.3)	11(1.2)	2(0.8)	2(3.0)
Europe else	4(1.8)	2(0.2)	7(2.7)	0(0)
Asia	5(2.3)	19(2.1)	1(0.4)	3(4.5)
Unknown	3(1.4)	4(0.4)	4(1.5)	2(3.0)
Else	7(3.2)	18(2.0)	9(3.5)	1(1.5)

Table D.21b: Ethnicity in young women (<25) by STI

Ethnicity	Gonorrhoea (%)	Chlamydia (%)	Genital warts (%)	Genital herpes (%)
The Netherlands	114(53.5)	1282(73.4)	300(82.2)	85(75.9)
Turkey	0(0)	8(0.5)	3(0.8)	0(0)
Northern Africa	4(1.9)	19(1.1)	3(0.8)	3(2.7)
Surinam/Neth. Antilles	67(31.5)	241(13.8)	30(8.3)	18(16.1)
Eastern Europe	8(3.8)	43(2.5)	5(1.4)	0(0)
Sub-Saharan Africa	5(2.3)	29(1.7)	5(1.4)	0(0)
Latin America	1(0.5)	20(1.1)	1(0.3)	0(0)
Europe else	7(3.3)	31(1.8)	8(2.2)	1(0.9)
Asia	2(0.9)	36(2.1)	7(1.9)	2(1.8)
Unknown	1(0.5)	8(0.5)	1(0.3)	0(0)
Else	4(1.9)	30(1.7)	2(0.5)	3(2.7)

Figure D1. Age distribution for STI by sex, 2004

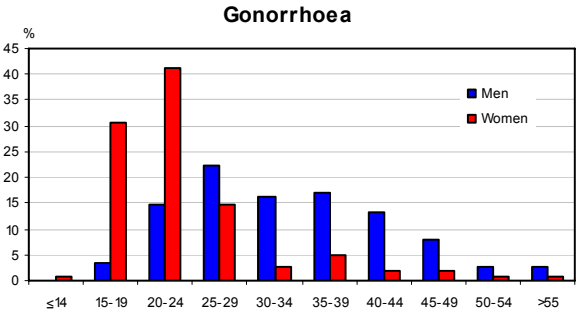


Figure D.1a: Age distribution: gonorrhoea

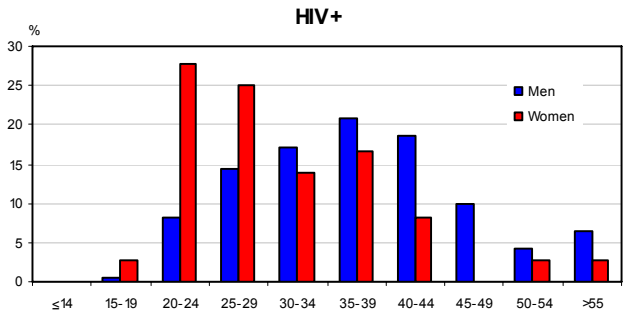


Figure D.1d: Age distribution: HIV+

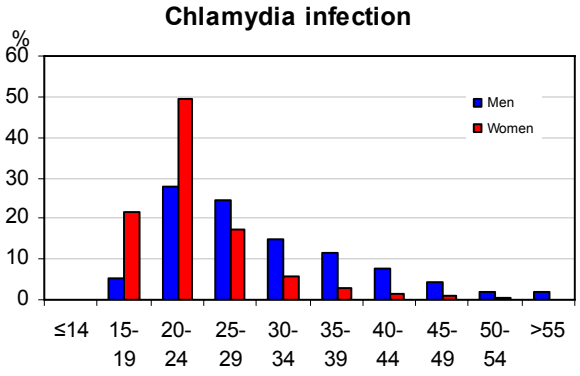


Figure D.1b: Age distribution: Chlamydia

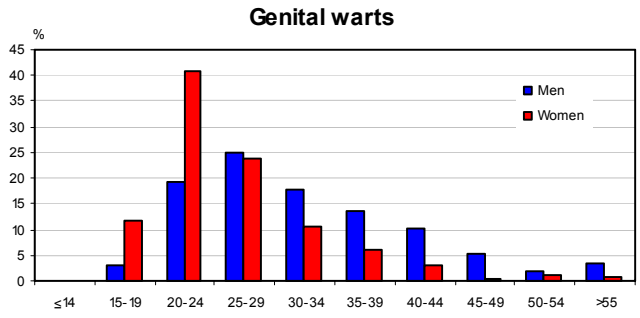


Figure D.1e: Age distribution: genital warts

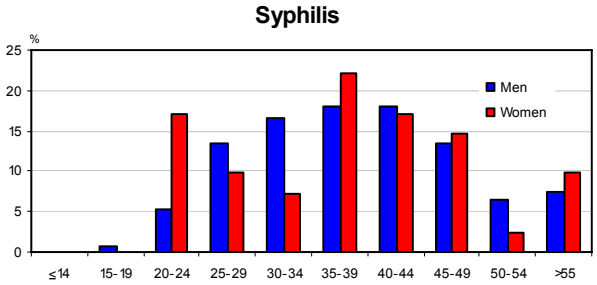


Figure D.1c: Age distribution: syphilis

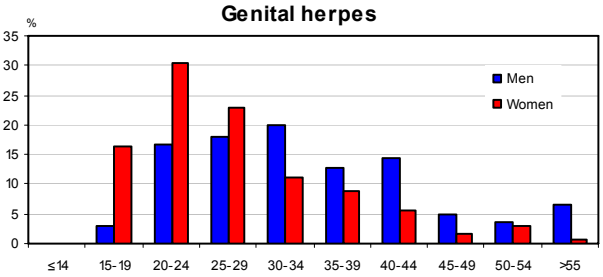


Figure D.1f: Age distribution: genital herpes

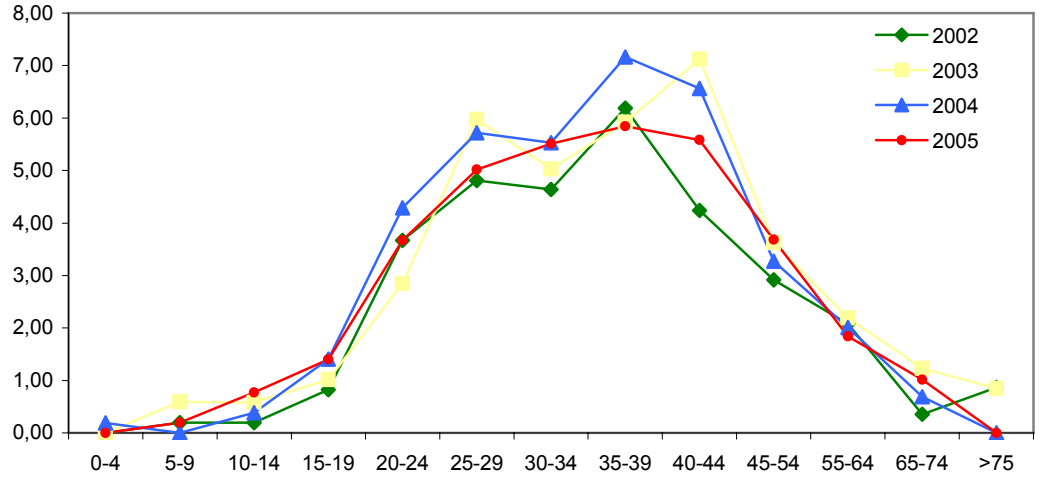


Figure D.2a: Incidence of acute HBV per 100000 inhabitants by age group, men, 2002-2005 (Source: notification data)

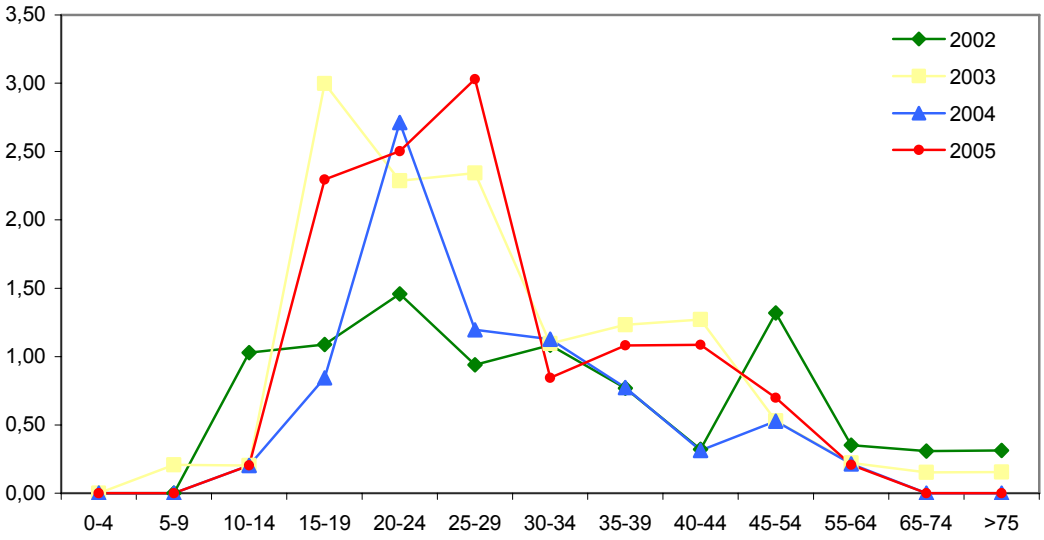


Figure D.2b: Incidence of acute HBV per 100000 inhabitants by age group, women, 2002-2005 (Source: notification data)

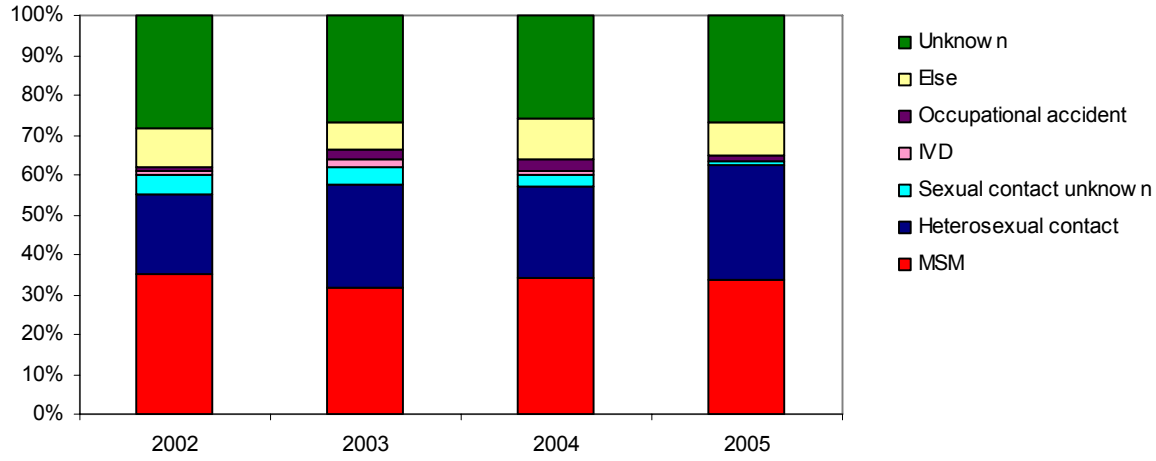


Figure D.3: Reported risk factors among cases with acute HBV, 2002-2005 (Source: notification data)

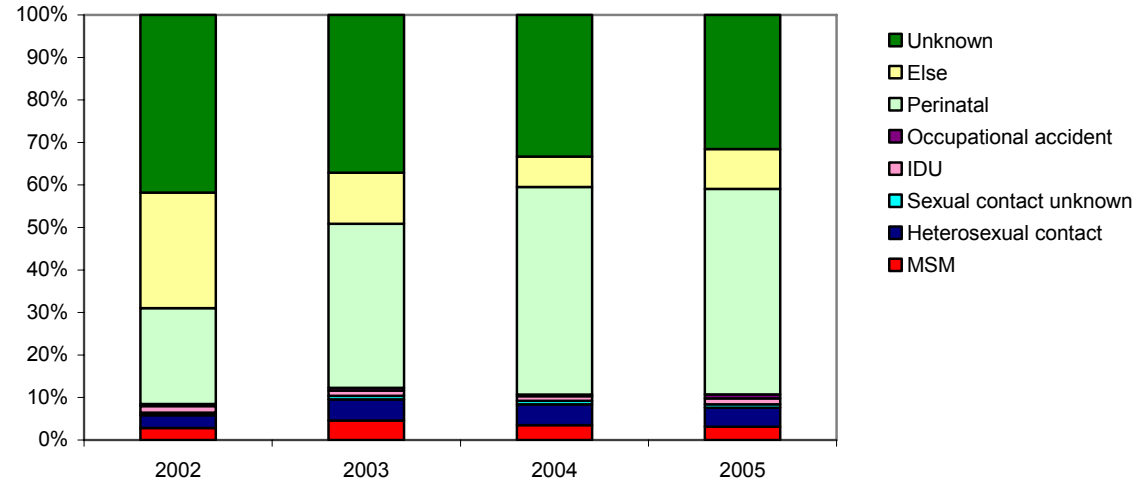


Figure D.4: Distribution of risk groups in chronic HBV carriers, 2002-2005 (Source: notification data)

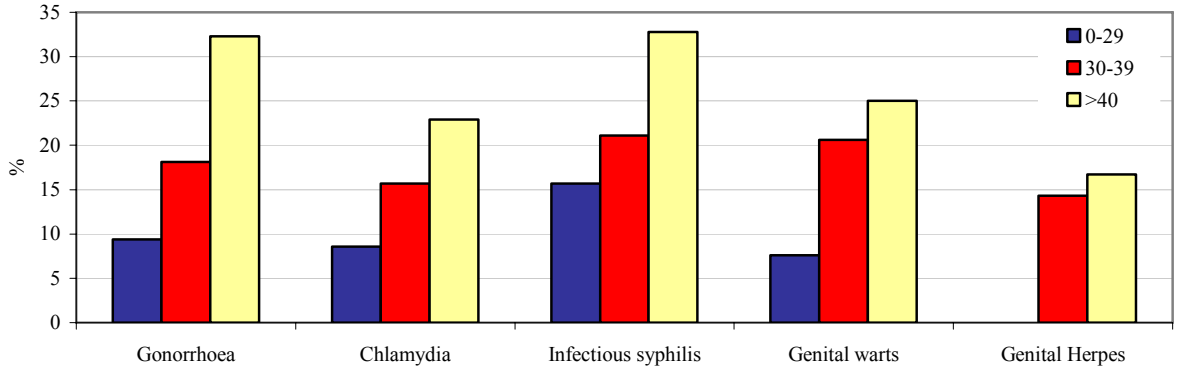


Figure D.6: Percentage of previous positive HIV tests in MSM by STI and age group, STI sentinel surveillance network, 2005 (excluding GGD Amsterdam)

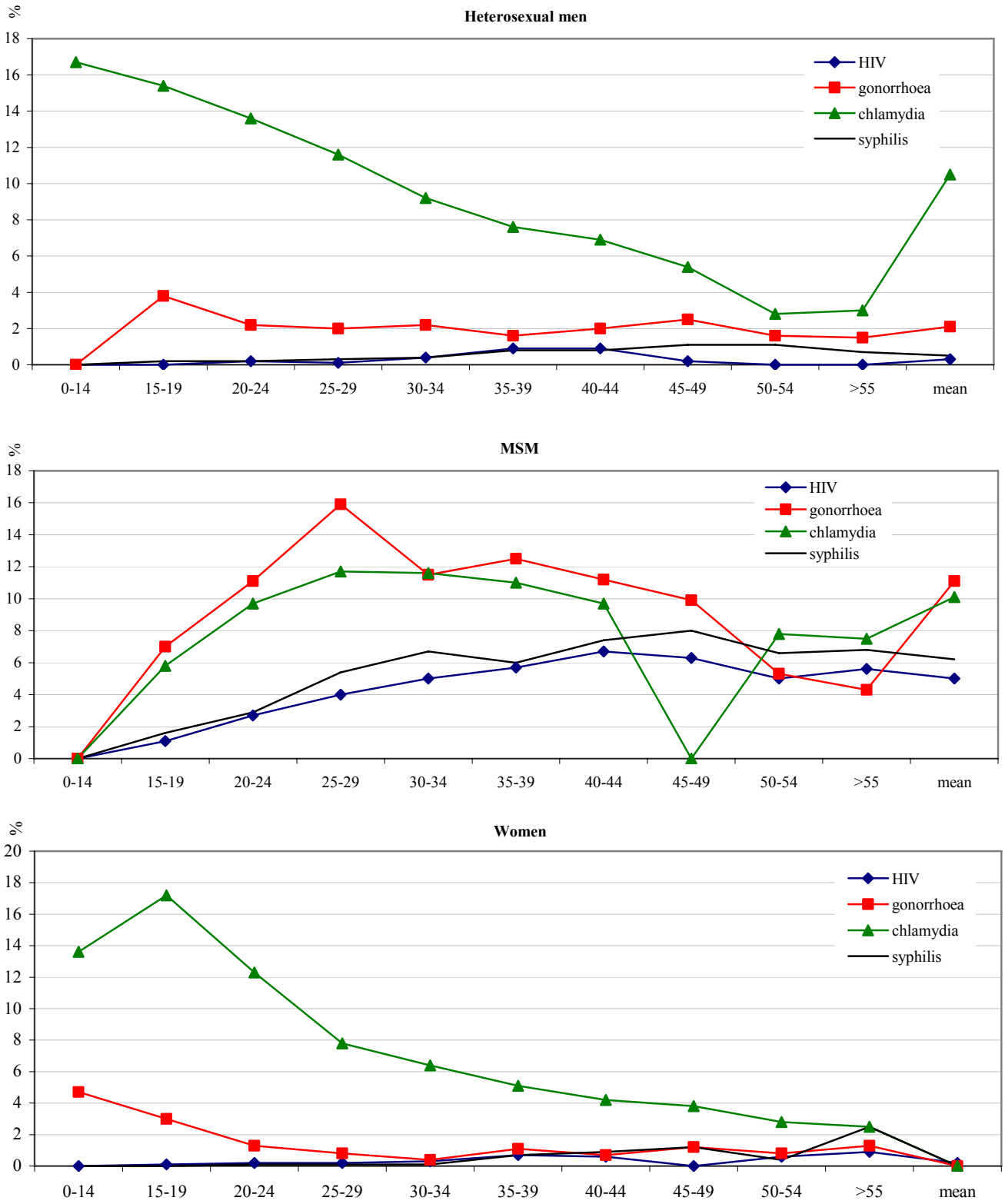


Figure D.7: Percentages of positive test results by age (in years) and risk groups: heterosexual men, MSM, women, STI sentinel surveillance network, 2005

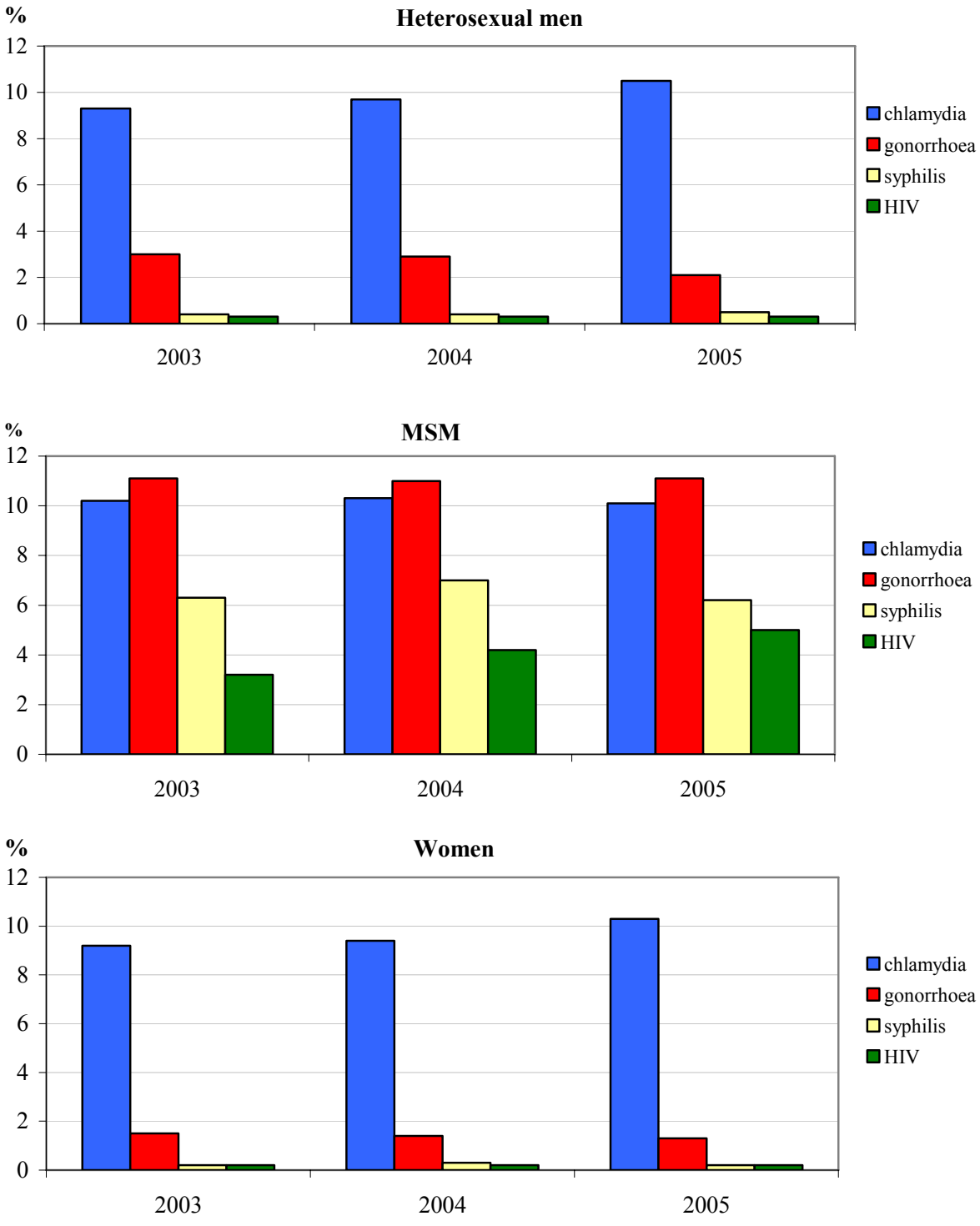


Figure D.8: Percentages of positive test results risk groups: heterosexual men, MSM, women, STI sentinel surveillance network, 2003-2005

Appendix E. Methods of the national estimate of PLWHA in 2005

Here, we discuss the data sources and methods that were used in the national estimate of people living with HIV/AIDS (PLWHA) in the Netherlands in 2005.
The total number of registered HIV cases (HMF) by the end of 2005 was 11679, of whom 91.5% was alive at that moment.[100] The actual number of PLWHA in the Netherlands, however, is expected to be higher. The group of unregistered patients may include those who are unaware of their HIV status, and individuals with lesser access to health care facilities.

Methods
The number of PLWHA in the Netherlands was estimated by using the 'Workbook' program of UNAIDS/WHO.[101] This program, which uses Excel spreadsheets, is developed to make estimates and short term projections of future scenarios of HIV/AIDS in countries with low level and concentrated epidemics. In countries with concentrated epidemics, as the Netherlands, HIV has spread rapidly in one or more defined sub-populations, but is not well-established in the general population.
Estimating the number of PLWHA requires information of the size of different populations with different levels of HIV risk, and the interaction between these populations. The workbook approach focuses on defining the populations highly exposed to HIV and the spread of HIV to groups less exposed. Estimates of the size of each of these populations, as well as HIV prevalence rates, were used to estimate the total number of PLWHA in the Netherlands. The program uses the 15 to 49 age range as the denominator. This range covers people in their most sexually active years.[19,101]

Various decisions were made on how to structure the national estimate for the Netherlands, including defining geographical differences, identifying high risk populations and groups less exposed to HIV.[101]
First, it was decided to describe the epidemic for two geographical regions: Amsterdam, and the remaining country. For Amsterdam, recent surveillance data was available for most risk groups and Amsterdam plays a significant role in the HIV-epidemic, since 35% of all HIV-infections are diagnosed in the Amsterdam region.[102]
Furthermore, an approach must be selected to estimate HIV prevalence in the population at lower risk of exposure. In the program, you can either (1) directly estimate sexual transmission to partners of the high risk groups or (2) use HIV prevalence among pregnant women as an estimate for the low risk population.[19] In the Netherlands, estimating sexual transmission to partners of individuals at high risk group is difficult due to limited

information. Therefore, we included data from pregnant women for the estimate of HIV prevalence in the low risk population.
Relevant high risk groups in the Netherlands are: IDU, MSM, migrant populations from regions with generalised epidemics, CSW, and STI clinic attendees. Important migrant populations at risk for HIV in the Netherlands are people originating from sub-Saharan Africa, Surinam and the Netherlands Antilles.
Overlap between populations was taken into account in the estimation of PLWHA. For example, only CSW who did not inject drugs were included in the CSW group, since IDU were included as a separate risk group. Furthermore, only STI attendees of Dutch origin were included since migrants were included as a separate group. STI attendees were included as three separate groups: MSM, heterosexual men and heterosexual women.
For each risk group, estimates of the population size and the HIV-prevalence were collected, both high and low estimates, if available (Table E.1). If low and high estimates were not available, the lower and upper 95% confidence limits were used in stead.
If recent data were not available, data from previous years were used. Groups for which no population estimates were available, assumptions were made based on information that did exist.[15]
HIV prevalence in low risk populations was calculated by using HIV data from the antenatal screening program in 2004 (2005 data not available yet).[102]
Based on estimated prevalence in adults over different years, the program can fit an epidemic curve by calculating the sum of the least squares and using a three-parameter single logistic model. [19]

Results
The total number of PLWHA in the Netherlands in 2005 is estimated at 18500 [10000-28000] (see also chapter 7), which results in an HIV prevalence rate - across the total population of age 15-49 - of 0.23%.[15] The range is determined by calculating the number of PLWHA on the basis of lower bounds and higher bounds of all 95% CI of HIV prevalence rates. The total number of women with HIV/AIDS in the Netherlands is estimated at 6400 (35%). The number of PLWHA in Amsterdam was estimated at 4000 [2200-5300].
The mean HIV prevalence in adults increased during the past years (Figure 29, chapter 7). In 2003, 1999 and 1991 the prevalence was 0.20% (16400), 0.19% (15000) and 0.11% (7000), respectively.[102,103]
Approximately 9000 of 18500 HIV infected persons are infected by heterosexual contact (49%) and 8500 by homo/bisexual contact (46%). HIV prevalence rates in MSM, IDU and CSW are estimated at 5.3%, 8.6% and 2.7%, respectively.

Table E.1: Exposure groups, population size estimates, and HIV prevalence rates in the Netherlands.

AMSTERDAM				
Exposure groups	***Population size***	***HIV prevalence***	***Estimated HIV population***	***Remarks***
IDs	1400-1750	19.9-32.6%	400	40-50% of 3500 problem drug users. Sources: MHS Amsterdam, IVO, RIVM, Trimbos [104-106]
MSM	20000-35000	5-8%	2000	7-9% of the male population in Amsterdam. Sources: Checkpoint, Schorer, RIVM[107-109]
CSW	9000-11000	3-3.2%	300	Sources: RIVM[4,5,110]
STI clinic attendees (m, hetero)	8000	0.2%	20	Sources: MHS A'dam[102,111]
STI clinic attendees (f, hetero)	8000	0.3%	30	Sources: MHS A'dam[111]
Migrants Suriname/ N. Antilles	80000	0.5-0.6%	450	Sources: CBS, RIVM[4,5,112]
Migrants sub-Sahara Africa	25000	0.6-4.0%	600	Sources: CBS, RIVM[4,5,112]
Low risk group*	200000	0.17%	300	Sources: CBS, CVZ[102,112]
THE NETHERLANDS, OTHER				
Exposure groups	***Population size***	***HIV prevalence***	***Estimated HIV population***	***Remarks***
IDs	10000-12500	4.9-7.3%	600	40-50% of 25000 problem drug users. Sources: IVO, Trimbos, RIVM[104,106]
MSM	110000-150000	3.5-6.7%	6500	3-4% of the male population[107-109] Sources: Schorer, RIVM
CSW	15000-20000	1.9-3.1%	450	Sources: RIVM[4,5,110]
STI clinic attendees (m, hetero)	10000	0.2-0.4%	30	Sources: RIVM[102,111]
STI clinic attendees (f, hetero)	13000	0.15-0.25%	30	Sources: RIVM[102,111]
Migrants Suriname/ N. Antilles	360000	0.08-0.6%	1250	Sources: CBS, RIVM[4,5,112]
Migrants sub-Sahara Africa	125000	0.6-4.0%	3000	Sources: CBS, RIVM[4,5,112]
Low risk group *	3700000	0.05-0.11%	2500	Sources: CBS, CVZ[102,112]
THE NETHERLANDS, TOTAL				
Exposure groups	***Population size***	***HIV prevalence***	***Estimated HIV population***	***Remarks***
IDs	12000-15000	6.8-10.5%	1000	40-50% of 30.000 problem drug users. Sources: IVO, RIVM. Trimbos[104,106]
MSM	130.000-185.000	3.8-6.9%	8.500	3-4% of the male population Sources: Checkpoint, Schorer, RIVM[107-109]
CSW	24.000-31.000	2.3-3.1%	750	Sources: RIVM[4,5,110]
STI clinic attendees (m, hetero)	18.000	0.2-0.32%	50	Sources: RIVM[102,111]
STI clinic attendees (f, hetero)	21.000	0.2-0.27%	60	Sources: RIVM[102,111]
Migrants Surinam/ N. Antilles	440.000	0.16-0.6%	1.650	Sources: CBS, RIVM[4,5,112]
Migrants sub-Sahara Africa	150.000	0.6-4.0%	3.600	Sources: CBS, RIVM[4,5,112]
Low risk group*	3.970.000	0.06-0.11%	3.000	Sources: CBS, CVZ[102,112]

* Low risk group calculated based on HIV data in pregnant women

Comparison with the national HIV registry

To test the reliability of the estimate, the distribution of the various risk groups in out estimate was compared with the distribution in the national HIV registry including only patients between 15 and 49 years alive at this moment.

The proportion of MSM in the national estimate was somewhat lower than in the HIV registry (46% and 53% respectively, Table E.2). The proportion of IDU was comparable (5%) and the proportion of heterosexuals in the HIV registry was lower compared to the estimate: 35% versus 49%. In Amsterdam, a similar picture was seen (Table E.2).

Comparing the estimated number of PLWHA in the Netherlands with the registered number of HIV patients provides some insight in the percentage of HIV infected persons that do not know their own HIV status; assuming that underreporting is limited.

The number of HIV-infected persons that does not know their own serostatus is estimated at approximately 7500, calculated as the estimated number of 18500 minus the 11000 patients, registered at the MHF. This is 40% of the estimated number of PLWHA in the Netherlands. For MSM, this percentage was 33% and for heterosexuals 60%.

Table E.2. Risk group distribution: National estimate versus HIV registry in 2005

Risk groups	**Estimate: national**	**HIV registry: national**
MSM	46%	53%
IDU	5%	5%
Heterosexuals	49%	35%
Other/Unknown	-	7%
	Estimate: Amsterdam	**HIV registry: Amsterdam**
MSM	48%	63%
IDU	10%	5%
Heterosexuals	42%	25%
Other/Unknown	-	7%

* HIV patients alive (15-49 years), source: HMF, Amsterdam

Discussion

The number of PLWHA in the Netherlands in 2005 is estimated at 18500 (adult prevalence: 0.23%). In 2003, 1999 and 1991 these numbers were 16400 (prevalence 0.20%), 15000 (0.19%) and 7000, respectively.[103,113] The estimate is based on the sum of the products of the estimated population sizes and prevalence rates for all groups at higher and lower risk of HIV infection. The estimate has one important limitation: the precision of the estimate depends heavily on available data on population sizes, HIV prevalence data and the quality of those. For the national estimate in 2005, some population size estimates and prevalence rates were out-of-date or were only available for specific subgroups. For MSM, only HIV prevalence rates from STI clinics were available, and these are expected to be too high for the total MSM population (Table E.1). This might explain the discrepancy of the risk group distribution between the national estimate and the national registry (Table E.2). Moreover,

other factors may have contributed to this discrepancy. For example, in our estimate patients infected through blood (products), mother-to-child transmission or needle stick injuries were not included, since HIV prevalence rates and/or population estimates were lacking.
In the estimate, the proportion of heterosexuals is relatively high as well as the proportion of women. This might be explained by the fact that data of pregnant women were as a measure for the low risk population.
The prevalence estimate for the Netherlands (0.2%) is comparable with the estimates in the United Kingdom, Ireland, Sweden, Luxemburg and Denmark (Figure E.1).[13] In southern European countries (France, Italy, Portugal and Spain) HIV prevalence rates among adults are higher (>0.4%).

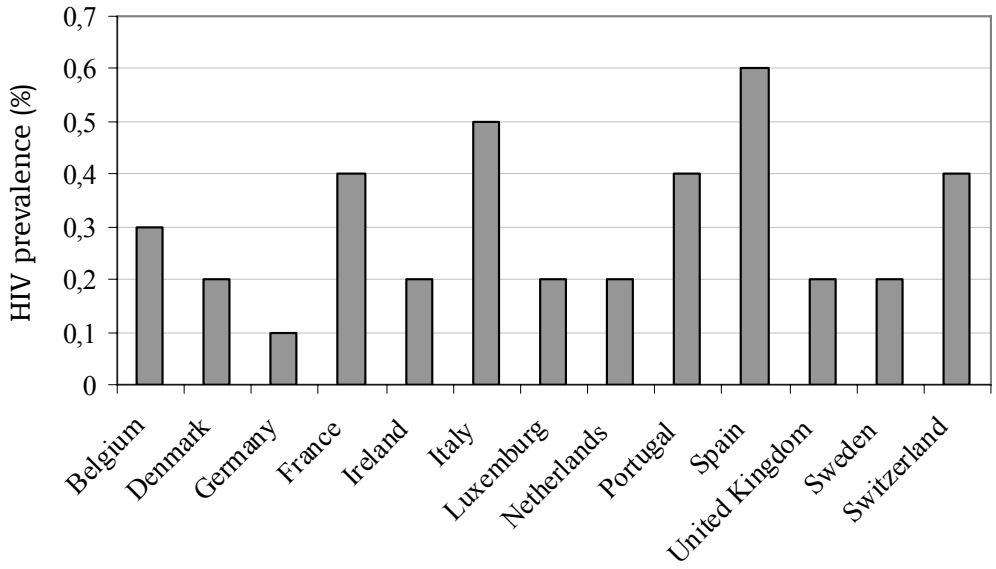


Figure E.1. HIV prevalence in adults (15-49 year) in 2005, Western-Europe (Source: UNAIDS[13]).

In the Netherlands, the proportion of HIV infected persons who do not know their serostatus is estimated at approximately 40%. This proportion is higher than in most other European countries (15-30%) and the United States (25%).[114] This could be explained by the restrictive HIV testing policy in the past in the Netherlands.[114,115]

The proportion of MSM who do not know their serostatus is estimated at 33% and is lower than that proportion among heterosexuals (60%). Preliminary data from STI clinics in 2006 showed that 70% of the MSM have ever been tested on HIV. Among heterosexual men and women these percentages were significantly lower: 34% and 38% respectively.[114,116]

Among migrant populations from sub-Saharan Africa and Surinam/the Netherlands Antilles these proportions were between 29%-43%.[4] In recent years, the HIV testing policy in the Netherlands is strongly intensified, partly due to the availability of HAART (`Highly active antiretroviral therapy') which will result in a decline of the number of persons without knowledge of their serostatus.

The estimate of the number of PLWHA will be renewed every two years based on new HIV data from surveillance activities. More research on population sizes of MSM, CSW and (injecting) drug users are necessary to improve the accuracy of the estimate.

Appendix F. HIV Monitoring Foundation

Within the framework of the HIV Monitoring Foundation, a substantial number of professionals are participating:

*Treating physicians (*Site coordinating physicians)*

- Dr. W. Bronsveld*, Drs. M.E. Hillebrand-Haverkort, Medisch Centrum Alkmaar
- Dr. J.M. Prins*, Dr. J. Branger, Dr. J.K.M. Eeftinck Schattenkerk, Drs. J. Gisolf, Dr. M.H. Godfried, Prof.dr. J.M.A. Lange, Dr. K.D. Lettinga, Dr. J.T.M. van der Meer, Drs. F.J.B. Nellen, Dr. T. van der Poll, Prof dr. P. Reiss, Drs. Th.A. Ruys, Drs. R. Steingrover, Drs. G. van Twillert, Drs. J.N. Vermeulen, Drs. S.M.E. Vrouenraets, Dr. M. van Vugt, Dr. F.W.M.N. Wit, Academisch Medisch Centrum bij de Universiteit van Amsterdam
- Prof. dr. T.W. Kuijpers, Drs. D. Pajkrt, Dr. H.J. Scherpbier, Emma Kinderziekenhuis- AMC, Amsterdam
- Dr. A. van Eeden, St. Medisch Centrum Jan van Goyen, Amsterdam
- Prof. dr. K. Brinkman*, Drs. G.E.L. van den Berk, Dr. W.L. Blok, Dr. P.H.J. Frissen, Dr. J.C. Roos, Drs. W.E.M. Schouten, Dr. H.M. Weigel, Onze Lieve Vrouwe Gasthuis, Amsterdam
- Dr. J.W. Mulder*, Dr. E.C.M. van Gorp, Dr. J. Wagenaar, Slotervaart Ziekenhuis, Amsterdam
- Dr. J. Veenstra*, St. Lucas Andreas Ziekenhuis, Amsterdam
- Prof. Dr. S.A. Danner*, Dr. M.A. Van Agtmael, Drs. F.A.P. Claessen, Dr. R.M. Perenboom, Drs. A. Rijkeboer, Dr. M.G.A. van Vonderen, VU Medisch Centrum, Amsterdam
- Dr. C. Richter*, Drs. J. van der Berg, Ziekenhuis Rijnstate, Arnhem
- Dr. R. Vriesendorp*, Dr.F.J.F. Jeurissen, Medisch Centrum Haaglanden, locatie Westeinde, Den Haag
- Dr. R.H. Kauffmann*, Dr. K. Pogány, Haga Ziekenhuis, locatie Leyenburg, Den Haag
- Dr. B. Bravenboer*, Catharina Ziekenhuis, Eindhoven
- Dr. C.H.H. ten Napel*, Dr. G.J. Kootstra Medisch Spectrum Twente, Enschede
- Dr. H.G. Sprenger*, Dr. W.M.A.J. Miesen, Dr. J.T.M. van Leeuwen, Universitair Medisch Centrum, Groningen.
- Dr. R. Doedens, Dr. E.H. Scholvinck, Universitair Medisch Centrum, Beatrix kliniek, Groningen
- Prof. dr. R.W. ten Kate*, Dr. R. Soetekouw, Kennemer Gasthuis, Haarlem
- Dr. D. van Houte*, Dr. M.B. Polée, Medisch Centrum Leeuwarden
- Dr. F.P. Kroon*, Prof. dr. P.J. van den Broek, Prof. dr. J.T. van Dissel, Dr. E.F. Schippers, Leids Universitair Medisch Centrum, Leiden
- Dr. G. Schreij*, Dr. S. van der Geest, Dr. S. Lowe, Dr. A. Verbon, Academisch Ziekenhuis Maastricht
- Dr. P.P. Koopmans*, Dr. R. Van Crevel, Prof. dr. R. de Groot, Dr. M. Keuter, Dr. F. Post, Dr. A.J.A.M. van der Ven, Dr. A. Warris, Universitair Medisch Centrum St. Radboud, Nijmegen
- Dr. M.E. van der Ende*, Dr. I.C. Gyssens, Drs. M. van der Feltz, Dr. J.L Nouwen, Dr. B.J.A. Rijnders, Drs. T.E.M.S. de Vries, Erasmus Medisch Centrum, Rotterdam
- Dr. G. Driessen, Dr. M. van der Flier, Dr. N.G. Hartwig, Erasmus Medisch Centrum, Sophia, Rotterdam
- Dr. J.R. Juttman*, Dr. M.E.E. van Kasteren, Dr. C. Van de Heul, St. Elisabeth Ziekenhuis, Tilburg

- Prof. dr. I.M. Hoepelman*, Dr. M.M.E. Schneider, Prof. dr. M.J.M. Bonten, Prof. dr. J.C.C. Borleffs, Dr. P.M. Ellerbroek, Drs. C.A.J.J. Jaspers, Dr. T. Mudrikove, Dr. C.A.M. Schurink, Dr. E.H. Gisolf, Universitair Medisch Centrum Utrecht
- Dr. S.P.M. Geelen, Dr. T.F.W. Wolfs, Dr. T. Faber, Wilhelmina Kinderziekenhuis-UMC, Utrecht
- Dr. A.A. Tanis*, Ziekenhuis Walcheren, Vlissingen
- Dr. P.H.P. Groeneveld*, Isala Klinieken, Zwolle
- Dr. J.G. den Hollander* Medisch Centrum Rijnmond Zuid, locatie Clara, Rotterdam
- Dr. A. J. Duits, Dr. K. Winkel, St. Elisabeth Hospitaal/Stichting Rode Kruis Bloedbank, Willemstad, Curaçao.

Virologists

- Dr. N.K.T. Back, Dr. M.E.G. Bakker, Prof. dr. B. Berkhout, Dr. S. Jurriaans, Dr. H.L. Zaaijer, Academisch Medisch Centrum, Amsterdam
- Dr. Th. Cuijpers, CLB Sanquin Blood Supply Foundation, Amsterdam
- Dr. P.J.G.M. Rietra, Dr. K.J. Roozendaal, Onze Lieve Vrouwe Gasthuis, Amsterdam
- Drs. W. Pauw, Dr. A.P. van Zanten, Dhr. P.H.M. Smits, Slotervaart Ziekenhuis, Amsterdam
- Dr. B.M.E. von Blomberg, Dr. P. Savelkoul, Dr. A. Pettersson, VU Medisch Centrum, Amsterdam
- Dr. C.M.A. Swanink, Ziekenhuis Rijnstate, Arnhem
- Dr. P.F.H. Franck, Dr. A.S. Lampe, HAGA ziekenhuis, locatie Leyenburg, Den Haag
- Dhr. C.L. Jansen, Medisch Centrum Haaglanden, locatie Westeinde, Den Haag
- Dr. R. Hendriks, Streeklaboratorium Twente, Enschede
- Dhr. C.A. Benne, Streeklaboratorium, Groningen
- Dr. D. Veenendaal, Dr. J. Schirm, Streeklaboratorium Volksgezondheid Kennemerland, Haarlem
- Dr. H. Storm, Drs. J. Weel, Drs. J.H. van Zeijl, Laboratorium voor de Volksgezondheid in Friesland, Leeuwarden
- Prof. Dr. A.C.M. Kroes, Dr. H.C.J. Claas, Leids Universitair Medisch Centrum, Leiden
- Prof. Dr. C.A.M.V.A. Bruggeman, Drs. V.J. Goossens, Academisch Ziekenhuis Maastricht
- Prof. Dr. J.M.D. Galama, Dr. W.J.G. Melchers, Mevr. Y.A.G. Poort, Universitair Medisch Centrum St. Radboud, Nijmegen
- Dr. G.J.J. Doornum, Dr. M.G. Niesters, Prof. Dr. A.D.M.E. Osterhaus, Dr. M. Schutten, Erasmus Medisch Centrum, Rotterdam
- Dr. A.G.M. Buiting, Mevr. C.A.M. Swaans, St. Elisabeth Ziekenhuis, Tilburg
- Dr. C.A.B. Boucher, Dr. R. Schuurman, Universitair Medisch Centrum Utrecht
- Dr. E. Boel, Dr. A.F. Jansz, Catharina Ziekenhuis, Veldhoven

Pharmacologists

- Dr. A. Veldkamp, Medisch Centrum Alkmaar
- Prof. Dr. J.H. Beijnen, Dr. A.D.R. Huitema, Slotervaart Ziekenhuis, Amsterdam
- Dr. D.M. Burger, Dr. P.W.H. Hugen, Universitair Medisch Centrum St. Radboud, Nijmegen
- Drs. H.J.M. van Kan, Academisch Medisch Centrum (UvA), Amsterdam

HIV Treatment Centres

- Academisch Medisch Centrum (UVA), Meibergdreef 9, 1105 AZ Amsterdam
- Academisch Ziekenhuis Maastricht, P. Debyelaan 25, 6229 HX Maastricht
- Catharina Ziekenhuis, Postbus 1350, 5602 ZA Eindhoven
- Emmakinderziekenhuis, AMC Amsterdam, Meibergdreef 9, 1105 AZ Amsterdam
- Erasmus Medisch Centrum, Dr. Molewaterplein 40, 3015 GD Rotterdam
- HAGA, locatie Leyenburg, Leyweg 275, 2545 CH Den Haag

- Isala Klinieken, locatie Sophia, Dokter van Heesweg 2, 8025 AB Zwolle
- Kennemer Gasthuis, locatie EG, Boerhaavelaan 22, 2000 AK Haarlem
- Leids Universitair Medisch Centrum, Rijnsburgerweg 10, 2333 AA Leiden
- Medisch Centrum Alkmaar, Wilhelminalaan 12, 1815 JD Alkmaar
- Medisch Centrum Haaglanden, locatie Westeinde, Lijnbaan 32, 2512 VA Den Haag
- Medisch Centrum Leeuwarden, locatie Zuid, H. Dunantweg 2, 8934 AD Leeuwarden
- Medisch Centrum Rijnmond Zuid, locatie Clara, Olympiaweg 350, 3078 HT Rotterdam
- Medisch Spectrum Twente, Postbus 50, 7500 KA Enschede
- Onze Lieve Vrouwe Gasthuis,
  Locatie Oosterpark, 1e Oosterparkstraat 179, 1091 HA Amsterdam
  Locatie Prinsengracht, Prinsengracht 769, 1017 JZ Amsterdam
- St. Medisch Centrum Jan van Goyen, Jan van Goyenkade 1, 1075 HN Amsterdam
- Slotervaartziekenhuis, Louwesweg 6, 1066 CE Amsterdam
- Erasmus Medisch Centrum – Sophia, Dr. Molenwaterplein 40, 3015 GD Rotterdam
- St. Elisabeth Ziekenhuis, Hilvarenbeekseweg 60, 5022 GC Tilburg
- St. Lucas Andreas Ziekenhuis, Postbus 9243, 1006 AE Amsterdam
- Streekziekenhuis Walcheren, Koudekerkseweg 88, 4382 EE Vlissingen;
- Universitair Medisch Centrum Groningen, Oostersingel 59, 9715 EZ Groningen
- Universitair Medisch Centrum Groningen Beatrix Kliniek, Oostersingel 59, 9715 EZ Groningen
- Universitair Medisch Centrum St. Radboud, Postbus 9101, 6500 HB Nijmegen
- Universitair Medisch Centrum Utrecht, Heidelberglaan 100, 3584 CX Utrecht
- VU Medisch Centrum, De Boelelaan 1117, 1081 HV Amsterdam
- Wilhelmina Kinderziekenhuis Utrecht, Postbus 85090, 3508 AB Utrecht
- Ziekenhuis Rijnstate, Wagnerlaan 55, 6815 AD Arnhem
- Stichting Rode Kruis Bloedbank, Huize Batavia, Pater Euwenweg 36, Willemstad, Curaçao
- St. Elisabeth Hospitaal, Breedestraat 193 (O), Willemstad, Curaçao

Other institutions involved

- CLB, Stichting Sanquin Bloed-voorziening, Plesmanlaan 125, 1066 CX Amsterdam
- Laboratorium voor de Volksgezondheid in Friesland, Postbus 21020, 8900 JA Leeuwarden
- Streeklaboratorium voor de Volksgezondheid voor Groningen en Drenthe, Van Ketwich Verschuurlaan 92, 9821 SW Groningen
- Streeklaboratorium Volksgezondheid Kennemerland, Boerhaavelaan 26, 2035 RE Haarlem
- Streeklaboratorium Twente-Enschede, Burg. Edo Bergsmalaan 1, 7512 AD Enschede

HIV Monitoring Foundation
Governing Board 2006

- Drs. M.A.J.M. Bos, treasurer (from July 2006), ZN
- Prof. Dr. R.A. Coutinho, observer, RIVM
- Prof. Dr. S.A. Danner, chairman, NVAB
- Prof. Dr. J. Goudsmit, member, AMC-UvA
- Prof. Dr. L.J. Gunning-Schepers, member, NFU
- Dr. D.J. Hemrika, secretary, NVZ
- Drs. J.G.M. Hendriks, treasurer (until July 2006), ZN
- Drs. H. Polee, member, Dutch HIV Association
- Drs. M.I. Verstappen, member, GGD
- Dr. F. de Wolf, director, HMF

Advisory Board

- Prof. Dr. R.M. Anderson, Imperial College, Faculty of Medicine, Dept. Infectious Diseases Epidemiology, London, United Kingdom
- Prof. Dr. J.H. Beijnen, Slotervaart Hospital, Dept. of Pharmacology, Amsterdam
- Dr. M.E. van der Ende, Erasmus Medical Centre, Rotterdam
- Dr. P.H.J. Frissen (until February 2006), Onze Lieve Vrouwe Gasthuis, Dept. of Internal Medicine, Amsterdam
- Prof. Dr. R. de Groot, Sophia Children's Hospital, Rotterdam
- Prof. Dr. I.M. Hoepelman, UMC Utrecht, Utrecht
- Dr. R.H. Kauffmann, Leyenburg Hospital, Dept.of Internal Medicine, The Hague
- Prof. Dr. A.C.M. Kroes, LUMC, Clinical Virological Laboratory, Leiden
- Dr. F.P. Kroon (vice chairman), LUMC, Dept. of Internal Medicine, Leiden
- Dr. M.J.W. van de Laar, RIVM, Centre for Infectious Diseases Epidemiology, Bilthoven
- Prof. Dr. J.M.A. Lange (chairman), AMC, Dept. of Internal Medicine, Amsterdam
- Prof. Dr. A.D.M.E. Osterhaus (until February 2006), Erasmus Medical Centre, Dept. Of Virology, Rotterdam
- Prof. Dr. G. Pantaleo, Hôpital de Beaumont, Dept. of Virology, Lausanne, Switzerland
- Dhr. C. Rümke, Dutch HIV Association, Amsterdam
- Prof. Dr. P. Speelman, AMC, Dept of Internal Medicine, Amsterdam

Working group Clinical Aspects

- Dr. K. Boer, AMC, Dept. of Obstetrics/Gynaecology, Amsterdam
- Prof. Dr. K. Brinkman (vice chairman), OLVG, Dept of Internal Medicine, Amsterdam
- Dr. D.M. Burger (subgr. Pharmacology), UMCN St. Radboud, Dept. of Clinical Pharmacy, Nijmegen
- Dr. M.E. van der Ende (chairman), Erasmus Medical Centre, Dept. of Internal Medicine, Rotterdam
- Dr. S.P.M. Geelen, UMCU-WKZ, Dept of Paediatrics, Utrecht
- Dr. J.R. Juttmann, St. Elisabeth Hospital, Dept. of Internal Medicine, Tilburg
- Dr. R.P. Koopmans, UMCN-St. Radboud, Dept. of Internal Medicine, Nijmegen
- Prof. Dr. T.W. Kuijpers, AMC, Dept. of Paediatrics, Amsterdam
- Dr. W.M.C. Mulder, Dutch HIV Association, Amsterdam
- Dr. C.H.H. ten Napel, Medisch Spectrum Twente, Dept. of Internal Medicine, Enschede
- Dr. J.M. Prins, AMC, Dept. of Internal Medicine, Amsterdam
- Prof. Dr. P. Reiss (subgroup Toxicity), AMC, Dept. of Internal Medicine, Amsterdam
- Dr. G. Schreij, Academic Hospital, Dept. of Internal Medicine, Maastricht
- Drs. H.G. Sprenger, Academic Hospital, Dept. of Internal Medicine, Groningen
- Dr. J.H. ten Veen, OLVG, Dept. of Internal Medicine, Amsterdam

Working group Virology

- Dr. N.K.T. Back, AMC, Dept. of Human Retrovirology, Amsterdam
- Dr. C.A.B. Boucher, UMCU, Eykman-Winkler Institute, Utrecht
- Dr. H.C.J. Claas, LUMC, Clinical Virological Laboratory, Leiden
- Dr. G.J.J. Doornum, Erasmus Medical Centre, Dept. of Virology, Rotterdam
- Prof. Dr. J.M.D. Galama, UMCN- St. Radboud, Dept. of Medical Microbiology, Nijmegen
- Dr. S. Jurriaans, AMC, Dept. of Human Retrovirology, Amsterdam
- Prof. Dr. A.C.M. Kroes (chairman), LUMC, Clinical Virological Laboratory, Leiden
- Dr. W.J.G. Melchers, UMCN St. Radboud, Dept. of Medical Microbiology, Nijmegen
- Prof. Dr. A.D.M.E. Osterhaus, Erasmus Medical Centre, Dept. of Virology, Rotterdam
- Dr. P. Savelkoul, VU Medical Centre, Dept. of Medical Microbiology, Amsterdam

- Dr. R. Schuurman, UMCU, Dept. of Virology, Utrecht
- Dr. A.I. van Sighem, HIV Monitoring Foundation, Amsterdam

Data collectors
- Y.M. Bakker, C.R.E. Lodewijk, Y.M.C. Ruijs-Tiggelman, D.P. Veenenberg-Benschop, I. Farida, AMC, Amsterdam
- C. Leenders, R. Vergoossens, Academic Hospital Maastricht
- B. Korsten, S. de Munnik, Catharina Hospital Eindhoven
- M. Bendik, C. Kam-van de Berg, A. de Oude, T. Royaards, Erasmus Medical Centre, Rotterdam
- G. van der Hut, J.M. van IJperen, Haga Hospital, Location Leyenburg, the Hague
- A. van den Berg, A.G.W. Hulzen, Isala Klinieken, Zwolle
- P. Zonneveld, Kennemer Gasthuis, Haarlem
- M.J. van Broekhoven-Kruijne, W. Dorama, Leids Universitair Medisch Centrum, Leiden
- D. Pronk, F.A. van Truijen-Oud, Medical Centre Alkmaar
- S. Bilderbeek, Medical Centre Haaglanden, location Westeinde, the Hague
- A. Ballemans, S. Rotteveel, Medical Centre Leeuwarden
- J. Smit, J. den Hollander, Medical Centre Rijnmond Zuid, Rotterdam
- H. Heins, H. Wiggers, Medisch Spectrum Twente, Enschede
- B.M. Peeck, E.M. Tuyn- de Bruin, OLVG, Amsterdam
- Y.T.L. Vijn, OLVG, Location Prinsengracht, Amsterdam
- C.H.F. Kuiper, Medical Centre Jan van Goyen, Amsterdam
- E. Oudmaijer-Sanders, Slotervaart Hospital, Amsterdam
- R. Santegoeds, B. van der Ven, St. Elisabeth Hospital, Tilburg
- M. Spelbrink, St. Lucas Andreas Hospital, Amsterdam
- M. Meeuwissen, Universitair Medisch Centrum St. Radboud, Nijmegen
- J. Huizinga, C.I. Nieuwenhout, Universitair Medische Centrum Groningen
- M. Peters, C.S.A.M. van Rooijen, A.J. Spierenburg, Universitair Medisch Centrum Utrecht
- C.J.H. Veldhuyzen, VU Medisch Centrum, Amsterdam
- C.W.A.J. Deurloo-van Wanrooy, M. Gerritsen, Rijnstate Hospital, Arnhem
- Y.M. Bakker, Walcheren Hospital, Vlissingen
- S. Meyer, B. de Medeiros, S. Simon, S. Dekker, Y.M.C. Ruijs-Tiggelman, St. Elisabeth Hospital/Stichting Rode Kruis Bloedbank, Willemstad, Curaçao

Personnel HIV Monitoring Foundation Amsterdam
- E.T.M. Bakker, assistant personnel (until September, 2005)
- Y.M. Bakker, data collection AMC
- R.F. Beard, registration & patient administration
- Drs. D.O. Bezemer, data analysis
- D. de Boer, financial controlling
- M.J. van Broekhoven-Kruijne, data collection LUMC
- S.H. Dijkink, assistant data monitor (from March, 2006)
- I. Farida, data collection AMC
- Drs. L.A.J. Gras, data analysis
- Drs. S. Grivell, data monitor
- Drs. M.M. Hillebregt, data monitor
- Drs. A.M. Kesselring, data analysis (from January, 2006)
- Drs. B. Slieker, data monitoring
- C.H.F. Kuiper, data collection St. Medisch Centrum Jan van Goyen
- C.R.E. Lodewijk, data collection AMC
- Drs. H.J.M. van Noort, assistant financial controlling

- B.M. Peeck, data collection OLVG Oosterpark
- Dr. T. Rispens, data monitor (until April 2006)
- Y.M.C. Ruijs-Tiggelman, data collection AMC
- Drs. G.E. Scholte, executive secretary
- Dr. A.I. van Sighem, data analysis
- Ir. C. Smit, data analysis
- E.M. Tuyn-de Bruin, data collection OLVG Oosterpark
- Drs. E.C.M. Verkerk, data monitoring (from June 2006)
- D.P. Veenenberg-Benschop, data collection AMC
- Y.T.L. Vijn, data collection OLVG Prinsengracht (until May 2006)
- C.W.A.J. Deurloo-van Wanrooy, data collection Rijnstate
- Dr. F. de Wolf, director
- Drs. S. Zaheri, data quality control
- Drs. J.A Zeijlemaker, editor (until April 2006)
- Drs. Zhang, data analysis (from February 2006)

Appendix G. STI sentinel surveillance network

Participants and co-ordinators / head of STI clinic:

SOA-polikliniek GGD Amsterdam, Dr. J.S.A. Fennema, MD;
SOA-polikliniek Erasmus MC Rotterdam, Dr. W.I. van der Meijden, MD;
SOA-polikliniek UMC Utrecht, Dr. V. Sigurdsson, MD;
SOA-polikliniek MC Haaglanden, Dr. A. Notowicz, MD;
SOA-polikliniek Leyenburg, Drs. A. Stouthamer, MD;
GGD-en Noord Nederland, Dhr. F. de Groot;
GGD Regio Nijmegen, Drs. J. van Baars, MD;
GGD Noord-Kennemerland, Drs. H. Knobbe, MD;
GGD Arnhem-Ede, Drs. S. Feenstra, MD;
GGD Hart voor Brabant, Drs. M. Croughs, MD;
GG&GD Utrecht, Drs. C. Schout, MD;
GGD Zuid-Limburg, Dr. C.J.P.A. Hoebe, MD;
GGD Regio Twente, Mevr. M. Besselse.

Appendix H. Tables and figures in this report

Tables

Figures