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HIV and Sexually Transmitted Infections in the Netherlands in 2003
An update: November 2004

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Rapport in het kort

HIV en seksueel overdraagbare aandoeningen in Nederland in 2003. Update: november 2004.

De toename van seksueel overdraagbare aandoeningen (SOA), die de afgelopen jaren werd waargenomen, lijkt in 2003 enigszins te zijn gestabiliseerd. De continue toename in het aantal gevallen van syfilis en de epidemie van Lymphogranuloma venereum (LGV) bij homo/biseksuele mannen duidt echter op toename in onveilig seksueel gedrag. Continue alertheid is nodig om verdere verspreiding van SOA en HIV te voorkomen.

Per augustus 2004 zijn 9767 personen met HIV geregistreerd, waarvan 847 gediagnosticeerd in 2003. Eind 2003 waren er naar schatting 16400 personen in Nederland geïnfecteerd met HIV. Homo/biseksuele mannen vormden hierbij nog steeds de grootste groep. Het aandeel van heteroseksuelen met HIV steeg de laatste jaren, maar lijkt zich in 2003 te stabiliseren. De hoogste HIV prevalentie in Nederland werd gevonden bij homo/biseksuele mannen (0-22%) en injecterende druggebruikers (0-26%). De HIV prevalentie bij de heteroseksuele bevolkingsgroep varieerde van 0 tot 1,4%.

Het aantal gevallen van Chlamydia is gelijk gebleven en gonorroe daalde met 16%. Het aantal gevallen van syfilis en virale SOA nam echter nog steeds toe. In 2000-2003 is het aantal gevallen van syfilis bij mannen meer dan verdubbeld. Deze forse toename van syfilis komt grotendeels op het conto van homo/biseksuele mannen. Genitale wratten zijn de meest voorkomende virale SOA. In 2003 is de resistentie tegen ciprofloxacin bij gonorroe toegenomen tot 9%. In Amsterdam wordt deze resistentie voor het eerst vaker gezien bij homo/biseksuele mannen dan bij heteroseksuelen.

De epidemie van LGV bij, voornamelijk HIV positieve, homo/biseksuele mannen heeft tot intensivering van surveillance geleid. Op 1 september 2004 waren 92 gevallen gerapporteerd. Na (inter)nationale berichtgeving over deze epidemie worden gevallen nu ook vanuit andere Europese landen gemeld. In Nederland lijkt LGV nog steeds langzaam toe te nemen.

Bekend HIV positieve personen nemen een belangrijk deel van de SOA voor hun rekening: 20% van alle gonorroe, Chlamydia en syfilis in homo/biseksuele mannen wordt gezien bij HIV positieven. We concluderen dat het seksuele risicogedrag bij homo/biseksuele mannen onverminderd hoog is met een reëel risico op verdere verspreiding van SOA en HIV. Continue alertheid is geboden om verdere verspreiding van SOA en HIV te voorkomen en hierbij dient te worden gezocht naar innovatieve methoden in preventie en interventie.

Abstract

HIV and Sexually Transmitted Infections in the Netherlands in 2003. An update: November 2004.

The increasing trend of Sexually Transmitted Infections (STIs), as observed in the last few years, seemed to have stabilised in 2003. The continuous increase of syphilis diagnoses and the outbreak of Lymphogranuloma venereum (LGV) among men who have sex with men (MSM), indicate an increase of sexual risk behaviour. Permanent alertness will be required to prevent a further spread of STIs and HIV.

As of August 2004, a total of 9767 HIV cases were reported in the Netherlands, of which 847 were newly diagnosed in 2003. By the end of 2003, there were an estimated 16400 people living with HIV/AIDS in the Netherlands. MSM still accounted for the majority of the registered cases, although the proportion decreased over time. The increase of heterosexually acquired infections in recent years seemed to have levelled off in 2003. HIV prevalence in the Netherlands was highest among MSM (0-22%) and injecting drug users (IDUs) (0-26%). HIV prevalence among heterosexuals varied between 0-1.4%.

In 2003, the number of diagnoses of genital chlamydial infection remained stable; the number of diagnoses of gonorrhoea decreased by 16%. However, diagnoses of syphilis and viral STIs continued to increase in 2003. Between 2000 and 2003, the number of syphilis diagnoses more than doubled among men. This sharp increase can largely be attributed to MSM. Genital warts were the most common viral STI. The percentage of ciprofloxacin resistance seemed to have increased fairly rapidly in 2003. In Amsterdam, the prevalence of gonococcal antimicrobial resistance was, for the first time, higher in MSM than in heterosexuals.

Enhanced surveillance of LGV was started in the Netherlands in a response to the outbreak of LGV among, predominantly HIV infected, MSM. By September 2004, 92 cases of LGV had been reported. LGV had been reported by other European countries as well, following the international alerts in January 2004.

Known HIV infected individuals accounted for an important part of STIs: 20% of all diagnoses of gonorrhoea, chlamydia and syphilis among MSM were seen in known HIV infected MSM. Therefore we can conclude that unsafe sex practices are on-going 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 STIs and HIV.

Preface

This report continues the practice of presenting annual surveillance data and a review of the epidemiology of sexually transmitted infections (STI) and HIV/AIDS in the Netherlands. However, this is the first report to integrate the data and epidemiology of STI and HIV/AIDS. In this report we have aimed to produce an overview of recent trends and current developments in the field of STI and HIV/AIDS. The surveillance of STI and HIV/AIDS has been changed considerably in the past few years and this report describes the results of that process. 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.
A copy of this report can also be downloaded in pdf format from this website.

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We thank our colleagues from the RIVM, the HMF, and the STI sentinel network for their contribution to this report and for their comments on earlier drafts: Maaike van Veen, Marja Molag, Petra Brandsema (RIVM), Irene van Valkengoed, Ard van Sighem, Luuk Gras and Frank de Wolf (HMF), Ton Coenen and Han Fennema (STI sentinel network).

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

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Samenvatting

HIV/AIDS

In augustus 2004 waren in totaal 9767 personen met HIV in Nederland geregistreerd. Eind 2003 waren er naar schatting in Nederland 16400 HIV geïnfecteerden. De homo/biseksuele mannen met HIV vormden de grootste groep, al daalde hun aandeel over de tijd. Het aandeel van heteroseksueel geïnfecteerden is in de laatste jaren toegenomen, maar lijkt zich in 2003 te stabiliseren. Van de 847 personen die in 2003 met HIV zijn gediagnosticeerd, is 44% door homo/biseksueel contact en 44% door heteroseksueel contact geïnfecteerd. De groep injecterende druggebruikers is klein (2%). Het merendeel van de niet-Nederlandse heteroseksuelen is in het buitenland geïnfecteerd: in Afrika ten zuiden van de Sahara en in mindere mate in Latijns-Amerika en het Caribische gebied.

De hoogste HIV prevalentie in Nederland wordt gezien bij homo/biseksuele mannen (0-22%) en injecterende druggebruikers (0-26%). De HIV prevalentie onder heteroseksueel geïnfecteerden varieert van 0 tot 1,4%. De landelijke screening van HIV bij zwangere vrouwen is in 2004 geïmplementeerd. De HIV prevalentie was 0,06% in de eerste helft van 2004.

Seksueel overdraagbare aandoeningen

In 2003 is de SOA surveillance in Nederland veranderd door de implementatie van het SOA peilstation. De vergelijking met de SOA cijfers van voorgaande jaren wordt hierdoor bemoeilijkt zodat de resultaten met de nodige voorzichtigheid dienen te worden geïnterpreteerd.

De toename van SOA, die de afgelopen jaren werd waargenomen, lijkt in 2003 enigszins gestabiliseerd te zijn. Het aantal gevallen van Chlamydia bleef ongeveer gelijk en gonorroe daalde met 16%. Echter, het aantal gevallen van syfilis en virale SOA nam in 2003 nog steeds toe. De meeste gevallen van syfilis (87%) werden gevonden bij homo/biseksuele mannen. De toename in syfilis in de periode 2000-2003 werd gekenmerkt door enkele epidemieën zoals die in Amsterdam (50% van de gevallen) en in de rest van het land, Rotterdam, Den Haag, Utrecht, Groningen en Twente.

Mannen en vrouwen jonger dan 25 jaar lopen het grootste risico op Chlamydia of gonorroe. Twee derde van alle vrouwen met gonorroe of Chlamydia is jonger dan 25 jaar. Gonorroe wordt, in vergelijking met Chlamydia, vaker gerapporteerd in stedelijke gebieden, bij homo/biseksuele mannen en bij personen met een SOA voorgeschiedenis. Etnische minderheden (waaronder personen afkomstig uit Suriname, de Nederlandse Antillen en Aruba) lopen relatief meer risico op Chlamydia of gonorroe.

In 2003 bleek dat de resistentie tegen ciprofloxacin bij gonorroe was toegenomen. In Amsterdam werd deze resistentie, voor het eerst, vaker gezien bij homo/biseksuele mannen dan bij heteroseksuelen.

In 2003 zijn de virale SOA verder toegenomen. De incidentie van acute hepatitis B gevallen in de aangifte was alleen toegenomen bij mannen, hoewel het aandeel van homo/biseksuele mannen enigszins afgenomen was. Genitale wratten waren de meest voorkomende virale SOA gediagnosticeerd in het SOA peilstation.

De epidemie van Lymphogranuloma venereum in Nederland werd het eerst gezien in Rotterdam, maar later werden ook gevallen retrospectief gerapporteerd uit andere delen van het land. De LGV epidemie lijkt in Nederland langzaam toe te nemen. OP 1 september 2004 waren 92 gevallen gerapporteerd. Het klinisch beeld is soms moeilijk herkenbaar waardoor de diagnose kan worden gemist. Het werkelijke aantal gevallen van LGV zal vermoedelijk hoger liggen dan het hier gerapporteerde aantal. Het merendeel van de homo/biseksuele mannen met LGV blijkt ook met HIV geïnfecteerd te zijn.

Simultane SOA en HIV

Bekend HIV positieve personen nemen een belangrijk deel van de SOA voor hun rekening: 20% van alle gonorroe, Chlamydia en syfilis in homo/biseksuele mannen werd gezien bij bekend HIV positieven. In 84%, respectievelijk 57% van de Chlamydia en gonorroe gevallen betrof dit een anorectale infectie. Wij concluderen dat het seksuele risicogedrag bij homo/biseksuele mannen onverminderd hoog is met een reëel risico op verdere verspreiding van SOA en HIV. Deze groep is van belang voor de volksgezondheid omdat op dit moment meerdere epidemieën van SOA (syfilis, LGV, resistente gonorroe en HIV), tegelijkertijd voorkomen in deze groep.

Continue alertheid en innovatieve methoden in preventie en interventie zijn nodig om verdere verspreiding van SOA en HIV te voorkomen.

Summary

HIV/AIDS

As of August 2004, a total of 9767 HIV cases had been reported in the Netherlands. By the end of 2003, an estimated 16400 people were living with HIV/AIDS in the Netherlands. Men who have sex with men (MSM) still account for the majority of the registered cases, although the proportion has decreased over time. The increase of heterosexually acquired infections, as observed in recent years, seemed to have levelled off in 2003. Of all 847 newly diagnosed HIV infections in 2003, both MSM and heterosexuals accounted for 44% and IDUs for 2%. The majority of the non-Dutch heterosexuals acquired the HIV infection abroad; in sub-Saharan Africa and to a lesser extent in Latin America and the Caribbean.

HIV prevalence in the Netherlands is highest among MSM (0-22%) and IDUs (0-26%). HIV prevalence among heterosexuals varies from 0 to 1.4%. In 2004, national screening of HIV in pregnant women was implemented in the Netherlands. The HIV prevalence was 0.06% in the first half of 2004.

Sexually Transmitted Infections

In 2003, STI surveillance in the Netherlands was converted into an STI sentinel surveillance network. The resultant lack of comparable data hampered comparison of data, so results should be interpreted with caution.

In 2003, the rate of increase in diagnoses of some STIs seemed to have slowed down: the number of genital chlamydial infection remained stable at the 2002 level and diagnoses of gonorrhoea decreased by 16%. However, diagnoses of syphilis and viral STIs continued to increase in 2003. MSM accounted for 87% of diagnoses of syphilis seen in men. The rise in syphilis between 2000 and 2003 was associated with a number of outbreaks in Amsterdam (50% of all cases), but also in other parts of the country, i.e. Rotterdam, The Hague, Utrecht, Groningen and Twente region.

Men and women younger than 25 years of age are at highest risk of acquiring genital chlamydial infection, which is also true for gonorrhoea. Two-thirds of all female diagnoses of chlamydial infection and gonorrhoea are seen in women younger than 25 years. Compared with genital chlamydial infection, gonorrhoea tends to be a more concentrated disease with higher rates in urban areas, among MSM (61% of male cases) and individuals with a history of STIs (50%). Specific ethnic minorities (for example, those from Surinam, Netherlands Antilles and Aruba) are at high risk for both genital chlamydial infection and gonorrhoea.

In 2003, the percentage of ciprofloxacin resistance seemed to have increased fairly rapidly. In Amsterdam, resistance was, for the first time, higher in MSM than in heterosexuals.

Between 2002 and 2003, the number of diagnosed viral STIs further increased. The incidence of notified cases of acute hepatitis B infections increased only in men, although, the proportion of MSM was on the decrease. Genital warts were the most common viral STI, seen in the STI sentinel surveillance network in 2003.

The outbreak of Lymphogranuloma venereum in the Netherlands was first reported in Rotterdam but soon cases were reported retrospectively throughout the country. The LGV outbreak seems to be slowly increasing, with yet unknown dynamics, and with clinical signs that easily could be missed. The number of LGV cases reported here represents probably a minimum estimate of disease occurrence. The LGV outbreak was seen predominantly among HIV infected MSM.

Concurrent STI and HIV

Known HIV infected individuals account for an important part of STIs: 20% of all diagnoses of gonorrhoea, chlamydial infection and syphilis in MSM are seen in known HIV infected MSM. Among these, anorectal infections were seen in 84% of the diagnoses of chlamydia and in 57% of gonorrhoea. We may conclude that unsafe sex practices are on-going in MSM with a potential risk of a further spread of STI and HIV. MSM form a major public health concern because various epidemics (e.g., syphilis, LGV, resistant gonorrhoea and HIV) occur simultaneously in this group.

Permanent alertness and innovative prevention and intervention methods will be needed to prevent a further spread of STIs and HIV.

1. Introduction

In 2002, the organisation of STI and HIV surveillance in the Netherlands was changed considerably to meet recent developments in the field of STI and HIV (e.g. changes in legislation, accessibility of treatment). The National Institute for Public Health and the Environment (RIVM) was assigned to implement the new STI and HIV surveillance nationally. Also, the Ministry of Health, Welfare and Sports (VWS) appointed the RIVM as the national surveillance unit (SU) for STI and HIV/AIDS in the Netherlands.

This report summarizes national surveillance data for HIV/AIDS and STI in the Netherlands. It is prepared by the STI/HIV Surveillance Unit of the RIVM. The core task of the SU is 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. The SU collaborates with numerous partners in the field of STI and HIV to collect data for surveillance, e.g. STI clinics, public 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 is 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.

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.

2. Methods of HIV surveillance in the Netherlands

2.1 Background

Since 2000, UNAIDS and the WHO have promoted the second generation surveillance framework [www.who.int/hiv/strategic/surveillance/en]. This approach aims to improve the understanding of the HIV epidemic through the collection of information from various sources, including data on other STI and risk behaviour. The second generation framework also aims to tailor surveillance systems to the countries' type of the HIV epidemic.

The Netherlands has a concentrated HIV epidemic, according to the UNAIDS/WHO criteria, with a low HIV prevalence in the general population but a relatively high prevalence (> 5%) in at least one subpopulation, e.g. men who have sex with men (MSM) and injecting drug users (IDUs). Until 2002, HIV/AIDS surveillance in the Netherlands was based on voluntary notification of new AIDS patients, supplemented with HIV surveys among IDUs, STI clinic attendees, and visitors of two obstetrics clinics and an abortion clinic. Although the AIDS registry has played an important role in monitoring the Dutch HIV epidemic, its use as an epidemiological tool became less important with the introduction of HAART in 1996 that changed the HIV epidemiology and the life expectancy of those infected with HIV.

In 2001, the Council for Health Research (RGO) reviewed the Dutch HIV surveillance system and recommended the Ministry of VWS upon the future structure of the system: a national HIV registry was to be implemented and more information was needed on high risk groups and their potential in spreading HIV into the general population.[1] Anonymous unlinked HIV surveys among commercial sex workers (CSWs) and their clients, migrant populations, and bisexual men were suggested. Furthermore, the surveys among attendees of STI clinics and IDUs should be continued. In 2002 the RIVM was assigned to implement the new HIV surveillance.

2.2 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 22 HIV treatment 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 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 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 2000-2002.

2.3 Anonymous unlinked HIV Surveys

Between 1994-2002, 16 HIV surveys among IDUs were carried out in 9 areas. In 2003, new anonymous unlinked HIV surveys were initiated among migrant populations from HIV endemic areas (sub-Saharan Africa, Surinam, and the Netherlands Antilles), CSWs, 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 public health services and local organisations for CSWs, IDUs and migrant groups. Social mapping of the risk groups is conducted. Participation in the survey is entirely voluntary and anonymous. Data on sexual behaviour, travel, sex between men, and injecting behaviour are collected within each survey. A saliva sample is taken for an HIV antibody test. The HIV surveys are approved by the Medical Ethics Committee of the University Medical Centre in Utrecht.

2.4 Additional information

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 in a pilot for the national program.

HIV incidence data are obtained from the Amsterdam Cohort Studies (ACS) on HIV/AIDS, which started in 1984 among MSM and in 1985 among IDUs. 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 IDUs, respectively.
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].
To estimate the HIV incidence in surveys, the MHS in Amsterdam used a serologic testing algorithm (STARHS). STARHS is an effective tool to measure the number of recent infections in cross sectional studies with large populations.

In this report, we also provide an estimate of the number of people living with HIV/AIDS (PLWHA) in the Netherlands in 2003. For this estimate, the UNAIDS point prevalence workbook was used, developed for making estimates of HIV/AIDS prevalence in countries with low level and concentrated epidemics. This estimate was based on HIV prevalence data from the serosurveillance studies and estimates of population sizes of the various high risk groups in the Netherlands.

3. Methods of STI surveillance in the Netherlands

3.1 Background

Until 2003 STI surveillance in the Netherlands consisted of the notification data for gonorrhoea, infectious syphilis (1976-1998), acute hepatitis B virus infections (1976-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, i.e. 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[2]: 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.

3.2 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, i.e. 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 (GG&GD Amsterdam; for the STI clinics), and the RIVM. Specific STI surveillance objectives were formulated by using the CDC evaluation guidelines (e.g. 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’, e.g. 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 14 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. Recently 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.

In this report, the results of the first 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, e.g. genital chlamydial infection, gonorrhoea, infectious syphilis, viral STI and HIV infection.

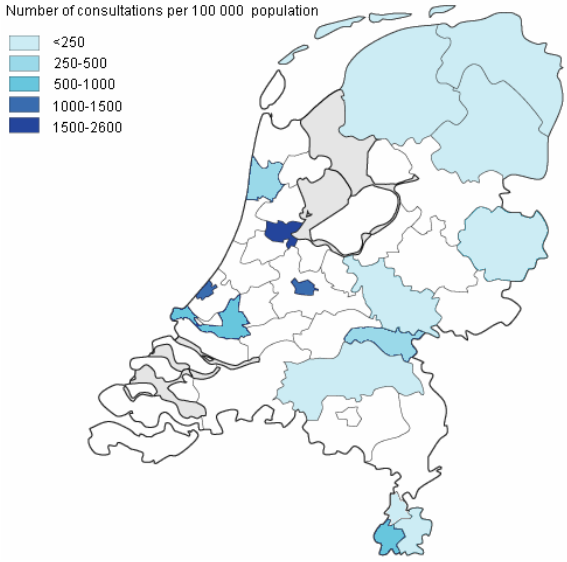


Figure 1: Number of consultations per 100000 population, the STI sentinel surveillance network, the Netherlands, 2003

Limitations of data

In 2003, data are incomplete for two large STI clinics due to initial technical difficulties and problems with the new surveillance system. Comparison of trends with previous years is hampered because the 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.

3.3 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. Data are presented per region and calculated as the incidence per 100000 population in 2002-2003.

3.4 Laboratory surveillance of STI

The laboratory surveillance, as part of the Infectious Diseases Information System (ISIS), collects data on gonorrhoea, genital chlamydial infection and infectious syphilis 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, gender, 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 part C of 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 3.2 million people in the Netherlands (total population: 16 million) and is expected to expand to cover 6-7 million people in 2006. In 2000 – 2003, the number of participating laboratories changed. For this report, laboratories are only included if they participated incessantly in the surveillance. In February 2001, a large laboratory was included. In 2003, two laboratories temporarily stopped data exchange because of technical modifications. The data of these laboratories will be re-included retrospectively when the data become available. To be able to compare the number of tests and the rates of positive test results, the data are presented as incidence rates. Incidence rates are calculated with estimated population (adherences) of the laboratories. These adherences are based on the number and size of hospitals, the number of hospitalizations and inhabitants of each region.

3.5 Enhanced surveillance of LGV

In December 2003, a cluster of LGV cases was reported in Rotterdam among, predominantly HIV infected, MSM.[3 4] 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 homosexual subgroup via gay websites, e-mail newsletters and leaflets in gay venues.[5] The RIVM started an enhanced surveillance of LGV to assess the size and nature of this outbreak. Also an additional questionnaire for LGV was drawn up to collect more detailed information of confirmed cases on clinical signs and social and behavioural parameters. In this report, the current status of the LGV outbreak will be presented.

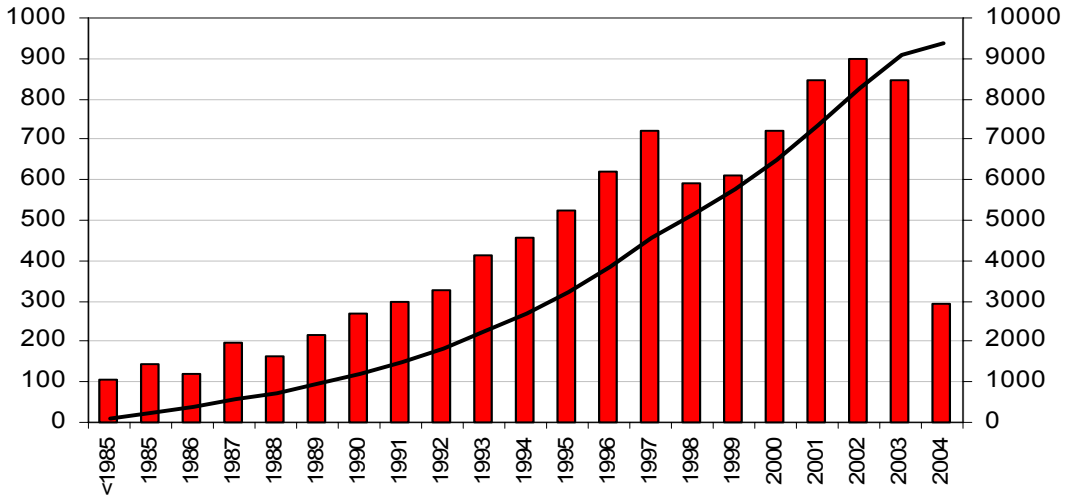
Part A. HIV/AIDS: state of the epidemic

4. Diagnosed cases of HIV and AIDS

Key points

- A cumulative total of 9767 HIV cases had been reported in the Netherlands up to August 2004. In 2003, 847 new HIV cases were diagnosed. The number of people living with HIV in 2003 is estimated at 16400.
- In 2003, MSM accounted for 44% of the newly diagnosed HIV infections, heterosexuals for 44%, and IDUs for 2%.
- The increase of heterosexually acquired infections, as observed over the past years, levelled off in 2003.
- The median age at HIV diagnosis in 2003 was 36 years. Age at diagnosis increased over time among MSM, heterosexuals of Dutch origin and IDUs. Individuals of non-Dutch origin were, in general, younger than Dutch individuals.
- HIV prevalence in the Netherlands was highest among MSM (0-22%) and IDUs (1-26%). HIV prevalence among heterosexuals was low (0–1.4%) and stable (range: depending on the source).
- HIV prevalence among pregnant women in the Netherlands was 0.06% in the first half of 2004 (preliminary results).

4.1 HIV cases



Footnote: 2004 not completed

Figure 2: Number of HIV cases (right axis: cumulative), by year of HIV diagnosis

In August 2004, a cumulative total of 9767 HIV cases had been registered by the network of HIV treatment centres in the national database of the HIV Monitoring Foundation[6] [www.hiv-monitoring.nl]; 847 cases were diagnosed in 2003 (figure 2). Of all registered cases, 77% was male and 23% female. Ninety eight percent of the individuals was infected with HIV-1. Forty four percent of all individuals were seen in treatment centres in Amsterdam (table B.1). The proportion of HIV cases diagnosed outside Amsterdam increased over time to 62% in 2003 (P<0.0001, chi-square test) (figure 3).

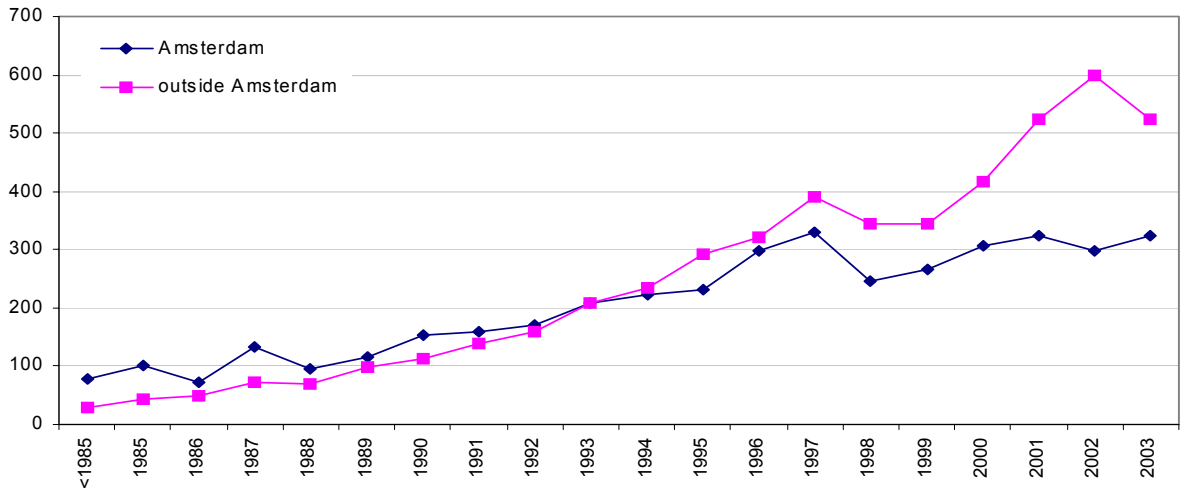


Figure 3: Number of new HIV diagnoses in Amsterdam and elsewhere, by year of HIV diagnosis

Men who have sex with men (MSM) were the largest group (51%), followed by heterosexual men and women (32%). Five percent of the HIV infections were diagnosed in IDUs. Individuals with risk through blood (products) accounted for 1% of the infections (table B.2). For 9% of the HIV cases a likely route of transmission was undetermined.

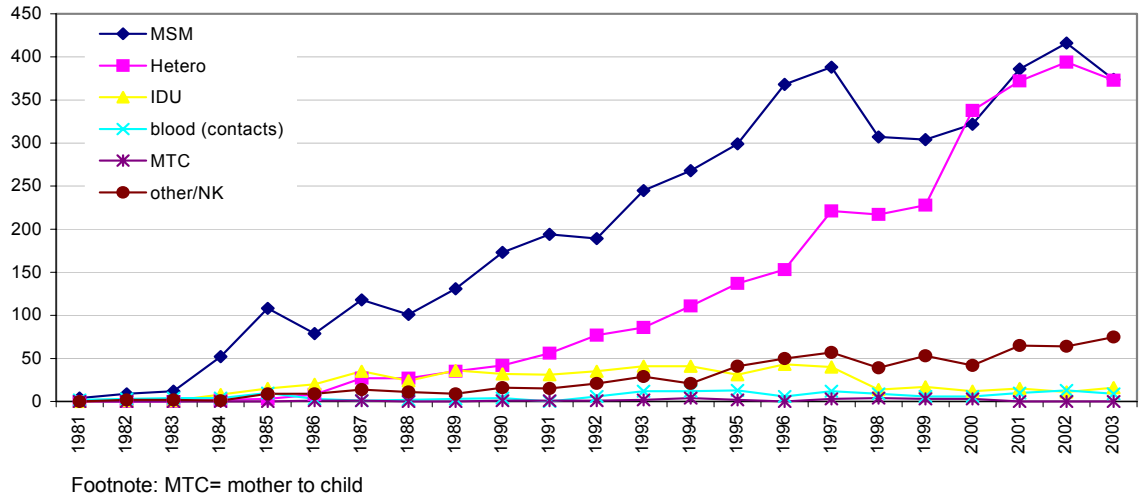


Figure 4: Number of HIV cases, by year of HIV diagnosis and transmission risk group

The proportion of MSM decreased over time from 59% in 1996 to 44% in 2003, while the proportion of heterosexuals increased from 25% to 44% ($p<0.0001$, chi-square test). The last three years, the proportions did not change significantly with year of diagnosis.
The peak in HIV cases among MSM in 1996-1997 and 2001-2002 was probably due to an increased willingness to test following the access to HAART (1996-1997); the peak in 2001-2002 was likely to be caused by the official start of the HIV registry in 2002 and a more active HIV testing policy which was launched in the Netherlands in 1997 (figure 4).
Since 1999, the number of HIV cases among heterosexual women exceeded the number of cases among heterosexual men (figure 5). In 2003, the number of women did not further increase and may seem to have stabilised.

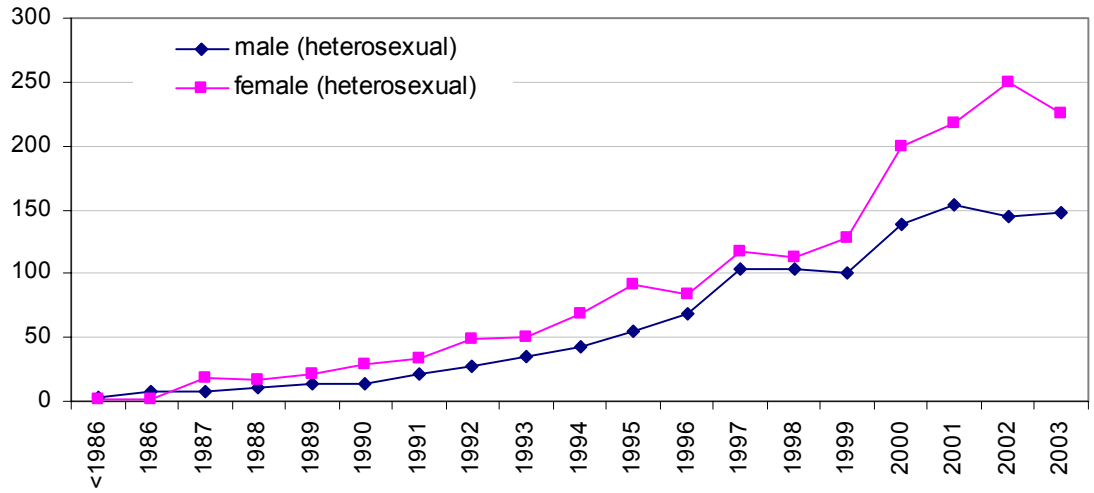


Figure 5: Number of HIV cases (heterosexuals), by year of HIV diagnosis and gender

A small majority (57%) of the HIV infected individuals originated from the Netherlands (table B.3). The largest non-Dutch group consisted of sub-Saharan Africans, accounting for 17% of the HIV cases. The second largest non-Dutch group (10%) included individuals from the Caribbean and Latin America, predominantly Surinamese and Antilleans (63%).

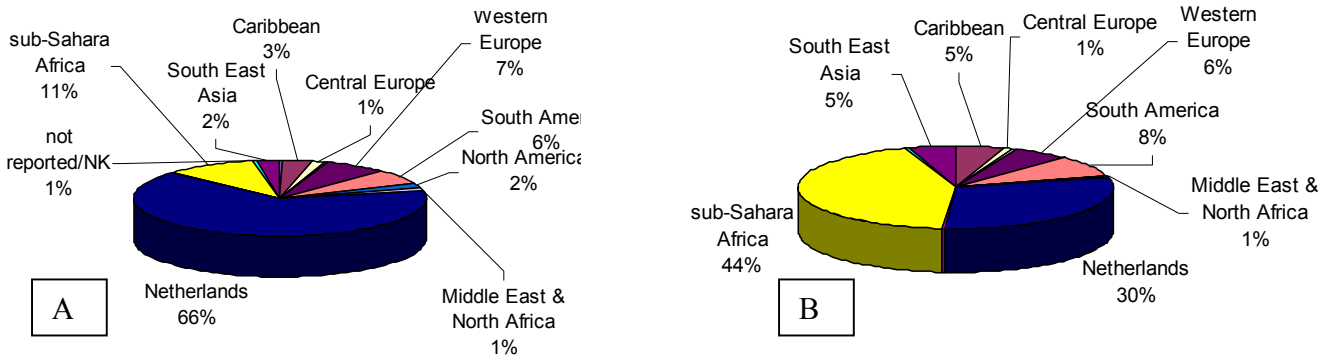


Figure 6: Geographic distribution of HIV cases, by gender (a: male, b: female)

A difference was observed by gender. Most HIV infected men originated from the Netherlands (66%), whereas the largest non-Dutch group among women were those from sub-Saharan Africa (44%) (figure 6a-b).

Over time, the number of new diagnoses among Dutch women remained stable: less than 50 cases per year (figure B.1). The number of non-Dutch women significantly increased over time (58% in 1996 and 85% in 2001, $p<0.0001$, chi-square test), due to an increase of women from sub-Saharan Africa (34% in 1996 and 60% in 2001). After 2001, the proportion of women from sub-Saharan Africa stabilised at 57% in 2003. The proportions of women from other regions did not change significantly over time.

In contrast to heterosexual men, the majority of MSM originated from the Netherlands (37% versus 74%) (table 1). The second largest non-Dutch group of MSM were men from other West European countries (8%). Among heterosexual men, 37% was of African origin, 37% was Dutch and 14% of Latin American or Caribbean origin.
Most IDUs originated from the Netherlands (69%), other West European countries (17%), and Latin America (4%).

Most HIV infected individuals were between 30 and 39 years of age at diagnosis. Men had a median age of 36 years, whereas women were significantly younger: 30 years. This did not change over the past few years. Individuals of non-Dutch origin were, in general, younger than Dutch individuals: 32 and 36 years, respectively (table B.6). For more information on MSM, migrant populations and young people with HIV: see chapter 8.

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

Region of origin	MSM (%)	Heterosexual (%)	IDU (%)
The Netherlands	3706 (74%)	926 (30%)	368 (69%)
Western Europe	391 (8%)	105 (3%)	92 (17%)
Central Europe	47 (1%)	46 (1%)	7 (1%)
Eastern Europe	16 (0.3%)	10 (0.3%)	6 (1%)
Sub-Saharan Africa	66 (1%)	1412 (45%)	5 (1%)
Caribbean	141 (3%)	175 (6%)	3 (0.6%)
Latin America	295 (6%)	282 (9%)	19 (4%)
North America	122 (2%)	5 (0.2%)	5 (1%)
North Africa & Middle East	21 (0.4%)	43 (1%)	11 (2%)
Australia & Pacific	26 (0.5%)	9 (0.3%)	1 (0.2%)
South (East) Asia	134 (3%)	119 (4%)	0 (0%)
Not reported/NK	36 (0.7%)	6 (0.2%)	7 (1%)
Total	5001	3138	532

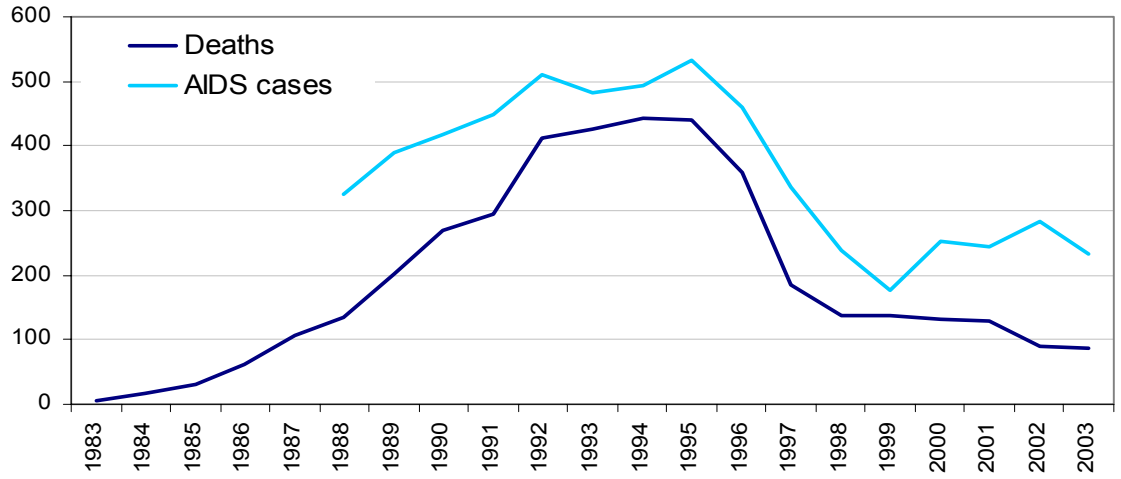
Footnote NK: not known; MSM: men having sex with men; IDU: injecting drug user

4.2 Newly diagnosed HIV cases in 2003

Of the 847 newly diagnosed HIV cases, 600 (71%) were male and 247 (29%) were female. Of those infected sexually (88%), half were infected heterosexually and half through sex between men. Ninety two percent of all female cases were heterosexuals. Sixty one percent of all newly diagnosed heterosexual cases were female.
Injecting drug use accounted for 2% of the new diagnoses. Seventy three percent of all IDUs were male. Risk through blood (products) represented 1% (n=7) of the HIV cases in 2003. For 8% the transmission risk group was undetermined (table B.10).

In 2003, 71% of the cases were diagnosed in the Western region of the country, of whom 53% were diagnosed in Amsterdam (table B.11).
Of the newly diagnosed cases, 47% originated from the Netherlands, 29% from sub-Saharan Africa, 10% from Latin America and the Caribbean, 6% from Western Europe, 4% from South (East) Asia and 4% from other regions (table B.13).
Over 60% of the cases diagnosed in 2003 were between 20 and 40 years of age. Thirty-two cases (4%) were identified among teenagers (15-19 years). The median age at diagnosis in 2003 was 36 years and differed per risk group: the median age in MSM was 39 years, in heterosexuals 33 years and in IDUs 42 years (table B.14-17).

4.3 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 registration Health Inspectorate, HIV Monitoring Foundation)

Figure 7: Number of AIDS cases and AIDS related deaths

By August 2004, a cumulative total of 6331 AIDS cases was registered in the Netherlands (table B.18-19). The annual incidence of AIDS cases peaked in 1995, and declined sharply over the subsequent four years (figure 7). Since 1999, the rate of decline had slowed and the curve stabilised at 230-80 cases per year. One of the factors responsible for the decline of AIDS cases is the wide availability of highly active antiretroviral therapy (HAART), which slowed progression from HIV to AIDS.[7]
The proportion of reported AIDS cases attributed to homosexual contacts decreased from 77% in 1988 to 41% in 2003. Conversely, there was an increase from 6% to 41% in the proportion of heterosexual AIDS cases.
The proportion of IDUs with AIDS fluctuated over the years between 3-14%. Overall, 4% of Dutch AIDS cases were reported with an unknown route of transmission.

The median age at AIDS diagnosis in 2003 was 38 years. Men were older than women at AIDS diagnosis, respectively 40 and 33 years. On average, individuals of Dutch origin were ten years older at AIDS diagnosis than individuals of African origin: 43 and 33 years (table B.20-21).

A very similar decline, as in the AIDS cases, was seen in the trend of AIDS related deaths (figure 7). Between 1983 and 2003, a cumulative total of 4065 individuals died because of AIDS, of whom 87 died in 2003. Antiretroviral treatment, which had a major effect on AIDS related deaths[8], increased the number of AIDS patients alive in 2003 to more than 2000 (figure 8).

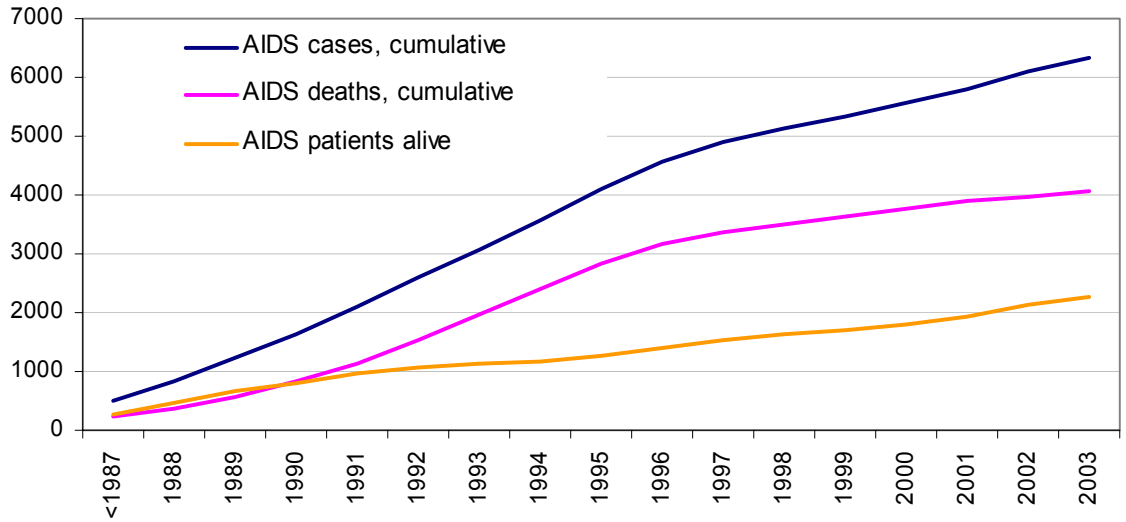


Figure 8: Cumulative number of AIDS cases, AIDS deaths, and AIDS patients alive in 2003

5. High risk groups

5.1 Injecting drug users

Between 1994 and 2003, 16 surveys among IDUs were conducted in 9 different regions (Amsterdam, Rotterdam, Limburg, Twente, Brabant, The Hague, Arnhem, Groningen, Utrecht). The primary objectives of the study were to monitor the HIV prevalence and risk behaviour to assess the potential for further spread.
IDUs were enlisted through health care institutions (e.g. methadone care, needle exchange, low threshold daytime care projects), supplemented by recruitment at street (including prostitution projects) and detainment sites. The survey population is made up of IDUs who use hard drugs regularly. Respondents were asked to give a saliva sample for HIV testing and a questionnaire on demographics and risk behaviours.[9]

Approximately, 3500 IDUs participated in the surveys in various cities in the Netherlands. HIV prevalence rates ranged from 0.5 to 26% (table 2). The highest prevalence rates were found in Amsterdam (26%) and Heerlen (South Limburg, 22%). HIV prevalence remained stable in all cities except for Heerlen (1994:11%, 1996; 16%, 1998/99: 22%). Of the participants, 64% originated from the Netherlands.
In the six months preceding the survey, a considerable proportion of the participants had borrowed syringes or needles from some one 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 IDUs reporting recent borrowing of drug equipment decreased in all cities where repeated surveys were conducted.[9]
There is a potential for further spread of HIV from IDUs to the general population, given the high prevalence and reported unsafe sex, also with non-IDUs.

Table 2: HIV prevalence and risk behaviour among IDUs

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%
South	1994	10%	19%	14%	39%	87%
Limburg[II]	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 IDUs that borrowed used syringes or needles in the last six months. II. Percentage of IDUs 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

5.2 Migrant populations

Migrants from areas where HIV is endemic are likely to be at risk for HIV through sexual contact in their country of origin. Individuals from Sub-Saharan Africa, Surinam and the Netherlands Antilles form relatively large immigrant groups in the Netherlands. However, little is known on these groups and the determinants of risk behaviour in the country of origin. The only study available was carried out by the MHS in Amsterdam in 1997/1998. HIV prevalence in this study was 1.1%. Sexual contact in the country of origin was frequently reported. Risk behaviour and sexual contact between various ethnic groups (intermixing) were often found.[10]
To obtain more insight in these populations and to study the intermixing, risk behaviour and the potential to further spread, HIV surveys were set up. First, pilots were carried out to test the questionnaire and methodology in these groups.
In 2002, the RIVM started anonymous unlinked HIV surveys in which at least 200 participants were included per ethnic subgroup. Locations for recruitment were determined in the course of social mapping together with migrant organizations and the public health service (e.g. festivals,

churches, sports events, and community centres). The major focus of the study is to determine HIV prevalence, risk behaviour and intermixing between ethnic groups and with the general population.
The MHS in Amsterdam started a project in 2002 among Surinamese and Antilleans that aims to investigate the characteristics of travellers, their sexual behaviour while travelling, and the sexual networks. The main purposes of the study are to investigate the risk of heterosexual HIV transmission on visits to the country of origin, and the epidemiological relationships between countries by genotyping HIV strains. For this study, saliva and blood samples are collected in the Netherlands, Surinam, and the Netherlands Antilles. The first results of these projects are expected in 2005.

5.3 Commercial sex workers and clients

Since commercial sex workers (CSWs) have many sexual contacts, and their clients can form a bridge to the general population, the anonymous unlinked HIV surveys also include these groups. The main purpose of the surveys is to investigate HIV prevalence, the sexual risk behaviour with clients and with non-commercial partners, and the mobility of CSWs. The first surveys among CSWs were conducted in Rotterdam (2002) and Amsterdam (2003/2004). In each survey, 200-400 CSWs are recruited. In Rotterdam, CSWs working in a streetwalkers districts, clubs and brothels were included. In Amsterdam, also window prostitution is included. In 2004, a pilot among clients of CSWs was carried out in Amsterdam to asses the feasibility of a HIV survey in this group. The first results of the surveys among CSWs and their clients are expected in 2005.

5.4 STI clinic attendees and other test sites

Visitors of STI clinics 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 3 provides an overview of trends in HIV positive test results obtained from surveys at STI clinics in Amsterdam and Rotterdam, the former STI registration until 2003, and the STI sentinel surveillance network in 2003.[11 12 13 28]

Among MSM prevalence rates varied between 0 and 22% (table 3). The HIV prevalence in the anonymous surveys is 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 (up to 20% in 2003). The increase, however, was mainly caused by known HIV positive MSM attending the STI clinic. By including only newly diagnosed HIV infected MSM, the HIV prevalence was 7%.

In Rotterdam, the HIV prevalence was also 7% in 2003 when known HIV positive MSM were excluded.
At the alternative test site of the MHS in Amsterdam, HIV prevalence among MSM varied between 4 and 9%. There was no significant trend over time.
At 'Checkpoint', a one-hour HIV testing facility in Amsterdam that started in June 2002, the HIV prevalence among MSM was 4.5% in 2003, which is similar to the prevalence at the alternative test site and the regular screening at the STI clinic of the MHS (3.5% and 4.2%, respectively). Over a 1000 HIV tests were done at Checkpoint in 2003.[14] Checkpoint is staffed by the HIV association Netherlands (HIV Vereniging Nederland) and focuses on MSM. The rapid procedure may persuade those at high risk who refrain from or postpone HIV testing because of the one-week waiting period after the conventional HIV test. In 2003, 66% of the visitors give 'rapidity of the test result' as the main reason to visit Checkpoint. For more information: www.hivnet.org.

HIV prevalence among heterosexual visitors of STI clinics was low (0-1.4%) and stable over time.

Table 3: HIV prevalence among STI clinic attendees and other test sites [11 12 13]

Region and source	1997	1998	1999	2000	2001	2002	2003
MSM							
STI clinic Amsterdam							
- Regular	4.8 %	4.1 %	4.3 %	5.7 %	4.7 %	3.8 %	4.2%
- Anonymous	11.8 %	9.5 %	12.7 %	16.9 %	14.6 %	20.3 %	20.1%*
Alternative test site Amsterdam	9.4 %	3.8 %	3.5 %	3.7 %	8.0 %	7.2 %	3.5%
STI clinic Rotterdam							
- Regular	4.3 %	4.4 %	4.3 %	1.6 %	2.9 %	6.2 %	1.7%
- Anonymous	5.7 %	0 %	7.2 %	10.8 %	12.0 %	13.4 %	22.4%*
STI registration	1.9 %	3.6 %	3.8 %	3.8 %	3.4 %	5.4 %	Ended
STI sentinel surveillance network	-	-	-	-	-	-	3.3%
Checkpoint	-	-	-	-	-	6.7%	4.5%
Heterosexual risk groups							
STI clinic Amsterdam	0.5 %	0.4 %	0.2 %	0.3 %	0.6 %	0.5 %	0.3%
- Regular, male	0.9 %	0.3 %	0.3 %	0.9 %	0.4 %	0.4 %	1.0%
- Anonymous, male	0.5 %	0.3 %	0.5 %	0.2 %	0.3 %	0.4 %	0.3%
- Regular, female	1.1 %	1.1 %	0.7 %	0.6 %	0.3 %	0.8 %	0.5%
- Anonymous, female							
Alternative test site Amsterdam							
- Male	0.6 %	1.0 %	0.8 %	0.4 %	0 %	0.5 %	0%
- Female	0.7 %	0 %	0.6 %	0.5 %	0.6 %	0.8 %	0%
STI clinic Rotterdam							
- Regular, male	0.8 %	0.4 %	0.6 %	0.7 %	0.4 %	0.3 %	0.5%
- Anonymous, male	0.3 %	1.4 %	0.2 %	0.2 %	0.8 %	0.5 %	1.0%
- Regular, female	0.6 %	0.8 %	0 %	0.2 %	0.4 %	0.3 %	0.3%
- Anonymous, female	0 %	0.8 %	0.5 %	0.3 %	0.8 %	0.9 %	1.0%
STI registration							
- Male	0.1 %	0.4 %	0.6 %	0.4 %	0.3 %	0.5 %	Ended
- Female	0.6%	0.2 %	0.4 %	0.4 %	0.3 %	0.6 %	Ended
STI sentinel surveillance network							
- Male	-	-	-	-	-	-	0.3%
- Female	-	-	-	-	-	-	0.3%
Checkpoint							
- Male	-	-	-	-	-	0.7%	0.3%
- Female	-	-	-	-	-	1.1%	1.0%

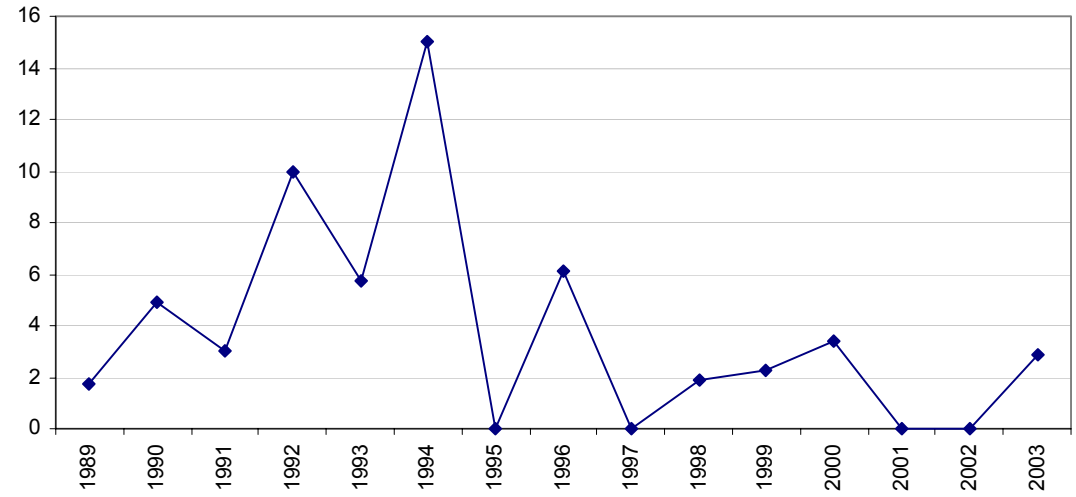
* Known HIV infected included

6. 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.

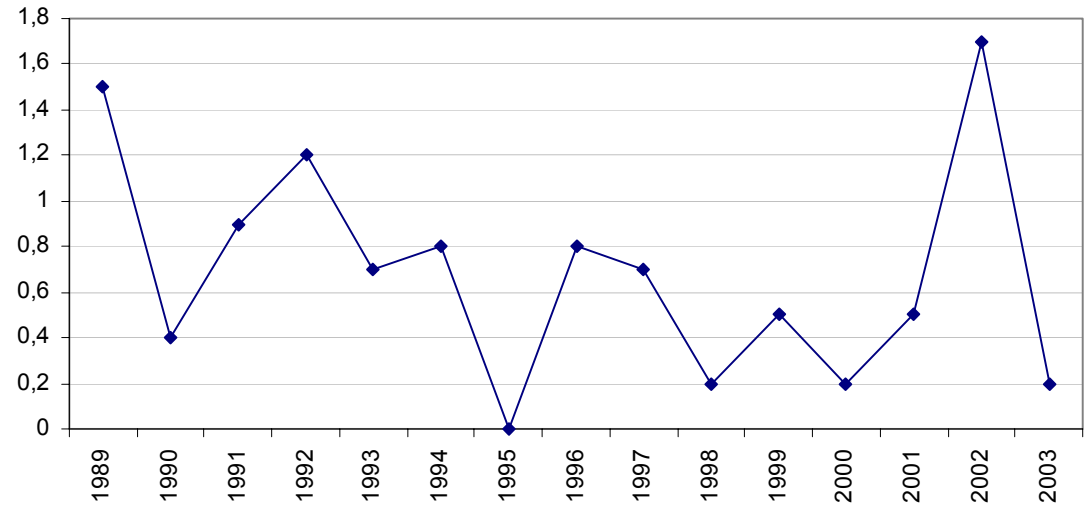
6.1 Blood donors

In 2003, 509600 blood donors were registered in the Netherlands. The overall prevalence and incidence of HIV antibodies have been low in that year: new donors: 0.0029% (prevalence), regular donors: 0.0002% (incidence). No marked trend over time was observed (figure 9-10).



Source: C. van der Poel, personal communication, Stichting Sanquin Bloedvoorziening, Amsterdam

Figure 9: HIV prevalence (per 10^5 donors) among new blood donors in the Netherlands



Source: C. van der Poel, personal communication, Stichting Sanquin Bloedvoorziening, Amsterdam

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

6.2 Pregnant women

Since 1988, pregnant women in Amsterdam are tested for HIV in a sentinel surveillance study.[15] Until 2002, HIV prevalence was slightly increasing; the last few years mainly due to an increase of known HIV positive women becoming pregnant (figure 11). In 2003, HIV prevalence was 1.2% (24/1952) which is slightly lower than in 2002 (1.4%, 26/1912).
Since 2003, all pregnant women in Amsterdam are offered an HIV test. In that year, 13329 women were tested (2.1% refused). Thirty five women were HIV positive (0.3%). Of these, 16 knew their HIV positive serostatus; 26 had a non-Dutch origin (74%) (18 sub-Saharan Africa, 4 Surinam/Antilles, 1 Caribbean, 3 other).[15]

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 Healthcare Insurance Board (College voor Zorgverzekeringen, CVZ) is collecting the information on HIV test results from the regional vaccination bureaus.
In the first six months of 2004, 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 12).

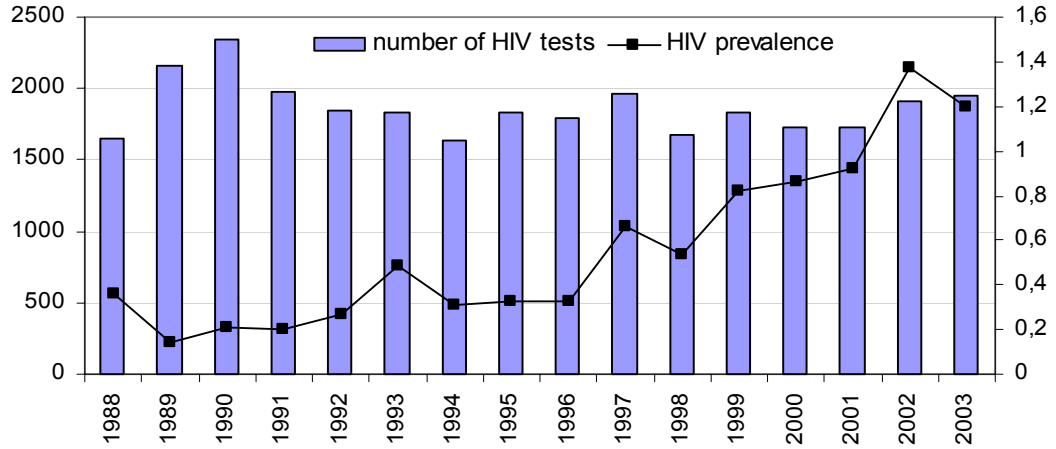
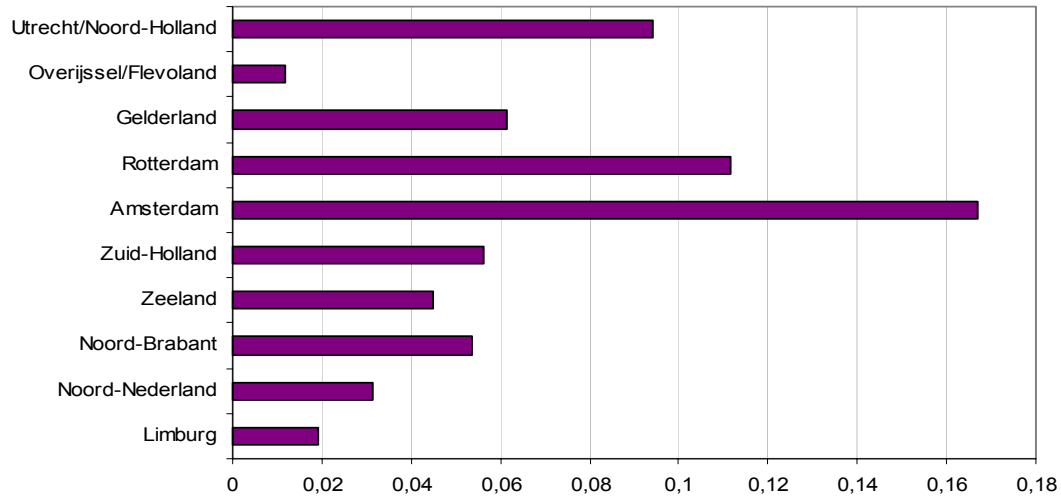


Figure 11: HIV prevalence (%) and number of tests among pregnant women in Amsterdam (sentinel study)



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

Figure 12: HIV prevalence (%) among pregnant women in the Netherlands, by geographic region

7. HIV incidence and national estimate

7.1 HIV incidence

The yearly HIV incidence among MSM and drug users are obtained from the Amsterdam Cohort Studies (ACS) of HIV infection and 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 (≤30 years) MSM. For more details[16]: www.amsterdamcohortstudies.org.

The HIV incidence among MSM in the ACS in 2003 was estimated at 1.8 per 100 person-years (PY). The last decade, the HIV incidence is relatively stable in the range of 0-2 per 100 PY. Compared to 2002 (1.4/100 PY), the HIV incidence in 2003 is slightly higher (figure 13).[16]

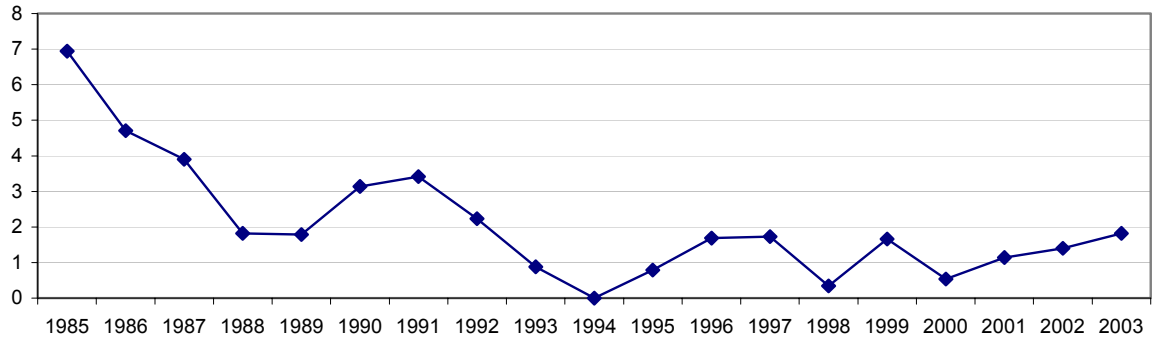


Figure 13: Yearly HIV incidence among MSM (30 years or younger at entry) in ACS

The first enrolment of IDUs in the ACS took place between 1985-1990. From 1998, recruitment was focused on young drug users (≤30 years). From 1999, no HIV infections were found among IDUs. Among all drug users (including non-injecting), one HIV infection was found in 2001 and one in 2002. In 2003, no drug users were tested HIV positive (figure 14).[16]

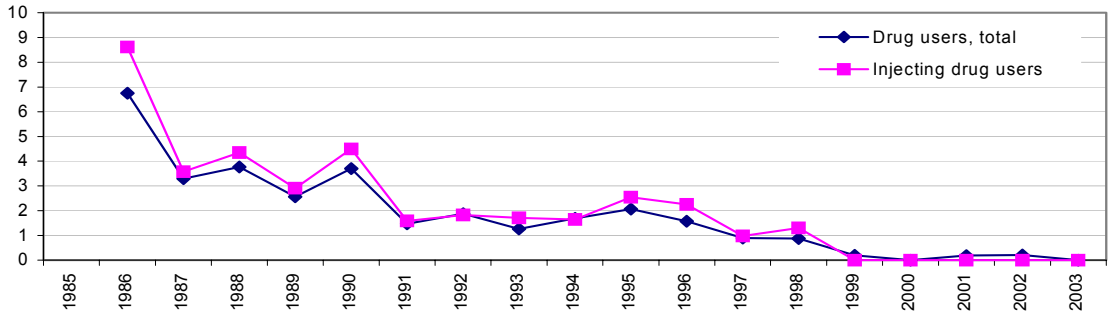


Figure 14: Yearly HIV incidence among IDUs (30 years or younger at entry) in Amsterdam

7.2 National estimate of HIV infections, 2003

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. The workbook program is suitable for estimates and short term projections of HIV/AIDS in countries with low level and concentrated epidemics. Estimating the number and distribution of PLWHA is important in deciding how prevention resources should be allocated, as well as planning care and support needs on a national scale.[17]

The workbook approach focuses on defining populations highly exposed to HIV and the spread of HIV to groups less exposed. Estimates of populations sizes and HIV prevalence rates were used to calculate the number of PLWHA in the Netherlands.[18] 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: IDUs, MSM, migrants from HIV endemic regions, CSWs, and attendees of STI clinics. The HIV prevalence in low-risk groups (adults, 15-49 year) was calculated by using HIV data from pregnant women. For details on methods: appendix D.

The total number of PLWHA in the Netherlands in 2003 is estimated at 16410 [9659 - 20443] (table 4). 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 5417 (33%). The adult HIV prevalence rate - across the total population of age 15-49 - is 0.2%. The HIV prevalence among IDUs and MSM in the Netherlands are estimated at 9.1% and 5.8%, respectively (data not shown). The ratio between individuals at low risk (PLR) and high risk (PHR) for HIV is 0.23.

Table 4: Estimate of PLWHA in the Netherlands in 2003

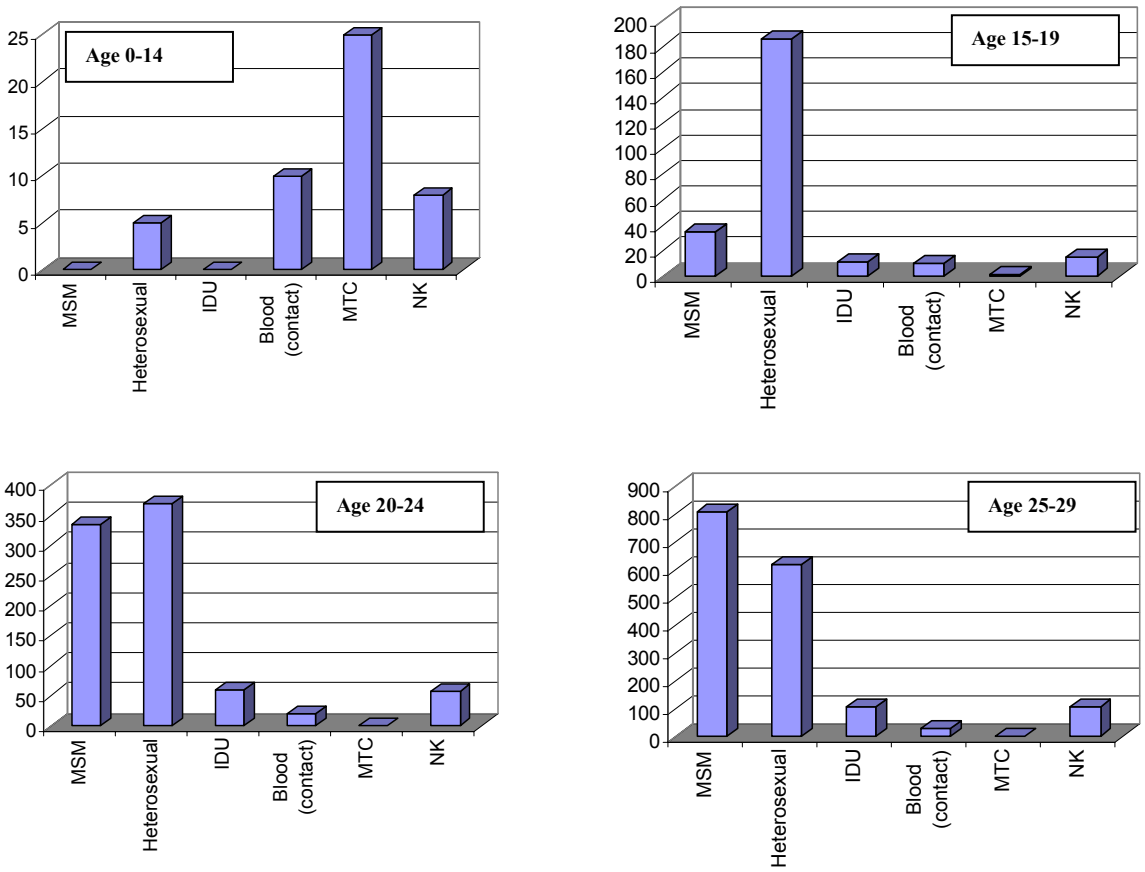
National Estimates for year:	**2003**
Number of Adults (15-49) LWHA	16410
Adult Prevalence (15-49)	0.2%
Number of Women (15-49) LWHA	5417
% of adults (15-49) who are women	33%

Finally, the estimate on populations affected by HIV/AIDS in the Netherlands should constantly being improved on the basis of new data and research findings. For some risk groups, more recent HIV prevalence rates are needed. However, ongoing new HIV surveys among immigrant populations, CSWs and their clients will provide new prevalence rates the coming years.

8. Focus on young people, migrant populations, MSM

8.1 Young people

Of all HIV cases in the HMF monitoring system, 270 (3%) were teenagers (10-19 years), 840 (9%) were young adults (20-24 years) and 1674 (18%) were individuals aged 25-29 years. The distribution of the transmission risk groups differed per age group. Children aged 0-15 most often acquired the infection from their mother. Among teenagers aged 16-19, the majority is infected through heterosexual contact; while among individuals above 20 sex between men became increasingly important (figure 15).



Footnote: MTC= mother to child

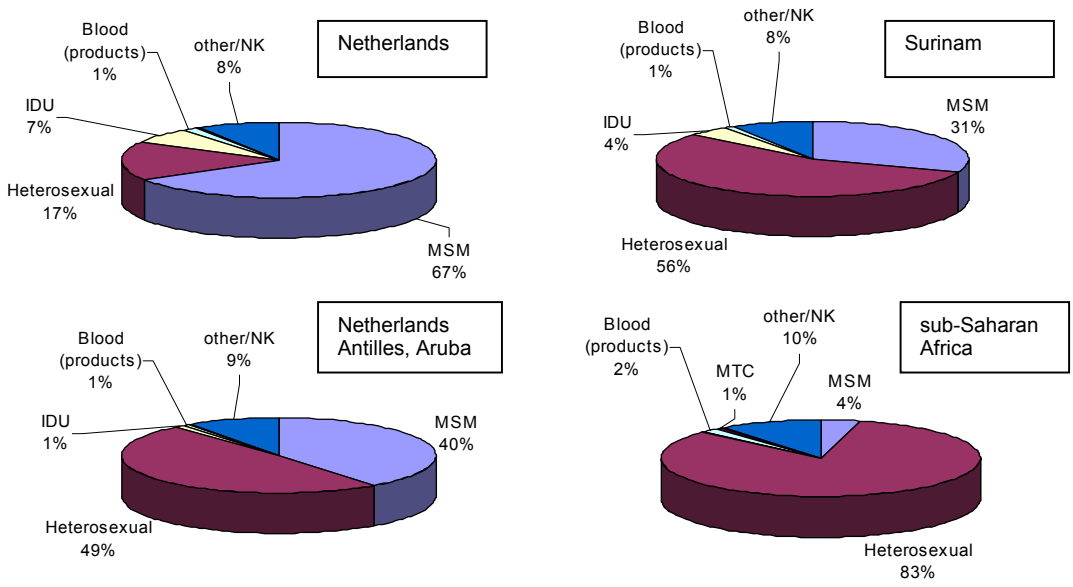
Figure 15: Number of HIV infected individuals, by age group and transmission risk group

Sixty percent of the children younger than 15 years were Dutch and 29% were born in sub-Saharan Africa. Of children aged 15-19, the majority originated from sub-Saharan Africa (60%). Young adults (20-29 years) most often originated from the Netherlands, sub-Saharan Africa (23%) and Latin America/Caribbean (9%) (figure B.6).
At present, the registration of HIV infected children is still incomplete due to the recent formation of a more elaborate registration system.

8.2 Migrant populations

Forty-two percent of all registered HIV cases were born abroad. Fifty-three percent of all migrants was infected through heterosexual contact. The majority (41%) originated from sub-Saharan Africa, 24% from Latin America/Caribbean, 16% from Western Europe, and 6% from South (East) Asia.

Figure 16 shows the distribution of transmission risk groups among HIV infected individuals by country of origin. The most prevalent risk group among the Dutch population was MSM (67%), while sex between men only accounted for 4% of the infections among Africans. The proportions of MSM among individuals from Surinam and the Netherlands Antilles were 31% and 40%, respectively.



Footnote MTC: mother to child; IDU: injecting drug use; MSM: men having sex with men

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

The majority of the heterosexuals acquired the infection abroad (61%). For heterosexuals of non-Dutch origin, 78% was infected abroad, most often in the region from which they originated (table B.24). Of the individuals from sub-Saharan Africa, for whom the country of infection is known (66%), 87% was infected in sub-Saharan Africa. Among Surinamese individuals, 28% was infected in Surinam and 70% in the Netherlands. Of the individuals from the Netherlands Antilles/Aruba, 44% was infected in the region of origin and 48% in the Netherlands (see also: report HIV Monitoring Foundation 2003).[19]

Among heterosexual women, African women were the youngest at diagnosis (median age: 28 years). West European women were older: 32 years. Among heterosexual men, Dutch and Asian men were the oldest: 40 and 42 years. African men were the youngest: 34 years (table 5). The median age at HIV diagnosis was stable over time for heterosexuals originating from sub-Saharan Africa, and Latin America/Caribbean. The median age of heterosexuals born in the Netherlands increased from 29 years in 1992 to 39 years in 2003 (figure B.7).

Table 5: Median age (years) of heterosexual population, by region of origin and gender

Region of origin	Male (age/IQR)	Female (age/IQR)	Total (age/IQR)
The Netherlands	40.4 (32.7-48.8)	31.5 (26.0-41.5)	35.7 (28.5-45.7)
Western Europe	37.5 (33.5-47.4)	31.9 (28.9-40.5)	35.2 (30.2-45.0)
Sub-Saharan Africa	33.6 (28.2-38.2)	28.4 (23.7-33.7)	30.4 (24.9-35.6)
Caribbean	36.0 (30.4-42.9)	31.1 (25.2-38.0)	33.0 (27.3-39.5)
Latin America	37.4 (31.9-46.6)	30.9 (26.3-37.6)	33.8 (28.0-41.2)
South (East) Asia	42.4 (33.5-52.5)	30.5 (26.5-34.9)	31.7 (27.5-36.4)

Footnote: IQR= inter-quartile range

8.3 Men who have sex with men

The majority of MSM with HIV is Dutch (74%) (table 1). Other frequently reported regions of origin are: Western Europe (8%), Latin America (6%), the Caribbean (3%), and South (East) Asia (3%). These proportions did not change significantly over time.
For 68% of the MSM, the country of infection was known (table B.24). The majority of the men (89%) was infected in the Netherlands. Among the MSM who were born in the Netherlands this proportion was 97%. Of the non-Dutch MSM, 58% was infected in the Netherlands.

Of all MSM, 7% is younger than 25 years at HIV diagnosis (table B.5). Ten percent is 50 years or older. MSM are, in general, younger at HIV diagnosis than heterosexual men (table 5-6). MSM from the Caribbean and Latin-America are the youngest: 32 years. The oldest are MSM from the Netherlands (table 6).

Table 6: Median age (years) of MSM population, by region of origin

Region of origin	Total (age/IQR)
The Netherlands	37.0 (31.3-43.9)
Western Europe	33.2 (28.5-39.3)
Sub-Saharan Africa	32.1 (27.5-37.5)
Caribbean	31.7 (26.7-37.6)
Latin America	31.6 (27.2-36.9)
South (East) Asia	33.2 (28.0-39.2)

Footnote: IQR= inter-quartile range

The median age of MSM at HIV diagnosis is increasing over time (figure B.8). For Dutch MSM, the age increased from 31 years in 1985 to 40 years in 2003. Age at diagnosis of non-Dutch MSM increased from 29 years to 35 years.

Part B. Sexually Transmitted Infections

9. STI clinic attendees

Key points

- In 2003, 42674 new consultations were registered in the STI sentinel surveillance network.
- In 2003, the number increased by 8% compared with 2002.
- Characteristics of clinic attendees were as follows: young (35% below 25), Dutch origin (75%), proportion of homo and bisexual men (30%) and commercial sex workers (11%), 23% had a history of STI and 35% was not previously tested for HIV.

9.1 Recent trends

In 2003, 42674 new consultations (increase of 8%) were registered within the STI sentinel surveillance network; 23110 (54%) among men, 19540 (46%) among women and 24 (0.1%) among transgenders (table C.1). Forty-five percent of these were reported by the STI clinic in Amsterdam. More than half of the attendees (55%) had an STI examination, 2% had an HIV test and 43% had both an STI examination and an HIV test (figure 17).

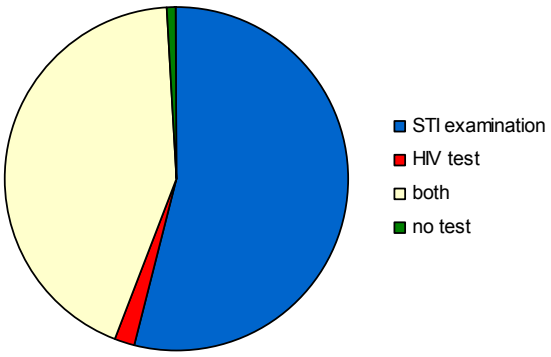


Figure 17: Consultations by STI examination, HIV test or both, 2003

For most of the attendees the reason for consultation (table C.10) was risk behaviour (43%), followed by symptoms (35%) and a new sexual relationship (14%). Other reasons for consultations were risk behaviour of and symptoms in partner (7%), HBV vaccination (6%), periodic screening (6%), notified by partner (5%) or else (7%) (figure 2). The category ‘else’ in case of HIV testing was large and consisted of, e.g. anxiety (n=321; 30%), HIV testing no reason specified (n=256; 24%), and sexual violence (n=89; 8%). STI clinic attendees are on average young (35% is younger than 25 years of age). The age distribution differed by gender with the highest peak among 25-29 years for men (followed by 20-24 years and 30-34 years) and among 20-24 years for women (followed by 25-29 and 15-19 years) (table C.3). About three quarter

(74%) of the clinic attendees were from Dutch origin; women: 76% (n=14747) and men: 72% (n=16619). Other groups originated from Surinam (5%), sub-Saharan Africa (3%), Latin America (3%), Eastern Europe (2%), the Netherlands Antilles (2%), Morocco (2%), Turkey (1%) and other (5%) (table C.4). Furthermore, a total of 135 different foreign countries were reported.

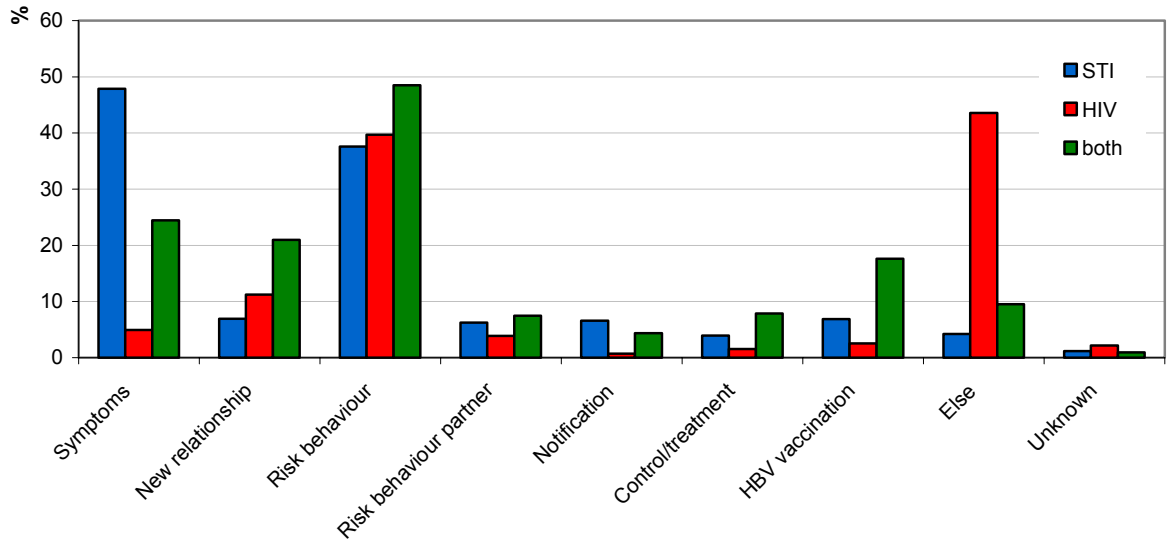
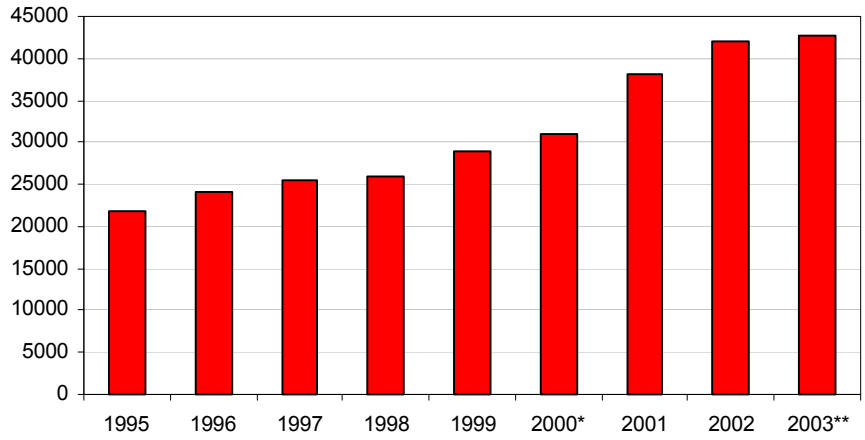


Figure 18: Reasons of consultation by STI examination, HIV test or both, 2003

Over the past four years the number of consultations has risen continuously (figure 19). This increase overwhelmed the capacity of most STI clinics and STI services of public 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, so results should be interpreted with caution. See limitations of surveillance data (chapter 3.2).

9.2 Determinants of attendees

Thirty percent of all male attendees reported sex with men (table C.5). Of all female attendees, 11% (n=2062) worked as a CSW the past 6 months and 7% (n= 1502) of all males reported visiting CSWs the past 6 months (table C.6). For 5% of all attendees, these data were missing. Recent injecting drug use (past 6 months) was reported by 0.2% of the attendees (n=92) and these data were missing for 2% (table C.7). On average, 23% (n=9974) of the attendees reported a history of STI (gonorrhoea, infectious syphilis or chlamydial infection); 28% of all males and 18% of all females.



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

Figure 19: Number of consultations in the STI registration (STI clinics and public health services) and the STI sentinel surveillance network, 1995-2003

Thirty five percent of the attendees (n=14928) was never tested for HIV antibodies (32% men, 39% women); 32% (n=13661) was previously tested HIV negative (35% men, 28% women) and 1.9% (n=829) was previously tested HIV positive (3.4% men, 0.2% women) (table C.8). Data were missing in 31% (n=13109) of the consultations. Because of the underreporting, the real number of HIV infected individuals attending STI clinics is likely to be larger than the number reported here. Half of the attendees who were never tested for HIV were tested in the present consultation.

10. Genital chlamydial infection

Key points

- Genital chlamydial infection was the most common diagnosis made in the STI sentinel surveillance network in the Netherlands in 2003.
- The number of new diagnoses of chlamydial infection did not increase between 2002 and 2003.
- Individuals younger than 25 years of age were at highest risk for genital chlamydial infection, in particular women.

10.1 Recent trends

In 2003, 3731 diagnoses of genital chlamydial infection were made (2064 in men and 1667 in women) in the STI sentinel surveillance network (table C.11a). The number of infections remained stable compared with 2002 (n=3732). This is lower than the 17% increase seen between 2001 and 2002. In MSM, 54% of the infections were anorectal, 0.1% orally and 44% urethral. In women, 5% of the diagnoses were anorectal (table C.11b). Genital chlamydial infection was the most common diagnosis. Rates of diagnoses were fairly unevenly distributed across the Netherlands (range: 8 – 263 per 100000) with the lowest rates being seen in the region Brabant, the Northern provinces, and the Eastern part of Limburg (figure 20).

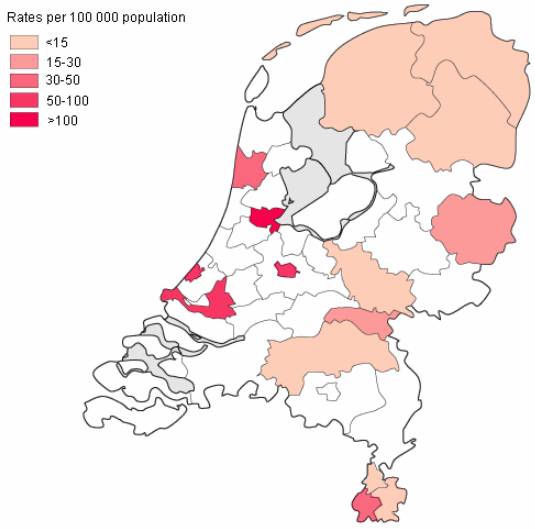
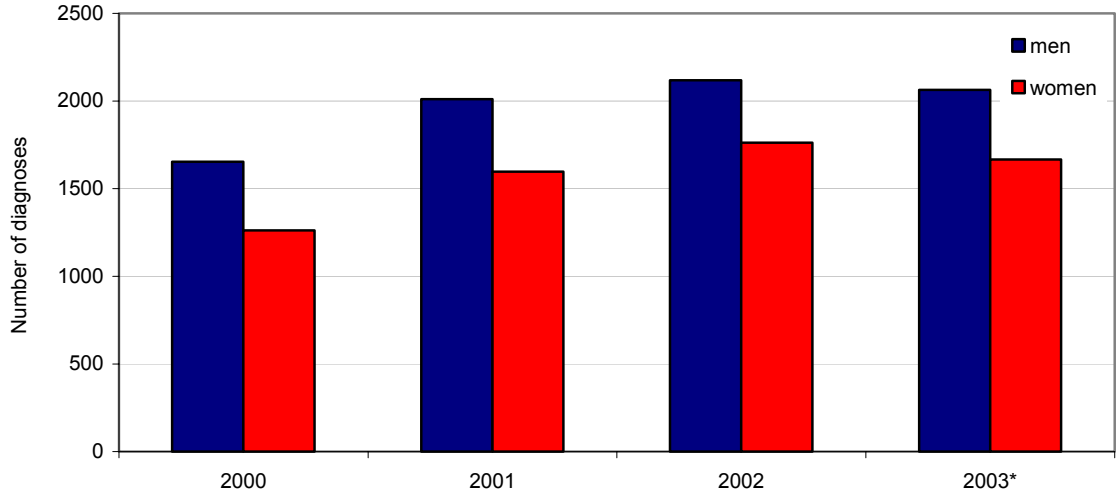


Figure 20: Rates of diagnoses of genital chlamydial infection by region, STI sentinel surveillance network, the Netherlands, 2003

The highest percentage of diagnosis was among men and women aged 20-24 (M: 25%, F: 45%); for women followed by those aged 15-19 (21%) and for men aged 25-29 (23%). The number of infections declined rapidly in women above 25 years (table C.12).
Over the past four years, the number of diagnoses of genital chlamydial infection has increased consistently, by 28% (2000-2003); the increase was greater for women (32%) than for men (25%) (figure 21).



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

Figure 21: Number of genital chlamydial infections by sex, 2000-2003

10.2 Determinants of infection

Among men, 30% (n=651) of the genital chlamydial infections were diagnosed in MSM. This percentage of MSM was fairly small compared with that in gonorrhoea (62%) and syphilis (87%) (table C.14). Among men, 5% of the infections were diagnosed in men who had recent (past 6 months) contact with CSWs, whereas in women 8% of the chlamydial infections were diagnosed in CSWs (table C.15). About 67% of the diagnoses in men were made in Dutch males, 74% in Dutch females. The highest percentage of diagnosis was made in men from Surinam, the Netherlands Antilles and Aruba (14%); this percentage was 12% for women (table C.13). In 4% (n=150) of the cases of genital chlamydial infection the diagnosis was made in individuals who reported a prior positive HIV test. (i.e. known HIV infected); 34% of the individuals diagnosed with chlamydial infection were never tested for HIV before, and the information was missing for 32% of the cases (table C.17). A history of gonorrhoea, infectious syphilis or chlamydial infection was reported by 30% of the individuals diagnosed with genital chlamydial infection:

37% for men and 21% for women. This percentage was relatively small compared with gonorrhoea (50%), and syphilis (48%) (table C.18).
Rates of positive test results (i.e. the percentage of positive tests to the total of chlamydia tests) are slightly higher in MSM (10%) than in heterosexual men and women (both 9%). The highest rate is found among MSM aged 35-39 (13%) followed by those aged 25-34 and 40-44 years (11%). In women, the highest rate was found in those aged 15-19 (16%), followed by those aged 20-24 (11%). In heterosexual men, the rate was the highest in cases aged 15-19 (15%), followed by cases aged 20-24 years (13%) (table C.19).

10.3 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 hybridization 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 2000 and 2003, 62098 tests to diagnose infection with *Chlamydia trachomatis* were carried out of which 4041 were positive (6.5%) (table 7). In women, the percentage of positive tests was 5.3% and in men 9.4%. The number of tests doubled in 2001 because of the inclusion of a large laboratory within the laboratory surveillance project. In 2002, the number of tests increased by 14% and decreased again by 11% in 2003. This decrease was mainly due to a laboratory that was excluded in June 2003. The percentage of positive results increased in 2001 and remained at the same level there after.

Table 7: Number of tests and positive results for chlamydia diagnosed by laboratories (Source: RIVM-ISIS)

	2000	2001	2002	2003
Number of tests	7873	17088	19418	17719
Positive test result	409	1153	1315	1164
Percentage positive	5.19	6.75	6.77	6.57

*In February 2001 and May 2001 2 laboratories were included; in June 2003 one laboratory was excluded.

The incidence of infection with *Chlamydia trachomatis,* as monitored by the laboratories in the ISIS project, was calculated as described in chapter 3.4 (figure 22). The overall incidence increased substantially in 2001 due to the inclusion of a large laboratory (as described above). From 2001 onwards, the average weekly incidence has remained fairly constant between 1.1 and 1.6 disease episodes per 100000 population, but seems to increase in the second half of 2003. The incidence was two or three times as high than the incidence of gonorrhoea, monitored by the same laboratories. Laboratory data by age group for young people (under 24 years) demonstrated an increasing trend in the number of tests in all age groups. The percentage of positive test

results by age group shows an increasing trend for 20-21 years (16% in 2003) and is decreasing for 22-23 years (12% in 2003). Nonetheless, the overall percentage of positive test results for young people was consistently twice as high as the average percentage (figure 23).

Figure 22: Incidence of infection with Chlamydia trachomatis, by 13 weeks running average, 2000-2003 (Source: RIVM- ISIS laboratory surveillance)

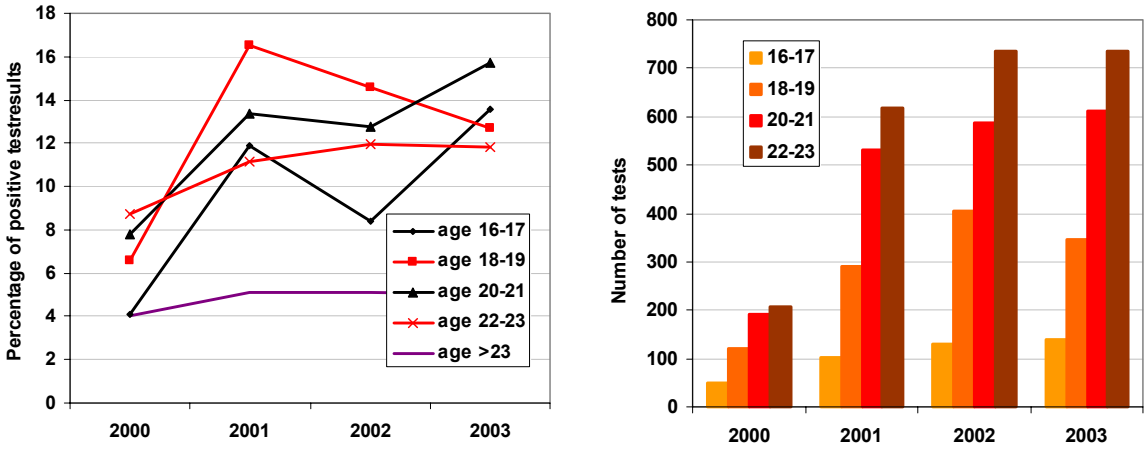


Figure 23: Number of tests (b) and percentage of positive test results (a) by age, Chlamydia trachomatis, 2000-2003. In (b) the total number of tests for age >23 is not shown (n=9000-9990) (Source: RIVM- ISIS laboratory surveillance)

10.4 Weekly reports from virological laboratories

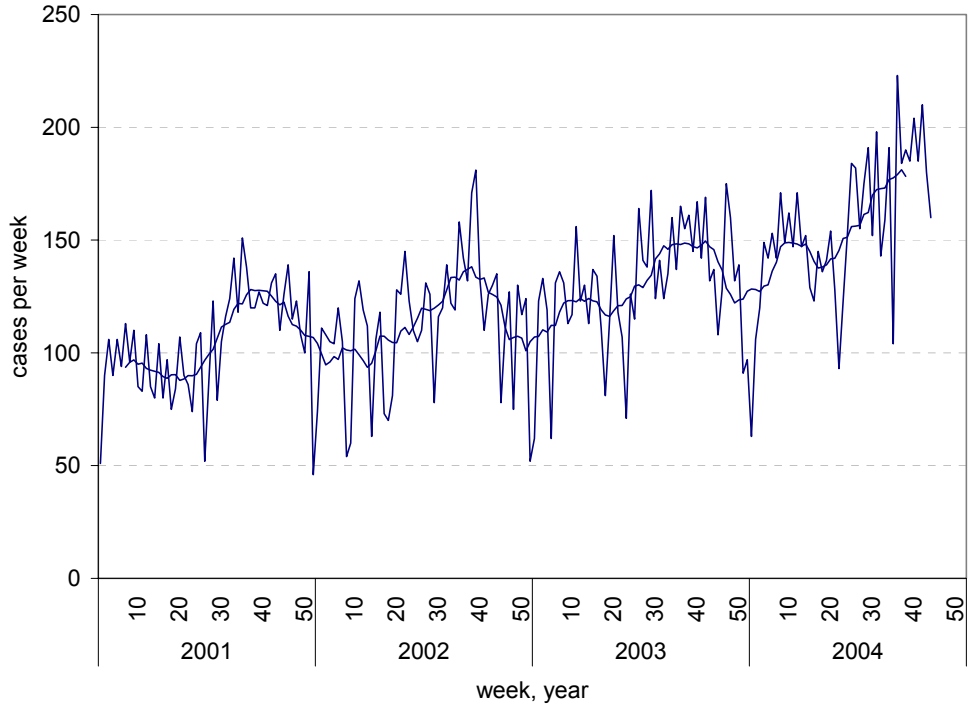


Figure 24: Number of diagnoses of Chlamydia trachomatis, reported by the virological laboratories in the Netherlands, by 13 weeks running average, 2001-2004 October (Source: RIVM – ISIS laboratory surveillance (except for Arnhem laboratory))

The number of diagnoses of *Chlamydia trachomatis*, as reported by the virological laboratories in the Netherlands, appeared to have increased in October 2004 (2001 n=5422; 2002 n=5867; 2003 n=6755; 2004-oct. n=6853) (figure 24). The increase between 2001-2002 was similar as observed in the STI registration. The increase in 2003 was not observed in the STI sentinel surveillance network. The difference was likely to be caused by variation in geographical coverage and needs further examination. This is also due to the further increase in virological reports in 2004.

11. Gonorrhoea

Key points

- In 2003, 1396 diagnoses of gonorrhoea were made in the STI sentinel surveillance network in the Netherlands.
- In 2003, the number diagnoses of gonorrhoea decreased by 16%.
- Men and women below 25 years of age were at highest risk for gonorrhoea, as were men and women from Surinam, the Netherlands Antilles and Aruba.
- 698 diagnoses of gonorrhoea were made in MSM, accounting for 61% of the cases seen in men.
- In a survey among public health laboratories, an increase of resistance to ciprofloxacin (9.5%) was observed in 2003.

11.1 Recent trends

In 2003, 1396 diagnoses of gonorrhoea were made (1140 in men and 255 in women) and declined 16% compared with 2002 (n=1658) (table C.11). In MSM, 41% of the infections were anorectal and 58% urethral. In women, 15% of the diagnoses were anorectal (table C.11c). Rates of diagnoses were unevenly distributed across the Netherlands (range: 1-105 per 100000) with the highest rates in Amsterdam, followed by The Hague, Rotterdam and Utrecht. In the other regions, the rates were relatively low (less than 2 per 100000), except for the Twente region (figure 25).

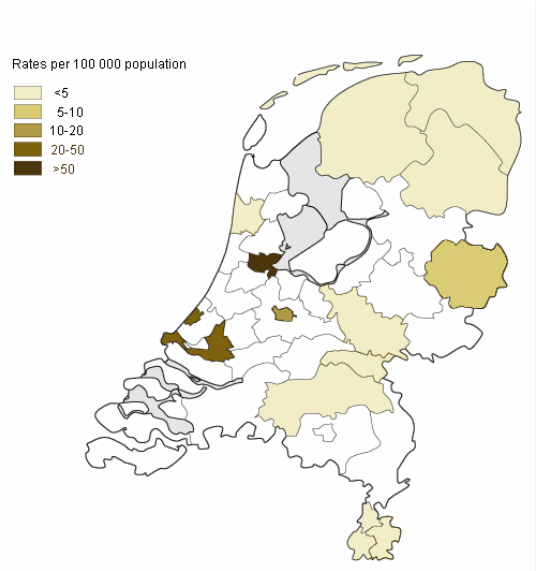
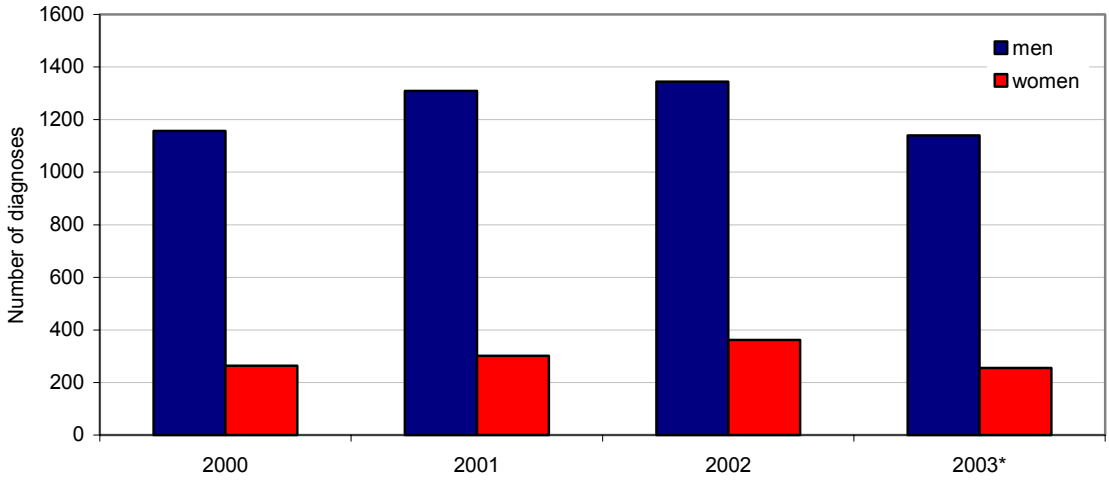


Figure 25: Rates of diagnoses of gonorrhoea by region, STI sentinel surveillance network, the Netherlands, 2003

The highest percentage of diagnosis was among females aged 20-24 (40%) and males aged 25-29 (19%). The number of infections declined rapidly in women above 25 years (table C.12).
Over the past four years, the number of diagnoses of gonorrhoea increased in 2001 and 2002 and levelled off in 2003 at approximately the same level as in 2000 (figure 26).



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

Figure 26: Number of diagnoses of gonorrhoea by sex, 2000-2003

11.2 Determinants of infection

Compared with genital chlamydial infection, gonorrhoea tends to be a more concentrated disease with higher rates among urban areas and some subgroups, for example MSM, individuals with a history of STI, and specific ethnic minorities. Among men, 61% (n=698) of the gonorrhoea cases was homosexually acquired (table C.14); 6% of the infections were diagnosed in men who had recent (past 6 months) contact with CSWs, whereas for women 8% was diagnosed in CSWs (table C.15). About 58% of the diagnoses in men was made in Dutch males, 59% in Dutch females. The highest percentage of diagnosis was made in men from Surinam, Netherlands Antilles and Aruba (17%); this percentage was 21% for women (table C.13). In 9% (n=128) of the cases of gonorrhoea the diagnosis was made in individuals who reported a prior positive HIV test. (i.e. known HIV infected); 25% of the individuals diagnosed with gonorrhoea was never tested for HIV before, 42% had a prior negative HIV test result and the information was missing for 24% of the diagnoses (table C.17). A history of gonorrhoea, infectious syphilis or chlamydial infection was reported by 50% of the individuals diagnosed with gonorrhoea (M 54%; F 29%). This percentage is quite similar to that in syphilis (48%) but higher than that in chlamydial infection (30%) (table C.18).

Rates of positive test results (i.e. the percentage of positive tests to the total number of gonorrhoea tests) were much higher among MSM (11%) than among heterosexual men (3%) and women (1%). The highest rate was found in MSM aged 15-39 (12-14%) and 29% among those under 15. In women and heterosexual men, the highest percentages were found in the age group 15-19 years: 3% and 5%, respectively (table C.19).

11.3 Laboratory surveillance

Within the laboratory surveillance of ISIS project, the surveillance diagnosis of gonorrhoea is defined as follows: culture positive or hybridization 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 2000-2003, 44351 tests for gonorrhoea were carried out of which 1254 were positive (2.8%) (table 8). In women, the percentage of positive tests was 1.2% and in men 6.5%. The number of tests doubled in 2001 because of the inclusion of a large laboratory. In 2002, the number of tests increased by 14% and decreased slightly by 1% in 2003. This decrease was mainly due to a laboratory that was excluded in June 2003. The percentage of positive results increased until 2002, but then decreased again.

Table 8: Number of tests and positive results for gonorrhoea diagnosed by laboratories (Source: RIVM-ISIS)

	2000	2001	2002	2003
Number of tests	5603	11898	13511	13339
Positive result	120	347	439	348
Percentage positive	2.14	2.92	3.25	2.61

*In February 2001 and May 2001 two laboratories were included; In June 2003 one laboratory was excluded.

The incidence of gonorrhoea, as monitored by the laboratories in the ISIS project, was calculated as described in chapter 3.4. The overall incidence increased substantially in 2001 due to the inclusion of a large laboratory (as described above). In the second half of 2002, the average weekly incidence has decreased considerably (from 0.6 to 0.3 per 100000). The average weekly incidence increased again in 2003 and remained at a level around 0.5 per 100000 population. The average weekly incidence of gonorrhoea was less than half of the incidence of genital chlamydial infection, as monitored by the same laboratories. Laboratory data by age group for young people (under 24 years) demonstrated an increasing trend in the number of tests in all age groups. The percentage positive test results by age group showed an increasing trend for 16-17 years (8% in 2003) and decreasing for 18-19 and 20-21 years (both 3.6 in 2003). The overall percentage of positive test results for young people (3.9%) is higher than the percentage of age group above 23 (2.5%), although the difference is not as explicitly as in chlamydial testing.

Figure 27: Incidence of gonorrhoea, by 13 weeks running average, 2000-2003 (Source: RIVM-ISIS laboratory surveillance)

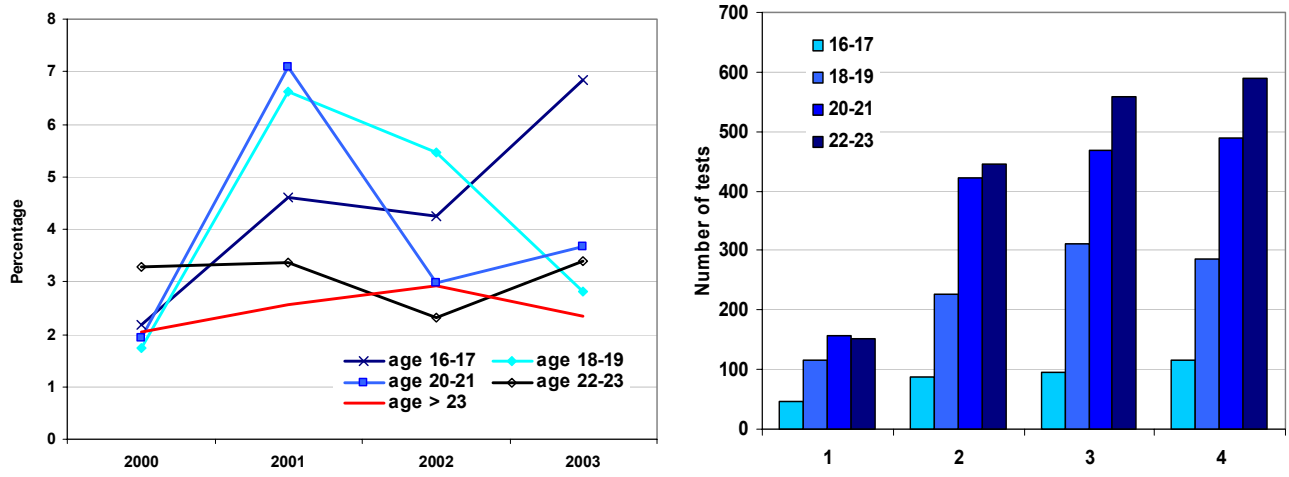


Figure 28: Percentage of positive test results (a) and total number (b) for gonorrhoea by age, 2000-2003. In (b) the total number of tests for age >23 is not shown (n=9500-9998) (Source: RIVM- ISIS laboratory surveillance)

11.4 Antibiotic resistance

In 1999, the surveillance of antibiotic resistance of gonococci was stopped on a national level and since then insight in gonococcal susceptibility patterns is lacking. The concerns for increasing resistance to quinolons at an (inter)national level led to a survey of resistance of gonococci (carried out by RIVM).[20 21 22] A questionnaire was sent to the public health laboratories to collect information on diagnostic and susceptibility methods and number of positive results and susceptibility pattern of the strains. Thirty-two (85% of 39) laboratories participated. In total 76-80% of the diagnoses was confirmed by culture and 20-24% by a molecular test. Twenty-six laboratories completed the data about number of diagnoses and 23 about susceptibility.

In 2002, 2666 and in 2003 (until November) 2190 gonorrhoea cases were diagnosed, resulting in an incidence of 34 and 27 per 100000 in 2002 and 2003.[23] The percentage of resistance to beta-lactam antibiotics was 12.2% in 2002 and 10.7% in 2003, and that of resistance to tetracycline 18.5% and 20.6%, respectively. A rise in resistance for quinolons (recommended first line therapy until September 2003[24]) was observed from 6.6% in 2002 to 9.5% in 2003 (until November). Resistance to cephalosporines was still rarely found (0.5% in 2002 and 1.2% in 2003). Remarkable regional differences were observed: in Amsterdam, Rotterdam and The Hague, resistance for beta-lactam antibiotics and quinolons was lower than in the rest of the country (for beta-lactams: 8.7% and 19.6% in 2003 respectively; for quinolons: 7.5% and 15.1% in 2003 respectively). The interpretation of these results is not easy as the sampling frame for resistance testing is unknown. If laboratories test for resistance in case of therapy failure the percentages presented here will be an overestimation of the actual resistance. However, 96% of the laboratories, providing 98% of the data, claim that they test the sensitivity of every gonococcal isolate.

Routine surveillance data from the STI clinic in Amsterdam indicate that the percentage of gonococcal isolates with resistance to quinolons increased as well, 4% in 2001, 6.8% in 2002 and 7.3% in 2003. In 2001-2003, the prevalence rates in MSM (10.5% in 2003) were higher than those in the heterosexual men (3.2%) and women (0%).[25] In England and Wales a rapid increase in ciprofloxacin resistance (9.8%) was observed in 2002.[21] In 2003, the prevalence has stabilised but the percentage of ciprofloxacin resistance was about twice as high in males than in females (10.4% versus 5.3%). Moreover, for the first time, rates in MSM were similar to those in heterosexual males (10.7% and 10.8%, respectively). These findings suggest a rapidly changing epidemiology of ciprofloxacin resistance, as in 2000, ciprofloxacin resistance was exclusively found in heterosexual individuals and white (and Asian) ethnic groups.[26] In April 2004, the treatment guidelines in the United States were revised because of an increase in fluoroquinolone resistance in MSM.[27]

The results from the survey demonstrated the need for a surveillance of gonococccal antimicrobial resistance at a national level. Within a group of microbiologists, epidemiologists and STI physicians (from the STI sentinel network) a proposal was discussed for renewed surveillance for gonococcal resistance in the Netherlands. Recent trends as discussed above demonstrate the importance again: to monitor the epidemiology and to ensure treatment strategies respond to changing epidemiology.

12. Syphilis

Key points

- Between 2000 and 2003 diagnoses of syphilis increased by 208% in males and 9% in females.
- Diagnoses of syphilis increased by 10% between 2002 and 2003. This is lower than the 78% increase seen between 2001 and 2002.
- 403 diagnoses of syphilis were made in MSM accounting for 87% of the cases seen in men.
- The rise in syphilis is associated with a number of outbreaks in Amsterdam (accounting for 50% of the diagnoses in 2000-2003) but also, to a lesser extent, in Rotterdam, The Hague, Utrecht, Groningen and Twente region.

12.1 Recent trends

In 2003, 506 diagnoses of infectious syphilis were made (465 in men and 41 in women), an increase of 10% compared with 2002 (n=460). Of all syphilis diagnoses (n=672) lues I represented 30% (n=200), lues II 22% (n=147), lues latens recens 24% (n=159), lues latens tarda 24%.

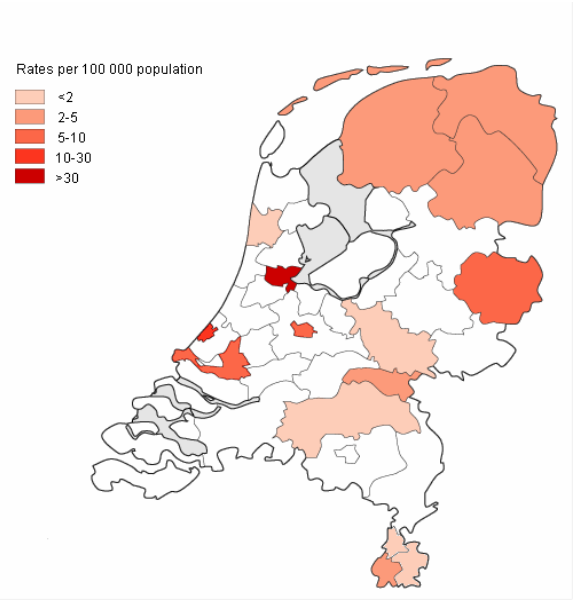
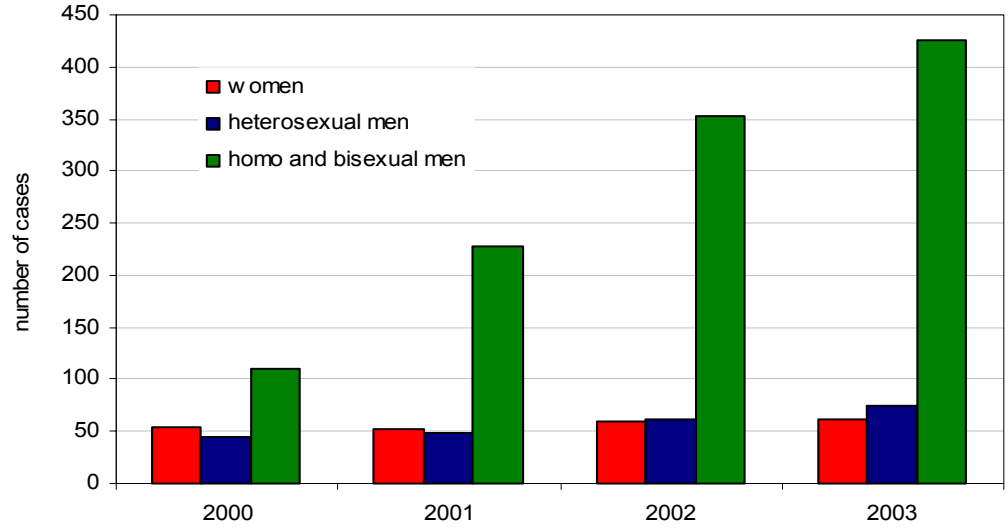


Figure 29: Rates of diagnosis of infectious syphilis by region, STI sentinel surveillance network, the Netherlands, 2003

Rates of diagnoses were unevenly distributed across the Netherlands (range: 0-31 per 100000) with the highest rates in Amsterdam, followed by The Hague, Utrecht, Rotterdam and Twente region. In the other regions, the rates were relatively low (less than 2 per 100000) (figure 29). The age distribution for syphilis in men is rather skewed as the highest rates, unlike other bacterial STI, are seen in the older age groups. The highest percentage of diagnosis was in men aged 35-39 (21%) followed by age 40-44 (19%) and 45-54 (19%).



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

Figure 30: Number of diagnoses of infectious syphilis by sex and sexual preference, 2000-2003

Over the past four years, the total number of diagnoses of infectious syphilis increased by 158%; in men this increase was 208%, in women the number of diagnoses decreased by 9% (figure 30).[28] Diagnoses of syphilis increased by 10% in 2003 compared with 2002, and this is considerably lower than the 78% increase in 2002, but the number of diagnoses is still high. Between 2000 and 2003, approximately 1600 diagnoses of infectious syphilis were made in the Netherlands, of which 71% in men have sex with men en of which 50% in Amsterdam. After the dramatic decline in cases due to the AIDS epidemic, the incidence of infectious syphilis remained low and stable between 1986 and 1998. An increase in the number of diagnoses was first observed in Amsterdam in 1999 and 2000.[29] In other cities, e.g. Rotterdam,[30] Groningen, Utrecht, The Hague, the number of diagnoses started to increase in the second half of 2001, followed by the Twente region in 2002-2003. Similar trends of syphilis cases were seen simultaneously in Western Europe[31 32 33] and the USA. The characteristics of the syphilis outbreaks are also very similar with disease being associated with white ethnicity, MSM, older age group (above 35), concurrent HIV infection, and high rate of partner change.[33 34]

12.2 Determinants of infection

Among men, 87% (n=403) of the syphilis infections were diagnosed in MSM. This percentage of MSM was the highest of all STI, and was high in contrast with gonorrhoea (61%) and genital chlamydial infection (32%) (table C.14). Among men, only 3% of the infections were diagnosed in men who had recent (past 6 months) contact with CSWs, whereas for women 17% of the syphilis was diagnosed in CSWs. About 68% of the diagnoses in men were made in Dutch males, 51% in Dutch females (table C.13a-b). If restricted to MSM, the proportion of Dutch was even higher (87%). Except for Dutch women, the highest percentage of diagnosis was made in women from Eastern Europe (17%) and Surinam, the Netherlands Antilles and Aruba (12%). In 22% (n=112) of the cases of infectious syphilis the diagnosis was made in individuals who reported a prior positive HIV test. (i.e. known HIV positives); 19% of the individuals diagnosed with syphilis was never tested for HIV before, 40% had a prior negative HIV test result and the information was missing for 18% of the syphilis diagnoses (table C.17). The percentage HIV positive in syphilis was the highest of all STI, as others were all below 10%, and was also a minimum estimate because of underreporting of HIV testing (see chapter 9). A history of gonorrhoea, infectious syphilis or chlamydial infection was reported by 48% of the individuals diagnosed with syphilis: 51% for men and 17% for women. This percentage was similar to that in gonorrhoea (50%) and high compared with chlamydial infection (30%) (table C.18a-b). Rates of positive test results (i.e. the percentage of positive tests to the total of syphilis tests) were higher among MSM (8%) than among heterosexual men and women (both 1%) (table C.19a-c). The highest rate was found in MSM aged 50-54 (10%), followed by younger age groups aged 30-49 (8-9%).

12.3 Laboratory surveillance

Within the laboratory surveillance of the ISIS project, the surveillance diagnosis of infectious syphilis is defined as follows: TPPA or TPHA positive and FTA-abs positive and VDRL or RPR positive. All test results are counted only once per individual and an individual can only be counted as positive once in 2 years.

In 2000-2003, 59229 tests for syphilis were carried out of which 205 were positive (0.34%) (table 9). In women, the percentage of positive tests was 0.05 and in men 1.03. The number of tests doubled in 2001 because of the inclusion of a large laboratory. In 2003, the number of tests decreased by 10%, mainly due to a laboratory that was excluded in June 2003. The percentage of positive test results has increased continuously between 2000 and 2003.

The average weekly incidence of infectious syphilis, diagnosed by laboratories in ISIS, started to increase in the second half of 2001 up to a value of 0.16 per 100000 in 2002. In 2001, a large laboratory was included but the rise also coincided with an actual increase in syphilis cases as reported in the former STI registration. In the second half of 2003 the average weekly incidence increased again.

Table 9: Number of tests and positive results for early syphilis diagnosed by laboratories (Source: RIVM-ISIS)

	2000	2001	2002	2003
Number of tests	9368	16973	17349	15539
Positive result	4	31	80	90
Percentage positive	0.04	0.18	0.46	0.58

*In February 2001 and May 2001 two laboratories were included; in June 2003 one laboratory was excluded.

Figure 31: Incidence of infectious syphilis, by 13 weeks running average, 2000-2003 (Source: RIVM- ISIS laboratory surveillance)

13. Hepatitis B

Key points

- In 2003, the incidence of notified cases of acute hepatitis B virus infection increased in men from 2.6 to 3.1 per 100000.
- Unprotected sexual contact is the most important risk factor for acquiring acute hepatitis B virus infection in the Netherlands.
- The proportion of MSM diagnosed with an acute HBV infection decreased, in contrast with the heterosexual population.
- Vertical transmission is 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.

13.1 Recent trends

In 2003, 319 cases of acute hepatitis B were notified in the Netherlands (2002: 265 cases), of which 247 in men and 72 in women. The incidence rate for acute HBV in 2003 was 2.0 per 100000; the incidence was higher in men (3.1) than in women (0.9) (figure 32). The incidence in men has increased by 40% since 1998.[35] The incidence rates of acute HBV are fairly evenly distributed across the Netherlands, (range: 0.4 – 4.9 per 100000) with the highest rates being seen in Flevoland (4.6) and Rotterdam (4.9) (figure 33). For men, the highest incidence of acute HBV was reported among those aged 35-44; in women aged 15-24 (figure C.2a-b).

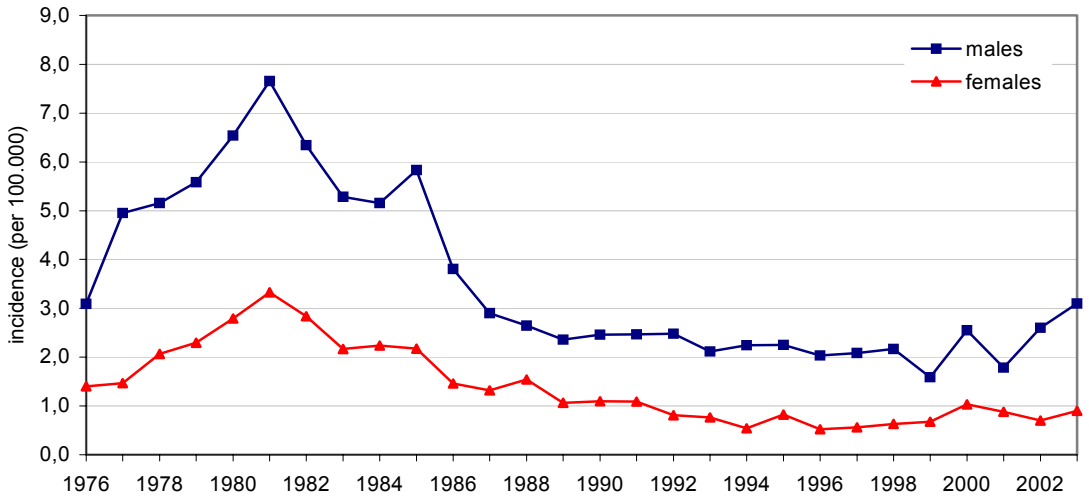


Figure 32: Incidence rate per 100000 of notified cases of acute hepatitis B virus infection, the Netherlands, 1976-2003 (Source: RIVM-Osiris, notification data)

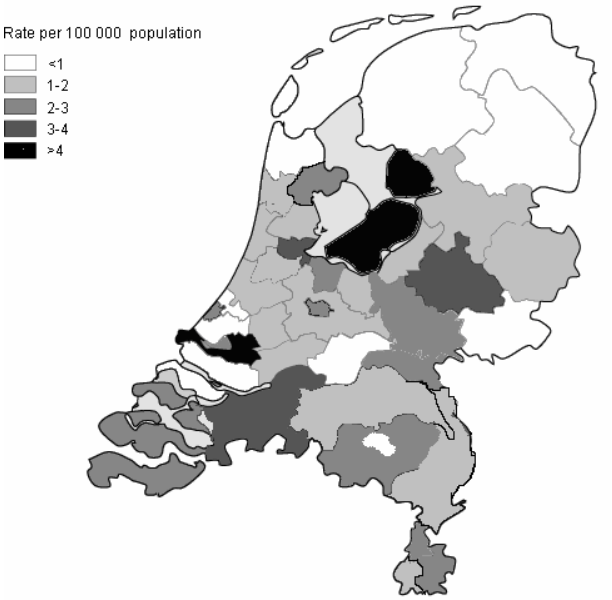


Figure 33: Incidence of acute hepatitis B per 100000 population by region, 2003 (Source: RIVM-Osiris, notification data)

13.2 Determinants of infection

Of the acute HBV cases 70% (n=223) was born in the Netherlands, 23% (n=72) was born abroad and in 7% the country of birth was unknown. Of the cases born abroad, 33% came from HBV high endemic regions (HBsAg prevalence >8%), 57% from intermediate endemic regions (HBsAg 2-7%) and 10% from low endemic regions (HBsAg <1%). Seventy-five percent of all acute HBV cases reported to be infected in the Netherlands, 13% reported to have been infected abroad and in 12% of the cases the country of infection was unknown.

Sexual contact is the most important transmission route of HBV in the Netherlands (table 10). In 2003, the number of infections acquired through heterosexual contact increased with 50%; the proportion of heterosexually acquired infections increased from 34.4 in 2002 to 41.8 in 2003 (table 11). The proportion of infections acquired through sex between men decreased slightly but, among those, the percentage of infections acquired through a casual partner increased between 2002 and 2003, 67% and 82%, respectively.

Figure C.3 also shows the increase of HBV infection by heterosexual contacts since 2001 and the decrease in the homo- and bisexual men since 2002. Furthermore, it shows the decrease of the transmission route ‘else/unknown’. This is possibly caused by the improved surveillance since the usage of Osiris, an electronic registration system.

Table 10: Most probable route of transmission for acute HBV, 2003 (Source: RIVM-Osiris, notification data)

Route of transmission	2003 (%)	2002 (%)
Sexual contact	194 (60.8%)	157 (59.3%)
IDU	7 (2.2%)	4 (1.5%)
Occupational incidents	7 (2.2%)	2 (0.8%)
Perinatal	2 (0.6%)	0 (0%)
Else	19 (6.0%)	35 (13.2%)
Unknown	90 (28.2%)	67 (25.3%)
Total	319	265

Table 11: Source and kind of sexual contact, acute HBV, 2003 (Source: RIVM-Osiris, notification data)

Source/ kind sexual contact	Steady partner	Casual partner	Unknown	Total 2003 (%)	Total 2002 (%)
Homo/ bisexual	8	83	10	101 (52.1%)	89 (56.7%)
Heterosexual	30	49	2	81 (41.8%)	54 (34.4%)
Unknown	0	5	7	12 (6.2%)	14 (8.9%)
Total (%)	38 (19.6%)	137 (70.6%)	19 (9.8%)	194	157

13.3 Chronic hepatitis B

Between 2001 and 2003, 4112 patients diagnosed with chronic HBV infection were notified. The proportion of men increased from 41% in 2001 to 51% in 2003. The rate of chronic infections per 100000 population was 8.9 in 2003 and has increased by 17% since 2001. This increase was mainly due to an increase in men, from 6.4 in 2001 to 9.2 in 2003. In women the rates remained stabled around 8.7 in 2003. The age specific incidence rates demonstrated a peak in men aged 20-44 and in women aged 20-34, with also a peak in those aged 20-24 (figure C.4a-b). [36]
Unlike acute hepatitis B, the most probable route of transmission remains unknown in 43% of the newly reported cases. Among the 2365 cases whose transmission route was known, mother-to-child transmission was the most common risk factor (72%), followed by sexual transmission (13%). Other risk factors were injecting drug use (2%), occupational risk (2%) or other (12%). Figure C.5 shows a small increase in vertical transmission from 38% in 2001 to 44% in 2003. Sexual transmission also increased; 6% in 2001 versus 10% in 2003. These shifts can be caused by the decrease of the unknown transmission route by the improved surveillance since the usage of Osiris.
The number of chronic HBV carriers born abroad increased from 54% in 2001 to 76% in 2003. Ninety-nine percent of these patients came from HBV high or intermediate endemic regions. Sixty-seven percent of the chronic HBV carriers reported to be infected abroad and 12% was

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 therefore plays an important role in the epidemiology of HBV in the Netherlands.[37]

HBV in the STI sentinel surveillance network

In 2003, 6541 tests for diagnosis of hepatitis B virus infections were registered in the STI sentinel surveillance network; 52 of those (0.8%) were tested positively for HBV (16 acute, 36 chronic infections). Also, 314 individuals appeared to have markers of recovered HBV infection. The HBV prevalence was highest in MSM with 1.1%. In heterosexuals the prevalence was 0.8%.

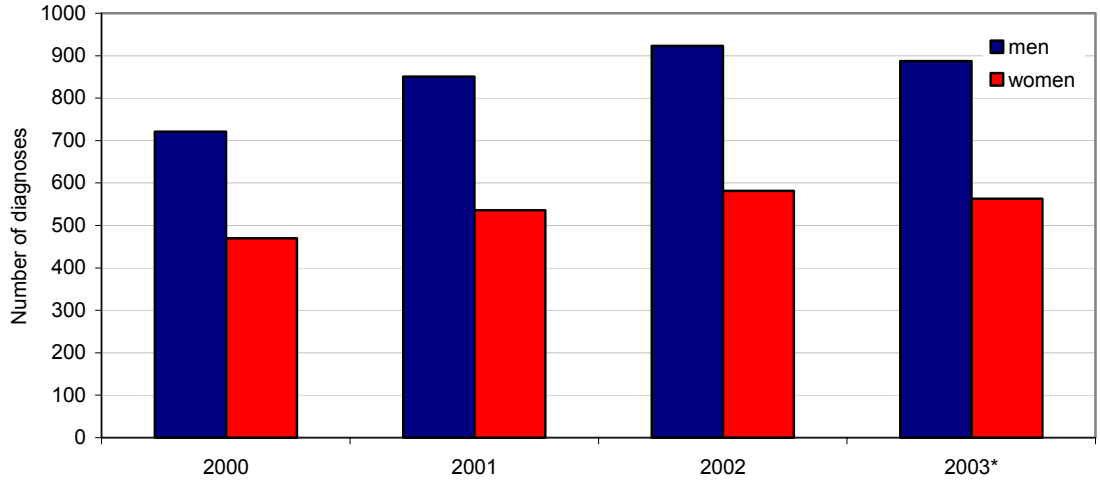
14. Genital warts

Key points

- In 2003, 1450 diagnoses of genital warts were made in the STI sentinel surveillance network in the Netherlands.
- Diagnoses of genital warts increased by 22% between 2002 and 2003.
- Genital warts were the most prevalent viral STI diagnosed in the Netherlands.
- 290 diagnoses were made in homo and bisexual men accounting for 33% of the cases seen in men.

14.1 Recent trends

In 2003, 1450 diagnoses of genital warts were made (887 in men and 563 in women) (figure 34). Over the past four years, the number of diagnoses of genital warts increased with 22%; this increase was seen in men (23%) and in women (20%).
Rates of diagnoses were unevenly distributed across the Netherlands (range: 2-69 per 100000) with the highest rates in Amsterdam and The Hague (figure 35). Highest percentage of diagnosis was among men aged 25-29 (24%) and among women aged 20-24 (40%). The number of infections declined rapidly in women above 29 years.



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

Figure 34: Number of diagnoses of genital warts by sex, 2000-2003

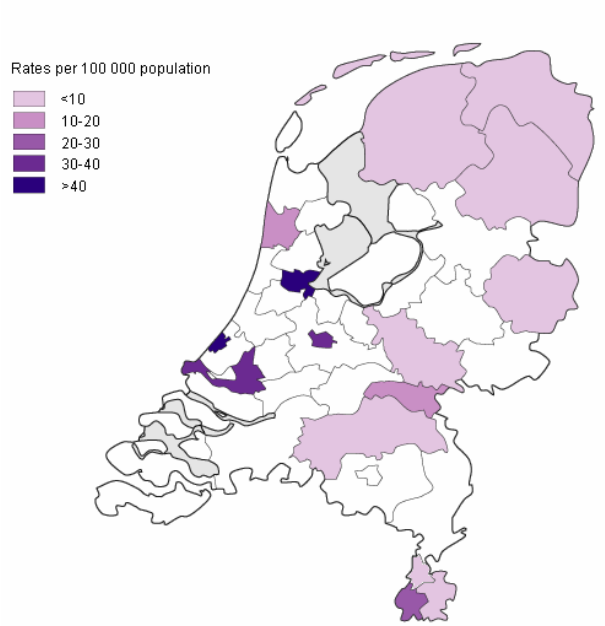


Figure 35: Rates of diagnoses of genital warts by region, STI sentinel surveillance network, the Netherlands, 2003

14.2 Determinants of infection

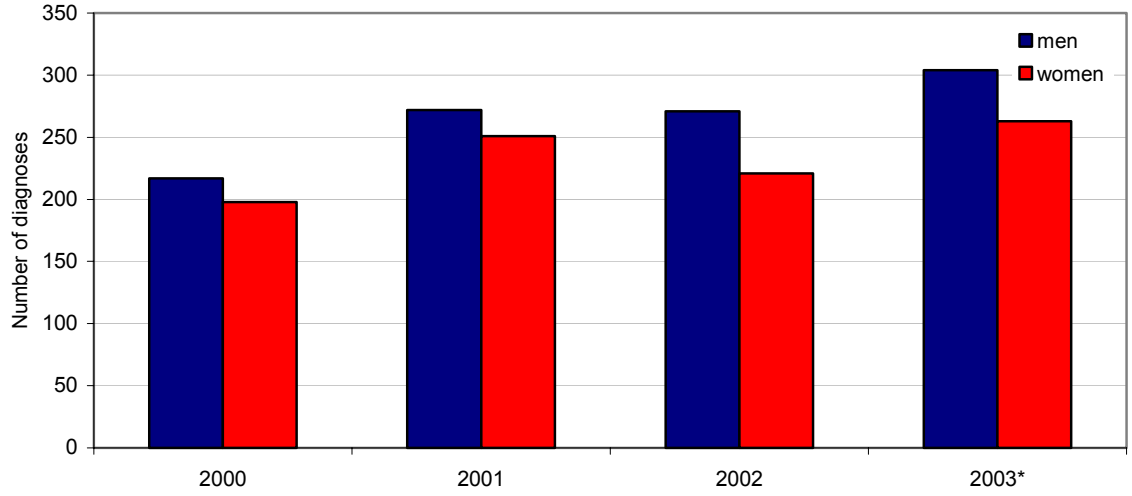
Among men, 33% (n=290) of the genital warts were acquired homosexually (table C.14). Among men, 5% of the infections were diagnosed in men who had recent (past 6 months) contact with CSWs, whereas for women 6% of the genital warts were diagnosed in CSWs (table C.15a-b). About 70% of the diagnoses in men were made in Dutch males, 78% in Dutch females. The highest percentage of diagnosis was made in men and women from Surinam, the Netherlands Antilles and Aruba (8%). In 2% (n=28) of the cases of genital warts the diagnosis was made in individuals who reported a prior positive HIV test. (i.e. known HIV positives); 36% of the individuals diagnosed with genital warts was never tested for HIV before, 35% had a prior negative HIV test result and the information was missing for 26% of the diagnoses (table C.17). A history of gonorrhoea, infectious syphilis or chlamydial infection was reported for only 23% of the individuals diagnosed with genital warts. This percentage is the lowest of all STI diagnoses, next to genital herpes with 27%.

15. Genital herpes

Key points
- In 2003, 606 diagnoses of genital herpes were made in the STI sentinel surveillance network.
- Over the past four years, diagnoses of genital herpes increased by 36%.
- 93 diagnoses were made in MSM accounting for 28% of the cases seen in men.

15.1 Recent trends

In 2003, 606 diagnoses of genital herpes were made (327 in men and 279 in women) (figure 36). Of all diagnoses, HSV type 1 accounts for 32% (n=195), HSV type 2 for 54% (n=324) and HSV type 1 or 2 for 8% (n=48) and HSV recurrent infection for 6% (n=39). Over the past four years, the number of diagnoses of genital herpes has increased by 36%; in men by 41% and in women by 33%.



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

Figure 36: Number of new diagnoses of genital herpes (primary infections only), 2000-2003

Rates of diagnoses were unevenly distributed across the Netherlands (range: 0 -39 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 -39 per 100000) (figure 37)**.** Among men, the diagnoses of genital herpes were evenly distributed among the age groups 20-54 (89%); in women the highest percentage of diagnosis was made among women aged 20-24 (33%), followed by a quick decline.

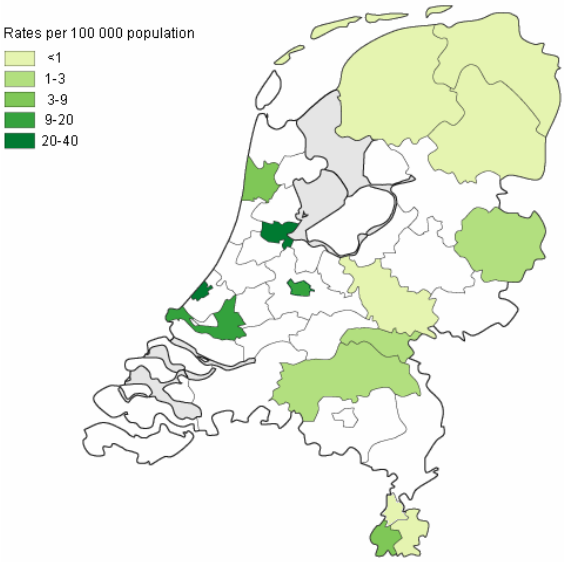


Figure 37: Rates of diagnoses of genital herpes by region, STI sentinel surveillance network, the Netherlands, 2003

15.2 Determinants of infection

Among men, 28% (n=93) of the genital herpes were acquired homosexually. Among men, 7% of the infections were diagnosed in men who had recent (past 6 months) contact with sex workers, whereas for women 5% of the genital herpes were diagnosed in CSWs.
About 70% of the diagnoses in men were made in Dutch males, 77% in Dutch females. The highest percentage of diagnosis was made in men and women from Surinam, the Netherlands Antilles and Aruba (12% and 9%, respectively). In 5% (n=32) of the cases of genital herpes the diagnosis was made in individuals who reported a prior positive HIV test. (i.e. known HIV positives); 31% of the individuals diagnosed with genital herpes was never tested for HIV before, 35% had a prior negative HIV test result and the information was missing for 29% of the diagnoses. A history of gonorrhoea, infectious syphilis or chlamydial infection was reported by only 27% of the individuals diagnosed with genital warts. This percentage was the one-but-lowest of all STI diagnoses, next to genital warts with 23%.

16. Lymphogranuloma venereum[1]

Key points

- In 2003, an outbreak of LGV was detected in homosexual men in the Netherlands.
- As of September 1, 2004, 92 confirmed cases were reported in the Netherlands. Of these, 30 were identified during 2003, and 62 during 2004.
- The LGV outbreak is slowly increasing, with yet unknown dynamics, and with clinical signs that easily could be missed.
- Intensified surveillance was started to monitor the epidemic.
- Clinical studies were launched in Amsterdam and Rotterdam

16.1 Early reports

In December 2003, a cluster of LGV cases was reported in Rotterdam, the Netherlands, among homosexual men, who were predominantly HIV positive.[3] The first cases were diagnosed in April 2003. Cases presented with (bloody) proctitis, mucous or purulent discharge and sometimes constipation. Only one case presented with buboes and symptoms characteristic for LGV.[38] Laboratory results confirmed infection with *Chlamydia trachomatis* serovar L2. Notably, most of them had anal swabs positive for chlamydia, whereas urethral swabs were negative. Intensified contact tracing yielded more cases. The majority of the men reported unprotected anal sexual contact and fisting. Numerous sexual contacts were reported in several European countries.

16.2 Public health action

This is a highly unusual event with (inter) national implications for public health given the known sexual networks of men having sex with men (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 homosexual subgroup via gay websites, e-mail newsletters and leaflets in gay venues. The RIVM started enhanced surveillance of LGV. The outbreak appeared not to be

[1] This chapter was partly published in Laar MJW van de, Götz HM, Zwart O de, Meijden WI van der, Ossewaarde JM, Thio B, Fennema JSA, Spaargaren J, Vries HJC de, Berman SM, Papp JR, Workowski KA. Lymphogranuloma Venereum Among Men who have Sex with Men -- The Netherlands; 2003-2004. Morbidity Mortality Weekly Report 2004; 53; 42: 985-988.

restricted to Rotterdam because cases were reported retrospectively from cities throughout the country. Whenever possible, stored specimens were used to establish the diagnosis.

16.3 Clinical signs and diagnostics

LGV is a systemic disease caused by *Chlamydia trachomatis* serovars L1 to L3. LGV is a sporadic disease in the Western world and LGV cases are likely imported from Africa, South-East Asia and the Caribbean region. Primary lesions of LGV are mild and atypical. Clinical manifestation of LGV depends on the portal of entry, either causing (1) the inguinal syndrome, with genital ulceration and classical buboes or (2) the anorectal syndrome, with proctocolitis and hyperplasia of intestinal and perirectal lymphatic tissue.[39] Systemic symptoms, including fever, chills and myalgia, may go along with both syndromes. The infection of the rectum results in severe inflammation, often involves the colon, and generally produces symptomatic disease.[40] This severe proctitis can easily be mistaken for Crohn's disease. LGV is diagnosed using swabs for PCR testing for *C. trachomatis*. Genotyping is needed to assess infection with serovars L1-L3. In Rotterdam, high IgG and IgA titers to *C. trachomatis* were found in all patients. Contact tracing is recommended for 6 months prior to diagnosis. MSM with recent chlamydia proctitis need to be re-evaluated for proper diagnosis and treatment. The recommended treatment regimen consists of doxycycline 100 mg orally twice a day for 21 days. Clinical studies were launched in Amsterdam and Rotterdam to improve the understanding of the biology and nature of disease.

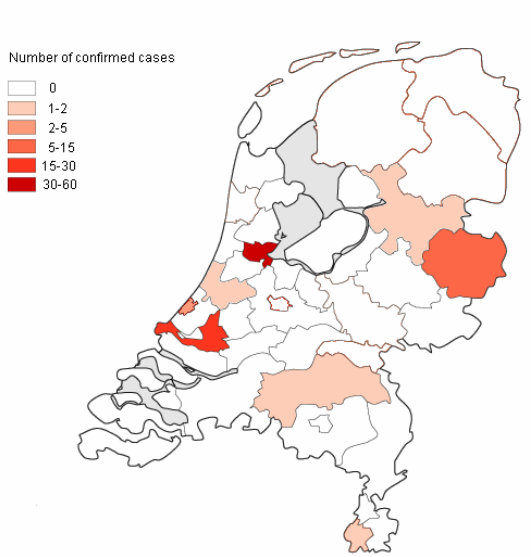


Figure 38: Number of confirmed LGV cases in the Netherlands, September 2004 (Source: RIVM-enhanced surveillance of LGV)

16.4 Current status of the LGV outbreak

Enhanced surveillance of LGV was launched in the Netherlands and so far, as of September 1, 2004, 62 confirmed cases were reported with additional epidemiological information, although not yet complete. Preliminary evaluation suggests the following characteristics: 23/30 (77%) were HIV positive (HIV status was as yet unknown in 32 cases); all were Caucasian; high levels of concurrent STI (gonorrhoea, syphilis, hepatitis B, genital herpes) appeared to be common; association with the sex party scene; almost all reported unprotected anal intercourse or other unprotected anal penetration in the past year. The majority had participated in casual sex gatherings during the 6–12 months before onset of symptoms. The patients reported numerous sexual contacts in several European countries and the United States during the 6–12 months prior to appearance of clinical signs or symptoms.

The epidemic curve of cases, by date of consultation, shows a slowly increasing outbreak, suggesting that LGV was already prevalent in 2003 and the highest number reported in the summer 2004 (figure 39). However, the decreasing tail of the curve may be an artefact because of diagnostic, and subsequently, reporting delay.

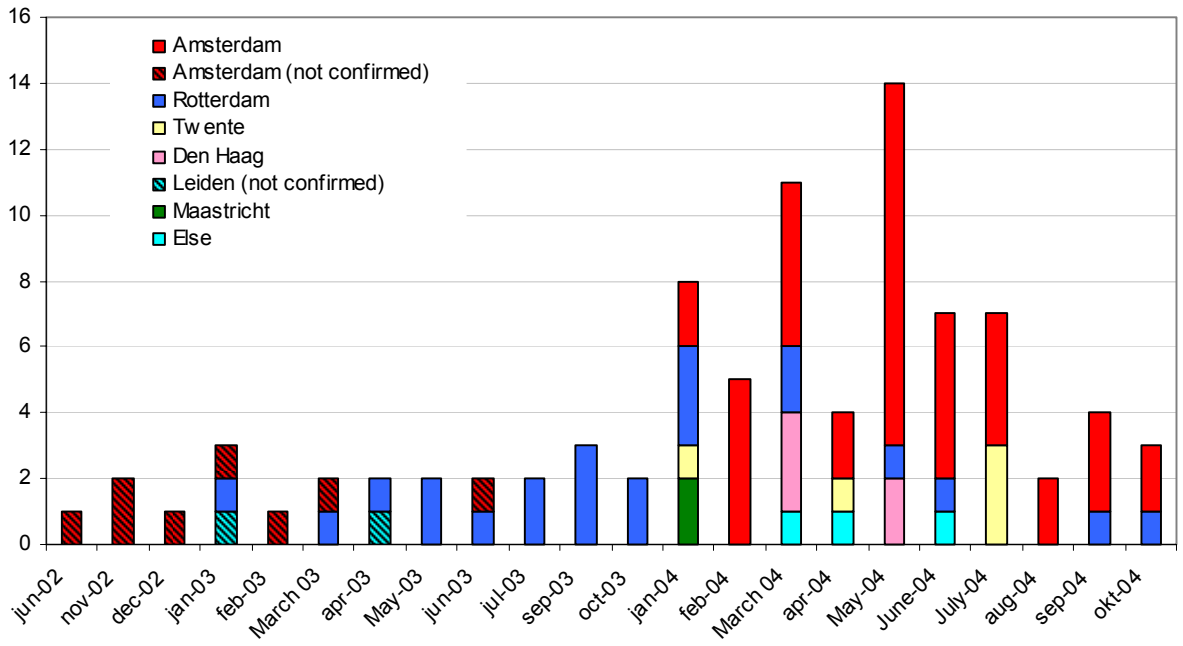


Figure 39: Number of LGV cases by date of consultation, 2002-2004 (Source: RIVM –enhanced surveillance of LGV)

The extent of spread to other countries is as yet unknown. Although some LGV patients reported having multiple sex partners in cities in Europe and the United States, limited information has been reported regarding LGV occurrence outside the Netherlands. More recently, outbreaks in

Antwerp [41], Paris [42], Stockholm[43], and Hamburg[44] confirm that the LGV outbreak has not been restricted to the Netherlands.[45 46] Also, in the United States a first case of LGV serovar L2 was reported following the publication in the MMWR.[47] The ulcerative character of LGV facilitates transmission and acquisition of HIV, other STI and blood borne diseases, as was demonstrated for HIV and HCV already. In at least two cases seroconversion for HIV was confirmed and five cases of recent hepatitis C infection were found. The clinical presentation of LGV might easily be missed, as demonstrated by the large number of retrospective cases. Additional reports might follow as a result of increased awareness of the outbreak.[48]

17. Concurrent STI and HIV

Key points

- In 2003, 829 known HIV infected individuals were registered in the STI sentinel surveillance network (2% of total number of consultations), of which 93% are MSM.
- In 2003, 20% of diagnoses of gonorrhoea, chlamydial infection and syphilis in MSM were diagnosed in known HIV infected MSM.
- Among known HIV infected MSM, anorectal chlamydial infection was more often diagnosed than anorectal gonorrhoea.
- In 2003, the number of newly diagnosed HIV infections decreased by 25%.
- 96 HIV infections were diagnosed in MSM, accounting for 80% of the cases seen in men.

17.1 Known HIV infected individuals

Among the STI clinic attendees, 2% had a prior positive HIV test, e.g. was known HIV infected (n=829); 96% men (n=794), 4% women (n=33), 0.2% (n=2) in transgenders. 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, 93% is MSM (n=764). The majority of the HIV infected attendees was between 30-44 years of age (78%); 70% of them is Dutch, 5% from Latin America and 3% from Surinam. The most important reasons for consultation among the HIV infected attendees were symptoms (53%), risk behaviour (26%), periodic screening (13%), and information (11%).

Table 12: Concurrent STI diagnosed in known HIV infected individuals

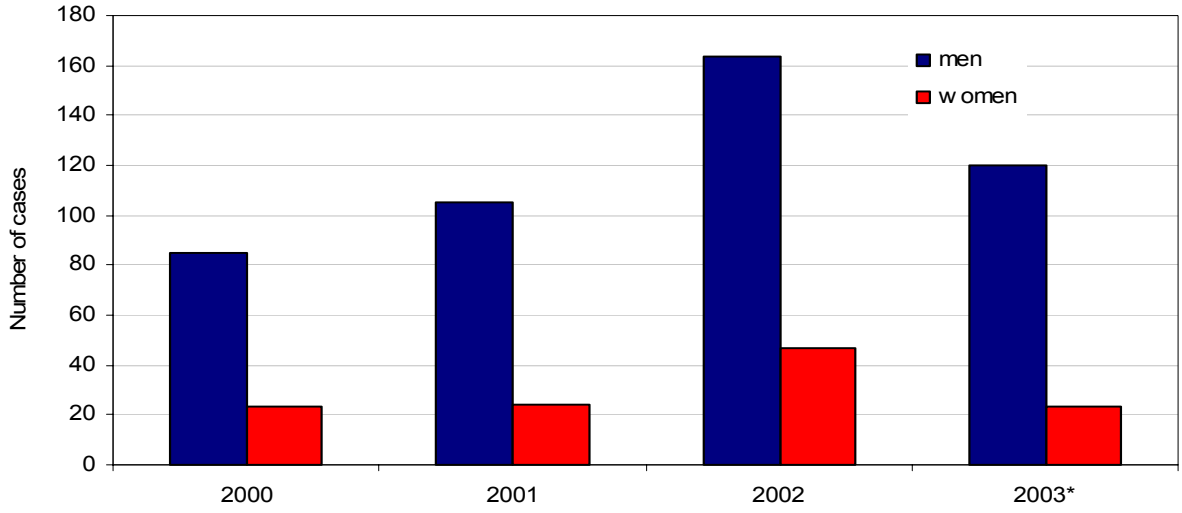
Diagnosis	Male (%)	Female (%)	Total (%)
Gonorrhoea	127 (22.1%)	1 (5.9%)	128 (21.6%)
Chlamydia	148 (25.7%)	2 (11.8%)	150 (25.3%)
Early syphilis	110 (19.1%)	2 (11.8%)	112 (18.9%)
Genital warts	26 (4.5%)	2 (11.8%)	28 (4.7%)
Genital herpes	30 (5.2%)	2 (11.8%)	32 (5.4%)
Other diagnoses	135 (23.3%)	8 (47.1)	143 (31.1%)

Of the known HIV infected clinic attendees, only 46% had no infection, 42% were diagnosed with one STI and 12% with more than one concurrent STI. Genital chlamydial infection, gonorrhoea and infectious syphilis were the most common diagnoses. Anorectal chlamydial infection was more often diagnosed than anorectal gonorrhoea, 84% and 57% of the diagnoses in known HIV infected MSM, respectively.

17.2 Newly diagnosed HIV infections

Recent trends

In 2003, 143 individuals were newly diagnosed with HIV (120 men and 23 women), a decrease of 25% compared with 2002 (n=191) (figure 40). The decrease in diagnoses of HIV can not be explained and may be due – to a certain extent - to underreporting of cases. Rates of diagnoses were unevenly distributed across the Netherlands (range: 0-10 per 100000) with the highest rates in Amsterdam, followed by The Hague and Utrecht (figure 41). Among men, 55% was aged 25-39. The highest percentage of HIV diagnosis was found among females aged 20-24 (39%) (table C.12).



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

Figure 40: Number of newly diagnosed HIV infections by sex, 2000-2003

Determinants of infection

Among men, 80% (n=96) of the HIV infections was acquired through sex between men (table C.14). Fifty-three percent of the HIV infections in men were found among Dutch men, 13% in men from Surinam, the Netherlands Antilles and Aruba, and 8% from Latin America. In women, 22% were Dutch and 61% from sub-Saharan Africa. (table C.13). Twenty-two percent (n=32) of all HIV infections were found among individuals who were never tested for HIV, 48% had a prior negative HIV test and the information was missing for 23% of the diagnoses (table C.17). A history of STI was reported by 45% of the men with HIV and 22% of the women with HIV (table C.18).

Rates of positive HIV test results (i.e. the percentage of positive tests to the total number of HIV tests) were higher in MSM (3.3%) than in heterosexual men and women (both 0.3%). The highest rate was found in MSM aged 35-39 and 50-54 (table C.19).

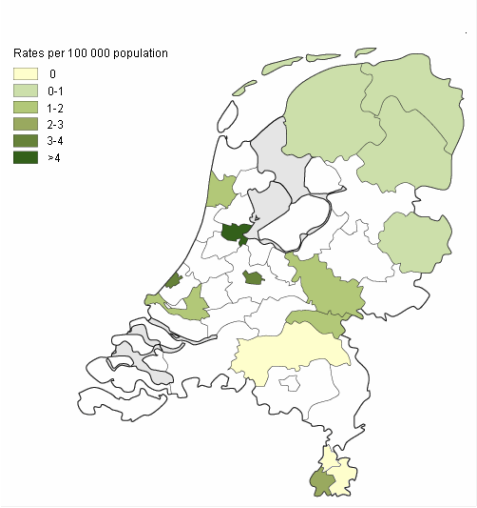


Figure 41: Rates of diagnoses of newly diagnosed HIV infections by region, STI sentinel surveillance network, the Netherlands, 2003

18. Focus on young people, migrant populations, MSM

18.1 Young people (16-24 years)

Key points

- Half of the female clinic attendees was younger than 25 years.
- Young women accounted for 66% of all female chlamydial diagnoses, 67% of gonorrhoea, 55% of genital warts and 45% of genital herpes diagnosed in 2003.
- Young men accounted for 30% of all male chlamydial diagnoses, 21% gonorrhoea, 24% of genital warts and 20% of genital herpes diagnosed in 2003.
- 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.[49]

Recent trends

In 2003, 35% of the STI clinic attendees (n= 14910) were younger than 25 years (M: 20%, F: 50%). The most important reason for consultation among young people was risk behaviour (47%), followed by symptoms (32%) and a new relationship (16%). A total of 4662 diagnoses (35% of all diagnoses) were made in young people. Most diagnoses (46%) were made in adolescents aged 22-24, for gonorrhoea and chlamydial infection a considerable proportion was diagnosed in those aged 16-19 (table C.20a-c).

The most common diagnosis made in young people was genital chlamydial infection (n=1713; 37%), followed by genital warts (518; 11%) and gonorrhoea (408; 9%). Infectious syphilis (n=45), HIV infection (n=24) and hepatitis B (n=14) were less often diagnosed in young people. Young women accounted for 66% of all female chlamydial diagnoses, 67% of gonorrhoea, 55% of genital warts and 45% of genital herpes diagnosed in 2003, which is similar to 2002 (figure 42). Young men accounted for 30% of all male chlamydial diagnoses, 21% gonorrhoea, 24% of genital warts and 20% of genital herpes diagnosed in 2003, which is also similar as in 2002. Young people accounted for 17% (n=24) of all new HIV diagnoses in 2003 (14% in 2002). Half of them were homosexually acquired which is lower than in older age groups in which homosexually acquired HIV infections accounted for 69% of the infections.

Determinants of infection

The ethnicity of young people diagnosed with an STI varied across the STI, with a fairly high percentage of Dutch (> 67%) among genital chlamydial infection, genital warts and genital herpes (table C.21a-b). For gonorrhoea, 29% of the young people were Surinamese or Antillean (M:33%, F: 24%).

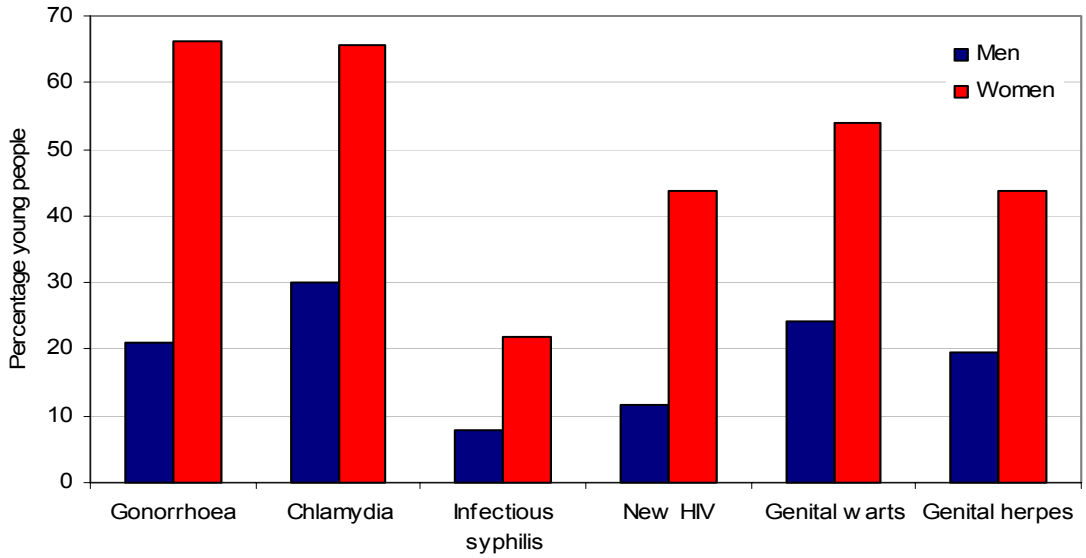


Figure 42 : Proportion of total number of STI diagnosed in young people (16-24 years) by sex, STI sentinel surveillance network, 2003

For both gonorrhoea and genital chlamydial infection, the most common location in young people was urethral (85% for gonorrhoea, 95% for chlamydia). A history of gonorrhoea, infectious syphilis or chlamydial infection was reported in 23% of all cases younger than 25 years; this percentage was the highest in MSM (31%). Of the young people with a history of STI, 63% were Dutch and 20% were Surinamese or Antillean.

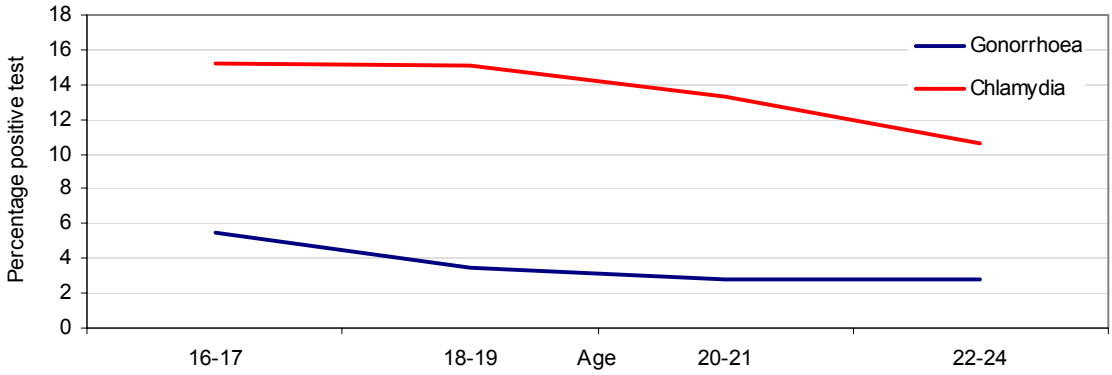


Figure 43: Percentage of positive tests results compared to the total number of tests by age, STI sentinel surveillance network, 2003

Positive diagnostic rates for both chlamydial infection and gonorrhoea in young people are in general higher than in older age groups (chlamydia: 8%, gonorrhoea: 4%). Rates of positive test results were the highest in the age groups 16-17 and 18-19 years; for chlamydia 15% of all tests in these age groups were positive, for gonorrhoea this percentage was 5.5% and 3.4%, respectively. The diagnostic rates from the laboratories in the ISIS project were slightly higher for gonorrhoea (7% 16-17 years; 3% 18-19 years), and quite comparable for chlamydial testing (14% 16-17 years; 13% 18-19 years) (figure 43).

18.2 Migrant populations

Key points

- The 'traditional' ethnic minority populations, from Suriname and the Netherlands Antilles, Turkey and Morocco, accounted for 13% of the consultations; another 7% by relatively 'new' populations, e.g. 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 than Dutch males.

Consultations

In 2003, 11284 consultations were registered in the STI sentinel surveillance network among migrant populations; 26% of all consultations. Migrants from Surinam and the Netherlands Antilles were the largest group for men and women (27%) followed by migrants from sub-Saharan Africa and Latin America. In men, Turkey and Morocco, and in women, Eastern Europe, also accounted for an significant part of the population. For both male and female migrants, the most important reason for consultation was having symptoms (M: 47%, F: 37%), followed by own risk behaviour (M: 36%, F: 25%). A history of STI (gonorrhoea, infectious syphilis or chlamydial infection) was reported by 36% of the migrants (M: 43%, F: 25%), with the highest percentages in Surinamese and Antilleans (M: 53%, F:36%). In the Dutch population this percentage is lower: 31% (M:38%, F: 23%).

Diagnoses

In migrant populations, 4601 diagnoses were made in 2003. Genital chlamydial infection and gonorrhoea were the most common diagnoses in these groups. Females from Surinam and the Netherlands Antilles accounted for 21% (n=53) of all female gonorrhoea cases and 12% (n=202) of all chlamydial diagnoses. Furthermore, 69% of these cases were diagnosed in women younger than 25 years. Males from Surinam or the Netherlands Antilles accounted for 14% (n=282) of all male chlamydial diagnoses (of which 9% in MSM) and 17% (n=190) of the gonorrhoea cases.

Dutch males accouned for almost 70% of all male syphilis cases; 11% were diagnosed in men from Asia, Surinam and the Netherlands Antilles. Among those, a relatively high percentage was homosexually acquired: 83% and 64%, respectively.
About 22% of all diagnoses were made in migrants who never had been tested for HIV before, this information was missing in 36%. In 4% of the cases (n= 176) 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 chlamydia (M: 12%; F 10%). For gonorrhoea, these rates are 8% and 3%, respectively.

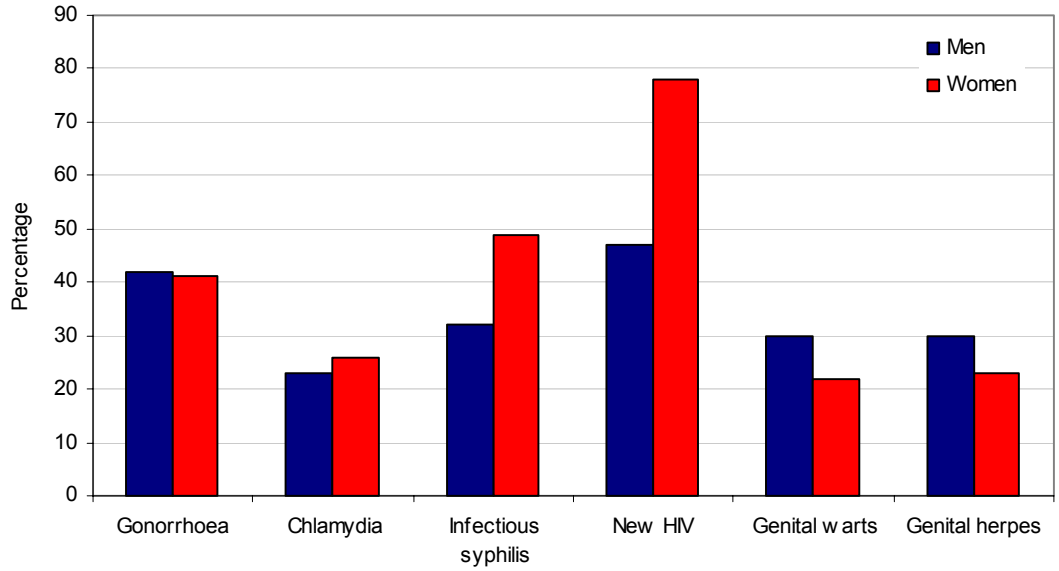


Figure 44: Proportion of total number of STI diagnosed in migrant populations by sex, STI sentinel surveillance network, 2003

18.3 Men who have sex with men

Key points

- In 2003, MSM accounted for 30% of all male consultations and for 41% of all male diagnoses.
- In 2003, 764 MSM were known HIV infected, accounting for 93% of the known HIV infected individuals registered in the STI sentinel surveillance network.
- 54% of the genital chlamydial infections in MSM were anorectal; in known HIV infected MSM 84%.

Consultations

In 2003, 6860 consultations by MSM were registered (30% of all male consultations) and increased by 3% compared with 2002. The majority of MSM was older than 30 years (>40: 38%, 30-39: 37%). In MSM the most important reason for consultation was having symptoms (40%), followed by sexual risk behaviour (39%) and periodic screening (14%). Twenty-four percent of the MSM were non-Dutch: 3% from Surinam and the Netherlands Antilles, 4% Latin America and 17% from various countries. 764 of all MSM (11%) were known HIV positives, of whom half was older than 40 (51%). A history of STI was reported by 23% of MSM.

Diagnoses and determinants of infection

In total, 3174 diagnoses were made in MSM in 2003, accounting for 41% of all male diagnoses. 20% of the diagnoses of gonorrhoea, chlamydial infection and syphilis were made in HIV positive MSM. MSM accounted for 87% of all male syphilis diagnoses, 80% of HIV diagnoses, 61% of gonorrhoea. For chlamydia, genital warts and genital herpes these percentages were lower, around 30%.

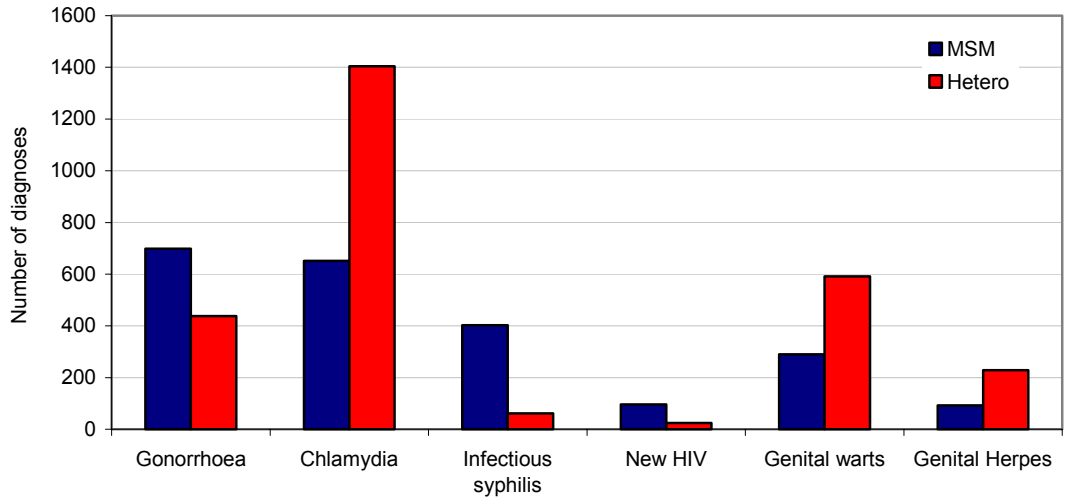


Figure 45: STI by sexual preference for men, STI sentinel surveillance network, 2003

Rates for positive test results were highest in the age groups 0-29 and 30-39 years. The highest rates were found in MSM with a positive test for gonorrhoea or chlamydia (figure C.7). Anorectal chlamydial infection was more often diagnosed in MSM than anorectal gonorrhoea, 54% and 41%, respectively.

19. General conclusion and recommendations

HIV/AIDS

As of August 2004, a total of 9767 HIV cases had been reported in the Netherlands by the HMF and the 22 HIV treatment centres in the Netherlands. In 2003, 847 new HIV cases were diagnosed. Surveillance data suggest that the overall prevalence of HIV increases consistently over time. This is likely to be caused by continuing transmission in men who have sex with men (MSM) and the increasing contribution of the heterosexual population. By the end of 2003, an estimated 16400 people were living with HIV/AIDS in the Netherlands. MSM still accounted for the majority of the cases, although the proportion has been decreasing over time.

The increase of heterosexually acquired infections that was observed since 1996 seemed to have levelled off in 2003. 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. Immigration thus plays an important role in the Dutch HIV epidemic. Of the African HIV infected population, 87% acquired the HIV infection in their region of origin. Individuals from Surinam and the Netherlands Antilles, though, are relatively more often infected in the Netherlands.

Women account for 23% of all registered HIV cases in the Netherlands. On average, women are six years younger than men at HIV diagnosis. Age at diagnosis is fairly stable over time for migrant populations, but increased for MSM, Dutch heterosexuals, and IDUs. The HMF also observes that in MSM CD4 counts at diagnosis increases, suggesting that MSM are diagnosed sooner after primary infection and are infected at higher age.[6] Furthermore, migrant populations are older at diagnosis than Dutch, suggesting that they are infected at older age, or are tested later after infection.[6]

Surveillance data suggest that HIV transmission might be increasing in MSM. In 2003, 7% of MSM attending the STI clinics in Amsterdam and Rotterdam were infected with HIV and not aware of their infection. In Amsterdam, the incidence of HIV increased more markedly among MSM older than 30 years.[57] In the STI sentinel surveillance network, the prevalence of HIV infections in MSM is 3.3% in 2003, which is within the range of prevalence rates observed in 1999-2002. However, due to underreporting and incomplete data, the real number of HIV diagnosed in the STI sentinel might be larger than the number presented here.

IDUs are a relative small group within the HIV/AIDS registry (5%). The number of newly diagnosed drug related infections in 2003 is also low (2%). The majority of the IDUs originates from the Netherlands or other West-European countries. Despite the high HIV incidence among IDUs in Eastern Europe[50] , the number of East-European IDUs in the HIV registry is still low (1%).

In 2004, the national screening of pregnant women was implemented. The first preliminary results suggest a prevalence rate of 0.06%, with the highest prevalence rate in Amsterdam.

Sexually Transmitted Infections
In 2003, a new STI sentinel surveillance network was implemented in the Netherlands. In 2003, the number of new consultations increased by 8%. This is the fourth year in a row with an increasing number. However, it must be noted that comparison with previous years 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.

In 2003, rate of increase in diagnoses of some STI may seem to slow down: the number of genital chlamydial infection remained stable at the level of 2002 and diagnoses of gonorrhoea decreased by 16%. However, diagnoses of syphilis and viral STI continued to increase in 2003. Syphilis increased by 10% and, although this is considerably lower than the 78% increase in 2002, the number of diagnoses of syphilis is still high compared with years before the resurgence of syphilis. MSM account for 87% of diagnoses of syphilis seen in men. Between 2000 and 2003, the number of syphilis cases in the Netherlands increased by 208% in males and 9% in females. The rise in syphilis is associated with a number of outbreaks in Amsterdam (accounting for 50% of the diagnoses in 2000-2003) but also in other parts of the country, i.e. Rotterdam, The Hague, Utrecht, Groningen and Twente region. In recent years, syphilis outbreaks have also been reported among MSM in many European cities and the United States.[51 52 53 54]

Genital chlamydial infection was the most commonly diagnosed STI seen in the STI sentinel surveillance network in the Netherlands in 2003. Men and women younger than 25 years of age are at highest risk for genital chlamydial infection, which is also true for gonorrhoea. Two-thirds of all female diagnoses of chlamydial infection and gonorrhoea are seen in women younger than 25 years. STIs 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 with higher rates among urban areas, MSM (61% of male cases) and individuals with a history of STI (50%). Specific ethnic minorities (e.g. Surinam, the Netherlands Antilles and Aruba) are at high risk for both genital chlamydial infection and gonorrhoea. Migrant populations account for a disproportionate high percentage of STI, especially of bacterial STI and HIV.
In 2003, the percentage of ciprofloxacin resistance (first-line therapy until September 2003), as studied in a survey among public health laboratories, seemed to have increased rather rapidly. In Amsterdam, the prevalence of resistance is higher in MSM than among heterosexuals.[25] Similar findings have also been reported in the United Kingdom and the United States.[27] 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.[26] These results demonstrated the need for a surveillance of gonococcal antimicrobial resistance at national level.

Between 2002 and 2003, the number of diagnosed viral STIs further increased. Genital warts were the most common viral STI, seen in the STI sentinel surveillance network in 2003. The increase in notifications of acute hepatitis B infection was restricted in men, although the relative proportion of MSM in men has decreased slightly. This might be an early effect of the vaccination campaign of risk groups against hepatitis B. As yet, this effect is unlikely because the vaccination campaign has been implemented nationally only in May 2003. In the coming years, effects of the campaign on the epidemiology of hepatitis B are to be expected. This is currently monitored with an epidemiological genotyping study of all isolates of acute HBV disease in the Netherlands. Unprotected sexual contact remains the most important risk factor for acute hepatitis B.

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 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, (i.e., syphilis, rectal gonorrhoea, and quinolone-resistant *N. gonorrhoeae*) have been reported before.[54 55] The LGV outbreak seems to be slowly increasing, with yet unknown dynamics, and with clinical signs that easily could be missed. Clinicians in industrialized countries make the diagnosis rarely, and would not be expected to consider LGV as likely cause of gastrointestinal illness.[47] The number of LGV cases reported here is probably a minimum estimate of disease occurrence. The LGV outbreak among, predominantly HIV infected MSM, is worrying because of the ulcerative character of LGV. It can facilitate transmission and acquisition of HIV and other sexually transmitted or blood-borne diseases.

In 2003, 829 individuals, registered in the STI sentinel surveillance network, were infected with HIV and were aware of their infection. This represents only 2% of the total number of consultations and is undoubtedly an underestimate of the real number due to underreporting. However, 20% of all diagnoses of gonorrhoea, chlamydial infection and syphilis in MSM are seen in known HIV infected MSM. Among these, anorectal infections were seen in 84% of the diagnoses of chlamydia and in 57% of gonorrhoea. In general, MSM account for a considerable percentage of diagnoses in men (41%). More specifically, surveillance data indicate that

unprotected anal intercourse is highly prevalent, as was also observed in the HIV prevention monitor among MSM.[56] In 2003, unsafe sexual practices, e.g. anal sex, were more often reported than in the first Monitor in 2000.[56] We may conclude that unsafe sex practices are on-going in this group at risk for STI, with consequences for further spread of STI and HIV.

Surveillance of STI and HIV/AIDS

The quality of the surveillance systems for both STIs 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 recent HIV infections, apart from the ACS and one study among MSM in Amsterdam in which STARHS was applied.[57] Additional studies on recent HIV infections are needed to facilitate rapid detection of HIV transmission in the Netherlands. STARHS should be applied at wider scale to differentiate incident cases from prevalent ones in cross-sectional studies and in newly diagnosed HIV cases. Also, monitoring of resistance in gonococcal infection on a national level, to monitor the epidemiology and to ensure treatment strategies respond to changing epidemiology. Also, behavioural surveillance needs to be strengthened in order to understand the determinants of unprotected sex.

Recommendations

- STI show great variations in rates across populations at risk (e.g. high rates in young people, MSM and migrant populations). Tailor-made prevention and intervention activities are needed for these specific groups.
- In 2000-2003, the situation among MSM has deteriorated with serious epidemics simultaneously occurring within 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.[49] However, these methods seem not to be effective any longer for MSM at risk. The current situation requires innovative responses from public health.
- 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. This is particularly relevant in the context of recent increases in waiting times at STI clinics. Next to the expansion of STI clinics' capacity, as announced by the Ministry of VWS for 2005, innovative approaches should be realised, for example the method of pre-screening of patients as discussed above. Additionally, recent initiatives for improved testing, for instance www.syfilistest.nl (GG&GD Amsterdam) of www.soatest.nl (Soa Aids Nederland), should be encouraged widely.
- Surveillance data can be further improved, with respect to completeness and timeliness; other topics for improvement are: surveillance of resistance in *N. gonorrhoeae*, recent infections with HIV, monitoring of STI in practices of general practitioners, and behavioural surveillance.

Appendices

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 (follow-up data)	2002 - present	HIV treatment centers, laboratory, RIVM	± 800 HIV diagnoses ± 200 AIDS cases
STI sentinel surveillance network (SOAP)	RIVM	Consultations HIV and STI diagnoses determinants	2003 - present	STI clinics, MHS	40000-50000 consultations
Anonymous unlinked HIV surveys risk groups (migrants, CSW, clients of CSW, IDUs)	RIVM	HIV infections, Determinants	2002 - present	Various MHS and other organisations	1600 -1800 interviews
Anonymous unlinked HIV surveillance STI clinics Amsterdam and Rotterdam	STI clinic, MHS Amsterdam STI clinic, EMC Rotterdam	HIV prevalence Determinants	1991 - present		2500-3500 HIV tests
Screening pregnant women	CvZ	2004 : HIV-infections 1976 : HBV 1960 : Syphilis	NA	Regional vaccination bureaus	100000 pregnant women
ISIS laboratory surveillance	RIVM	Tests and diagnoses gonorrhoea, chlamydial infection, syphilis	2000 - present	ISIS laboratory	12-14000 tests per STI
Continuous Morbidity Registry (CMR)	NIVEL	HIV/AIDS consultation	1988 - present	General practitioners	200-300 HIV tests
Screening blood donors	Sanquin	HIV, HBV, Syphilis	1986 - present	Blood banks	± 500000 donors
Causes of deaths statistics	CBS	AIDS related deaths	1983 - present	_	± 90 deaths
HBV notifications	Health Inspectorate RIVM	HBV, determinants	1976 - present	MHSs	200-300 acute HBV cases
Behavioural surveillance Surveillance of STI in general practitioners (to be implemented)	RIVM			SOA AIDS Nederland NHG NIVEL	

Appendix B. Tables and figures HIV/AIDS surveillance

HIV cases (total population)

Table B.1: Number of HIV cases, by region and gender

Region	Male (%)	Female (%)	Total (%)
Amsterdam	3573 (47%)	772 (35%)	4345 (44%)
North	434 (6%)	180 (8%)	614 (32%)
East	569 (8%)	192 (9%)	761 (8%)
South	736 (10%)	272 (12%)	1008 (10%)
West	2233 (30%)	802 (36%)	3035 (31%)
Other/NK	3 (0%)	0 (0%)	3 (0%)
Total	7548	2218	9766

1 person with unknown gender not included
NK: not known

Table B.2: Number of HIV cases, by gender and transmission risk group

Transmission risk group	Male (%)	Female (%)	Total (%)
MSM	4993 (66%)	8 (0.4%)*	5001 (51%)
Heterosexual contact	1270 (17%)	1868 (84%)	3138 (32%)
IDU	382 (5%)	150 (7%)	532 (5%)
Blood (products)	98 (1%)	38 (2%)	136 (1%)
Mother to child	12 (0.2%)	17 (0.8%)	29 (0.3%)
Needle stick injury	15 (0.2%)	8 (0.4%)	23 (0.2%)
Other/NK	778 (10%)	129 (6%)	907 (9%)
Total	7548	2218	9766

1 person with unknown gender not included
* transmission risk group or gender uncertain, NK: not known

Table B.3: Number of HIV cases, by gender and region of origin

Region of origin	Male (%)	Female (%)	Total (%)
The Netherlands	4912 (65%)	660 (30%)	5572 (57%)
Western Europe	529 (7%)	130 (6%)	659 (7%)
Central Europe	107 (1%)	20 (1%)	127(1%)
Eastern Europe	30 (0.4%)	10 (0.4%)	40 (0.4%)
sub-Saharan Africa	741(10%)	966 (44%)	1707 (17%)
Caribbean	245 (3%)	109 (5%)	354 (4%)
Latin America	482 (6%)	179 (8%)	661(7%)
North America	144 (2%)	5 (0.2%)	149 (2%)
North Africa & Middle East	77 (1%)	22 (1%)	99 (1%)
Australia & Pacific	20 (0.3%)	0 (0%)	20 (0.2%)
South (East) Asia	180 (2%)	105 (5%)	285 (3%)
Other/NK	60 (0.8%)	10 (0.4%)	70 (0.7%)
Total	7548	2218	9766

1 person with unknown gender not included
NK: not known

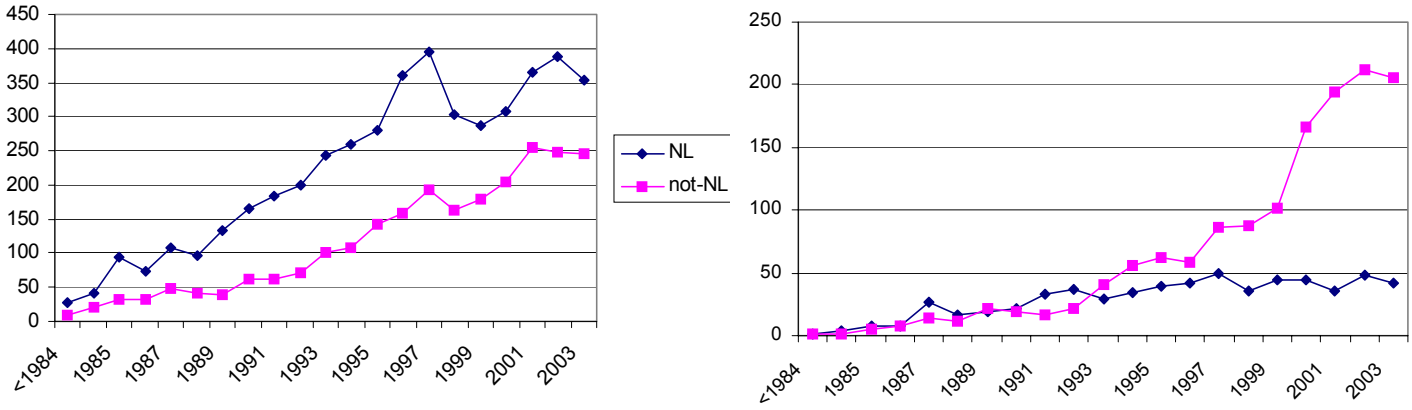


Figure B.1: Number of HIV cases, by origin (Dutch / non-Dutch), year of HIV-diagnosis and gender (left: male, right: female)

Table B.4: Number of HIV cases, by age group and gender

Age group	Male (%)	Female (%)	Total (%)
<15	24 (0.3%)	24 (1%)	48 (0.5%)
15-19	94 (1%)	164 (7%)	258 (3%)
20-24	468 (6%)	354 (16%)	840 (9%)
25-29	1166 (15%)	508 (23%)	1674 (17%)
30-39	3101 (41%)	711 (32%)	3812 (39%)
40-49	1669 (22%)	209 (9%)	1878 (19%)
≥ 50	764 (10%)	148 (7%)	864 (9%)
Other/NK	244 (3%)	148 (7%)	392 (4%)
Total	7548	2218	9766

1 person with unknown gender not included
NK: not known

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

Age group	MSM	Hetero-sexual contact	IDU	Blood (prod.)	Mother to child	Needle stick injury	Other/ NK	Total
<15	0 (0%)	5 (0.2%)	9 (0%)	10 (7%)	25 (86%)	0 (0%)	8 (1%)	48 (0.5%)
15-19	35 (0.7%)	186 (6%)	11 (2%)	10 (7%)	1 (3%)	0 (0%)	15 (2%)	258 (3%)
20-24	334 (7%)	369 (12%)	61 (12%)	14 (10%)	0 (0%)	4 (17%)	58 (6%)	840 (9%)
25-29	808 (16%)	622 (20%)	109 (20%)	26 (19%)	0 (0%)	2 (9%)	107 (12%)	1674 (17%)
30-39	2177 (44%)	1120 (36%)	235 (44%)	38 (28%)	0 (0%)	4 (17%)	238 (26%)	3812 (39%)
40-49	1137 (23%)	461 (15%)	99 (19%)	14 (10%)	0 (0%)	6 (26%)	161 (18%)	1878 (19%)
≥ 50	486 (10%)	263 (8%)	6 (1%)	15 (11%)	0 (0%)	7 (30%)	87 (10%)	864 (9%)
Other/ NK	24 (0.5%)	112 (4%)	11 (2%)	9 (7%)	3 (10%)	0 (0%)	234 (26%)	393 (4%)
Total	5001	3138	532	136	29	23	908	9767

NK: not known

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

Region of origin	Male (age/IQR)	Female (age/IQR)	Total (age/IQR)
The Netherlands	37.0 (31.2-44.4)	31.1 (25.4-40.1)	36.4 (30.5-44.0)
Western Europe	33.7 (28.7-40.0)	30.2 (26.7-35.6)	32.8 (28.2-39.3)
Sub-Saharan Africa	33.4 (27.8-38.3)	28.3 (23.7-33.7)	30.6 (25.0-36.0)
Caribbean	33.0 (28.3-39.5)	31.1 (24.9-38.1)	32.3 (27.2-39.0)
Latin America	33.4 (28.1-39.3)	30.9 (26.5-37.7)	32.7 (27.8-38.8)
South (East) Asia	34.4 (28.8-41.8)	30.5 (26.9-35.0)	33.0 (28.2-39.5)

IQR: interquartile range

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

Transmission risk group	Amsterdam	North	East	South	West	Unknown	Total
MSM	2644	252	364	448	1 292	1	5001
	(53%)	(5%)	(7%)	(9%)	(26%)	(0%)	(51%)
Heterosexual contact	1022	277	290	382	1 167	0	3138
	(33%)	(9%)	(9%)	(12%)	(37%)	(0%)	(32%)
IDU	270	29	28	89	116	0	532
	(51%)	(5%)	(5%)	(17%)	(22%)	(0%)	(5%)
Blood (products)	39	6	8	11	72	0	136
	(29%)	(4%)	(6%)	(8%)	(53%)	(0%)	(1%)
Mother to child	22	0	0	1	6	0	29
	(76%)	(0%)	(0%)	(3%)	(21%)	(0%)	(0.3%)
Needle stick injury	9	0	3	2	9	0	23
	(39%)	(0%)	(13%)	(9%)	(39%)	(0%)	(0.2%)
Other/NK	340	50	68	75	373	2	908
	(8%)	(8%)	(9%)	(7%)	(12%)	(0.3%)	(9%)
Total	4346	614	761	1008	3035	3	9767

NK: not known

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

	≤1997	1998	1999	2000	2001	2002	2003	2004*
MSM	2738	307	304	322	386	416	374	131
	(60%)	(52%)	(50%)	(45%)	(46%)	(46%)	(44%)	(46%)
Heterosexual	985	217	228	338	372	394	373	119
contact	(22%)	(37%)	(37%)	(47%)	(44%)	(44%)	(44%)	(42%)
IDU	434	14	17	12	15	11	16	2
	(9%)	(2%)	(3%)	(2%)	(2%)	(1%)	(2%)	(0.7%)
Blood	90	7	3	3	9	8	7	0
(products)	(2%)	(1%)	(0.5%)	(0.4%)	(1%)	(0.9%)	(0.8%)	(0%)
Mother to child	16	4	3	3	0	0	0	0
	(0.4%)	(1%)	(0.5%)	(0.4%)	(0%)	(0%)	(0%)	(0%)
Needle stick	7	2	3	3	1	5	2	0
injury	(0.2%)	(0.3%)	(0.5%)	(0.4%)	(0.1%)	(0.6%)	(0.2%)	(0%)
Other/NK	307	39	53	42	65	64	75	30
	(7%)	(7%)	(7%)	(6%)	(8%)	(7%)	(9%)	(11%)
Total	4577	590	611	723	848	898	847	282

* data up to August 1 2004
NK: not known

Table B.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	3706 (67%)	66 (4%)	123 (31%)	111 (40%)	391 (59%)
Heterosexual contact	926 (17%)	1412(83%)	220 (55%)	136 (49%)	105 (16%)
IDU	368 (7%)	5 (0.3%)	17 (4%)	3 (1%)	92 (14%)
Blood (products)	75 (1%)	34 (2%)	5 (1%)	2 (1%)	5 (0.7%)
Mother to child	16 (0.3%)	10 (0.6%)	0 (0%)	0 (0%)	1 (0.2%)
Needle stick injury	15 (0.3%)	4 (0.2%)	0 (0%)	0 (0%)	2 (0.3%)
Other/NK	466 (8%)	176 (10%)	33 (8%)	26 (9%)	63 (10%)
Total	5572	1707	398	279	659

NK: not known

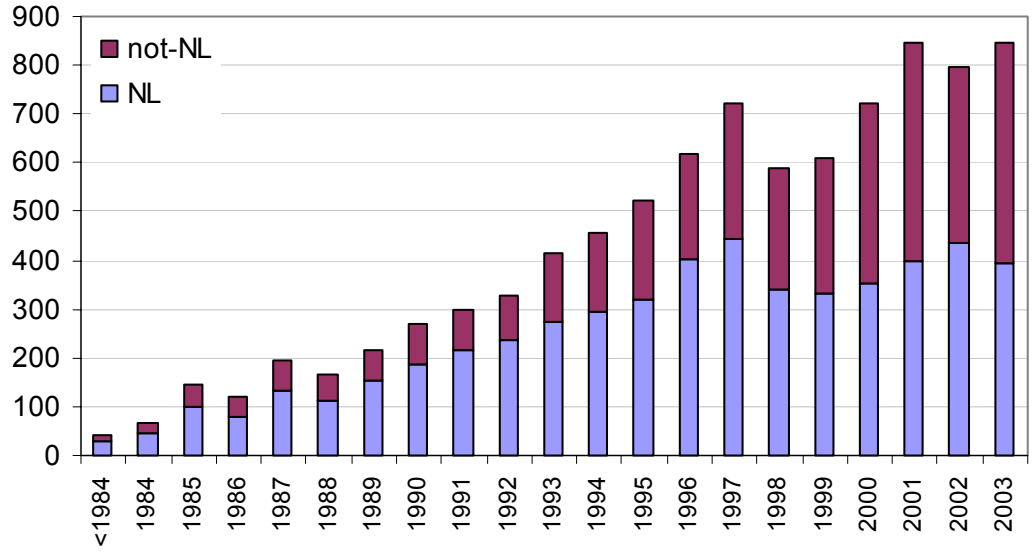


Figure B.2: Number of HIV cases, by Dutch/non-Dutch origin and year of HIV diagnosis

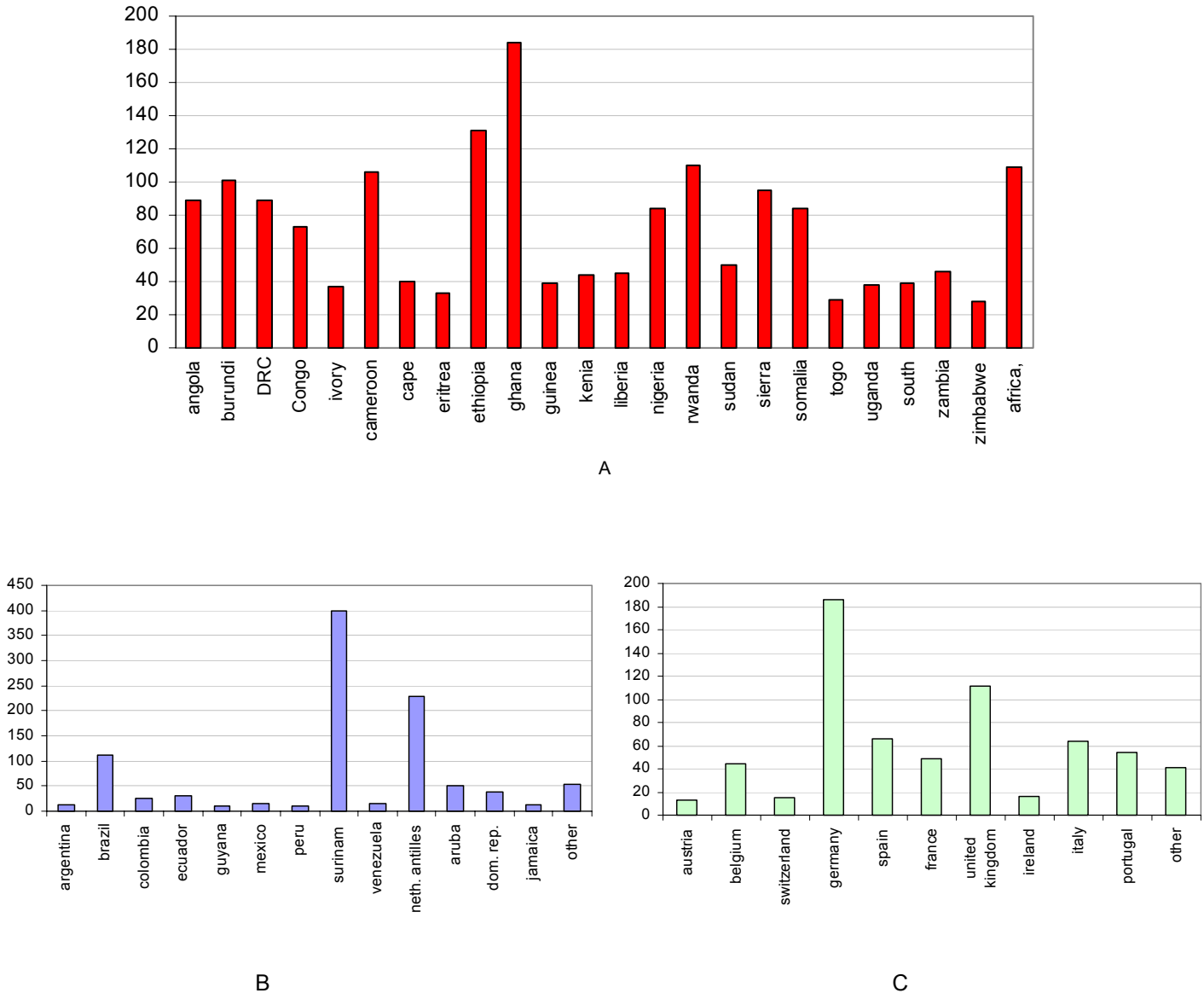


Figure B.3: Number of HIV cases, by sub-Saharan African Country (A), by Latin American/Caribbean country (B), and by West-European country (C)

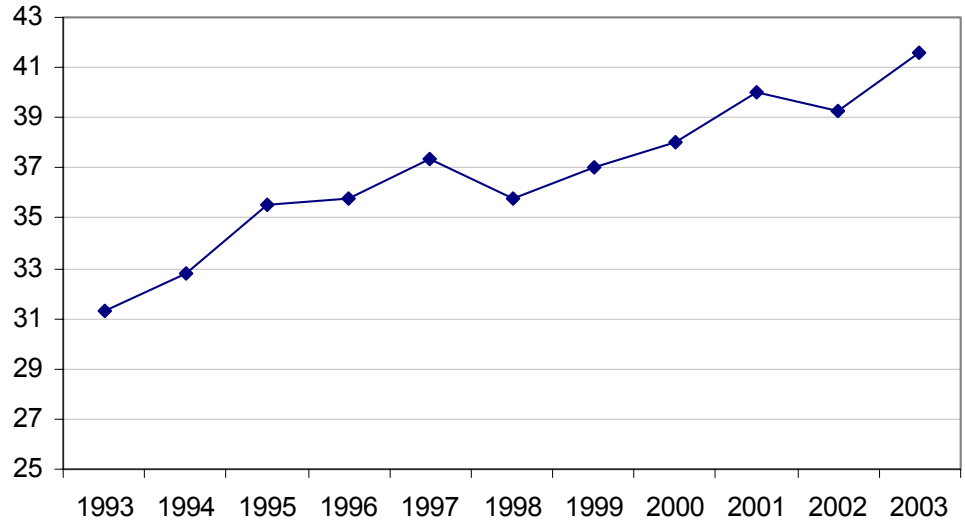


Figure B.4: Median age at HIV diagnosis of IDUs, by year of HIV diagnosis.

HIV cases (diagnosed in 2003)

Table B.10: Number of HIV cases diagnosed in 2003, by gender and transmission risk group

Transmission risk group	Male (%)	Female (%)	Total (%)
MSM	370 (62%)	4 (2%)*	374 (44%)
Heterosexual contact	147 (24%)	226 (92%)	373 (44%)
IDU	11 (2%)	5 (2%)	16 (2%)
Blood (products)	4 (1%)	3 (1%)	7 (1%)
Mother to child	0 (0%)	0 (0%)	0 (0%)
Needle stick injury	2 (0.3%)	0 (0%)	2 (0.2%)
Other/NK	66 (11%)	9 (4%)	(9%)
Total	600	247	847

NK: not known
* transmission risk group or gender uncertain

Table B.11: Number of HIV cases diagnosed in 2003, by region and gender

Region	Male (%)	Female (%)	Total (%)
Amsterdam	250 (42%)	73 (30%)	323 (38%)
North	61 (10%)	31 (13%)	92 (11%)
East	52 (9%)	26 (11%)	78 (9%)
South	45 (8%)	27 (11%)	72 (8%)
West	192 (32%)	90 (36%)	282 (33%)
Total	600	247	847

Table B.12: Number of HIV cases diagnosed in 2003, by region and transmission risk group

Transmission risk group	Amsterdam	North	East	South	West	Total
MSM	173 (46%)	36 (10%)	33 (9%)	26 (7%)	106 (28%)	374 (44%)
Heterosexual contact	108 (29%)	48 (13%)	41(11%)	39 (10%)	137 (37%)	373 (44%)
IDU	6 (38%)	1 (6%)	1 (6%)	0 (0%)	8 (50%)	16 (2%)
Blood (products)	0 (0%)	2 (29%)	1 (14%)	0 (0%)	4 (57%)	7 (1%)
Mother to child	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Needle stick injury	1 (50%)	0 (0%)	1 (50%)	0 (0%)	0 (0%)	2 (0.2%)
Other/NK	35 (47%)	5 (7%)	1 (1%)	7 (9%)	27 (36%)	75 (9%)
Total	323	92	78	72	282	847

NK: not known

Table B.13: Number of HIV cases diagnosed in 2003, by gender and region of origin

Region of origin	Male (%)	Female (%)	Total (%)
The Netherlands	354 (59%)	42 (17%)	396 (47%)
Western Europe	40 (7%)	8 (3%)	48 (6%)
Central Europe	8 (1%)	2 (1%)	10 (1%)
Eastern Europe	5 (0.8%)	3 (1%)	8 (0.9%)
Sub-Saharan Africa	102 (17%)	142 (57%)	244 (29%)
Caribbean	20 (3%)	10 (4%)	30 (4%)
Latin America	33 (6%)	24 (10%)	57 (7%)
North America	3 (0.5%)	0 (0%)	3 (0.3%)
North Africa & Middle East	11 (2%)	1 (0.4%)	12 (1%)
Australia & Pacific	1 (0.2%)	0 (0%)	1 (0.1%)
South (East) Asia	15 (2%)	15 (6%)	30 (4%)
Other/NK	5 (0.8%)	0 (0%)	5 (0.6%)
Total	600	247	847

NK: not known

Table B.14: Number of HIV cases diagnosed in 2003, 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%)	0 (0%)	0 (0%)	2 (3%)	2 (0.2%)
15-19	2 (0.5%)	27 (7%)	1 (6%)	1 (14%)	0 (0%)	0 (0%)	1 (1%)	32 (4%)
20-24	16 (4%)	45 (12%)	1 (6%)	0 (0%)	0 (0%)	0 (0%)	5 (7%)	67 (8%)
25-29	38 (10%)	66 (18%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	8 (11%)	112 (13%)
30-39	153 (41%)	145 (39%)	5 (31%)	4 (57%)	0 (0%)	0 (0%)	29 (39%)	336 (40%)
40-49	100 (27%)	58 (16%)	9 (56%)	1 (14%)	0 (0%)	0 (0%)	19 (25%)	187 (22%)
≥ 50	65 (17%)	32 (9%)	0 (0%)	1 (14%)	0 (0%)	2 (100%)	11 (15%)	111 (13%)
Total	374	373	16	7	0	2	75	847

Table B.15: Number of HIV cases diagnosed in 2003, by age group and gender

Age group	Male (%)	Female (%)	Total (%)
<15	0 (0%)	2 (1%)	2 (0.2%)
15-19	9 (2%)	23 (9%)	32 (4%)
20-24	27 (4%)	40 (16%)	67 (8%)
25-29	61 (10%)	51 (21%)	112 (13%)
30-39	248 (41%)	88 (36%)	336 (40%)
40-49	158 (26%)	29 (12%)	187 (22%)
≥ 50	97 (16%)	14 (6%)	111 (13%)
Total	600	247	847

Table B.16: Median age (years) of HIV cases diagnosed in 2003, by region of origin and gender

Region of origin	Male (age/IQR)	Female (age/IQR)	Total (age/IQR)
The Netherlands	40.0 (34.5-48.0)	35.0 (26.0-48.4)	39.7 (33.9-48.0)
Western Europe	39.2 (32.2-41.9)	32.6 (29.7-35.8)	37.4 (31.2-41.3)
Sub-Saharan Africa	34.4 (29.2-40.3)	29.0 (24.1-33.7)	31.4 (25.1-36.4)
Caribbean	39.1 (33.0-43.9)	31.2 (20.4-32.0)	34.0 (30.9-43.4)
Latin America	34.8 (30.3-40.9)	34.0 (29.2-40.8)	34.6 (30.3-40.9)
South (East) Asia	34.0 (30.5-39.1)	30.7 (28.2-34.1)	32.4 (29.2-37.1)

IQR: interquartile range

Table B.17: Median age (years) of heterosexual population diagnosed with HIV in 2003, by region of origin and gender

Region of origin	Male (age/IQR)	Female (age/IQR)	Total (age/IQR)
The Netherlands	41.4 (34.0-54.7)	33.8 (26.0-49.3)	39.4 (30.7-49.7)
Western Europe	41.5 (35.1-45.0)	31.3 (29.2-32.7)	34.9 (32.4-41.5)
Sub-Saharan Africa	34.3 (28.9-38.3)	29.0 (24.2-33.7)	31.0 (24.5-35.9)
Caribbean	39.2 (36.2-44.0)	31.2 (20.4-32.0)	32.6 (23.5-39.5)
Latin America	41.3 (35.2-50.2)	34.3 (28.4-40.0)	37.6 (31.7-41.7)

IQR: interquartile range

AIDS cases and AIDS related deaths

Table B.18: Cumulative number of AIDS cases and AIDS related deaths

Year	AIDS diagnoses	Deaths
≤ 1987	504	223
1988	829	358
1989	1220	560
1990	1639	829
1991	2089	1123
1992	2599	1535
1993	3080	1962
1994	3574	2406
1995	4107	2845
1996	4566	3172
1997	4903	3356
1998	5141	3492
1999	5319	3629
2000	5570	3761
2001	5813	3889
2002	6097	3978
2003	6331	4065

Source AIDS related deaths: Statistics Netherlands, CBS
< 2000: AIDS cases registered by Health Inspectorate, after 2000: data from the HMF

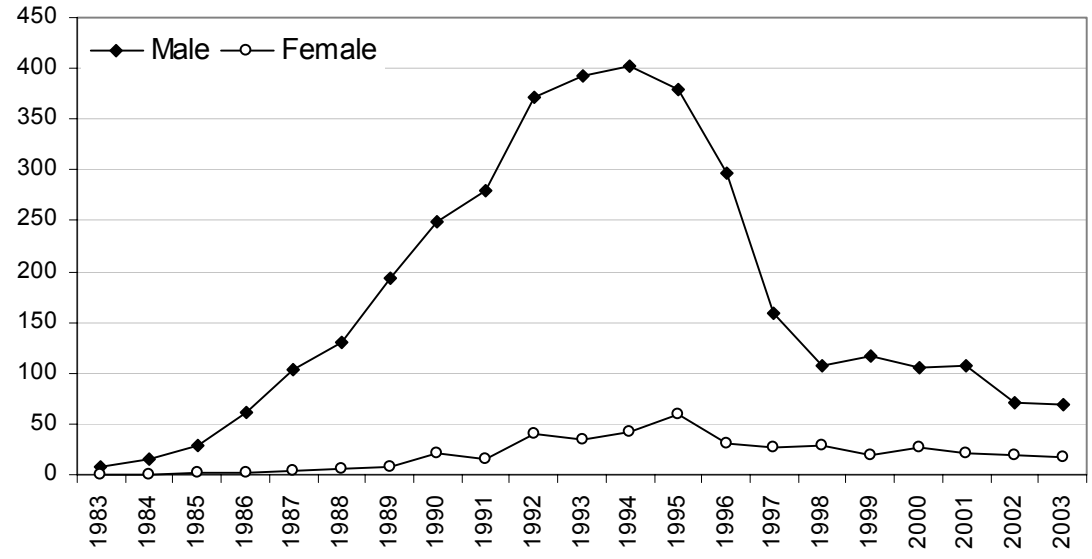


Figure B.5: Number of yearly AIDS related deaths, by sex.

Table B.19: 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	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	104 (41%)	105 (42%)	14 (6%)	4 (2%)	0 (0%)	24 (10%)	251
2001	99 (41%)	100 (41%)	9 (4%)	5 (2%)	0 (0%)	30 (12%)	243
2002	113 (40%)	124 (44%)	5 (2%)	7 (2%)	0 (0%)	35 (12%)	284
2003	97 (41%)	87 (37%)	8 (3%)	3 (1%)	0 (0%)	39 (17%)	234
2004*	38 (51%)	25 (34%)	0 (0%)	0 (0%)	0 (0%)	11 (15%)	74
Total	4074	1279	628	148	36	240	6405

< 2000: AIDS cases registered by Health Inspectorate, after 2000: data from the HMF
* data up to August 2004

Table B.20: Number of AIDS cases, by year of AIDS diagnosis, age group and gender

Age group	2000		2001		2002		2003		2004	
	M	F	M	F	M	F	M	F	M	F
<15	1	0	0	0	0	0	0	0	0	0
	(0.5%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
15-19	1	2	5	3	5	6	3	2	0	0
	(0,5%)	(4%)	(3%)	(6%)	(2%)	(8%)	(2%)	(4%)	(0%)	(0%)
20-24	3	7	10	2	10	5	2	3	2	0
	(2%)	(14%)	(5%)	(4%)	(5%)	(7%)	(1%)	(5%)	(3%)	(0%)
25-29	20	4	9	8	12	11	11	12	6	3
	(10%)	(8%)	(5%)	(15%)	(6%)	(15%)	(6%)	(22%)	(10%)	(20%)
30-39	75	22	70	21	83	32	76	28	18	7
	(38%)	(43%)	(37%)	(40%)	(40%)	(43%)	(42%)	(51%)	(31%)	(47%)
40-49	74	9	51	13	57	10	53	3	16	3
	(37%)	(18%)	(27%)	(25%)	(27%)	(13%)	(30%)	(5%)	(27%)	(20%)
> 49	26	7	46	5	42	11	34	7	17	2
	(13%)	(14%)	(24%)	(10%)	(20%)	(15%)	(19%)	(13%)	(29%)	(13%)
Total	200	51	191	52	209	75	179	55	59	15

* 2004 incomplete; M: male, F: female

Table B.21: Median age (years) of AIDS cases at AIDS diagnosis, by region of origin and gender

Region of origin	Male (age/IQR)	Female (age/IQR)	Total (age/IQR)
The Netherlands	41.4 (35.6-49.1)	37.8 (32.1-45.9)	41.1 (35.3-48.8)
Western Europe	39.5 (33.2-45.0)	36.6 (33.2-39.8)	39.1 (33.2-44.5)
Sub-Saharan Africa	34.4 (28.5-38.8)	31.9 (26.4-36.2)	33.0 (27.5-37.7)
Caribbean	37.8 (32.8-44.6)	37.6 (34.0-41.1)	37.6 (32.8-44.5)
Latin America	37.2 (33.3-42.2)	33.4 (30.0-42.9)	36.3 (32.1-42.2)
South (East) Asia	40.2 (33.7-45.4)	32.1 (27.7-34.6)	34.8 (30.5-42.4)

IQR: interquartile range

Table B.22: Number of AIDS related deaths, by gender

	Male (%)	Female (%)	Total
1996	296 (91%)	31 (9%)	327
1997	158 (86%)	26 (14%)	184
1998	107 (79%)	29 (21%)	136
1999	117 (85%)	20 (15%)	137
2000	106 (80%)	26 (20%)	132
2001	107 (84%)	21 (16%)	128
2002	70 (79%)	19 (21%)	89
2003	69 (79%)	18 (21%)	87

Source AIDS related deaths: Statistics Netherlands, CBS

Table B.23: Number of AIDS related deaths, by year of death, age group and gender

Age group	1999		2000		2001		2002		2003	
	M	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
<20	0	0	0	0	2	1	0	0	1	1
	(0%)	(0%)	(0%)	(0%)	(%)	(5%)	(0%)	(0%)	(1%)	(6%)
20-25	0	1	0	0	0	1	0	0	2	0
	(0%)	(5%)	(0%)	(0%)	(0%)	(5%)	(0%)	(0%)	(3%)	(0%)
25-30	5	1	2	3	1	0	3	3	1	0
	(4%)	(5%)	(2%)	(12%)	(1%)	(0%)	(4%)	(16%)	(1%)	(0%)
30-35	13	4	9	6	9	4	5	3	2	1
	(11%)	(20%)	(8%)	(23%)	(8%)	(19%)	(7%)	(16%)	(3%)	(6%)
35-40	19	2	16	4	26	5	13	6	11	3
	(16%)	(10%)	(15%)	(15%)	(24%)	(24%)	(19%)	(32%)	(16%)	(17%)
40-45	27	4	32	5	26	5	11	4	16	5
	(23%)	(20%)	(30%)	(19%)	(24%)	(24%)	(16%)	(21%)	(23%)	(28%)
45-50	23	2	18	3	14	2	17	1	9	4
	(20%)	(10%)	(17%)	(12%)	(13%)	(10%)	(24%)	(5%)	(13%)	(22%)
50-55	16	3	16	1	12	2	13	0	12	2
	(14%)	(15%)	(15%)	(4%)	(11%)	(10%)	(19%)	(0%)	(17%)	(11%)
55-60	7	1	3	2	9	1	6	0	12	0
	(6%)	(5%)	(3%)	(8%)	(8%)	(5%)	(9%)	(0%)	(17%)	(0%)
60-65	5	1	5	1	5	0	2	0	2	0
	(4%)	(5%)	(5%)	(4%)	(5%)	(0%)	(3%)	(0%)	(3%)	(0%)
>65	2	1	5	1	3	0	0	2	1	2
	(2%)	(5%)	(5%)	(4%)	(3%)	(0%)	(0%)	(11%)	(1%)	(11%)
Total	117	20	106	26	107	21	70	19	69	18

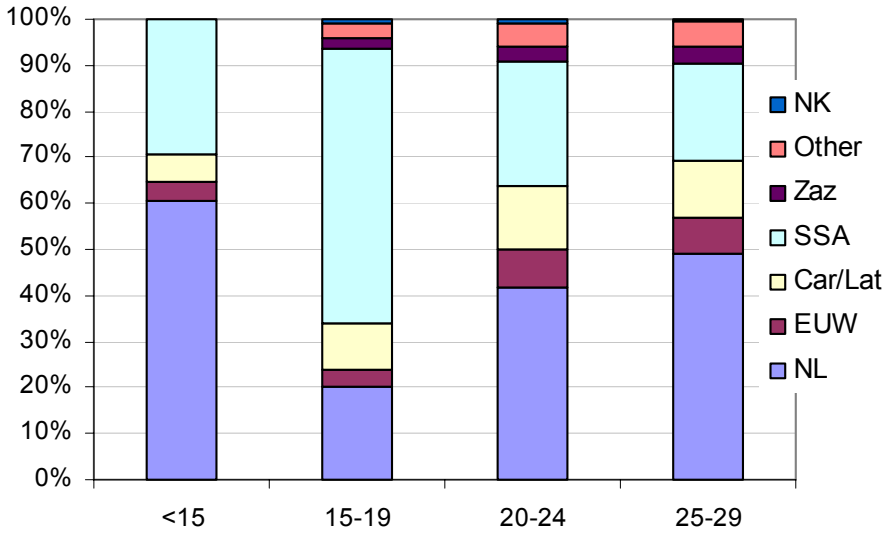


Figure B.6: Distribution of regions of origin among young people

Table B.24: 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	5001	3408 (68%)	3019 (89%)
- Dutch	3706	2697 (73%)	2607 (97%)
- Non-Dutch	1295	711 (55%)	412 (58%)
Heterosexual contact	3138	2278 (73%)	898 (39%)
- Dutch	926	700 (76%)	553 (79%)
- Non-Dutch	2212	1578 (71%)	345 (22%)
IDU	532	365 (69%)	325 (89%)
- Dutch	368	264 (72%)	258 (98%)
- Non-Dutch	164	101 (62%)	67 (66%)
Blood (products)	136	113 (83%)	63 (56%)
- Dutch	75	63 (84%)	56 (89%)
- Non-Dutch	61	50 (82%)	7 (14%)

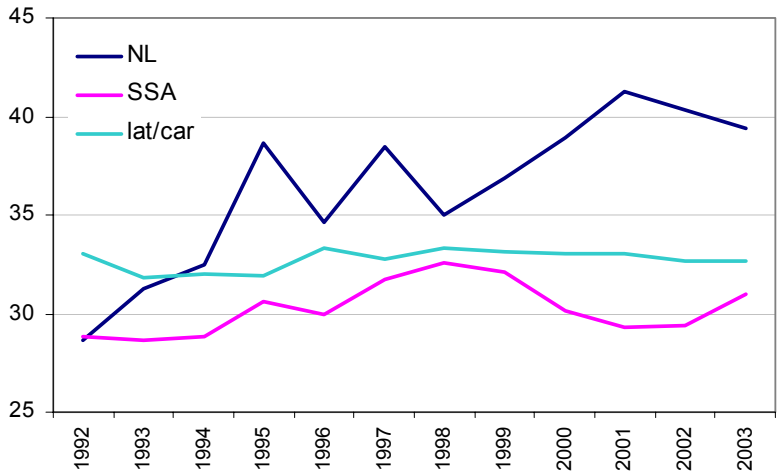


Figure B.7: Median age of heterosexual population over time, by geographic region; NL= Netherlands, SSA= sub-Saharan Africa, Lat/Car= Latin America and the Caribbean

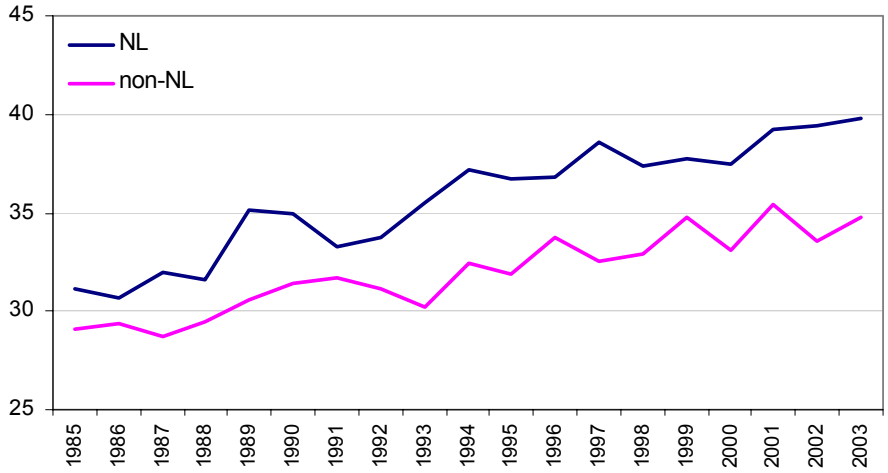


Figure B.8: Median age of MSM population over time, by ethnicity (Dutch/non-Dutch)

Table B.25: Summary of HIV/AIDS figures, August 2004

Cumulative number of HIV cases [1]	9767
Male	7548
Female	2218
Gender unknown	1
Route of transmission [1]	
- MSM	5001 (51%)
- Heterosexual contact	3138 (32%)
- Injecting drug use	532 (5%)
- Blood (products)	136 (1%)
- Needle stick injury	23 (0.2%)
- Mother to child transmission	29 (0.3%)
- Other/ NK	808 (9%)
Newly diagnosed HIV cases (2003) [1]	847
Male/female	600/247
Route of transmission	
- MSM	374 (44%)
- Heterosexual contact	373 (44%)
- Injecting drug use	16 (2%)
- Blood (products)	7 (1%)
- Needle stick injury	2 (0.2%)
- Mother to child transmission	0 (0%)
- Other/NK	75 (4%)
Estimated number of people living with HIV/AIDS in 2003	≈16400
Cumulative number of AIDS cases since epidemic began [2]	6331
Newly diagnosed AIDS cases in 2003	234
Cumulative number of deaths from HIV/AIDS since epidemic	4056
Cumulative number of deaths from HIV/AIDS in 2003 [3]	87
Cumulative number of AIDS patients alive in 2003	≈ 2200

* age at diagnosis; 1: data source: HMF, 2: data source AIDS cases < 2000: Health Inspectorate, data source AIDS cases ≥ 2000: HMF
3: data source: CBS, Statistics Netherlands

Appendix C. Tables and figures STI Surveillance

Table C.1: Number of consultations by sex

Gender	Total (%)
Men	23110 (54.2%)
Women	19540 (45.8%)
Transgender*	24 (0.1%)
Total	42674

*Transgenders are disregarded in the rest of the tables

Table C.2: Number of consultations per month

Month	Total (%)
January	3932 (9.2%)
February	3502 (8.2%)
March	3394 (8.0%)
April	3098 (7.3%)
May	3050 (7.1%)
June	3765 (8.8%)
July	4153 (9.7%)
August	3660 (8.6%)
September	3846 (9.0%)
October	3888 (9.1%)
November	3291 (7.7%)
December	3095 (7.3%)
Total	42674

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

Age	Male (%)	Female (%)	Total (%)
≤14	36 (0.2%)	62 (0.3%)	98 (0.2%)
15-19	765 (3.3%)	2447 (12.5%)	3213 (7.5%)
20-24	4398 (19.0%)	7198 (36.8%)	11599 (27.2%)
25-29	4728 (20.5%)	4399 (22.5%)	9132 (21.4%)
30-34	4114 (17.8%)	2243 (11.5%)	6367 (14.9%)
35-39	3304 (14.3%)	1375 (7.0%)	4682 (11.0%)
40-44	2457 (10.6%)	849 (4.3%)	3307 (7.7%)
45-49	1384 (6.0%)	542 (2.8%)	1927 (4.5%)
50-54	925 (4.0%)	244 (1.2%)	1169 (2.7%)
≥55	999 (4.3%)	181 (0.9%)	1180 (2.8%)
Total	23110	19540	42674

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

Ethnicity	Male (%)	Female (%)	Total (%)
The Netherlands	16619 (71.9%)	14747 (75.5%)	31377 (73.5%)
Turkey	503 (2.2%)	92 (0.5%)	596 (1.4%)
Northern Africa/ Morocco	528 (2.3%)	166 (0.8%)	697 (1.6%)
Surinam	1250 (5.4%)	985 (5.0%)	2235 (5.2%)
The Netherlands Antilles	467 (2.0%)	328 (1.7%)	795 (1.9%)
Eastern Europe	260 (1.1%)	590 (3.0%)	850 (2.0%)
Sub-Saharan Africa	698 (3.0%)	551 (2.8%)	1249 (2.9%)
Latin America	475 (2.1%)	605 (3.1%)	1087 (2.5%)
Europe else	248 (1.1%)	352 (1.8%)	602 (1.4%)
Asia	404 (2.0%)	242 (1.2%)	646 (1.5%)
Unknown	304 (1.1%)	220 (1.2%)	465 (1.2%)
Else	1354 (5.9%)	662 (3.3%)	2075 (4.7%)
Total	23110	19540	42674

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

Sexual preference	Total (%)
Heterosexual	16133 (69.8%)
Homosexual	6019 (26.0%)
Bisexual	841 (3.6%)
Unknown	117 (0.5%)
Total	23110

Table C.6: Number of consultations by client of CSW (M) or CSW (F)

Sex worker (or client)	Male client (%)	Female CSW (%)	Total 2003
No	20482 (88.6%)	16651 (85.2%)	37133 (87.1%)
Yes, in past 6 months	1502 (6.5%)	2062 (10.6%)	3564 (8.4%)
Unknown	1126 (4.9%)	827 (4.2%)	1977 (4.6%)
Total	23110	19540	42674

Table C.7: Number of consultations by sex and injecting drug use

Injecting drug use	Male (%)	Female (%)	Total (%)
No	22137 (95.8%)	18554 (95.2%)	40714 (95.4%)
Yes, in past 6 months	43 (0.2%)	48 (0.2%)	92 (0.2%)
Unknown	930 (4.0%)	938 (4.8%)	1848 (2.4%)
Total	23110	19540	42674

Table C.8: Number of consultations by sex and prior HIV-test

Prior HIV-test	Male (%)	Female (%)	Total (%)
No	7407 (32.1%)	7515 (38.5%)	14928 (35.0%)
Yes, positive	794 (3.4%)	33 (0.2%)	829 (1.9%)
Yes, negative	8092 (35.0%)	5558 (28.4%)	13661 (32.0%)
Yes, result unknown	58 (0.3%)	58 (0.3%)	117 (0.3%)
Unknown	6759 (29.2%)	6376 (32.6%)	13109 (30.8%)
Total	23110	19540	42674

Table C.9: Number of consultations by sex and previous GO/CT/Lues in anamnesis

Previous GO/CT/Lues	Male (%)	Female (%)	Total (%)
Yes	6409 (27.7%)	3564 (18.2%)	9974 (23.4%)
No	16084 (69.6%)	15289 (78.2%)	31388 (73.6%)
Do not know	86 (0.4%)	63 (0.3%)	149 (0.3%)
Unknown	531 (2.3%)	624 (3.2%)	1163 (2.7%)
Total	23110	19540	42674

Table C.10: Number of consultations by reason for consultation

Reason	Male (%)	Female (%)	Total (%)
Symptoms	4546 (38.2%)	3767 (32.6%)	8319 (35.4%)
New relationship	1781 (15.0%)	1405 (12.2%)	3186 (13.6%)
Risk behaviour	5120 (43.0%)	4864 (42.1%)	9990 (42.5%)
Risk behaviour partner	437 (3.7%)	1139 (9.9%)	1578 (6.7%)
Notification	776 (6.5%)	459 (4.0%)	1235 (5.3%)
Periodic screening	466 (3.9%)	811 (7.0%)	1279 (5.5%)
HBV vaccination	600 (5.0%)	884 (7.7%)	1492 (6.4%)
Else	779 (6.5%)	872 (7.6%)	1652 (7.0%)
Unknown	132 (1.1%)	122 (1.1%)	258 (1.1%)

Table C.11a: Number of diagnoses by sex

Diagnosis	Male (%)	Female (%)	Total (%)
Gonorrhoea	1140 (14.7%)	255 (4.6%)	1395 (10.5%)
Chlamydia	2064 (26.5%)	1667 (30.0%)	3731 (28.0%)
Syphilis: primary	190 (2.4%)	10 (0.2%)	200 (1.5%)
" : secondary	141 (1.8%)	6 (0.1%)	147 (1.1%)
" : latens recens	134 (1.7%)	25 (0.5%)	159 (1.2%)
" : latens tarda	115 (1.5%)	49 (0.9%)	164 (1.2%)
" : uveitis luetica	2 (0.0%)	0 (0%)	2 (0.0%)
" : not specified	31 (0.4%)	19 (0.3%)	50 (0.4%)
HIV +	120 (1.5%)	23 (0.4%)	143 (1.1%)
Genital warts	887 (11.4%)	563 (10.1%)	1450 (10.9%)
Genital herpes : prim.: HSV-type 1	93 (1.2%)	102 (1.8%)	195 (1.5%)
" : prim.: HSV type 2	183 (2.4%)	141 (2.5%)	324 (2.4%)
" : prim.: HSV type unkn.	28 (0.4%)	20 (0.4%)	48 (0.4%)
" : recurrent	23 (0.3%)	16 (0.3%)	39 (0.3%)
Hepatitis B: acute	10 (0.1%)	6 (0.1%)	16 (0.1%)
Hepatitis B: chronic	29 (0.4%)	7 (0.1%)	36 (0.3%)
Hepatitis B: recovered	199 (2.6%)	115 (2.1%)	314 (2.4%)
Non specified Urethritis	1979 (25.4%)	8 (0.1%)	1987 (14.9%)
Candidiasis	61 (0.8%)	1342 (24.2%)	1403 (10.5%)
Bacterial Vaginose	0 (0%)	841 (15.2%)	841 (6.3%)
Trichomoniasis	8 (0.1%)	203 (3.7%)	211 (1.6%)
Scabies	62 (0.8%)	9 (0.2%)	71 (0.5%)
Pubic lice	17 (0.2%)	3 (0.1%)	20 (0.2%)
Ulcus e.c.i.	154 (2.0%)	53 (1.0%)	207 (1.6%)
Lymphogranuloma venereum	9 (0.1%)	0 (0%)	9 (0.1%)
Candida Balanitis	33 (0.4%)	1 (0.0%)	34 (0.3%)
Balanitis	8 (0.1%)	0 (0%)	8 (0.1%)
Candida Balanoposthitis	0 (0%)	1 (0.0%)	1 (0.0%)
Mollusca contagiosa	15 (0.2%)	7 (0.1%)	22 (0.2%)
Mycoplasma hominus	0 (0%)	11 (0.2%)	11 (0.1%)
Gardnerella	2 (0.0%)	3 (0.1%)	5 (0.0%)
Else /not specified	41 (0.5%)	38 (0.7%)	79 (0.6%)
Total	7778	5544	13322

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

Location	Male hetero (%)	MSM (%)	Female (%)	Total (%)
Urethral/cervical	1398 (99.5%)	312 (44.3%)	1633 (94.6%)	3343 (87.1%)
Anorectal	6 (0.4%)	382 (54.3%)	84 (4.9%)	472 (12.3%)
Oral	0 (0%)	7 (0.1%)	6 (0.1%)	13 (0.3%)
Unknown	1 (0.1%)	3 (0.1%)	4 (0.0%)	8 (0.2%)
Total	1405	704	1727	3836

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

Location	Male hetero (%)	MSM (%)	Female (%)	Total (%)
Urethral/cervical	435 (99.9%)	424 (58.4%)	233 (85.0%)	1092 (76.0%)
Anorectal	1 (0.1%)	300 (41.3%)	40 (14.6%)	341 (23.7%)
Unknown	0 (0%)	2 (0.3%)	1 (0.1%)	3 (0.1%)
Total	436	737	274	1436

Table C.12a: Diagnoses by age, men

Diagnosis	≤14 (%)	15-19 (%)	20-24 (%)	25-29 (%)	30-34 (%)	35-39 (%)	40-44 (%)	45-54 (%)	>55 (%)	Total (%)
Gonorrhoea	2 (0.2%)	43 (3.8%)	196 (17.2%)	213 (18.7%)	230 (20.2%)	199 (17.5%)	122 (10.7%)	95 (8.3%)	40 (3.5%)	1140 (14.7%)
Chlamydia	2 (0.1%)	101 (4.9%)	518 (25.1%)	466 (22.6%)	365 (17.7%)	197 (14.4%)	174 (8.4%)	113 (5.5%)	28 (1.4%)	2064 (26.6%)
Early syphilis*	0 (0%)	5 (1.1%)	31 (6.7%)	50 (10.8%)	86 (18.5%)	99 (21.3%)	89 (19.1%)	87 (18.7%)	18 (3.9%)	465 (6.0%)
HIV+	0 (0%)	2 (1.7%)	12 (10.0%)	22 (18.3%)	19 (15.8%)	25 (20.8%)	14 (11.7%)	18 (15.0%)	8 (6.7%)	120 (1,5%)
Genital warts	1 (0.1%)	30 (3.4%)	185 (20.9%)	210 (23.7%)	164 (18.5%)	128 (14.4%)	66 (7.4%)	77 (8.7%)	26 (2.9%)	887 (11,4%)
Genital herpes	1 (0.3%)	13 (4.0%)	52 (15.9%)	44 (16.5%)	59 (18.0%)	57 (17.4%)	42 (12.8%)	36 (11.0%)	23 (7.0%)	327 (4.2%)

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

Table C.12b: Diagnoses by age, women

Diagnoses	≤14 (%)	15-19 (%)	20-24 (%)	25-29 (%)	30-34 (%)	35-39 (%)	40-44 (%)	45-54 (%)	>55 (%)	Total (%)
Gonorrhoea	0 (0%)	71 (27.8%)	101 (39.6%)	37 (14.5%)	23 (9.0%)	9 (3.5%)	5 (2.0%)	9 (3.6%)	0 (0%)	255 (4.6%)
Chlamydia	4 (0.2%)	354 (21.2%)	756 (45.4%)	296 (17.8%)	118 (7.1%)	70 (4.2%)	36 (2.2%)	28 (1.7%)	5 (0.3%)	1667 (30.0%)
Early syphilis*	0 (0%)	2 (4.9%)	7 (17.1%)	16 (39.0%)	2 (4.9%)	8 (9.5%)	2 (4.9%)	3 (7.3%)	1 (2.4%)	41 (0.7%)
HIV+	0 (0%)	1 (4.3%)	9 (39.1%)	3 (13.0%)	5 (21.7%)	3 (13.0%)	1 (4.3%)	0 (0%)	1 (4.3%)	23 (0.4%)
Genital warts	4 (0.7%)	78 (13.9%)	227 (40.3%)	131 (23.3%)	53 (9.4%)	38 (6.7%)	16 (2.8%)	14 (2.4%)	2 (0.4%)	563 (10.1%)
Genital herpes	0 (0%)	34 (12.2%)	91 (32.6%)	60 (21.5%)	38 (13.6%)	21 (7.5%)	14 (5.0%)	15 (5.4%)	6 (2.2%)	279 (5.0%)

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

Table C.13a: Diagnoses by ethnicity, men

Diagnosis	The Netherlands (%)	Turkey (%)	North Africa/ Mor (%)	Sur./Ant./ Aruba (%)	Sub-Sah. Africa (%)	Eastern Europe (%)	Latin America (%)	Asia (%)	Else (%)	Unknown (%)	Total
Gonorrhoea	661 (58.0%)	27 (2.4%)	31 (2.7%)	190 (16.6%)	29 (2.5%)	19 (1.7%)	30 (2.6%)	20 (1.8%)	111 (9.7%)	22 (1.9%)	1140
Chlamydia	1372 (66.5%)	40 (1.9%)	50 (2.4%)	282 (13.7%)	45 (2.2%)	27 (1.3%)	55 (2.7%)	32 (1.6%)	131 (6.3%)	30 (1.5%)	2064
Early syphilis*	318 (68.4%)	5 (1.1%)	7 (1.5%)	31 (5.7%)	8 (1.7%)	7 (1.5%)	18 (3.9%)	24 (5.2%)	33 (7.1%)	14 (3.0%)	465
HIV+	63 (52.5%)	0 (0%)	1 (0.8%)	16 (13.3%)	5 (4.2%)	1 (0.8%)	10 (8.3%)	4 (3.3%)	18 (15.0%)	2 (1.7%)	120
Genital warts	623 (70.2%)	35 (3.9%)	32 (3.6%)	70 (7.9%)	12 (1.4%)	8 (0.9%)	21 (2.4%)	10 (1.1%)	41 (4.6%)	35 (3.9%)	887
Genital herpes	228 (69.7%)	4 (1.2%)	3 (0.9%)	40 (12.3%)	10 (3.1%)	4 (1.2%)	10 (3.1%)	7 (2.1%)	15 (4.6%)	6 (1.8%)	327

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

Table C.13b: Diagnoses by ethnicity, women

Diagnosis	The Netherlands (%)	Turkey (%)	North Africa/ Mor (%)	Sur./Ant./ Aruba (%)	Sub-Sah. Africa (%)	Eastern Europe (%)	Latin America (%)	Asia (%)	Else (%)	Unknown (%)	Total
Gonorrhoea	150 (58.8%)	2 (0.8%)	9 (3.5%)	53 (20.8%)	3 (1.2%)	10 (3.9%)	7 (2.7%)	6 (2.4%)	9 (3.5%)	6 (2.4%)	255
Chlamydia	1232 (73.9%)	9 (0.5%)	22 (1.3%)	202 (12.1%)	29 (1.7%)	37 (2.2%)	28 (1.7%)	24 (1.4%)	51 (3.1%)	32 (2.1%)	1667
Early syphilis*	21 (51.2%)	0 (0%)	1 (2.4%)	5 (12.2%)	3 (7.3%)	7 (17.1%)	0 (0%)	1 (2.4%)	1 (2.4%)	2 (4.9%)	41
HIV+	5 (21.7%)	0 (0%)	0 (0%)	0 (0%)	14 (60.9%)	2 (8.7%)	0 (0%)	1 (4.3%)	0 (0%)	1 (4.3%)	23
Genital warts	440 (78.2%)	6 (1.1%)	6 (1.1%)	43 (7.6%)	19 (3.4%)	12 (2.1%)	10 (1.8%)	2 (0.4%)	11 (2.0%)	14 (2.5%)	563
Genital herpes	216 (77.4%)	0 (0%)	1 (0.4%)	24 (8.6%)	8 (2.9%)	4 (1.4%)	6 (2.2%)	5 (1.8%)	12 (4.3%)	3 (1.1%)	279

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

Table C.14: Diagnoses by sexual preference, men

Diagnosis	Heterosexual (%)	Homosexual (%)	Bisexual (%)	Unknown (%)	Total
Gonorrhoea	437 (38.3%)	657 (57.6%)	41 (3.6%)	5 (0.4%)	1140
Chlamydia	1404 (68.0%)	596 (28.9%)	55 (2.7%)	9 (0.4%)	2064
Early syphilis*	61 (13.1%)	361 (77.6%)	42 (9.0%)	1 (0.2%)	465
HIV+	24 (20.0%)	86 (71.7%)	10 (8.3%)	0 (0%)	120
Genital warts	592 (66.7%)	249 (28.1%)	41 (4.6%)	5 (0.6%)	887
Genital herpes	229 (70.0%)	85 (26.0%)	8 (2.4%)	5 (1.5%)	327

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

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

Diagnosis	No	Yes, in past 6 months	Unknown	Total
Gonorrhoea	1044 (91.6%)	72 (6.3%)	24 (2.1%)	1140
Chlamydia	1918 (92.9%)	102 (4.9%)	44 (2.1%)	2064
Early syphilis*	433 (93.1%)	16 (3.4%)	16 (3.4%)	465
HIV+	113 (94.2%)	1 (0.8%)	6 (5.0%)	120
Genital warts	812 (91.5%)	46 (5.2%)	29 (3.3%)	887
Genital herpes	292 (89.3%)	22 (6.7%)	13 (4.0%)	327

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

Table C.15b: Diagnoses by CSW, women

Diagnosis	No	Yes, in past 6 months	Unknown	Total
Gonorrhoea	228 (89.4%)	21 (8.2%)	6 (2.4%)	255
Chlamydia	1518 (91.1%)	127 (7.6%)	22 (1.3%)	1667
Early syphilis*	32 (78.0%)	7 (17.1%)	2 (4.9%)	41
HIV+	20 (87.0%)	2 (8.7%)	1 (4.3%)	23
Genital warts	517 (91.8%)	31 (5.5%)	15 (2.7%)	563
Genital herpes	260 (93.2%)	14 (5.0%)	5 (1.8%)	279

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

Table C.16: Diagnoses by injecting drug use

Diagnosis	No	Yes, in past 6 months	Unknown	Total
Gonorrhoea	1359 (97.3%)	5 (0.4%)	32 (2.2%)	1396
Chlamydia	3677 (98.5%)	4 (0.1%)	51 (1.4%)	3732
Early syphilis*	486 (96.0%)	4 (0.8%)	16 (3.2%)	506
HIV+	136 (95.1%)	0 (0%)	7 (4.9%)	143
Genital warts	1413 (97.4%)	1 (0.1%)	36 (2.5%)	1450
Genital herpes	593 (97.9%)	1 (0.2%)	12 (2.0%)	606

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

Table C.17: Diagnoses by previous HIV test

Diagnosis	No	Yes, positive	Yes, negative	Yes, result unknown	Unknown	Total
Gonorrhoea	348 (24.9%)	128 (9.2%)	589 (42.2%)	3 (0.2%)	328 (23.5%)	1396
Chlamydia	1205 (32.3%)	150 (4.0%)	1175 (31.5%)	8 (0.2%)	1194 (31.9%)	3732
Early syphilis*	94 (18.6%)	112 (22.1%)	204 (40.3%)	4 (0.8%)	92 (18.2%)	506
HIV+	32 (22.4%)	10 (7.0%)	68 (47.6%)	1 (0.7%)	32 (22.4%)	143
Genital warts	527 (36.3%)	28 (1.9%)	512 (35.3%)	6 (0.4%)	377 (26.1%)	1450
Genital herpes	186 (30.7%)	32 (5.3%)	209 (34.5%)	2 (0.3%)	177 (29.2%)	606

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

Table C.18a: Diagnoses by previous GO/CT/Lues in anamnesis, men

Diagnosis	Yes	No	Don't know	Unknown	Total
Gonorrhoea	620 (54.4%)	487 (42.7%)	3 (0.3%)	30 (2.6%)	1140
Chlamydia	772 (37.4%)	1259 (61.0%)	7 (0.3%)	26 (1.3%)	2064
Early syphilis*	237 (51.0%)	211 (45.4%)	3 (0.6%)	14 (3.0%)	465
HIV+	51 (45.3%)	62 (51.3%)	0 (0%)	4 (3.4%)	120
Genital warts	229 (25.8%)	623 (70.2%)	9 (1.0%)	26 (2.9%)	887
Genital herpes	105 (32.1%)	208 (63.6%)	2 (0.6%)	12 (3.7%)	327

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

Table C.18b: Diagnoses by previous GO/CT/Lues in anamnesis, women

Diagnosis	Yes	No	Don't know	Unknown	Total
Gonorrhoea	74 (29.0%)	171 (67.1%)	3 (1.2%)	7 (2.7%)	255
Chlamydia	353 (21.2%)	1280 (76.8%)	5 (0.3%)	29 (1.7%)	1667
Early syphilis*	7 (17.1%)	30 (73.2%)	1 (2.4%)	3 (7.3%)	41
HIV+	5 (21.7%)	17 (73.9%)	0 (0%)	1 (4.3%)	23
Genital warts	103 (18.3%)	442 (78.5%)	4 (0.7%)	14 (2.5%)	563
Genital herpes	57 (20.4%)	217 (77.8%)	1 (0.4%)	4 (1.4%)	279

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

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

	HIV		Gonorrhoea		Chlamydia		Early syphilis*	
Age	**Tests**	**% pos.**	**Tests**	**% pos.**	**Tests**	**% pos.**	**Tests**	**% pos.**
0-14	16	0.0	22	0.0	22	9.1	23	0.0
15-19	244	0.0	616	5.2	616	14.6	582	1.0
20-24	1728	0.1	3461	3.6	3582	12.9	3362	0.3
25-29	1851	0.4	3424	2.4	3518	10.2	3342	0.3
30-34	1333	0.3	2685	3.0	2745	8.8	2640	0.8
35-39	795	0.4	1758	2.7	1792	7.2	1740	1.0
40-44	466	0.6	1170	2.3	1195	5.3	1152	1.3
45-49	260	0.4	637	2.4	646	3.3	643	2.2
50-54	170	0.0	426	2.8	437	5.3	417	2.2
55 >	185	1.6	479	3.1	487	2.9	476	1.7
Total	7048	0.3	14678	3.0	15063	9.3	14377	0.8

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

Table C.19b: Number of tests and percentage of positive tests by age, homo- and bisexual men

	HIV		Gonorrhoea		Chlamydia		Early syphilis*	
Age	**Tests**	**% pos.**	**Tests**	**% pos.**	**Tests**	**% pos.**	**Tests**	**% pos.**
0-14	3	0.0	7	28.6	7	0.0	7	0.0
15-19	50	4.0	79	12.7	85	8.2	88	1.1
20-24	373	2.7	545	12.7	557	9.9	570	5.8
25-29	498	2.8	900	14.4	927	11.4	927	5.9
30-34	172	3.2	1070	14.0	1081	11.4	1080	7.8
35-39	505	4.4	1250	12.1	1263	13.2	1263	9.0
40-44	360	3.1	1031	9.2	1041	10.7	1053	9.0
45-49	230	3.9	594	8.1	599	6.8	604	8.4
50-54	185	4.3	379	4.8	393	6.9	401	10.2
55 >	204	2.5	412	6.1	415	3.4	420	5.5
Total	2880	3.3	6267	11.1	6368	10.2	6413	7.7

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

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

	HIV		Gonorrhoea		Chlamydia		Early syphilis*	
Age	**Tests**	**% pos.**	**Tests**	**% pos.**	**Tests**	**% pos.**	**Tests**	**% pos.**
0-14	30	0.0	41	0.0	46	8.7	47	0.0
15-19	955	0.1	2193	3.2	2256	15.7	2083	0.1
20-24	3484	0.3	6662	1.5	6830	11.1	6317	0.3
25-29	2194	0.1	4071	0.9	4149	7.1	3940	0.8
30-34	1037	0.5	2022	1.1	2071	5.7	1987	0.6
35-39	606	0.5	1199	0.8	1240	5.7	1197	1.5
40-44	365	0.3	727	0.7	743	4.9	725	1.2
45-49	252	0.0	478	1.1	487	4.1	486	2.3
50-54	102	0.0	219	1.8	223	3.6	214	1.9
55 >	77	1.3	149	0.0	154	3.3	153	2.0
Total	9102	0.3	17761	1.4	18199	9.2	17149	0.6

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

Table C.20a: Diagnoses in young heterosexual men

Diagnosis	16-17 (%)	18-19 (%)	20-21 (%)	22-24 (%)
Gonorrhoea	9 (23.1%)	24 (18.9%)	39 (13.9%)	88 (17.5%)
Chlamydia	17 (43.6%)	76 (59.8%)	177 (63.2%)	286 (57.0%)
Early syphilis*	1 (2.6%)	3 (2.4%)	1 (0.4%)	2 (0.4%)
HIV+	0 (0%)	0 (0%)	1 (0.4%)	1 (0.2%)
Genital warts	7 (17.9%)	18 (14.2%)	44 (15.7%)	97 (19.3%)
Genital herpes	5 (12.8%)	6 (4.7%)	18 (6.4%)	28 (5.6%)

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

Table C.20b: Diagnoses in young MSM

Diagnosis	16-17 (%)	18-19 (%)	20-21 (%)	22-24 (%)
Gonorrhoea	2 (66.7%)	8 (34.5%)	19 (31.7%)	50 (32.9%)
Chlamydia	1(33.3%)	6 (26.1%)	15 (25.0%)	40(26.3%)
Early syphilis*	0 (0%)	1(4.3%)	13 (21.7%)	15 (9.9%)
HIV+	0 (0%)	2 (8.7%)	2 (3.3%)	8 (5.3%)
Genital warts	0 (0%)	5 (21.7%)	10 (16.7%)	34 (22.4%)
Genital herpes	0 (0%)	1(4.3%)	1 (1.7%)	5 (3.3%)

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

Table C.20c: Diagnoses in young women

Diagnosis	16-17 (%)	18-19 (%)	20-21 (%)	22-24 (%)
Gonorrhoea	29 (18.6%)	39 (10.8%)	49 (9.6%)	52 (7.6%)
Chlamydia	96 (61.5%)	243 (67.3%)	339 (66.5%)	417 (61.2%)
Early syphilis*	0 (0%)	2 (0.6%)	4 (0.8%)	3 (0.4%)
HIV+	0 (0%)	1 (0.3%)	3 (0.6%)	6 (0.9%)
Genital warts	24 (15.4%)	52 (14.4%)	83 (16.3%)	144 (21.1%)
Genital herpes	7 (4.5%)	24 (6.6%)	32 (6.3%)	59 (8.9%)

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

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

Ethnicity	Gonorrhoea (%)	Chlamydia (%)	Genital warts (%)	Genital herpes (%)
The Netherlands	102 (42.3%)	416 (67.0%)	151 (69.9%)	44 (66.7%)
Turkey	5 (2.1%)	7 (1.1%)	3 (1.4%)	2 (3.0%)
Northern Africa	9 (3.7%)	16 (2.6%)	5 (2.3%)	1 (1.5%)
Surinam/Neth. Antilles	80 (33.2%)	116 (18.7%)	31 (14.3%)	15 (22.7%)
Eastern Europe	9 (3.7%)	8 (1.3%)	3 (1.4%)	1 (1.5%)
Sub-Saharan Africa	12 (5.0%)	9 (1.4%)	3 (1.4%)	0 (0%)
Latin America	4 (1.7%)	13 (2.1%)	4 (1.9%)	0 (0%)
Europe else	1 (0.4%)	1 (0.2%)	0 (0%)	0 (0%)
Asia	4 (1.7%)	6 (1.0%)	5 (2.3%)	1 (1.5%)
Unknown	3 (1.2%)	5 (0.8%)	3 (1.4%)	0 (0%)
Else	12 (5.0%)	24 (3.9%)	8 (3.7%)	2 (3.0%)

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

Ethnicity	Gonorrhoea (%)	Chlamydia (%)	Genital warts (%)	Genital herpes (%)
The Netherlands	104 (60.5%)	840 (75.4%)	232 (75.1%)	99 (79.2%)
Turkey	1 (0.6%)	7 (0.6%)	3 (1.0%)	0 (0%)
Northern Africa	6 (3.5%)	15 (1.3%)	3 (1.0%)	1 (0.8%)
Surinam/Neth. Antilles	41 (23.8%)	136 (12.2%)	32 (10.4%)	13 (10.4%)
Eastern Europe	4 (2.3%)	20 (1.8%)	7 (2.3%)	1 (0.8%)
Sub-Saharan Africa	2 (1.2%)	20(1.8%)	11 (3.6%)	1 (0.8%)
Latin America	1 (0.6%)	17 (1.5%)	9 (2.9%)	2 (1.6%)
Europe else	4 (2.3%)	13 (1.2%)	2 (0.6%)	0 (0%)
Asia	5 (2.9%)	13(1.2%)	1 (0.3%)	1 (0.8%)
Unknown	0 (0%)	9 (0.8%)	3 (1.0%)	1 (0.8%)
Else	4 (2.3%)	24 (2.2%)	6 (1.9%)	6 (4.8%)

Figure C1. Age distribution for STI by sex, 2003

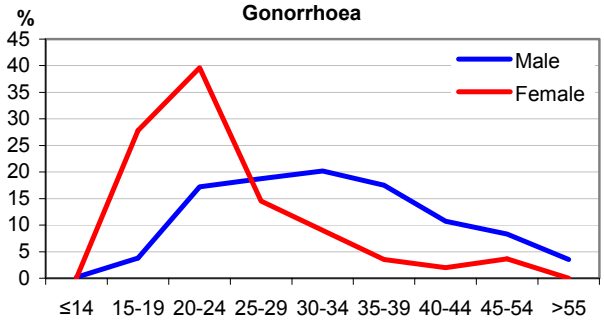


Figure C.1a: Age distribution: gonorrhoea

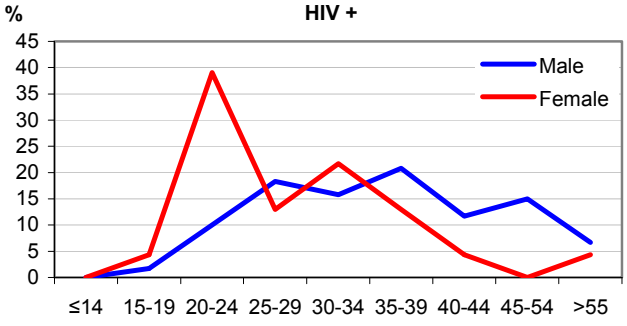


Figure C.1d: Age distribution: HIV+

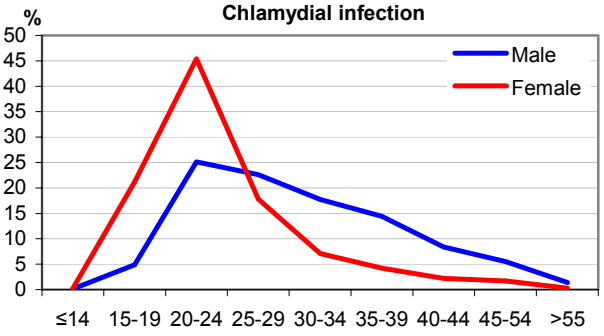


Figure C.1b: Age distribution: chlamydia

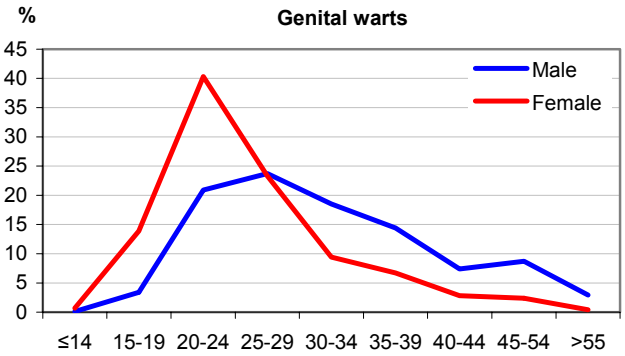


Figure C.1e: Age distribution: genital warts

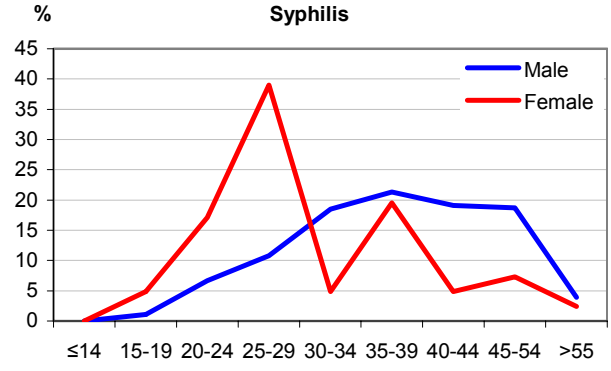


Figure C.1c: Age distribution: syphilis

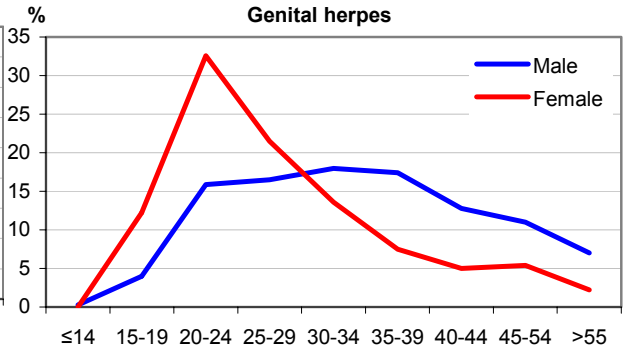


Figure C.1f: Age distribution: genital herpes

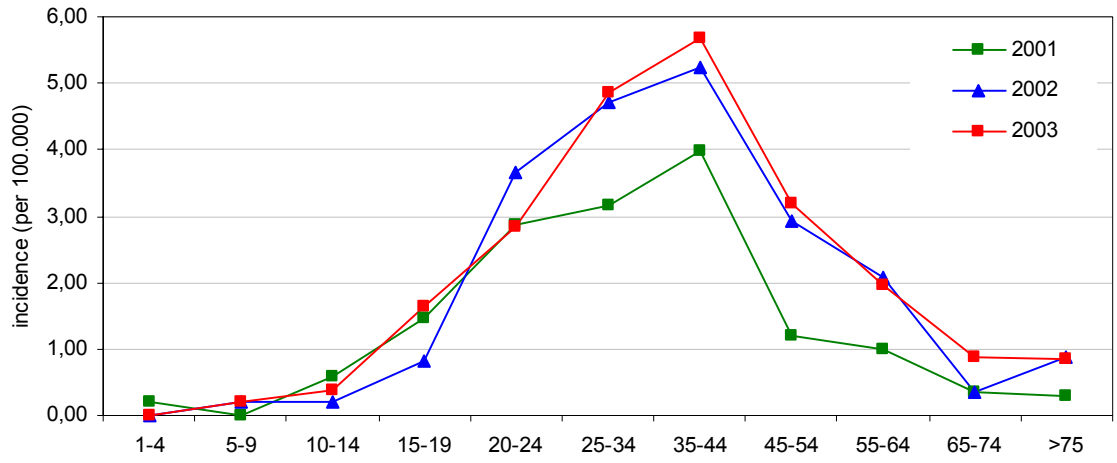


Figure C.2a: Incidence of acute HBV per 100000 inhabitants by age group, males, 2001-2003 (Source: notification data)

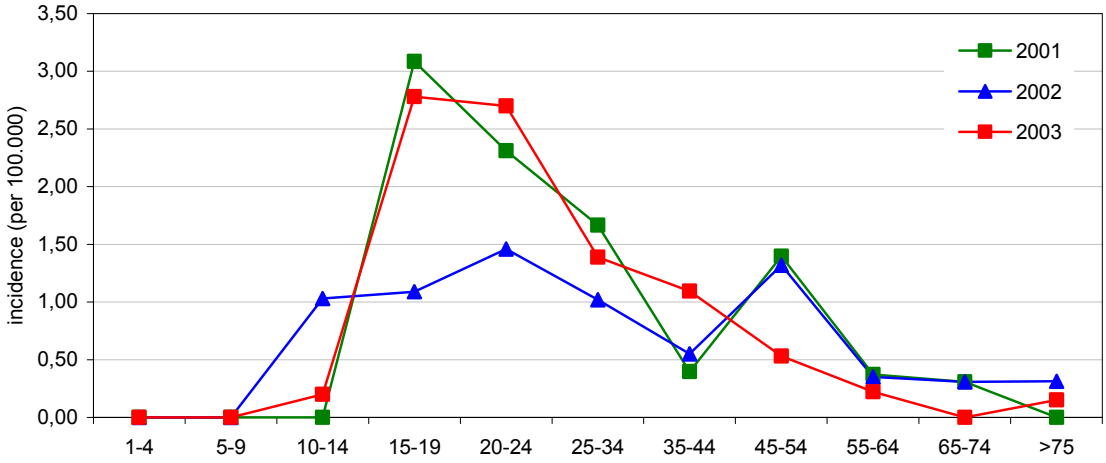


Figure C.2b: Incidence of acute HBV per 100000 inhabitants by age group, females, 2001-2003 (Source: notification data)

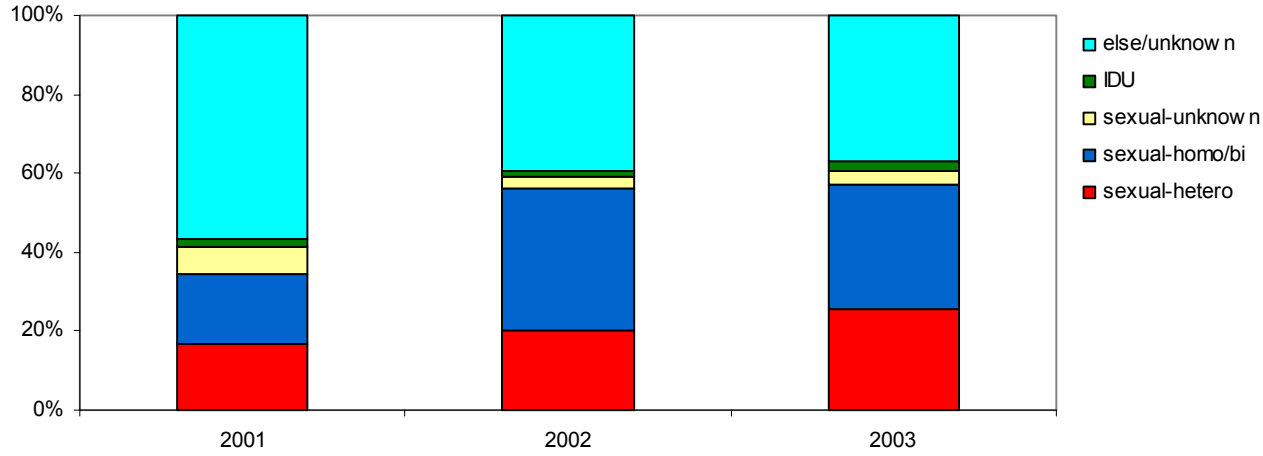


Figure C.3: Reported risk factors among cases with acute HBV, 2001-2003 (Source: notification data)

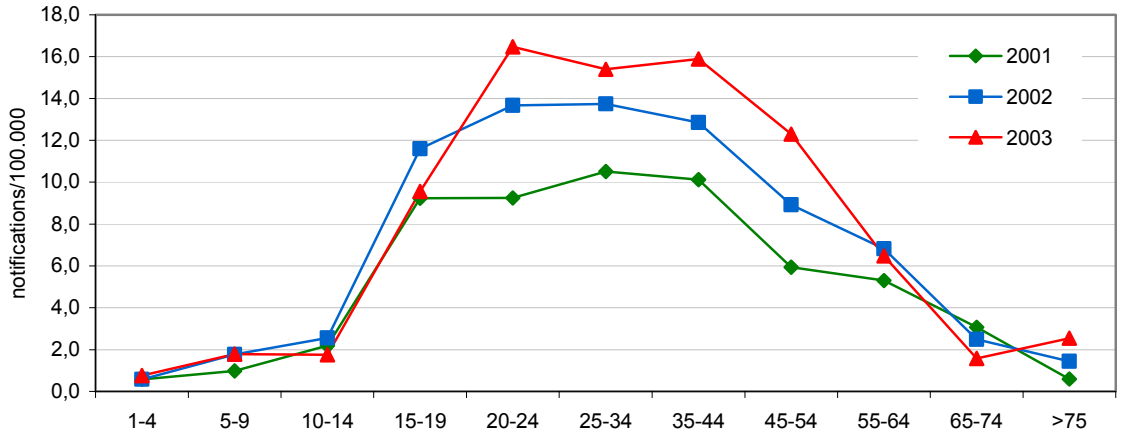


Figure C.4a: Number of notifications of chronic HBV per 100000 inhabitants by age group, males, 2001-2003 (Source: notification data)

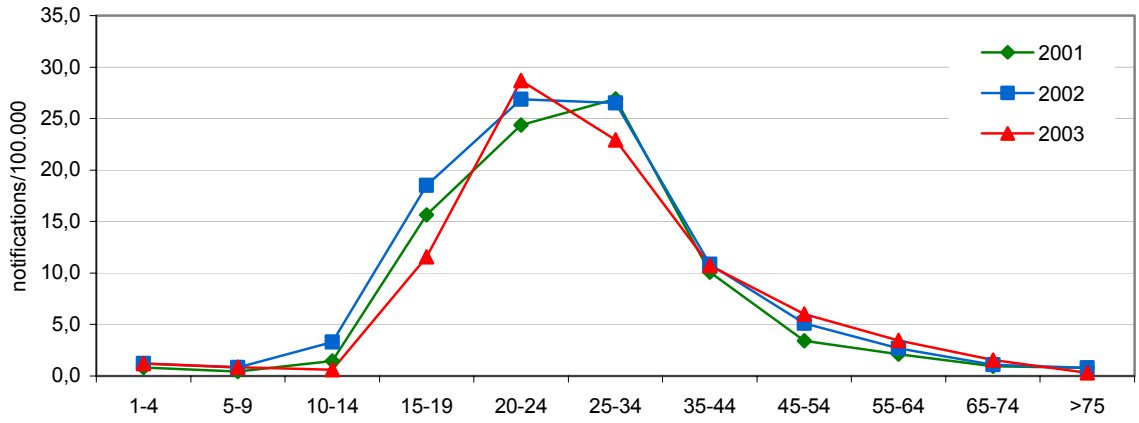


Figure C.4b: Number of notifications of chronic HBV per 100000 inhabitants by age group, females, 2001-2003 (Source: notification data)

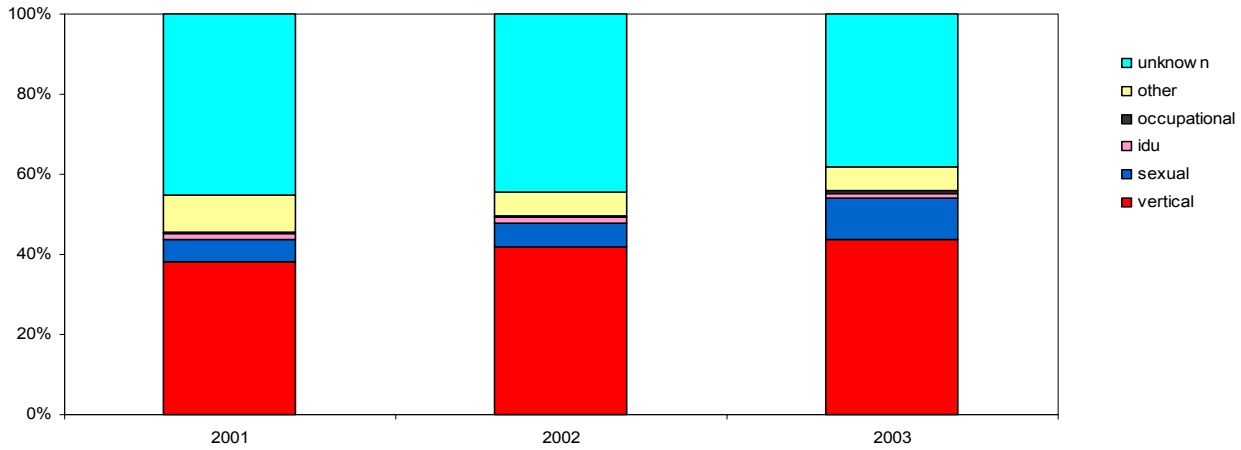


Figure C.5: Distribution of risk groups in chronic HBV carriers, 2001-2003 (Source: notification data)

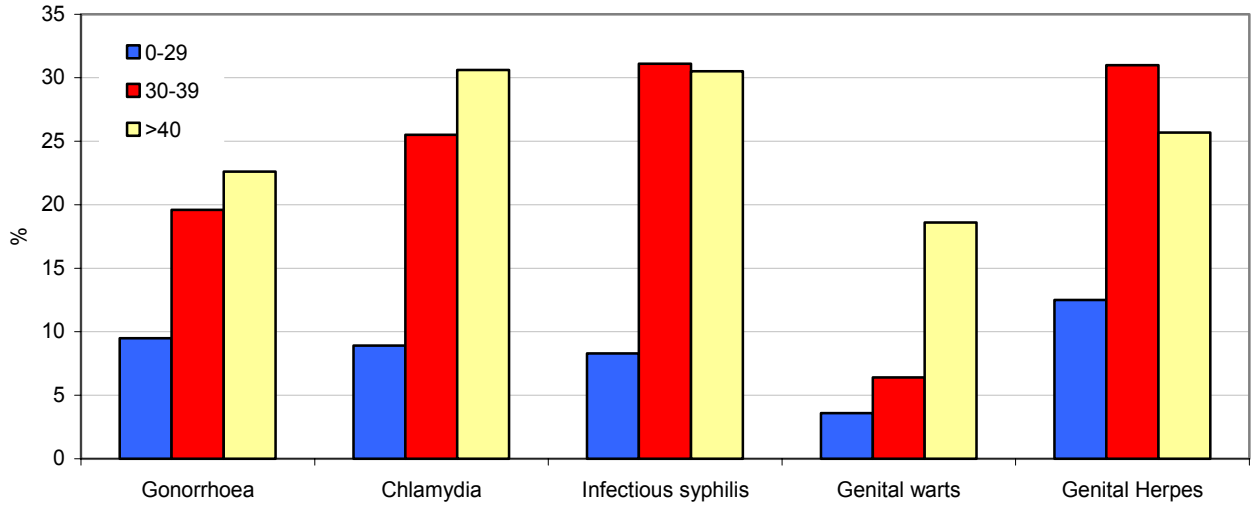


Figure C.6: Percentage of previous positive HIV tests in MSM by STI and age group, STI sentinel surveillance network, 2003

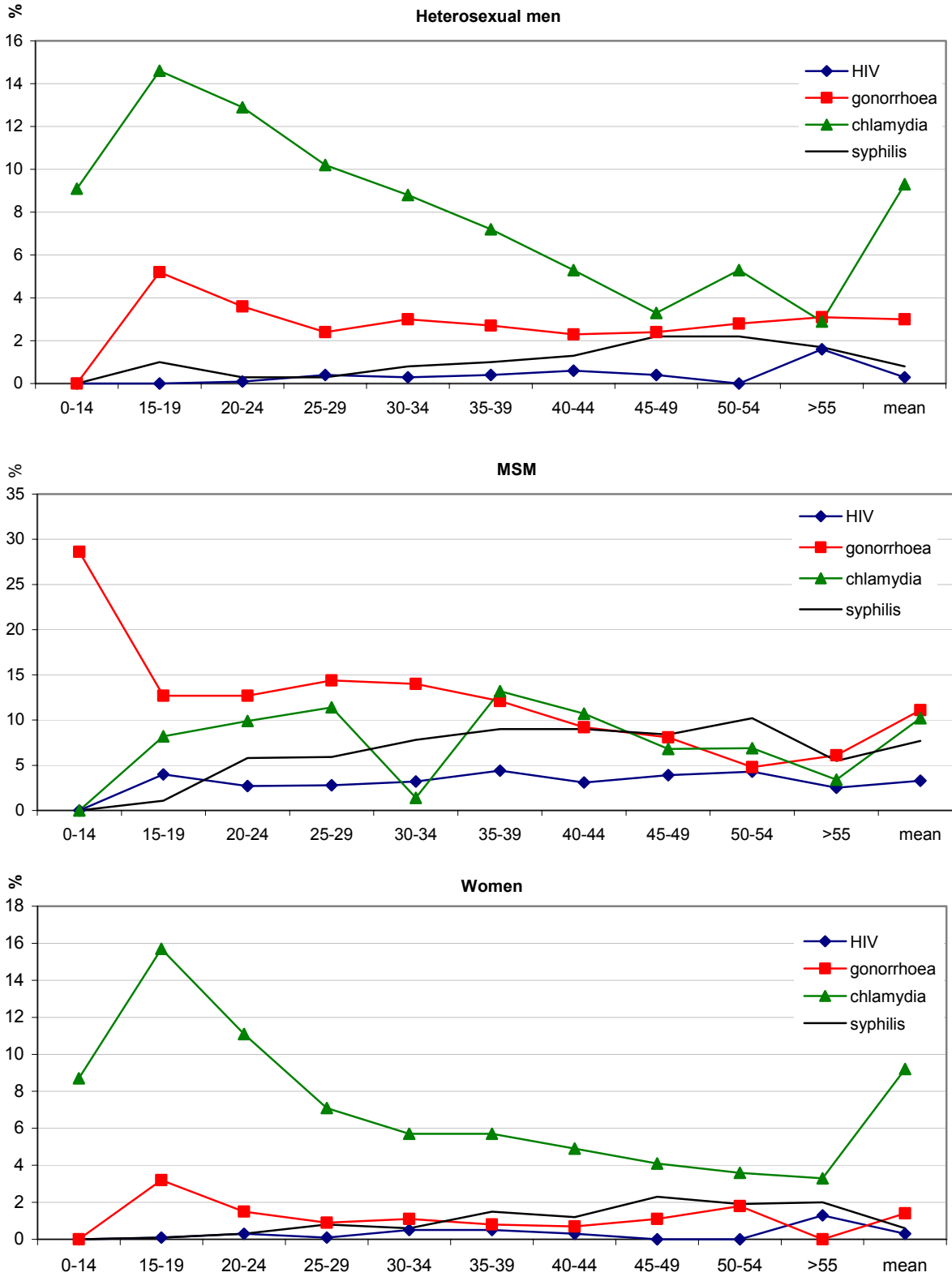


Figure C.7: Percentages of positive test results risk groups: heterosexual men, MSM, women, STI sentinel surveillance network, 2003

Appendix D.

Methods of the national estimate of PLWHA in 2003

This appendix discusses data sources and methods that were used in the national estimate of people living with HIV/AIDS (PLWHA) in the Netherlands in 2003.

The national estimate of PLWHA in the Netherlands was conducted by using the UNAIDS Point Prevalence workbook.[58] 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. The future course of the epidemic is determined by the frequency and nature of links between highly infected sub-populations and the general population.
The total number of HIV cases in the HIV/AIDS registry of the HMF is 9767 (August 2004). 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
Estimating the number of PLWHA requires some idea of the total 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 the populations, as well as HIV prevalence rates, were used to estimate the total number of PLWHA in the Netherlands.[58] The program uses the 15 to 49 age range as the denominator in calculating adult HIV prevalence. This range covers people in their most sexually active years. While the risk of HIV infection obviously continues beyond the age of 50, the vast majority of those who engage in substantial risk behaviours are likely to be infected by this age.[7]

Various decisions were made on how to structure the national estimate for the Netherlands, including defining the geographical structure of the epidemic, identifying high risk populations, and how to handle spread of HIV to groups less exposed to HIV.[58]
First, it was decided how many geographically distinct epidemics and estimates were needed in the national estimate. It was decided to describe the epidemic for two geographical regions: Amsterdam and the remaining regions. The HIV epidemic in the Netherlands started in Amsterdam, earlier than in the rest of the country due to the international character of the drug- and gay scene in Amsterdam.[59] Amsterdam had higher HIV prevalence rates in high risk groups compared to other regions. Furthermore, extensive prevalence data were available for Amsterdam in contrast to other regions. Therefore, the remaining regions were grouped together, also because crucial differences between these regions were not expected.
Second, high risk groups to HIV/AIDS were identified for the two geographical regions. For each of these groups, low and high estimates of the population size and HIV prevalence were required. Relevant high risk groups in the Netherlands are: IDUs, MSM, migrant populations

from HIV endemic regions, CSWs and their clients, and attendees of STI clinics. Important immigrant populations at risk for HIV in the Netherlands are people originating from sub-Saharan Africa, Surinam and the Netherlands Antilles.
Overlapping populations were taken into account in the estimation of PLWHA. IDUs, MSM and CSWs may also visit STI clinics. Therefore, only STI clinic attendees with heterosexual risk were included in the STI group. CSWs and MSM were excluded from the STI group, but included as separate groups. Furthermore, the group of CSWs is overlapping with immigrant populations. Therefore, only CSWs of Dutch origin were included in the CSWs group, and immigrants were included as a separate group.

For each high risk group, estimates of the population size were collected. Prevalence rates were derived from the HIV surveys among these groups.
The Workbook program forces to consider high and low estimates of both population sizes and prevalence rates. In case a single prevalence or population size was available, the 95% confidence intervals were used as low and high estimates.

Ultimately, 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. The last group is often used to represent HIV prevalence in adults, male and female, aged 15-49. 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.

The total estimate of the number of PLWHA in the Netherlands in 2003 is the sum of the PLWHA at higher and lower levels of exposure to HIV from the two defined regions.

Population figures
The general population parameters that were used are shown in table D.1.

Table D.1: Population in 2003 in the Netherlands[60]

	Male	Female	Total
The Netherlands, total	8015471	8177101	16192572
The Netherlands, age 15-50	4070536	3956484	8027020
Amsterdam, age 15-50	211196	207549	418745

Estimate for high risk groups (PHR)
HIV prevalence rates for all risk groups were shown in table D.2. If recent HIV prevalence data were not available, data from previous years were used. Only data for female CSW were included in the estimate, since reliable data on male CSWs are lacking. Lower and higher bounds of the 95% confidence intervals of the prevalence rates were calculated for each high-risk group. Groups for which no population estimates were available, assumptions were made based on information that did exist (table D.2). For example, there was no estimate of the number of injecting drug users in the Netherlands. However, an estimate of problem drug users was available. Behavioural surveillance data showed that of all drug users in 2003 12% ever injected drugs. This proportion was used to estimate the number of IDUs. For certain groups (e.g. CSWs),

population size estimates were available only for the whole country. In that case, data were presented for the Netherlands instead of separately for Amsterdam and remaining regions.
For the group of STI clinic attendees, we included the total number of attendees instead of those who were tested for HIV. STI clinic attendees, in general, are a potential exposure group for HIV. By excluding individuals not tested for HIV the number of HIV infections among STI clinic attendees might be biased, since those who were not tested may include individuals with a known positive serostatus, as well as individuals at risk who are afraid of the test result.

Table D.2: Exposure groups, population size estimates, and HIV prevalence rates in the Netherlands.

AMSTERDAM			
Exposure group	**Population size**	**HIV prevalence**	**Remarks**
IDU	600	25.9% [61] [19.9; 32.6]	12%[62] of 5000 problem drug users [63]
MSM	17000-26000 [64]	7.5% [65a] [6.4; 8.8]	8.2 [14]-10% [64] of the male population in Amsterdam
STI clinic attendees (men, heterosexual)	7026[66]	0.52%[65] [66][0.29; 0.85]	Male STI clinic attendees, heterosexual risk
STI clinic attendees (women, heterosexual)	7543 [66]	0.42%[65] [0.23; 0.69]	Female STI clinic attendees, heterosexual risk
REMAINING REGIONS			
IDU	3120-3600	6%[b] [4.91; 7.27]	12% of 26000-30000 problem drug users [62] [67]
MSM	108061-146654	5.37 %[4.22; 6.73] [65]	2.8%[68] – 3.8% [69]of the male population
STI clinic attendees, (men, heterosexual)	8528 [70]	0.49%[70] [0.31; 0.74]	Male STI clinic attendees, heterosexual risk.
STI clinic attendees (women, heterosexual)	11694 [70]	0.58%[70] [0.41; 0.81]	Female STI clinic attendees, heterosexual risk
NETHERLANDS, TOTAL			
Commercial sex workers	5800[71]	3.6%[c] [0.75; 10.2]	Only Dutch CSWs included
Migrants N. Antilles and Surinam	289864[60]	0.40%[72d] [0.08; 1.19]	Study in 1999
Migrants sub-Saharan Africa	79017 [60]	1.35%[e]	Study in 1999

[a] National data from STI clinics: based on total of HIV tests (including anonymous tests) (56+87) / (1481+429)= 7% HIV positive
[b] Preliminary HIV survey data IDU (IM de Boer, RIVM, personal communication).
[c] Preliminary HIV survey data Amsterdam and Rotterdam (personal communication M. van Veen, RIVM)
[d,e] Study M. Gras, HIV prevalence immigrants Netherlands Antilles/Surinam: 0.40% HIV prevalence immigrants sub-Saharan Africa (predominantly Ghanaian/Nigerian): 1.35%

Estimate for low risk groups (PLR)
HIV prevalence in low risk populations (adults, 15-49 year) was calculated on the basis of HIV data from pregnant women. In Amsterdam, HIV prevalence among pregnant women was 0.30% in 2003 [73] (table D.3). National data on HIV infections among pregnant women were not available up to 2003. Since January 2004, all pregnant women in the Netherlands are screened for HIV as part of the pre- and postnatal screening program.[74] The HIV prevalence among pregnant women for the remaining regions is estimated on the basis of preliminary data from January 2004 up to April 2004 (personal communication, M. Witteveen, 'College voor Zorgverzekeringen') (table D.3).

Table D.3: HIV prevalence among pregnant women in the Netherlands (Amsterdam and the remaining regions)

	Number of pregnant women tested for HIV	HIV prevalence	Estimate of number of low risk women
Amsterdam	13621	0.26%[73]	201670
Remaining regions	54134	0.001%	3588606

Results
The national estimate is an aggregation of the estimates for each of the exposed populations for the two defined regions. The total number of PLWHA in the Netherlands is estimated at 16410 [9659-20443] (see also section A). The range was determined by calculating the number of PLWHA on the basis of lower and higher bounds of all 95% CI of prevalence rates. The low and high bound of our estimates are calculated by the lowest population size estimates multiplied by the lowest HIV prevalence rates (lower bound) and the highest populations sizes multiplied by the highest HIV prevalence rates (higher bound).

To test the reliability of the estimate, the distribution of the various risk groups in the national estimate is compared with the distribution in the national HIV registry. The proportions of the risk groups were comparable. Of the estimated HIV infected, MSM form the largest group (52%), followed by immigrants from HIV endemic areas (23%). CSWs make up for 2% of the HIV infected, IDUs for 3% and STI clinic attendees for 1%. The total contribution of individuals at heterosexual risk was estimated at 45% (table D.4).
The proportion of heterosexually HIV infected is somewhat lower in the national registry than in the estimate (32% versus 45%). However, the group of individuals with an unknown transmission route in the registry is relatively high (9%). Most likely, the proportion of heterosexually infected will continue to increase, since we expect that heterosexual risk is more often underreported compared to other risk groups. The proportion of women in the national registration is 23%, which is lower than the national HIV estimate (33%).

Table D.4: Distribution of risk groups in the national HIV estimate and HIV registry (source: HMF, Amsterdam)

Risk group	HIV estimate	HIV registry
MSM	52%	51%
IDU	3%	5%
Heterosexuals	45%	32%
Unknown	-	9%

Discussion

The number of PLWHA in the Netherlands in 2003 is estimated at 16410, with an adult prevalence (15-49 years) of 0.2%. The estimate is based on the sum of the products of the estimated population size and prevalence rates for all groups at higher and lower risk of HIV infection. This information is largely obtained from HIV surveillance activities and presents some limitations.

The precision of the estimate heavily depends on available data on population sizes, HIV prevalence data and the quality of those.[75] For the national estimate, only existing population size estimates and prevalence rates were used, of which some were already out-of-date (1999) and could have been subject to changes over time. Migration, politics, and economical changes, – all could have affected the size of these populations. Changes in the number and locations of surveillance sites may have over- or underestimated HIV prevalence rates and it is difficult to determine whether these results are biased. For example, there were no recent HIV survey data available for MSM, except for STI clinic data. This might have caused an upward bias of the HIV prevalence, because MSM who visit STI clinics might be at increased risk of acquiring an HIV infection. On the other hand, it could have caused downward bias in case HIV positive individuals who know their serostatus go to other places for STI screening and - treatment, such as their general practitioner or HIV physician.

For the estimate, other decisions concerning STI clinic attendees were made, such as including all visitors instead of those tested for HIV, since all visitors of STI clinics might be considered at risk for HIV.[76] It is also expected that STI clinic attendees who were not tested for HIV are not comparable to those who are tested. The first group may include individuals, who refuse an HIV test, e.g. out of fear of the test result (causing an upward bias) or because of a known positive HIV status (causing downward bias). For these reasons, it seems best to include all visitors of STI clinics in stead of only those tested for HIV.

We decided to include three immigrant populations in the national estimate: individuals originating from sub-Saharan Africa, Surinam and the Netherlands Antilles. These three groups are important immigrant populations in the Netherlands and make up for a relative large proportion of the HIV infected of non-Dutch origin (56%). Recent prevalence data were not available for all three groups; therefore prevalence data from previous years were used. Other immigrant populations in the Netherlands were not included in the estimate of PLWHA, due to insignificance or lacking prevalence data. Consequently, a number of HIV cases might have been missed.

To avoid double counting of HIV cases, overlap of exposure groups was taken into account in the estimate of PLWHA. Only CSWs of Dutch origin were included, since CSWs in the Netherlands often have a non-Dutch background through which they overlap with immigrant

populations. As a result, non-Dutch CSWs of regions apart from sub-Saharan Africa, Surinam and the Antilles are missed in the estimate.
Another limitation of the estimate is the static representation of one time point in the epidemic, not taking into account movements between risk groups. For some of the populations at higher risk (such as CSWs and IDUs) individuals may be part of the risk group only for a few years. In that case, there is a chance of counting individuals more than once when they move between regions or risk groups. Insight in the mobility of these individuals might result in better estimates in the future.[77]

The Workbook method uses antenatal clinic data (ANC) to represent the low-risk population, but these figures are not completely representative, since they do not include data on men. None the less, ANC data are often used as an estimate for the general population, principally because population surveys for the measurement of HIV prevalence in the community are difficult in low-level and concentrated epidemics due to the low HIV prevalence and the large samples sizes that are needed.
The diversity of concentrated epidemics also makes it difficult to estimate plausibility bounds that are comparable across countries. However, the Workbook method has the possibility to include low and high estimates for both prevalence and population size. To account for insecurities in the prevalence estimates, the 95% CI were calculated. Furthermore, for MSM, a low and high estimate of the population size was included. For other risk groups, these were not available. The plausibility bounds of 10000-20000 therefore depends, as the final estimate, heavily on available data and personal decisions, but has the advantage that it perceives some level of accuracy of the national estimate.

To improve future estimates of PLWHA in the Netherlands, population size estimates need to be updated. Estimating the size of populations at risk for HIV has been a neglected area of HIV surveillance. More attention should be paid as questions of intervention have grown in importance. More recent HIV prevalence rates for some risk groups are also needed. However, ongoing new HIV surveys among immigrant populations, CSWs and their clients, will soon provide new prevalence rates. HIV surveys among MSM are needed to improve the HIV prevalence data for this group.

In conclusion, the estimate on populations affected by HIV/AIDS in the Netherlands should constantly being improved on the basis of new data and research findings. Improvement of quality of data in the following years is expected to contribute to an HIV estimate of improved precision. The Workbook program appeared to be a useful tool to estimate the number of PLWHA as well as the adult HIV prevalence, and can be updated very easily. The program also includes a projection package to estimate future HIV epidemic curves. For these models, it is recommended that at least five years of HIV prevalence data are included to fit an epidemic curve. It was decided not to do future projections at present, since time series of HIV prevalence rates were not available for all risk groups.

Appendix E. HIV Monitoring Foundation

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

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Appendix G. Tables and figures in this report

Tables

Figures

References

1 Raad voor Gezondheidsonderzoek (RGP) HIV-commissie. Advies 'HIV-surveillance in Nederland'. Den Haag: RGO; 2001.

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

3 HM Götz, JM Ossewaarde, RF Nieuwenhuis, WI van der Meijden, J Dees, B Thio, O de Zwart, MJW van de Laar. Cluster van Lymphogranuloma venereum onder homoseksuele mannen in Rotterdam - Gevolgen voor de volksgezondheid. Ned Tijdschr Geneesk 2004; 148;9: 441-2.

4 Hannelore Götz, Rutger Nieuwenhuis, Tjaco Ossewaarde, H. Bing Thio, Wim van der Meijden, Jan Dees, Onno de Zwart. 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: http://www.eurosurveillance.org/ew/2004/040122.asp#1

5 Laar MJW van de, Götz HM, Fennema JSA, Vries HJC de, Ossewaarde JM, Spaargaren J, Meijden WI van der. Epidemie van zeldzame SOA onder homoseksuele mannen: gevolgen voor de volksgezondheid. SOA Aids Magazine 2004; 1: 6-7.

6 Gras L, van Sighem A, van Valkengoed I, Zaheri S, de Wolf F, on behalf of the Netherlands collaborative HIV treatment centres. Monitoring of Human Immunodeficiency virus (HIV) infection in the Netherlands (2004). HIV Monitoring Foundation Amsterdam, december 2004

7 Palella, FJ, et al. Declining morbidity and mortality among patients with advanced human immunodeficiency virus infection. New England Journal of Medicine 338.13 (1998): 853-60.

8 Paredes, R, et al. Predictors of virological success and ensuing failure in HIV-positive patients starting highly active antiretroviral therapy in Europe - Results from the EuroSIDA Study. Archives of Internal Medicine 160.8 (2000): 1123-32

9 RIVM reports. Surveillance of HIV infection among injecting drug users in the Netherlands [in Dutch]. Bilthoven RIVM, 1995-2001.

10 Gras MJ, Weide JF, Langendam MW, Coutinho RA, van den Hoek A. HIV prevalence, sexual risk behaviour and sexual mixing patterns among migrants in Amsterdam, the Netherlands. AIDS 1999; 13(14):1953-62.

11 Op de Coul ELM, Fennema JSA, Hoek JAR vd et al. HIV-infecties en AIDS in Nederland: prevalentie en incidentie 1987-2002. Capita Selecta HIV/AIDS. Van Zuiden Communications b.v., Alphen aan de Rijn: p1-9. 2003

12 Report STI clinic 2003, STI clinic, Municipal Health Service Amsterdam 2004 [in Dutch]

13 Postema EJ, Willems PWJM, Ridder MAJ, Meijden WI van der. Comparison of patients refusing with patients accepting unlinked anonymous HIV testing in an outpatient STD department in the Netherlands. Int J STD AIDS 1997; 8(6):368-72

14 Checkpoint, Jaarverslag 2003. Amsterdam: HIV vereniging Nederland 2004.

15 GG&GD Amsterdam. Jaarverslag Infectieziekten 2003. Amsterdam 2004

16 GG&GD Amsterdam. Overview of the Amsterdam cohort studies among homosexual men and drug users. Amsterdam, december 2003

17 McHenry A, Macdonald N, Sinka K, Mortimer J, Evans B. National assessment of prevalent diagnosed HIV infections. Commun Dis Public Health 2000; 3(4):277-81.

18 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 Estimates, Models and Projections, 2003

19 Gras L, van Sighem A, van Valkengoed I, Zaheri S, de Wolf F, on behalf of the Netherlands collaborative HIV treatment centres. Monitoring of Human Immunodeficiency virus (HIV) infection in the Netherlands. HIV Monitoring Foundation Amsterdam, december 2004

20 Peerbooms PG, Spaargaren J, Fennema JS, Cairo I, Coutinho RA. Toename van chinolonresistentie bij *Neisseria gonorrhoeae* in Amsterdam. Ned Tijdschr Geneeskd 2001; 145(39):1899-900

21 Fenton KA. Ciprofloxacin resistance in *Neisseria gonorrhoeae* in England and Wales in 2002. Lancet 2003; 361:1867-9
22 Sarwal S, Wong T, Sevigne C, Ng LK. Increasing incidence of ciprofloxacin-resistant *Neisseria gonorrhoeae* infection in Canada. JAMC 2004; 168(7):872-3.
23 Loo IM van, Spaargaren J, Laar van de MJW. Resistente gonokokken in Nederland. (submitted)
24 SOA-Commissie/SOA-kernwerkgroep NVDV. Richtlijnen SOA. Herziening anno 2002/2003 van de Korte Samenvatting van de NVDV SOA-Richtlijnen 1997. Ned Tijdschr Dermatol Venereol 2003; 13: 406-9.
25 Kolader M, Peerbooms PGH, Voorst Vader PC van, Bergen JEAM van, Fennema JSA, Vries HJC de. Toename van chinoloneresistentie bij *Neisseria gonorrhoeae* in Amsterdam; aanbevelingen voor de behandeling van ongecompliceerde gonorroe. Ned Tijdschr Geneesk 2004; 148; 43: 2129-32.
26 Rudd E, Fenton K, Ison C. Ciprofloxacin resistant gonorrhoea in England and Wales – a changing epidemiology?. Eurosurveillance weekly 2004; 8; 33. 040812
27 CDC. Increases in fluorquinolone-resistant *Neisseria gonorrhoeae* among men who have sex with men --- United States, 2003, and revised recommendations for gonorrhea treatment, 2004. MMWR 2004; 53; 16: 335-338.
28 Laar MJW van de, Veen MG van, Coenen AJJ. Registratie van SOA en HIV consulten bij GGD's en SOA-poliklinieken: Jaarverslag 2002. RIVM- rapport 441500 015. Bilthoven: RIVM, 2003.
29 Fennema JSA, Cairo I, Spaargaren J, Dukers NHTM, Coutinho RA. Syfilisepidemie en stijging van het aantal HIV-infecties onder homoseksuele mannen op de Amsterdamse soa-polikliniek. Ned Tijdschr Geneeskd 2002; 146; 13: 633-35.
30 Laar MJW van de, Veen MG van, Götz H, Nuradini B, van der Meijden WI, Thio B. Continued transmission of syphilis in Rotterdam, the Netherlands. Eurosurveillance Weekly 2003; 7: 39. http://www.eurosurveillance.org/ew/2003/030925.asp#5
31 Doherty L, Fenton K, O'Flanagan D, Couturier E. Evidence for increased transmission of syphilis among homosexual men and heterosexual men and women in Europe. Eurosurveillance Weekly 2000; 4 ; 50 http://www.eurosurveillance.org/ew/2000/001214.asp#1
32 Vilayleck M. Continuing resurgence of syphilis in France. Eurosurveillance Weekly 2001: 5 ; 37. http://www.eurosurveillance.org/ew/2001/010913.asp#1
33 Gill N. Syphilis transmission in homo/bisexual men: New outbreak in London, continuing outbreak in Dublin. Eurosurveillance Weekly 2001; 5: 010628.
34 Laar van de MJW, Veen van MG, Couturier E, Hamouda O, Fenton K. Resurgence of syphilis in Europe. Abstract # 649. International Society for STD Research (ISSTDR), Ottawa, July 27-30 2003.
35 Koedijk FDH, Op de Coul ELM, Laar MJW van de. Aangifte acute hepatitis B in 2003. Infectieziekten Bulletin, 2005; (in press)
36 Koedijk FDH, Op de Coul ELM, Laar MJW van de. Chronische hepatitis B infecties in Nederland, 2001-2003. Infectieziekten Bulletin, 2005; (in press)
37 Veldhuijzen IK, Smits LJM, van de Laar MJW. The importance of imported infections in maintaining hepatitis B in the Netherlands. Epidemiol Infect 2004; (in press).
38 Nieuwenhuis RF, Ossewaarde JM, van der Meijden WI, Neumann HAM. Unusual presentation of early lymphogranuloma venereum in an HIV-1 infected patient: effective treatment with 1 g azithromycin. Sex Transm Infect 2003; 79: 453-5.
39 Perine P L, Stamm W E. Lymphogranuloma venereum. In: Holmes K K, Mårdh P A, Sparling P F, et al, eds. Sexually Transmitted Diseases. New York: McGraw-Hill, 1999: 423-32.
40 Bauwens J E, Lampe M F, Suchland R J, Wong K, Stamm W E. Infection with *Chlamydia trachomatis* lymphogranuloma venereum serovar L1 in homosexual men with proctitis: molecular analysis of an unusual case cluster. Clin Infect Dis 1995; 20:576-81.
41 Vandenbruaene M. Uitbraak van lymphogranuloma venereum in Antwerpen en Rotterdam. Epidemiologisch Bulletin van de Vlaamse Gemeenschap 2004; 47(1): 4-6. http://www.wvc.vlaanderen.be/epibul/47/lymphogranuloma.htm
42 Institut de Vieille Sanitaire. Emergence de la Lymphogranulomatose vénérienne rectale en France: cas estimés au 31 mars 2004. Synthèse réalisée le 1er Juin 2004. http://www.invs.sante.fr/presse/2004/le_point_sur/lgv_160604/
43 Berglund T, Herrmann B. Utbrott av Lymfogranuloma venereum (LGV) i Europa. EPI-aktuellt 2004: 3(25): 17/06/2004. (http://www.smittskyddsinstitutet.se/SMItemplates/BigArticle____3942.aspx#LGV

44 Plettenberg A, von Krosigk A, Stoehr A, Meyer T. Four cases of lymphogranuloma venereum in Hamburg, 2003. Eurosurveillance Weekly 2004:8(30). (http://www.eurosurveillance.org/ew/2004/040722.asp#4

45 Alerts on STI in Europe from the European Surveillance of STIs (ESSTI) Network.

46 Laar MJW van de, Götz HM, Herida M, Goulet V, Ostyn B, Vandenbruaene M. Lymphogranuloma Venereum (LGV) among MSM in Europe: an update. Abstract #S1. Conference on Sexually Transmitted Infections, of the International Union Against Sexually Transmitted Infections (IUSTI), October 7-9, 2004.

47 Laar MJW van de, Götz HM, Zwart O de, Meijden WI van der, Ossewaarde JM, Thio B, Fennema JSA, Spaargaren J, Vries HJC de, Berman SM, Papp JR, Workowski KA. Lymphogranuloma Venereum Among Men have Sex with Men -- The Netherlands; 2003-2004. Morbidity Mortality Weekly Report 2004; 53; 42: 985-988.

48 Nieuwenhuis RF, Ossewaarde JM, Götz HM, Dees J, Thio HB, Thomeer MGJ, Den Hollander JC, Neumann HAM, Van der Meijden WI. Resurgence of Lymphogranuloma Venereum in Western Europe: An outbreak of *Chlamydia trachomatis* serovar L2 Proctitis in The Netherlands among men who have sex with men. Clin Infect Dis 2004; 39: 996-1003.

49 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.

50 Hamers FF, Downs AM. HIV in central and Eastern Europe. Lancet 2003 361 (9362): 1035-44

51 Blystad H, Nilsen O, Berglund T, et al. Syphilis outbreaks in Norway and Sweden among men have sex with men 1998-2002. Eurosurveillance Weekly 2003; 7; 24: http://www.eurosurveillance.org/ew/2003/030612.asp#2

52 Lynch A, Smyth B. Syphilis outbreak in Northern Ireland. Eurosurveillance Weekly 2003; 7; 24: http://www.eurosurveillance.org/ew/2003/030612.asp#3

53 CDSC. Trends in infectious syphilis; update on national data to 2003 and current epidemiological data from the London outbreak. CDR weekly 2004; 31, 29 July 2004

54 CDC. Primary and secondary syphilis--United States, 2002. MMWR 2003; 52:1117-20.

55 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. Sexually Transmitted Diseases 2003; 30:562-7.

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

57 Dukers NHTM, Spaargaren J, Geskus RB, Beijnen J, Coutinho RA, Fennema HSA. HIV incidence on the increase among homosexual men attending an Amsterdam sexually transmitted disease clinic: using a novel approach for detecting recent infections. AIDS 2002 (16): F19-F24

58 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 Estimates, Models and Projections, 2003.UNAIDS , UNICEF , WHO. Epidemiological fact sheets on HIV/AIDS and Sexually Transmitted Infections: The Netherlands. 2002

59 GG&GD Amsterdam. OGGZ Monitor Amsterdam. Trends & cijfers '99-'01, Amsterdam 2002

60 CBS. Statistics Netherlands. Population 2003 [http://statline.cbs.nl/]. (May 2004)

61 Beuker RJ, Berns MPH, Rozendaal van CM *et al*. Surveillance van HIV infectie onder injecterende druggebruikers in Nederland: meting Amsterdam 1998. RIVM rapport 441100 011. Bilthoven: RIVM, 1999.

62 Ouwehand AW, Alem VCMv, Mol A, Boonzajer Flaes S. Kerncijfers verslavingszorg 2002. Houten: Stichting informatievoorziening zorg, 2003

63 Laere Iv, Buster M, Lindenburg C. Preventie van luchtweginfecties bij druggebruikers en daklozen. Infectieziektenbulletin 2002; 13(4):144-50

64 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

65 Op de Coul ELM, Fennema JSA, Hoek van den JAR *et al*. HIV-infecties en AIDS in Nederland: prevalentie en incidentie 1987-2002. Van Zuiden Communications b.v. Alphen aan de Rijn, p1-9, 2003

66 GG&GD Amsterdam. Jaarverslag SOA polikliniek 2003. Amsterdam, 2004

67 Nationale Drug Monitor (NDM). Jaarbericht 2003. Bureau NDM, Trimbos-instituut Utrecht 2003
68 Sandfort TG, de Graaf R, Bijl RV. Same-sex sexuality and quality of life: findings from the Netherlands Mental Health Survey and Incidence Study. Arch Sex Behav 2003; 32(1):15-22
69 Sandfort T, Vroome Ed. Homoseksualiteit in Nederland: een vergelijking tussen aselecte groepen homoseksuele en heteroseksuele mannen. Tijdschriftt voor Seksuologie 1996; 20(3):232-45
70 Laar MJW van de, Veen van MG, Coenen AJJ. Registratie van soa en HIV consulten bij GGD-en en soa-poliklinieken; Jaarverslag 2002. RIVM rapport 441500 015. Bilthoven RIVM, 2003
71 Laluan E, Mheen D vd. Klassieke risicogroepen hepatitis B: Omvangschattingen van homoseksuele mannen, prostituees, druggebruikers en bezoekers van SOA poliklinieken, 2002
72 Gras MJ, Weide JF, Langendam MW, Coutinho RA, van den Hoek JAR. HIV prevalence, sexual risk behaviour and sexual mixing patterns among migrants in Amsterdam, The Netherlands. AIDS 1999; 13(14):1953-62
73 GG&GD Amsterdam. Jaarverslag Infectieziekten 2003. Amsterdam, 2004.
74 College voor Zorgverzekeringen. Implementatie HIV screening voor zwangere vrouwen, 2002.
75 Ghys PD, Brown T, Grassly NC *et al*. The UNAIDS Estimation and Projection Package: a software package to estimate and project national HIV epidemics. Sex Transm Infect 2004; 80 Suppl 1:I5-I9
76 Fennema JS, van Ameijden EJ, Coutinho RA, van Doornum GJ, Cairo I, van den Hoek JAR. HIV surveillance among sexually transmitted disease clinic attenders in Amsterdam, 1991-1996. AIDS 1998; 12(8):931-8
77 Walker N, Stover J, Stanecki K *et al*. The workbook approach to making estimates and projecting future scenarios of HIV/AIDS in countries with low level and concentrated epidemics. Sex Transm Infect 2004; 80 Suppl 1:I10-I13