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Sexually transmitted infections

Sexually transmitted infections, including HIV, in the Netherlands in 2010

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Rapport in het kort

Seksueel overdraagbare aandoeningen, waaronder hiv, in Nederland in 2010

In 2010 hebben in totaal 105.016 mensen zich bij een van de centra in Nederland laten testen op een seksueel overdraagbare aandoening (soa); dat is 13% meer dan in 2009. Door deze stijging zijn er meer soa's gediagnosticeerd. Het percentage consulten waarin een (of meerdere) soa werden gevonden is licht gestegen. Net als in voorgaande jaren was chlamydia de meest gediagnosticeerde soa bij bezoekers van de soa-centra in Nederland, vooral onder heteroseksuele jongeren onder de 25 jaar.

Chlamydia

Het aantal infecties is toegenomen in 2010, evenals het percentage positieve chlamydia-testen (n = 11.526 respectievelijk 11,2%). 11% van de heteroseksuele bezoekers van soa-centra had een chlamydia-infectie, onder heteroseksuelen jonger dan 25 jaar was dit 14%.

Gonorrhoe

Ondanks een toename in het aantal infecties in 2010 (n = 2.815) is het percentage positieve gonorrhoe-testen stabiel gebleven (2,7%). In Nederland werd nog geen gonorrhoe-stam gevonden die (klinisch) resistent is tegen derde generatie cefalosporine (antibiotica). Wel zijn meer stammen gevonden die hiervoor minder gevoelig zijn. Monitoring van resistentie blijft daarom van belang om – indien nodig – tijdig behandeladviezen bij te kunnen stellen.

Syfilis

In 2010 nam het aantal nieuwe syfilisdiagnoses en het percentage positieve testen (n = 500 respectievelijk 0,5%) in vergelijkbare mate af als in 2009. Deze lichte daling is al langere tijd gaande. Syfilis werd vooral gediagnosticeerd bij mannen die seks hebben met mannen (MSM) (89% van alle syfilisdiagnoses).

Hiv

Zowel het aantal als het percentage positieve hiv-testen bij de soa-centra (n = 375 respectievelijk 0,4%) is in 2010 opnieuw licht gedaald. Sinds 1 januari 2010 worden alle bezoekers van soa-centra op hiv getest, tenzij dit expliciet geweigerd wordt (opting-out); dit jaar weigerde 3% van alle bezoekers die niet wisten of ze hiv hadden. In 2010 werd bij 31% van de bekend hiv-positieve MSM een of meerdere soa's gevonden.

Bezoekers soa-centra

De soa-centra bieden hoogrisicogroepen een laagdrempelige diagnose en aanvullende curatieve zorg. Er waren in 2010 vooral meer consulten van MSM, een stijging van 20% ten opzichte van 2009. Bij 14% van de bezoekers werd een of meerdere soa's gevonden (bij 19% van de MSM en 12% van de heteroseksuele bezoekers). Dit is vergelijkbaar met voorgaande jaren.

Abstract

Sexually Transmitted Infections, including HIV, in the Netherlands in 2010

In 2010, a total of 105,016 persons were tested at one of the Sexually Transmitted Infection (STI) clinics in the Netherlands. This was 13% more than in 2009. More STIs were diagnosed due to this increase. The percentage of consultations where one or more STIs was found has slightly increased. Chlamydia remained the most often diagnosed STI among STI clinic attendees in the Netherlands, especially among heterosexuals younger than 25 years.

Chlamydia

The number of infections increased in 2010, as well as the positivity rate (n = 11,526 respectively 11.2%). Of the total heterosexual attendees, 11% had a chlamydia infection compared with 14% in the group of heterosexuals younger than 25 years.

Gonorrhoea

The number of gonorrhoea infections and the positivity rate (n = 2,815 respectively 2.7%) remained stable compared with 2009. No third generation cephalosporin (antibiotic) resistant gonorrhoea strain has been found in the Netherlands yet. But, there is an increase in number of strains found less sensitive to antibiotics. Therefore, monitoring of resistance remains important in case adjustments of treatment advices are necessary.

Syphilis

In 2010, there was a comparable decrease in the number of new diagnoses of infectious syphilis and the positivity rate with 2009 (n = 500 respectively 0.5%). This small decrease is ongoing for a longer period of time. Syphilis in men having sex with men (MSM) accounted for 89% of all infectious syphilis diagnoses.

HIV

There was again a slight decline in the number and proportion of positive HIV tests at the STI clinics (n = 375 respectively 0.4%). Since 1 January 2010, all STI clinic attendees have been tested for HIV, except those who explicitly refused, known as opting out testing. In 2010, 3% refused of all attendees not knowing their HIV status. Among those MSM known to be HIV-positive, 31% were diagnosed with one or more STIs in 2010.

STI clinic attendees

STI clinics offer easily accessible diagnosis and complementary curative care to high-risk populations. There were especially more MSM consultations in 2010, an increase of 20% compared with 2009. One or more STIs were found in 14% of the attendees (in 19% of MSM and in 12% of heterosexual attendees). These figures are comparable with previous years.

Preface

This annual report presents the national surveillance data and a review of the epidemiology of sexually transmitted infections (STI), including HIV/AIDS, in the Netherlands in 2010. The report provides an overview of recent trends and current developments in the field of STI. This is done by presenting a summary of recent trends ('key points') followed by tabulations and figures of STI by a range of relevant characteristics and risk groups over time from data sources available and an overview of the major discussions and recommendations.

We hope that this report contributes to further awareness of the distribution and determinants of STI, including HIV, in the Netherlands, resulting in further targeting of (preventive) interventions and assessment of their effectiveness on STI transmission. The information is directed at policy makers, researchers in the field of STI and related subjects as well as others interested in STI trends in the Netherlands. More information on STI and HIV trends in the Netherlands is available at www.soahiv.nl and www.hiv-monitoring.nl. A copy of this report can also be downloaded in PDF format from www.soahiv.nl.

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Further information

Any comments or suggestions can be sent to soahiv@rivm.nl.

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Samenvatting

In 2010 werden in totaal 105.016 nieuwe soa-consulten uitgevoerd bij de soa-centra, een stijging van 13% ten opzichte van 2009. De soa-centra zijn bedoeld voor hoogrisicogroepen die in de reguliere zorg niet voldoende bereikt worden. Om deze groepen te bereiken passen de centra een landelijk afgestemd triagesysteem toe. De hoogrisicogroepen, waaronder mannen die seks hebben met mannen (MSM) (19% van de bezoekers in 2010), personen afkomstig uit soa/hiv endemische gebieden (11% van de bezoekers in 2010) en jongeren tot 25 jaar (43% van de bezoekers in 2010), worden gratis en indien wenselijk anoniem getest. In 2010 voldeed 99% van de soa-consulten aan minimaal een van de gestelde criteria voor hoogrisicogroepen of betrof anonieme testen.

Naast data van de soa-centra worden, waar beschikbaar, trenddata uit de reguliere zorg (huisarts, hiv-behandelaren) en andere surveillance bronnen gerapporteerd.

Bacteriële soa

In 2010 was chlamydia opnieuw de meest gediagnosticeerde bacteriële soa in de soa-centra met 11.526 gerapporteerde gevallen. Het percentage positieve testen steeg licht, 11,2% in 2010 ten opzichte van 10,5% in 2009. De hoogste percentages positieve testen werden gezien onder heteroseksuele mannen en vrouwen (respectievelijk 11,3 en 11,1%). De meerderheid van de chlamydia infecties bij heteroseksuelen werd bij jongeren onder de 25 jaar gediagnosticeerd (55%). LGV, een agressieve variant van chlamydia, wordt sinds de uitbraak in 2004 nog steeds regelmatig gevonden, maar vertoonde ook dit jaar een daling: in 2010 werden in totaal 66 gevallen van LGV gediagnosticeerd, een afname van 22% ten opzichte van 2009.

Het percentage positieve gonorroetesten in de soa-centra bleef stabiel, 2,7% in 2010 (2.815 positieve testen). Gonorrhoe werd vooral gediagnosticeerd bij MSM (57%). Verminderde gevoeligheid voor derde generatie cefalosporine nam toe, van 1% in 2006 naar 9% in 2010.

Het percentage positieve testen van infectieuze syfilis blijft verder afnemen: van 4,3% in 2007 naar 2,3% in 2010. In totaal werden er in 2010 500 infectieuze syfilis diagnoses gesteld waarvan 89% bij MSM.

Virale soa, inclusief hiv

In de soa-centra werden 375 nieuwe hiv-diagnoses gesteld in 2010. Het percentage positieve hiv-testen blijft dalen voor MSM: 3,0% in 2008, 2,4% in 2009 en 2,0% in 2010. Bij heteroseksuele mannen en vrouwen bleef dit stabiel op 0,1%.

In 2010 werden 1.256 nieuwe aanmeldingen van hiv-positieve personen in zorg gerapporteerd in de nationale hiv-registratie bij de Stichting HIV Monitoring, waarvan er 826 gediagnosticeerd werden in 2010. Eind 2010 waren in totaal 17.868 personen met hiv in Nederland geregistreerd. Het aandeel nieuw gerapporteerde hiv-infecties bij MSM bleef stabiel (66%). Bij 27% van de nieuw gediagnosticeerde hiv-positieve MSM die de soa-centra bezochten werd een chlamydia en/of gonorrhoe infectie gevonden.

Na een stijgende tendens in de voorgaande jaren, bleef het aantal diagnoses van genitale wratten stabiel in 2010 in de soa-centra. Het aantal diagnoses van genitale herpes (HSV) steeg in 2010 met 6%. Hierbij moet worden opgemerkt dat onderzoek van genitale wratten en HSV alleen op indicatie gebeurt, waardoor het aantal diagnoses en de percentages positief niet vergelijkbaar zijn met die van bacteriële soa en hiv, waarop routinematig getest wordt. Uit de aangifte van hepatitis B bleek dat de dalende trend van het aantal gevallen van acute hepatitis B infecties zich voortzette in 2010, 11% daling ten opzichte van

2009. Het aantal gerapporteerde acute hepatitis C gevallen daalde aanzienlijk met 43%, ook het aandeel gerelateerd aan MSM transmissie daalde.

In het kort, het aantal soa-consulten en het percentage positieve soa-testen blijft nog steeds jaarlijks toenemen. Hoewel voor het merendeel van de soa dalende trends worden waargenomen, zowel in aantal als percentage positieve testen, neemt het percentage positieve testen nog steeds toe door de toename van chlamydia infecties. Een sterke soa surveillance blijft essentieel om zicht te houden op relevante trends. De bestrijding zou verder ondersteund kunnen worden door beter zicht op inter-venieerbare factoren, zoals de effectiviteit van partnerwaarschuwing en het voorkomen van co-infecties, herinfecties en soa per anatomische locatie, door beter zicht op gegevens uit de reguliere zorg, alsmede door een verdere ontwikkeling van moleculaire technieken om de toenemende resistentie van gonorroestammen tegen antibiotica zo snel mogelijk te kunnen identificeren.

Summary

In 2010, 105,016 new STI consultations were carried out in the national network of STI centres in the Netherlands, an increase of 13% compared with 2009. The STI centres target high-risk groups by patient selection based on a standardised list of criteria. High-risk groups, such as men having sex with men (MSM) (19% of all attendees in 2010), persons originating from STI/HIV endemic areas (11% of all attendees in 2010) and young people under 25 years of age (43% of all attendees in 2010) are tested free of charge and when asked anonymously. In 2010, 99% of attendees fulfilled one or more of the criteria for high-risk groups or wanted to be tested anonymously.

Besides data from the STI centres, data from regular care (general practitioners, HIV treatment centres) and other surveillance sources are also reported.

Bacterial STI

With 11,526 reported cases, chlamydia remained the most commonly diagnosed bacterial STI in the STI centres in 2009. The overall positivity rate was 11.2% compared with 10.5% in 2009. The highest positivity rates were in heterosexual men and women (11.3 and 11.1% respectively). The majority of chlamydia cases in heterosexuals were diagnosed in persons younger than 25 years of age (55%). LGV, an aggressive strain of chlamydia, is found frequently since the detection of the LGV outbreak in 2004, but shows a continuous decrease. In 2010 there were 66 new LGV cases diagnosed, a decrease of 22% compared with 2009.

The positivity rate for gonorrhoea in STI centres remained stable, 2.7% in 2010 (2,815 positive tests).

Gonorrhoea was most prevalent among MSM (57%). There was an increase in gonorrhoea isolates with decreased susceptibility for third generation cephalosporins, from 1% in 2006 to 9% in 2010.

The positivity rate of infectious syphilis showed a decreasing trend: 4.3% in 2007 to 2.3% in 2010. In total, 500 positive infectious syphilis tests were reported, including 89% MSM.

Viral STI, including HIV

At the STI centres, a total of 375 HIV infections were diagnosed in 2010. HIV positivity rates in MSM showed a decreasing trend for MSM: 3.0% in 2008, 2.4% in 2009 and 2.0% in 2010. In heterosexual men and women it remained stable at 0.1%.

In 2010, 1,256 HIV-infected persons in care were newly registered in the national database of the HIV treatment centres (SHM); 826 of them were diagnosed in 2010. As of December 2010, a total of 17,850 HIV patients in medical care had been recorded in the Netherlands. The proportion of MSM among the newly diagnosed remained stable in 2010 (66%). 27% of the newly diagnosed HIV-positive MSM consulting the STI centres were co-infected with a chlamydia and/or gonorrhoea infection.

After an increasing trend in previous years, the reported number of genital warts stabilized in 2010 in the STI centres. The reported number of genital herpes (HSV) increased with 6% in 2010. These two STIs were tested by indication only, so the number of diagnoses and the percentages testing positive is not comparable to the bacterial STI and HIV as described above (routinely screened at all consultations). The notification data on acute hepatitis B showed a decrease of 11% compared with 2009. The total number of reported acute hepatitis C cases showed a considerable decrease of 43%. This decrease was also visible in MSM.

In short, both the number of STI consultations as well as the overall STI positivity rate shows an increasing trend. Although most STIs show decreasing trends for the number and percentage of positive tests, the overall positivity rate is still increasing due to the increase of chlamydia. A strong STI surveillance remains a prerequisite to monitor relevant trends. STI control could be supported by improved insight into the effectiveness of partner notification, insight into the occurrence of co-infections, reinfections and STI per anatomical location, better insight in surveillance data from regular care, as well as the development of molecular techniques to monitor the increasing resistance of gonorrhoea to antibiotics.

Introduction

This report describes current trends in the epidemiology of STIs, including HIV, in the Netherlands. It is prepared by the Centre for Infectious Disease Control (CIb) at the National Institute for Public Health and the Environment (RIVM). The CIb collaborates with various partners in the field of STI to collect data for surveillance and to generate insights into trends and determinants: the STI centres, the Stichting HIV Monitoring (SHM), public health laboratories, general practitioners (GPs) and other health care providers.

The systematically collected data among high-risk groups seen at the nationwide network of STI centres under the responsibility of the Public Health Services, are the backbone of the Dutch STI surveillance on STI trends and risk factors. As much as possible, other available STI selected data from surveys, screening programs, national registries, cohort studies and other surveillance systems are included as well. Together they provide an overview of the current status of STI, including HIV in the Netherlands. Preliminary data have been presented in the Thermometer SOA & HIV (April 2011).

Outline of the report

In chapter 1 the methodology of STI surveillance in the Netherlands is described, including all data sources used for this report. In chapter 2 the characteristics of STI centre consultations and attendees and data from Sense are presented for 2010, data from the General Practitioners are presented for 2009. Chapters 3–5 deal with bacterial STI (chlamydia, gonorrhoea and syphilis) and chapters 6–10 focus on viral STI, including HIV, genital warts, genital herpes and hepatitis B and C. Conclusions and recommendations are described in chapter 11.

1

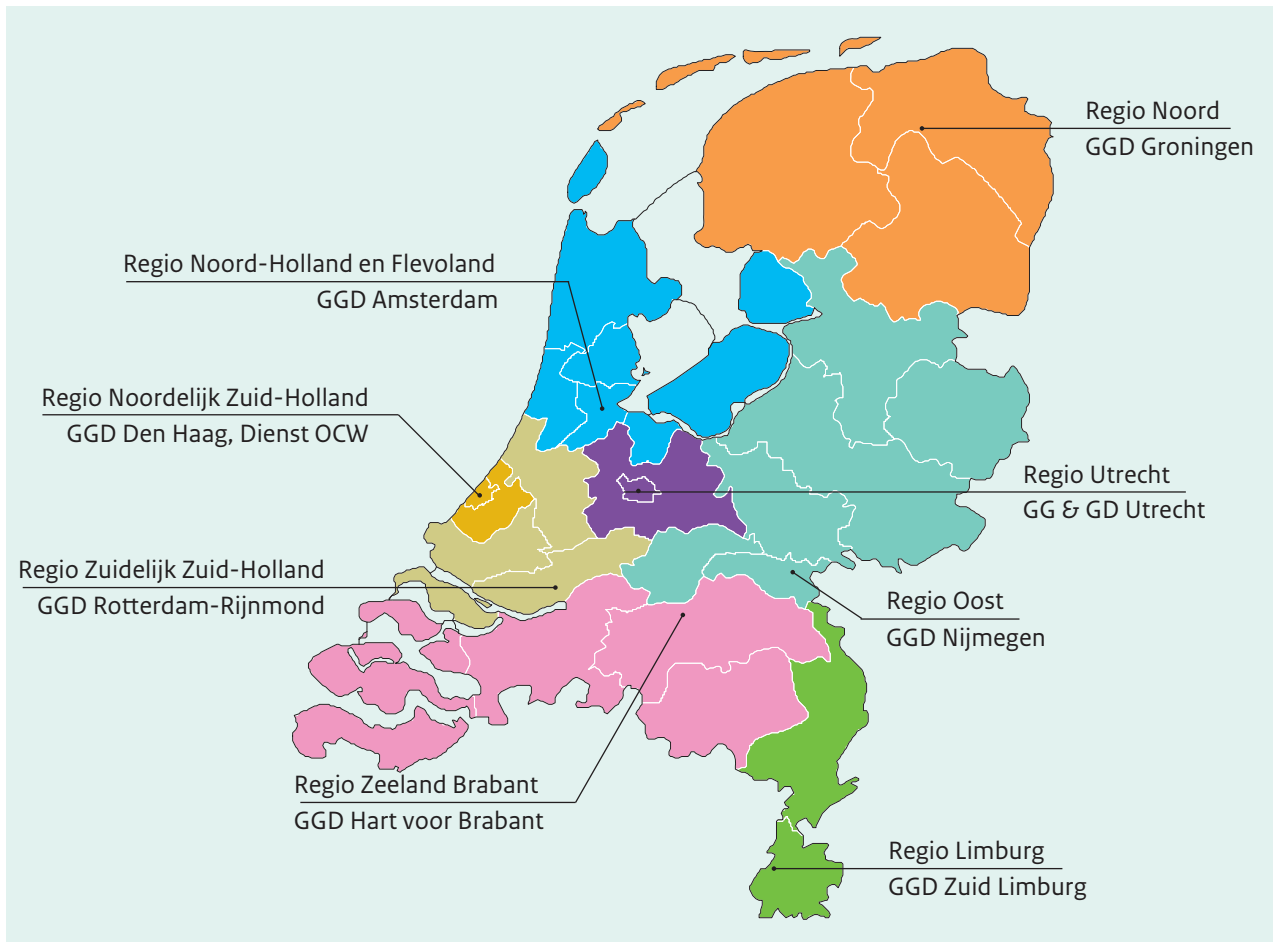
Methodology of STI and HIV surveillance

Tables and figures for this report are based on a variety of data sources to compile an up-to-date overview of the STI/HIV epidemic in the Netherlands. The foundation of this overview is the systematic surveillance among high-risk groups seen in the nationwide system of STI centres. Data from general practitioners, who perform the bulk of STI consultations, are extrapolated from the LINH network. To gain insight in trends among HIV patients in care, data from the anonymous HIV surveillance at STI centres and the HIV treatment centres (Stichting HIV Monitoring) are obtained. Other additional data sources are amongst others Sense, the laboratory surveillance, the Chlamydia Screening Implementation (CSI), the Gonococcal Resistance to Antimicrobials Surveillance programme (GRAS), the antenatal screening and the data on hepatitis B and C notifications, the hepatitis B vaccination programme for risk groups and the blood donor registration.

1.1 National surveillance at STI centres

Since 1995, STIs are registered in an STI database at the RIVM in the Netherlands. In 2003, an STI sentinel surveillance system was put in place, which reached national coverage in 2004 with the inclusion of all major STI centres. Since 2006, reporting to the national STI surveillance system is organized into eight regions. In each region, there is one STI centre that is responsible for regional coordination of STI control (Figure 1.1). In total, 26 STI centres, mostly within the municipal health services and some of them with different test locations, provide low threshold STI/HIV testing and care, free of charge, targeted at high-risk groups and at people who want to be tested anonymously. Currently, persons matching one of the following criteria: (1) reporting STI-related symptoms, (2) notified or referred for STI testing, (3) age below 25 years, (4) MSM, (5) involved in commercial sex, (6) originating from an HIV/STI endemic area, (7) three or more sexual partners in the previous six months or (8) partner from risk group, are considered to be at increased risk for STI acquisition. Furthermore, persons who indicate they want to be tested anonymously can also make use of the STI centres to guarantee 'low threshold' STI care. All attendees are mandatorily tested for chlamydia, gonorrhoea and syphilis and there is an opt-out policy for HIV testing. Other STIs tested on indication are hepatitis B and C, genital herpes, trichomonas and LGV. All consultations and corresponding diagnoses are reported online to the Clb for surveillance purposes,

Figure 1.1 Eight regions with coordinating STI centre indicated.



facilitated by a web-based application (SOAP). The unit of analysis is ‘new STI consultation’ and anonymized reports contain epidemiological, behavioural, clinical and microbiological data on a wide range of STI.

In this report, the results of national surveillance of STI centres are presented with respect to the number and nature of new consultations and diagnoses. Trends in positivity rates by risk profile (based on demographic and behavioural indicators) in time are based on data from the STI centres in the national surveillance since 2004. Where data were not complete for a specific period or STI centre, this is indicated. We focus on the major bacterial and viral STI, including HIV infection.

1.2 Sense

To strengthen primary prevention and promote sexual health among young adults (< 25 years), a nationwide network of consultation centres (Sense) was established, under the coordination of the same Public Health Services (PHSs) that coordinate the STI centres. To these Sense locations young adults can anonymously address themselves for information and personal consultations on a broad range of subjects relating to sexual health; for example: (problems with) sexual intercourse, unwanted pregnancy,

birth control, STI, homosexuality, sexual violence, lover-boys et cetera. For this purpose, two consultations per person and per personal question are offered free of charge. Sense consultation locations are available through a nationwide network. Preliminary data on the numbers of visitors of the Sense consultations are presented.

In addition to these personal consultations, the Sense website (www.sense.info) offers information covering subjects about STI, pregnancy, birth control and sexuality. Via this website, clients can anonymously address the Sense info line (phone, email or chat) for more information or personal questions.

1.3 STI surveillance in general practice

Data from 2002 to 2009 on STI diagnoses in general practice were obtained from the electronic medical records database of general practitioners (GPs) participating in the 'Netherlands Information Network of General Practice' (LINH) (2010 data not yet available at time of reporting).¹ In 2009 114 practices participated (179 fte GPs), encompassing a representative sample of 442,991 listed patients, about 2.7% of the Dutch population. Number of practices in the network varies from year to year as some practices leave and others join. This number varied between 61 to 83 practices in 2002–2008. The network expanded to 114 practices in 2009. Complaints and illnesses were recorded using International Classification of Primary Care (ICPC-1). Trends in reporting rates of STI episodes were calculated using multivariate multilevel analyses (three-levels: patient, practice and year), adjusting for the duration of the patients' length of registration within each year.² Annual estimates of the total number of episodes seen at GPs in the Netherlands were made by extrapolation of the reporting rates in these practices to the total number of Dutch residents, as obtained from Statistics Netherlands (CBS).

Patients' characteristics include age, sex and urban/rural residence. For chlamydia, which does not have a main ICPC code, we counted ICPC main codes with appropriate prescription and ICPC specific subcodes (chlamydia). In women these subcodes were for cervicitis, vaginitis and Pelvic Inflammatory Disease (PID), in men we counted subcodes for orchitis/epididymitis and other genital diseases. For HIV and syphilis, the number of cases reported was too small for reliable trend estimates.

1.4 Laboratory surveillance

National laboratory surveillance data are not available for STI, except for data from the weekly virological reports, which include the total number of *Chlamydia trachomatis* positive tests in their reporting. Data were analysed from 17 laboratories (consistently reporting since 2000, covering an estimated 40% of the

1 Verheij RA, van Dijk CE, Abrahamse H, et al. Landelijk Informatienetwerk Huisartsenzorg. Feiten en cijfers over huisartsenzorg in Nederland. Utrecht/Nijmegen: NIVEL/WOK, <<http://www.LINH.nl>>, accessed 01-04-2009.

2 van den Broek IVF, Verheij RA, van Dijk CE, Koedijk FDH, van der Sande MAB, van Bergen JEAM. Trends in sexually transmitted infections in the Netherlands, combining surveillance data from general practices and sexually transmitted infection centers. BMC Family Practice, 2010, 11:39.

main laboratories in the Netherlands).³ There is overlap in the laboratories reporting in this system and the laboratories connected to the STI centres.

1.5 Chlamydia screening

The Chlamydia Screening Implementation (CSI) is the first large-scale intervention programme, piloting a sustainable, selective, systematic and Internet-based Chlamydia Screening during the period 2008–2010. A total of 315,000 16 to 29-year-old residents of Amsterdam, Rotterdam and South Limburg are invited in annual screening rounds. In the high-prevalence urban areas, all sexually active people are encouraged to participate, while in the lower-prevalence area of South Limburg, only those who match a certain risk-profile are invited. The PHSs have implemented the screening and STI AIDS Netherlands is coordinating the programme. The Centre for Infectious Disease Control, RIVM, in collaboration with the PHSs and STI AIDS Netherlands, is conducting the evaluation of the programme. The results will be crucial for deciding whether and how a national roll-out of *Chlamydia trachomatis* screening in the Netherlands will take place in the future. The screening was extended into 2011, as an interim period until further plans are developed and to monitor participation rates during this additional invitation round. For more information see van Bergen et al.⁴ and van den Broek et al.⁵

1.6 Antimicrobial resistance of gonococci

In 1999, the surveillance of antibiotic resistance of gonococci at national level was discontinued and since then, insight in gonococcal susceptibility patterns has been limited. Concern for increasing resistance to quinolones at (inter)national level led to a RIVM laboratory survey of the resistance of gonococci in 2002. The results demonstrated the need for a nationwide systematic surveillance of gonococcal antimicrobial resistance. Therefore, in 2006, the Gonococcal Resistance to Antimicrobials Surveillance programme (GRAS) was implemented in the Netherlands. This surveillance consists in systematically collected data on gonorrhoea and resistance patterns linked with epidemiological data. 80% of the STI centres participate, which were responsible for 83% of all gonorrhoea diagnoses in 2010.⁶

3 van de Brandhof WE, Kroes ACM, Bosman A, Peeters MF, Heijnen MLA. Rapportage van virologische diagnostiek in Nederland: representativiteit van de gegevens uit de virologische weekstaten. *Infectieziekten Bulletin* 2002;13(4):110-3.

4 JEAM van Bergen, JSA Fennema, EEAG Brouwers, et al. Rationale, design, and results of the first screening round of a comprehensive, register-based chlamydia screening implementation programme in the Netherlands. *BMC Infectious diseases*, 2010;10:293.

5 IVF van den Broek, CIPA Hoebe, JEAM van Bergen, et al. Evaluation design of a systematic, selective, Internet-based, Chlamydia screening implementation in the Netherlands, 2008-2010: implications of first results for the analysis. *BMC infectious diseases*, 2010;10:89.

6 GRAS Voortgangsrapportage (6), november 2010, RIVM, Bilthoven.

1.7 Congenital syphilis

For many years, RIVM has offered Immunoglobulin M (IgM) diagnostics for neonates and young infants (< 1 year) who are suspected of being infected with congenital syphilis. In this report, results from 1997–2010 are presented.

1.8 Antenatal screening

Around 185,000 pregnant women are screened annually in the Netherlands for syphilis (since the 1950s), HBV (1989) and HIV (2004). The blood sample is collected during the first midwife appointment (< 13th week of the pregnancy) according to the opting-out principle, whereby all pregnant women undergo the test after having been provided with information, unless they explicitly state they do not wish to participate. Virtually all pregnant women in the Netherlands participate in this infectious diseases screening programme.^{7,8} The screening programme is coordinated by the Centre for National Screening Programmes (RIVM).

1.9 National registration of patients registered at HIV treatment centres

From January 2002, an anonymous HIV/AIDS reporting system for patients entering care was implemented in the Netherlands. Longitudinal data of all newly registered HIV-infected individuals are collected by the Stichting HIV Monitoring (SHM, www.hiv-monitoring.nl). The goal of SHM is to monitor HIV-infected individuals registered in the 25 recognised HIV treatment centres (including four children's centres) in the Netherlands to study changes in the epidemic, the natural history of HIV and the effects of treatment.

All HIV-infected individuals registered in this cohort are followed prospectively from the time of reporting for care. HIV-infected individuals in care, who were diagnosed prior to the start of SHM, were included in the cohort retrospectively. HIV cases diagnosed before 1996 only include persons who survived up to the start of the ATHENA clinical cohort in 1996. The epidemiological data on newly reported HIV infections, as well as trends in new AIDS diagnoses after 2000, are reported in collaboration with the Clb at the RIVM. Between 1987 and 2002, AIDS cases were reported on a voluntary basis to the Inspectorate of Health (national AIDS registry, IGZ). With the start of the SHM monitoring system in 2002 the national AIDS registry was ended. In this report, AIDS cases from 1999 or earlier are obtained from the AIDS registry. From 2000, AIDS cases from the SHM monitoring system were used. Data on deaths among HIV/AIDS patients were obtained from 2002 onwards through the SHM (before 2002 from the National Statistics Netherlands (www.cbs.nl)).

7 Procesmonitoring prenatale screening infectieziekten en erythrocytenimmunisatie 2005–2007, TNO, Leiden, 2009.

8 ELM Op de Coul, JWM van Weert, PJ Oomen, et al. Prenatale screening op hiv, hepatitis B en syfilis in Nederland effectief. *Ned Tijdsch Geneesk* 2010 4 december; 154 (48): 2219-2225.

1.10 HIV incidence data

HIV incidence data are obtained from the Amsterdam Cohort Studies (ACS) on HIV/AIDS, which started in 1984 among MSM and in 1985 among IDU. From 1995 and 1998, special recruitment started among young (< 30 years) MSM and IDU, respectively. Since April 2006, participation is open again for MSM of all ages with at least one sexual partner in the preceding six months. The ACS is a collaboration between the Public Health Service Amsterdam, the Academic Medical Centre Amsterdam, the Sanquin Blood Supply Foundation and the University Medical Centre Utrecht. The programme is financially supported by the RIVM (www.amsterdamcohortstudies.org).

1.11 Notification of hepatitis B and C

The obligatory notification includes epidemiological data on newly diagnosed acute hepatitis B virus (HBV) infections (since 1976), chronic HBV infections and acute hepatitis C virus (HCV) infections (both since April 1999). Since 2002, all PHSs notify HBV and HCV infections by using the web-based application OSIRIS.

1.12 Hepatitis B vaccination programme for risk groups

Being a low-endemic country, the Netherlands adopted a vaccination programme targeted at behavioural high-risk groups. The programme offers free vaccination to men having sex with men, commercial sex workers and drug users. Heterosexuals with an indication for an STI exam were also considered a risk group until October 2007. Vaccination takes place at the local PHS and at STI clinics and is offered free of charge according to the six-month schedule. Participants are tested serologically for markers of previous or current hepatitis B infection during their consult for first vaccination. Data were collected from the registration system especially developed for the vaccination programme.

1.13 Blood donors

Since 1985 blood donated by (new and regular) blood donors is screened for HIV, hepatitis B and C, and syphilis and positive blood is not used for blood transfusion. Volunteers are checked according to quality and safety guidelines and people who report specific risk factors for blood transmitted infections are not accepted as donors. Records are kept in the national donor register, which provides good information on the prevalence and incidence of these infections in a low-risk population. Data are reported from 1998 onwards. Incidences were calculated with the data provided by the blood bank register (www.sanquin.nl).

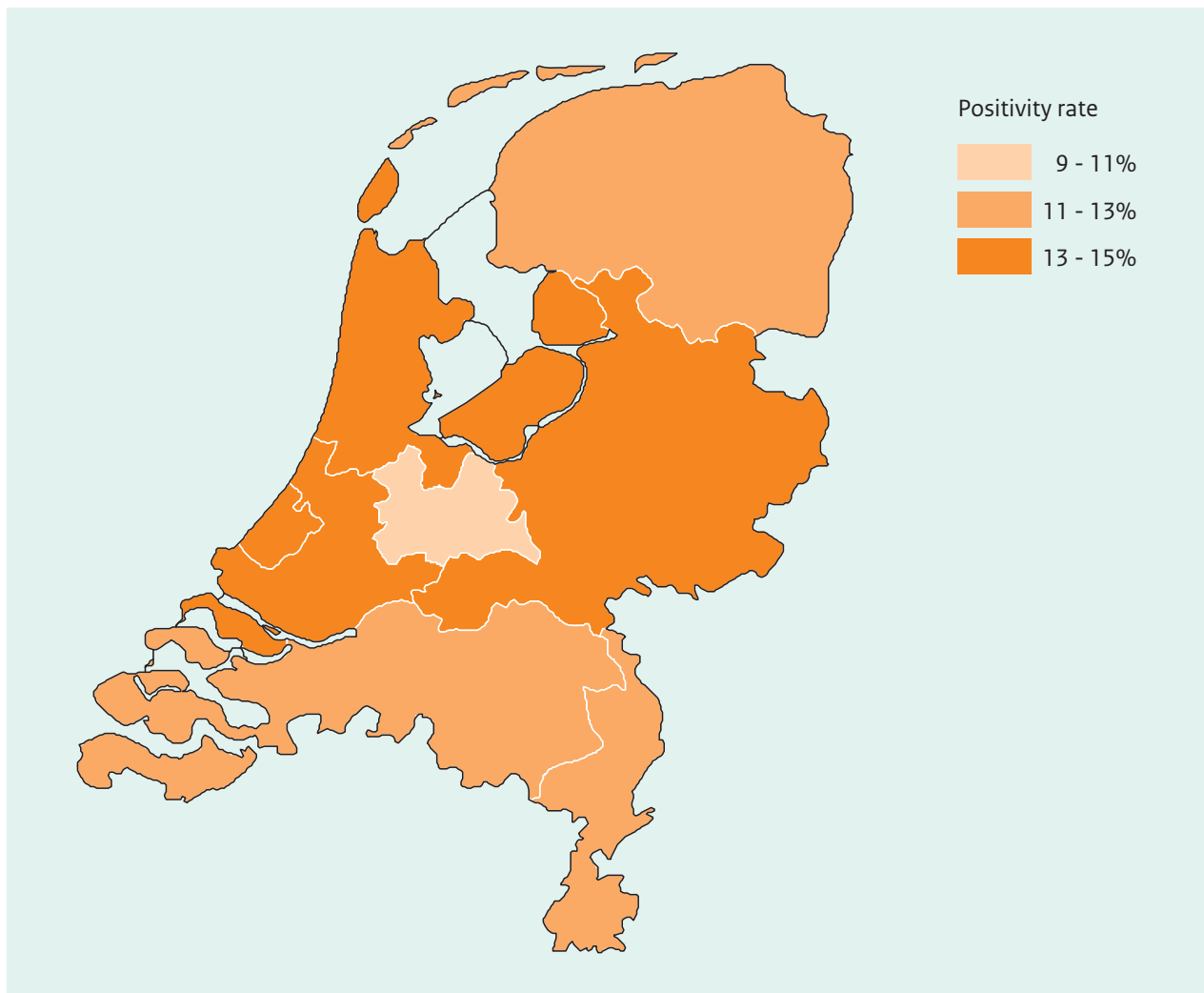
2

STI consultations and Sense

2.1 Key points

- In 2010, 105,016 new consultations were registered in the national surveillance in STI centres, an increase of 13% compared with 2009. The increase was highest in MSM (20%).
- Since 2004, the percentage of positive STI tests increased from 12% up to 14% in 2010.
- Characteristics of attendees were as follows: young age (43% under 25 years), Dutch origin (84%), female and heterosexual male (48% and 33%, respectively), 12% had a history of STI in the previous 2 years and 40% was not previously tested for HIV.
- Of the attendees, 95% had both an STI examination and an HIV test, 5% only had an STI examination (tested for chlamydia, gonorrhoea or syphilis) and 0.1% only had an HIV test. Of the 5% not tested for HIV, 54% were known HIV-positives.
- 43% reported 3 or more sex partners in the past 6 months: for MSM this was 69%.
- 99% of all STI centre attendees fulfilled one or more of the criteria set as indicators of high-risk or were tested for reasons of anonymity.
- In GP registrations, the estimated number of reported episodes of fear of STIs and diagnoses of STIs (STI-related episodes based on ICPC-codes) was estimated at 189,000 (95% CI 155,000–232,000) in 2009 (47% men and 53% women), a small decrease (8%) since 2008, but maintaining the higher rate from last year compared to earlier years.
- There were 13,126 Sense consultations of which 82% were female. Main topic for females was birth control; males mostly had an STI question.

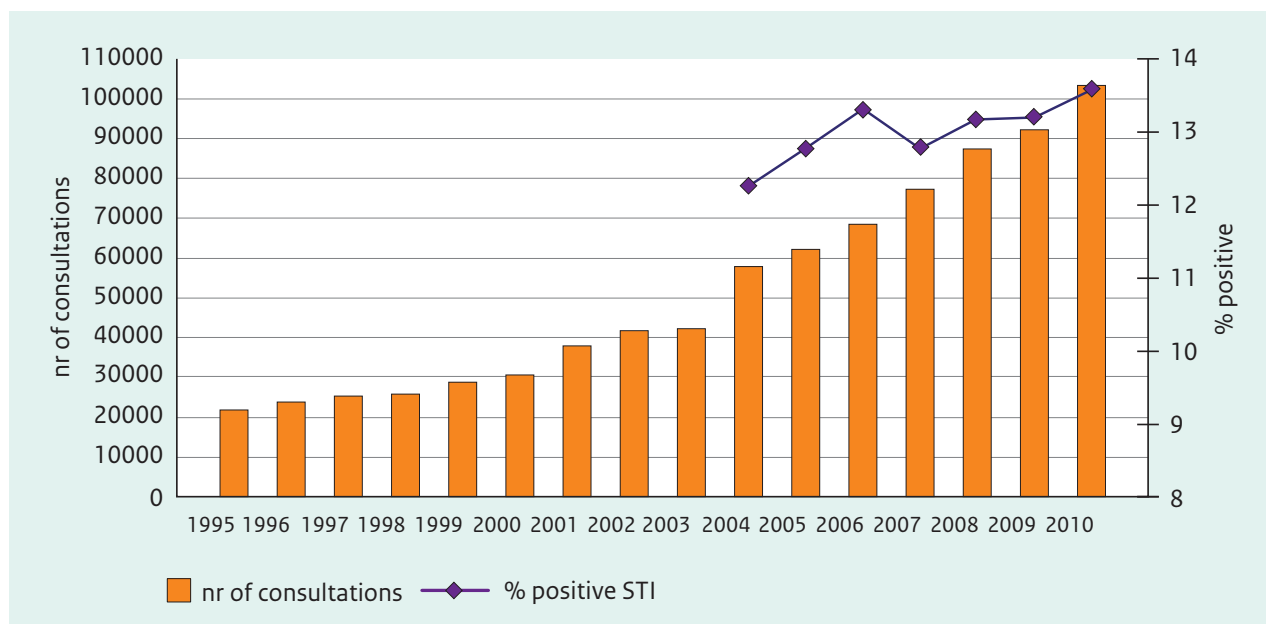
Figure 2.1 Positivity rates of STI by STI centre, the Netherlands, 2010.



Footnote: STI include: chlamydia, gonorrhoea, infectious syphilis, HIV and infectious hepatitis B.

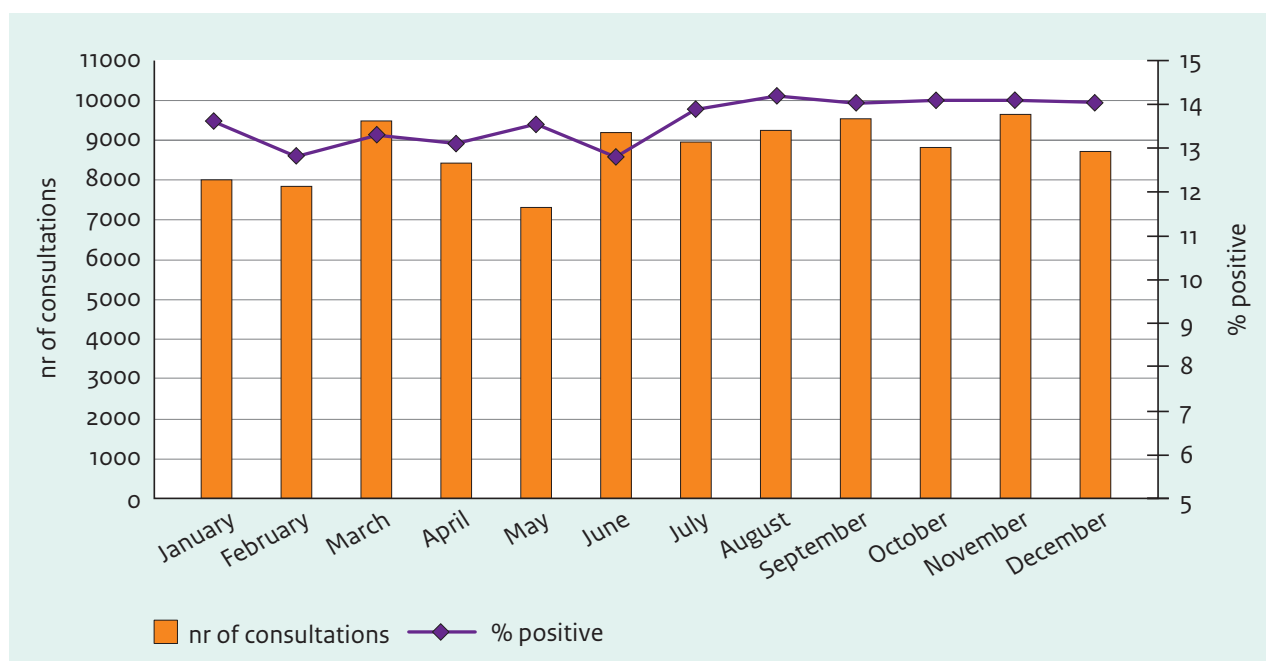
2.2 Consultations and characteristics of STI centre attendees

Figure 2.2 Number of consultations and percentage of positive STI tests (chlamydia, gonorrhoea, infectious syphilis, HIV, infectious hepatitis B) in the national STI surveillance in the Netherlands, 1995–2010.



Footnote: 1995–2002: STI registration; 2000: STI centre Erasmus Medical Centre Rotterdam was included; 2003: Implementation of STI sentinel surveillance network; 2004–2010: National STI surveillance network.

Figure 2.3 Number of consultations and percentage of positive STI tests in the national STI surveillance in the Netherlands per month in 2010.



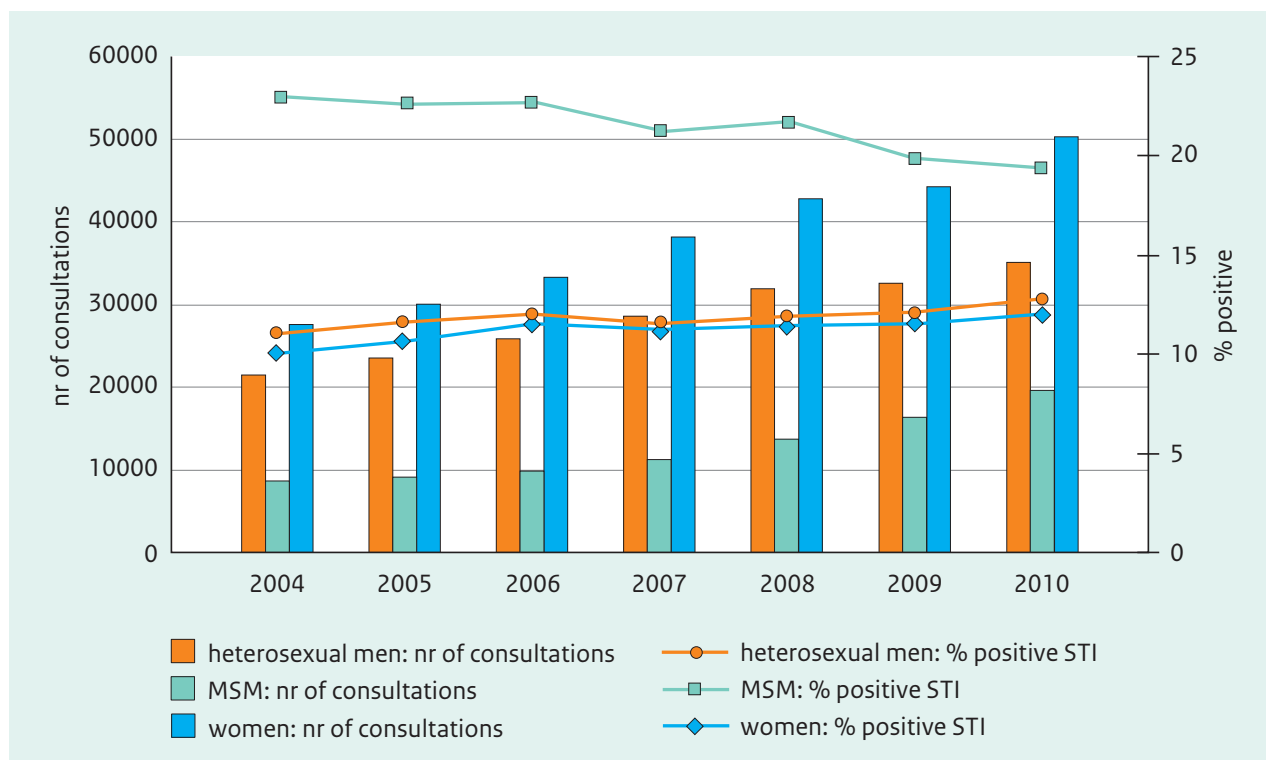
Footnote: STI include: chlamydia, gonorrhoea, infectious syphilis, HIV and infectious hepatitis B.

Table 2.1 Number of consultations by sexual risk group, 2007–2010.

Gender and sexual preference	2007 n (%)	2008 n (%)	2009 n (%)	2010 n (%)
Heterosexual men	28,689 (36.8)	31,770 (35.9)	32,584 (34.9)	35,112 (33.4)
MSM	11,048 (14.2)	13,764 (15.6)	16,332 (17.5)	19,579 (18.6)
Women	38,209 (48.9)	42,796 (48.4)	44,291 (47.5)	50,177 (47.8)
Transgender*	29 (0.04)	34 (0.04)	47 (0.1)	76 (0.1)
Sexual preference unknown*	87 (0.1)	71 (0.1)	77 (0.1)	72 (0.1)
Total	78,062	88,435	93,331	105,016

*Categories ‘transgender’ and ‘sexual preference unknown’ are disregarded in the rest of the tables.

Figure 2.4 Number of consultations and percentage of positive STI tests in the national STI surveillance in the Netherlands per gender and sexual preference, 2004–2010.



Footnote: STI include: chlamydia, gonorrhoea, infectious syphilis, HIV and infectious hepatitis B.

Table 2.2 Number of consultations by age, gender and sexual preference, 2010.

Age (years)	Heterosexual men n (%)	MSM n (%)	Women n (%)	Total n (%)
≤ 14	7 (0.02)	1 (0.01)	94 (0.2)	102 (0.1)
15–19	1742 (5.0)	501 (2.6)	6594 (13.1)	8837 (8.4)
20–24	11,789 (33.6)	2516 (12.9)	22,351 (44.5)	36,656 (35.0)
25–29	8376 (23.9)	2550 (13.0)	9618 (19.2)	20,544 (19.6)
30–34	4111 (11.7)	2747 (14.0)	3983 (7.9)	10,841 (10.3)
35–39	2812 (8.0)	2628 (13.4)	2534 (5.1)	7974 (7.6)
40–44	2350 (6.7)	2845 (14.5)	2050 (4.1)	7245 (6.9)
45–49	1782 (5.1)	2479 (12.7)	1571 (3.1)	5832 (5.6)
50–54	999 (2.8)	1470 (7.5)	870 (1.7)	3339 (3.2)
≥ 55	1131 (3.2)	1836 (9.4)	494 (1.0)	3461 (3.3)
Unknown	13 (0.04)	6 (0.03)	18 (0.04)	37 (0.04)
Total	35,112	19,579	50,177	104,868

Figure 2.5 Percentage of positive STI tests in the national STI surveillance in the Netherlands by age and sexual preference, 2010.

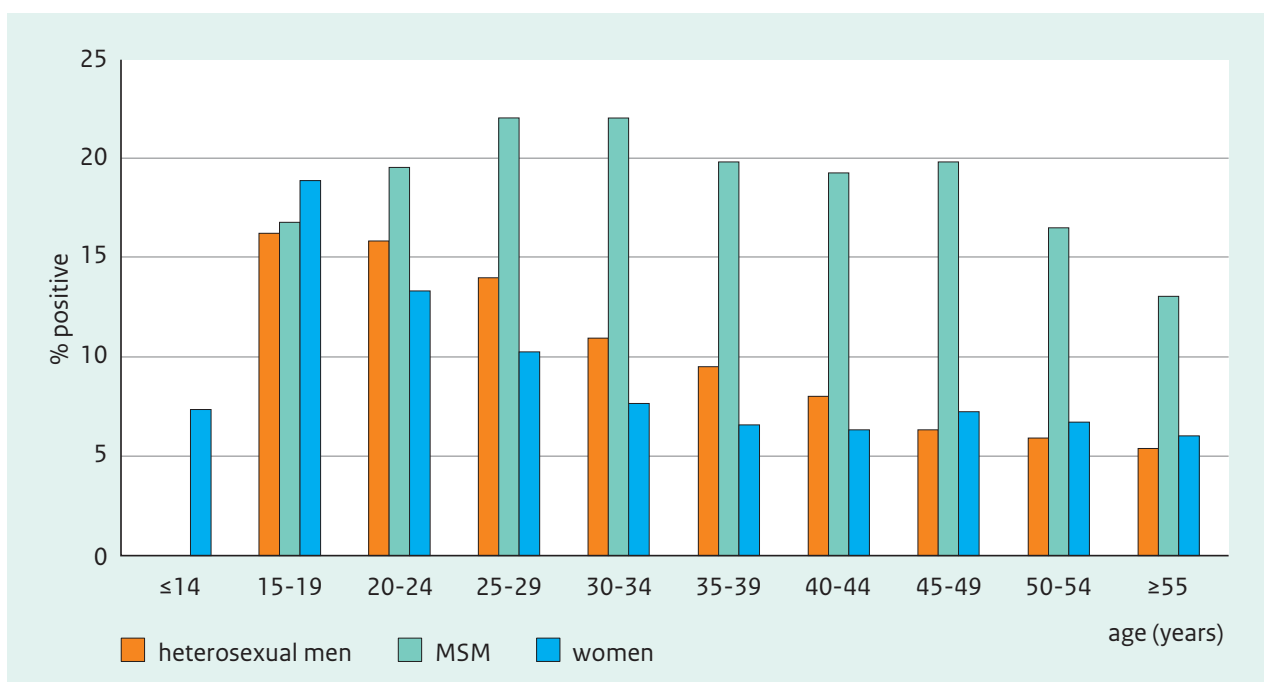


Table 2.3 Number of consultations by ethnicity, gender and sexual preference, 2010.

Ethnicity	Heterosexual men n (%)	MSM n (%)	Women n (%)	Total n (%)
The Netherlands	29,659 (84.5)	16,157 (82.5)	42,720 (85.1)	88,536 (84.4)
Turkey	346 (1.0)	121 (0.6)	121 (0.2)	588 (0.6)
North Africa/Morocco	583 (1.7)	119 (0.6)	220 (0.4)	922 (0.9)
Surinam	1351 (3.8)	289 (1.5)	1288 (2.6)	2928 (2.8)
Netherlands Antilles/Aruba	447 (1.3)	189 (1.0)	400 (0.8)	1036 (1.0)
Sub-Saharan Africa	579 (1.6)	90 (0.5)	487 (1.0)	1156 (1.1)
Eastern Europe	247 (0.7)	345 (1.8)	1542 (3.1)	2134 (2.0)
Latin America	244 (0.7)	430 (2.2)	765 (1.5)	1439 (1.4)
Asia	471 (1.3)	346 (1.8)	604 (1.2)	1421 (1.4)
Europe other	501 (1.4)	390 (2.0)	1373 (2.7)	2264 (2.2)
Else	632 (1.8)	1085 (5.5)	616 (1.2)	2333 (2.2)
Unknown	52 (0.1)	18 (0.1)	41 (0.1)	111 (0.1)
Total	35,112	19,579	50,177	104,868

Figure 2.6 Percentage of positive STI tests in the national STI surveillance in the Netherlands by ethnicity and sexual preference, 2010.

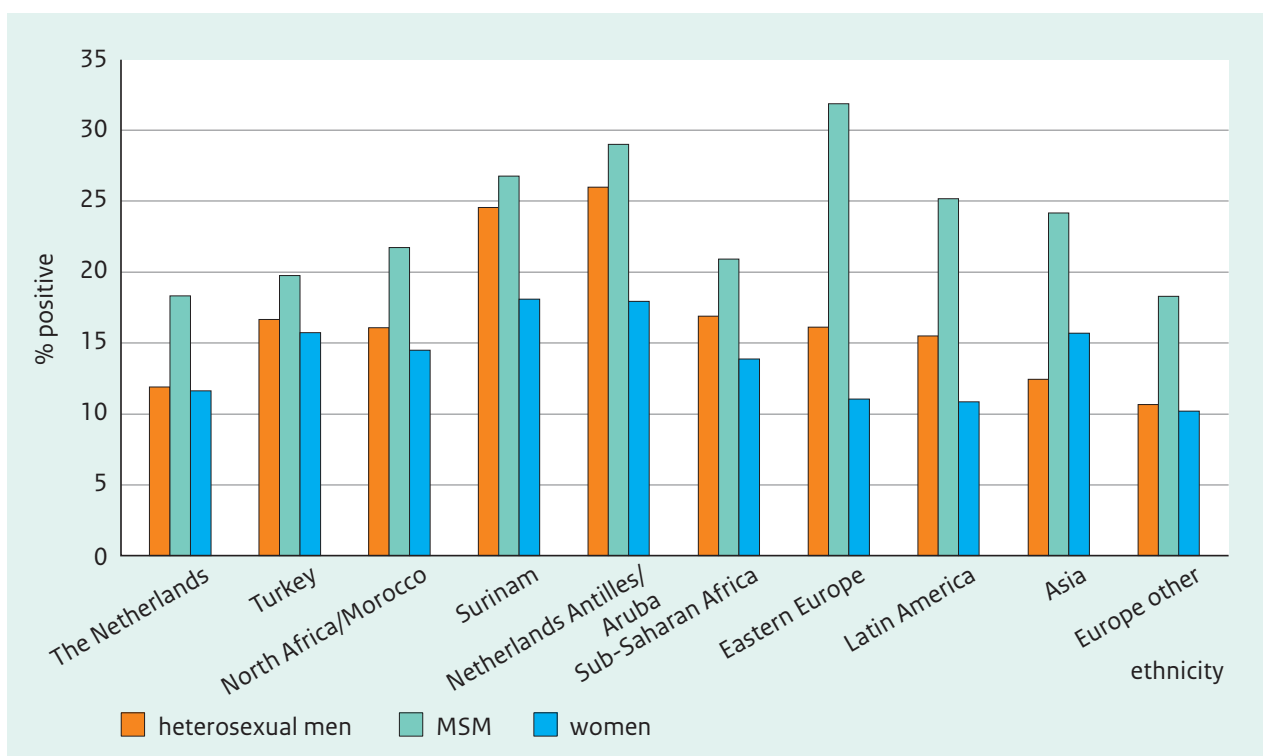


Table 2.4 Number of consultations by (sexual) behavioural characteristics, gender and sexual preference, 2010.

	Heterosexual men n (%)	MSM n (%)	Women n (%)	Total n (%)
Number of partners in past 6 months				
0 partners	530 (1.5)	169 (0.9)	719 (1.4)	1418 (1.4)
1 partner	8777 (25.0)	2337 (11.9)	16,913 (33.7)	28,027 (26.7)
2 partners	8586 (24.5)	2306 (11.8)	13,062 (26.0)	23,954 (22.8)
3 or more partners	16,207 (46.2)	13,519 (69.0)	15,445 (30.8)	45,171 (43.1)
Unknown	1012 (2.9)	1248 (6.4)	4038 (8.0)	6298 (6.0)
Condom use at last sexual contact*				
No	13,989 (67.3)	4196 (50.6)	21,014 (70.0)	39,199 (66.3)
Yes	6532 (31.4)	3498 (42.2)	8512 (28.4)	18,542 (31.4)
Unknown	274 (1.3)	600 (7.2)	482 (1.6)	1356 (2.3)
Previous GO/CT/syphilis in anamnesis				
No	29,590 (84.3)	14,186 (72.5)	41,464 (82.6)	85,240 (81.3)
Yes	2964 (8.4)	4384 (22.4)	5282 (10.5)	12,630 (12.0)
Do not know	1892 (5.4)	341 (1.7)	2510 (5.0)	4743 (4.5)
Unknown	666 (1.9)	668 (3.4)	921 (1.8)	2255 (2.2)
Previous HIV test				
No	17,099 (48.7)	2591 (13.2)	22,047 (43.9)	41,737 (39.8)
Yes, positive	43 (0.1)	3006 (15.4)	25 (0.05)	3074 (2.9)
Yes, negative	17,332 (49.4)	13,450 (68.7)	27,045 (53.9)	57,827 (55.1)
Yes, result unknown	53 (0.2)	55 (0.3)	83 (0.2)	191 (0.2)
Unknown	585 (1.7)	477 (2.4)	977 (1.9)	2039 (1.9)
CSW, women				
No			45,069 (89.8)	45,069 (89.8)
Yes, in past 6 months			4995 (10.0)	4995 (10.0)
Unknown			113 (0.2)	113 (0.2)
Client of CSW, men				
No	31,270 (89.1)	18,821 (96.1)		50,091 (91.6)
Yes, in past 6 months	3753 (10.7)	418 (2.1)		4171 (7.6)
Unknown	89 (0.3)	340 (1.7)		429 (0.8)
Swinger*				
No	19,142 (92.3)	7163 (86.2)	27,726 (91.8)	54,031 (91.2)
Yes	1563 (7.5)	791 (9.5)	2384 (7.9)	4738 (8.0)
Unknown	31 (0.1)	352 (4.2)	85 (0.3)	468 (0.8)
Injecting drug use				
No	34,760 (99.0)	19,040 (97.2)	49,626 (98.9)	103,426 (98.6)
Yes, ever	101 (0.3)	82 (0.4)	111 (0.2)	294 (0.3)
Yes, in past 6 months	36 (0.1)	37 (0.2)	37 (0.1)	110 (0.1)
Unknown	215 (0.6)	420 (2.1)	403 (0.8)	1038 (1.0)

*Voluntary question, answered by 56% (N = 59,097) for condom use and by 56% (N = 59,237) for swinger.

Table 2.5 Reported indication by gender and sexual preference, 2010.

Indication	Heterosexual men n (%)	MSM n (%)	Women n (%)	Total n (%)
STI/HIV endemic area	4268 (12.2)	1929 (9.9)	5427 (10.8)	11,624 (11.1)
Symptoms	11,012 (31.4)	5019 (25.6)	14,014 (27.9)	30,045 (28.7)
Partner in risk group	8896 (25.3)	17,622 (90.0)	13,801 (27.5)	40,319 (38.4)
Notified	4572 (13.0)	2601 (13.3)	4104 (8.2)	11,277 (10.8)
Anonymous test	15,696 (44.7)	6805 (34.8)	23,869 (47.6)	46,370 (44.2)
No indication	534 (1.5)	0 (0.0)	559 (1.1)	1093 (1.0)

*Percentages do not add up to 100% since one client can have more than one indication.

**Other indications not shown in the table are: aged 24 years or younger, 3 or more partners in previous 6 months, MSM, CSW, client of CSW.

Figure 2.7 Percentage of positive STI tests in the national STI surveillance in the Netherlands by risk factor and sexual preference, 2010.

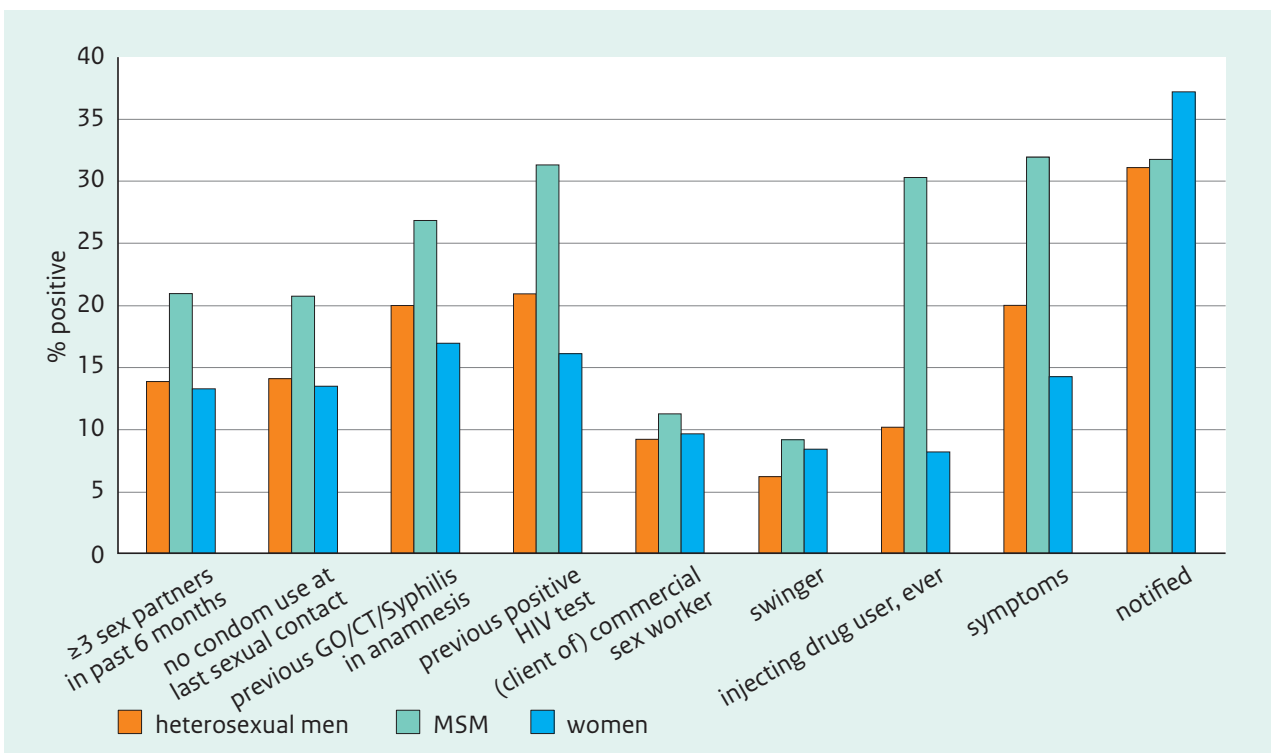


Table 2.6a Number of STI diagnoses and percentage of positive tests by gender and sexual preference, 2010.

Diagnosis	Heterosexual men n (%)	MSM n (%)	Women n (%)	Total n (%)
Chlamydia	3969 (11.3)	2016 (10.3)	5541 (11.1)	11,526 (11.0)
Gonorrhoea	546 (1.6)	1614 (8.3)	655 (1.3)	2815 (2.7)
Syphilis, infectious*	36 (0.1)	446 (2.3)	18 (0.04)	500 (0.5)
HIV	30 (0.1)	317 (2.0)	28 (0.1)	375 (0.4)

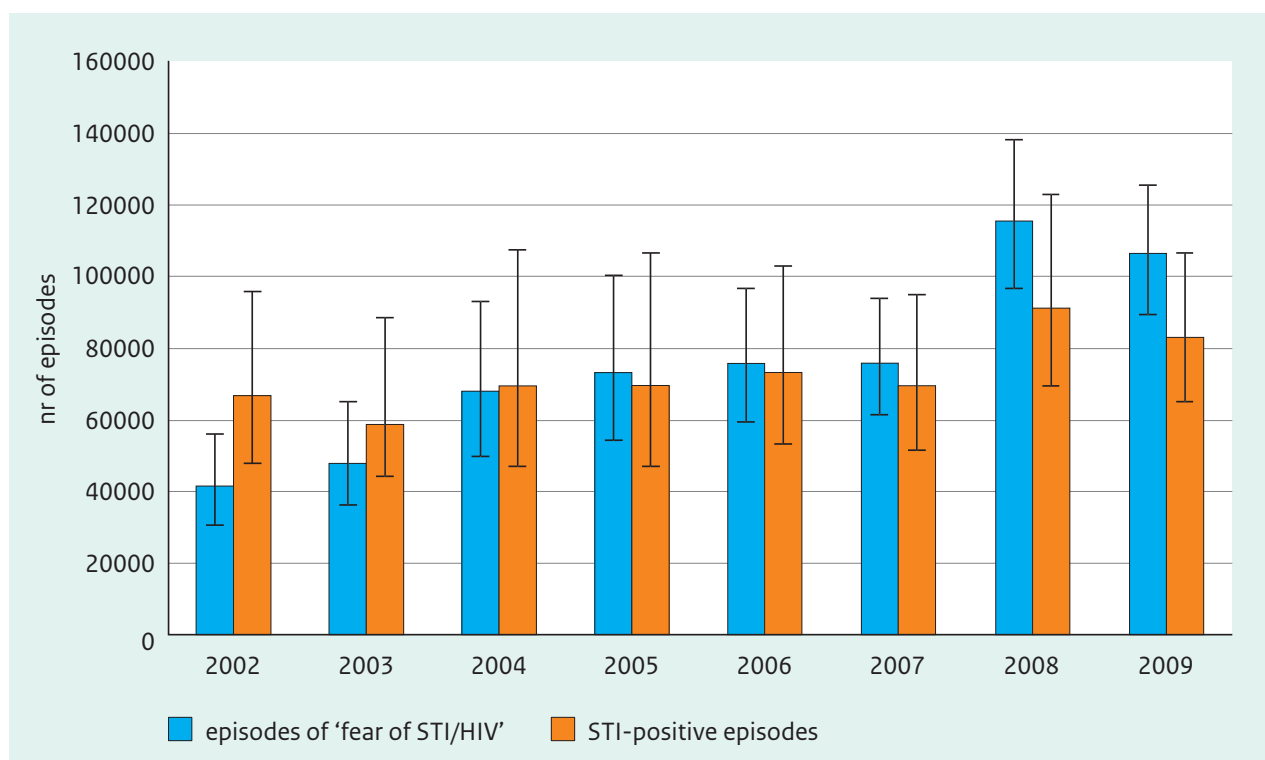
*Infectious syphilis includes primary, secondary infection and latens recens.

Table 2.6b Number of STI diagnoses by gender and sexual preference, 2010.

Diagnosis	Heterosexual men n	MSM n	Women n	Total n
Syphilis				
primary	14	146	9	169
secondary	9	94	4	107
latens recens	13	206	5	224
latens tarda	44	68	34	146
not specified	1	10	4	15
Genital warts	1175	496	1055	2726
Genital herpes				
primary: HSV1	82	48	166	296
primary: HSV2	137	54	141	332
primary: HSV unknown	21	6	26	53
recurrent	10	4	12	26
Hepatitis B				
infectious	96	48	51	195
recovered	539	629	605	1773
Hepatitis C	7	4	5	16
Non specified urethritis	980	646	14	1640
Candidiasis	281	53	1113	1447
Bacterial vaginosis	7	0	1309	1316
Trichomoniasis	13	0	141	154
Scabies	13	19	2	34
Pubic Lice	0	10	1	11
Ulcus e.c.i.	46	53	40	139
Lymphogranuloma venereum	0	66	0	66
Proctitis	2	300	7	309

2.3 General Practitioner

Figure 2.8 Estimated number (and 95% CI) of episodes of fear of STI/HIV and positive diagnoses of STIs at GPs, based on extrapolation from 61-114 practices in the surveillance network of GPs in the Netherlands, 2002–2009.



Footnote: diagnoses included are chlamydia, gonorrhoea, syphilis, hiv, trichomonas, genital herpes, genital warts, non-specific urethritis. (Source: LINH).

Table 2.7 Reporting rate (number of STI related episodes per 100,000 population) of diagnoses and fear of STI/HIV at GPs in the Netherlands by gender, 2002–2009.

	Men		Women		Total	
	n/ 100,000	95% CI	n/ 100,000	95% CI	n/ 100,000	95% CI
2002	609	(443-854)	729	(528-1034)	669	(487-941)
2003	589	(424-836)	738	(566-1070)	663	(496-952)
2004	749	(533-1085)	936	(652-1384)	843	(594-1232)
2005	845	(603-1216)	902	(638-1317)	874	(622-1265)
2006	829	(630-1106)	991	(747-1345)	910	(690-1223)
2007	829	(650-1067)	945	(730-1247)	887	(691-1156)
2008	1219	(995-1506)	1305	(1034-1690)	1262	(1015-1596)
2009	1101	(907-1343)	1194	(976-1476)	1147	(942-1409)

CI = confidence interval.

Footnote: diagnoses included are chlamydia, gonorrhoea, syphilis, hiv, trichomonas, genital herpes, genital warts, non-specific urethritis. (Source: LINH).

2.4 Sense

Table 2.8 Subjects of Sense consultations by gender, 2010.

Subjects	Men n (%)	Women n (%)
STI	1205 (52.3)	2515 (23.2)
Sexuality	569 (24.7)	1156 (10.7)
Birth control	80 (3.5)	3712 (34.3)
Unwanted sexual behaviour/sexual violence	42 (1.8)	284 (2.6)
(Unwanted/ unplanned) pregnancy	13 (0.6)	1477 (13.6)
Fertility	3 (0.1)	50 (0.5)
Else	247 (10.7)	694 (6.4)
Unknown	144 (6.3)	935 (8.6)
Total	2303	10,823

Table 2.9 Number of Sense consultations by age and gender, 2010.

Age (years)	Men n (%)	Women n (%)	Total n (%)
≤ 14	71 (3.1)	263 (2.4)	334 (2.5)
15–19	558 (24.2)	4084 (37.7)	4642 (35.4)
20–24	1353 (58.7)	5724 (52.9)	7077 (53.9)
≥ 25	321 (13.9)	752 (6.9)	1073 (8.2)
Total	2303	10,823	13,126

Table 2.10 Number of Sense consultations by country of birth and gender, 2010.

Country of birth	Men n (%)	Women n (%)	Total n (%)
The Netherlands	2033 (88.3)	9113 (84.2)	11,146 (84.9)
Netherlands Antilles	36 (1.6)	159 (1.5)	195 (1.5)
Surinam	13 (0.6)	155 (1.4)	168 (1.3)
Morocco	6 (0.3)	61 (0.6)	67 (0.5)
Turkey	9 (0.4)	43 (0.4)	52 (0.4)
Else	206 (8.9)	1292 (11.9)	1498 (11.4)
Total	2303	10,823	13,126

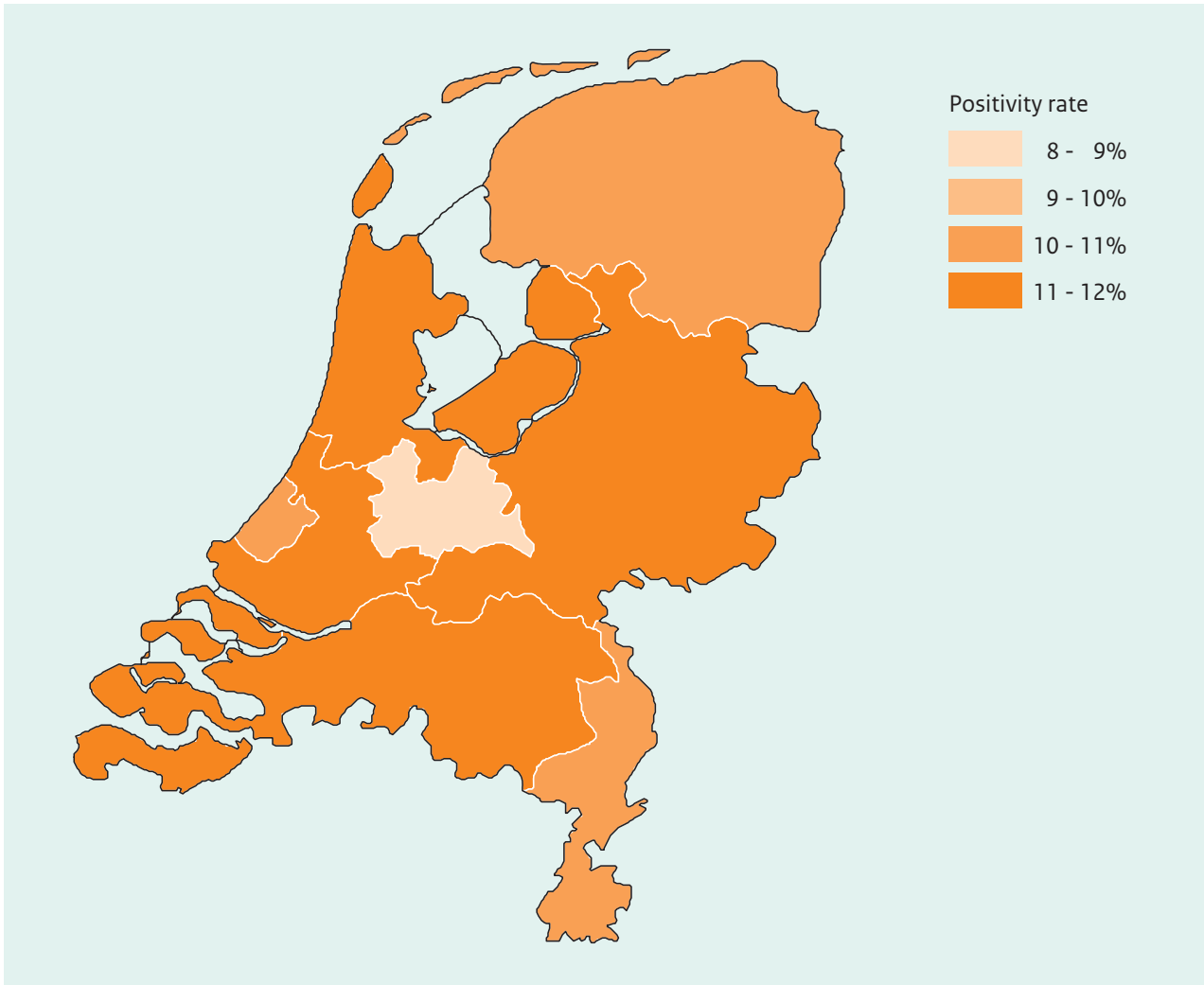
BACTERIAL STI

3 Chlamydia, including lymphogranuloma venereum

3.1 Key points

- Chlamydia remained the most commonly diagnosed bacterial STI: 11,526 cases were diagnosed in the STI centres in 2010, with an overall positivity of 11.2%.
- The case-load and the positivity rate both increased in comparison to 2009, by 18% and 7%, respectively.
- Chlamydia is specifically diagnosed among the young heterosexual population in contrast with other STIs which are more commonly diagnosed among MSM. Of all chlamydia positive cases in 2010, 48% were women, 34% heterosexual men and 55% were under 25 years old. Highest positivity rates were observed in women of 15–19 years (18.1%) and men of 15–24 years (14.8%). A rising trend since 2004 is most visible in this group.
- Other high-risk groups were persons from Surinam or the Netherlands Antilles (18.2% positive), persons notified by their partner or medical services (28.3%), persons who reported a previous STI (gonorrhoea, chlamydia, syphilis; 5.2%) as well as HIV-positive MSM (18.3%).
- Condom use (at last sexual contact) was related to lower chlamydia positivity. Among people who were involved in ‘swinging’ or in paid sex also less chlamydia was reported, probably related to condom use and/or frequent testing.
- At GPs, reporting rates for chlamydia were 191 and 201 per 100,000 population for men and women, respectively, in 2009, similar to previous years.
- 23% of the MSM with chlamydia had a co-infection with gonorrhoea or syphilis; in heterosexuals this was 4%.
- The chlamydia screening in Amsterdam, Rotterdam and South Limburg tested another 34,600 people for chlamydia and detected 1415 cases among 16–29 year olds. This did not influence numbers tested and treated in this age-group at the regional STI-centres.
- 66 new LGV cases were diagnosed in the STI centres, showing a decreasing trend. All were MSM and 74% was known to be HIV-positive.

Figure 3.1 Positivity rates of chlamydia by STI centre, the Netherlands, 2010.



3.2 STI centres: characteristics, risk groups and trends

Figure 3.2 Total number of tests and positivity rate of chlamydia by gender and sexual preference, 2004–2010.

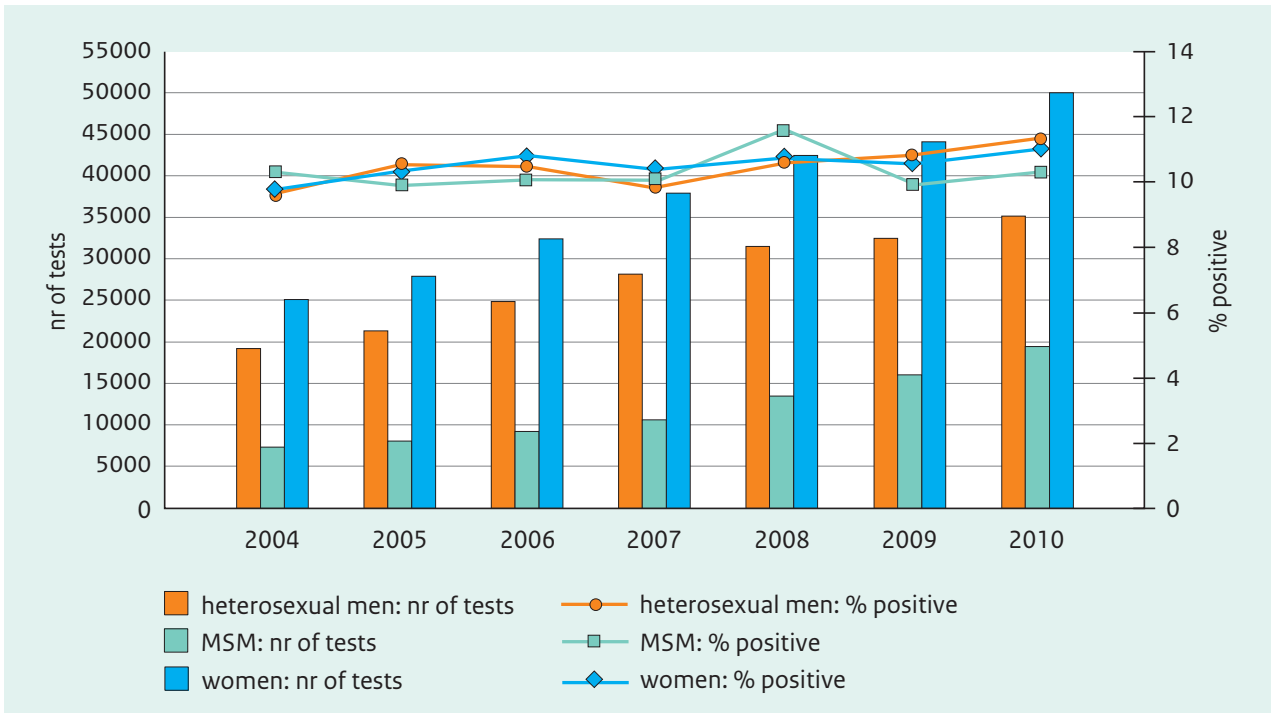


Figure 3.3 Trends in positivity rate of chlamydia in heterosexuals by age-group, 2004–2010.

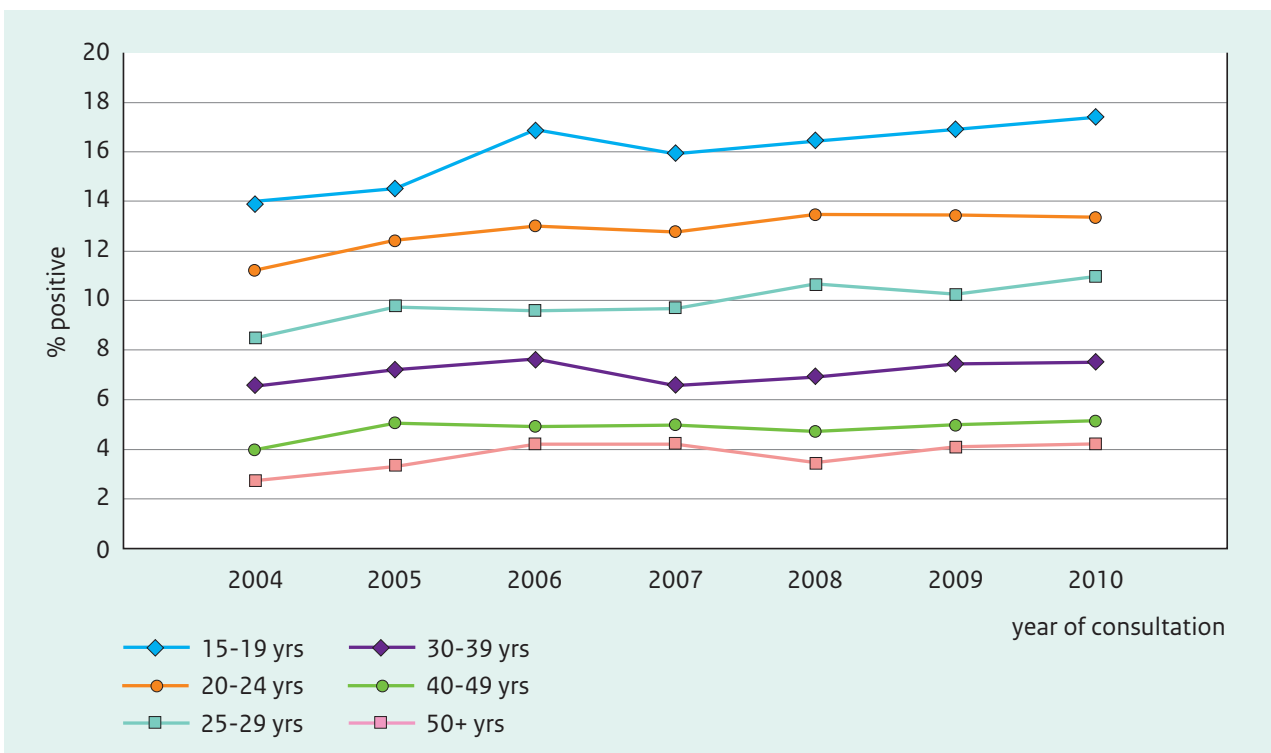


Table 3.1 Number of positive tests and persons tested for chlamydia by age, gender and sexual preference, 2010.

	Heterosexual men		MSM		Women	
	n positive	N tested	n positive	N tested	n positive	N tested
≤ 14	0	7	0	1	7	94
15–19	258	1739	50	501	1189	6580
20–24	1744	11,770	267	2505	2810	22,318
25–29	1062	8353	295	2542	890	9583
30–34	384	4090	318	2735	255	3969
35–39	209	2798	270	2622	130	2520
40–44	145	2335	285	2840	92	2040
45–49	78	1771	250	2468	92	1563
50–54	41	998	134	1469	49	867
≥ 55	46	1122	146	1830	25	492
Unknown	2	13	1	6	2	18
Total	3969	34,996	2016	19,519	5541	50,044

Figure 3.4 Percentage of positive tests for chlamydia by age, gender and sexual preference, 2010.

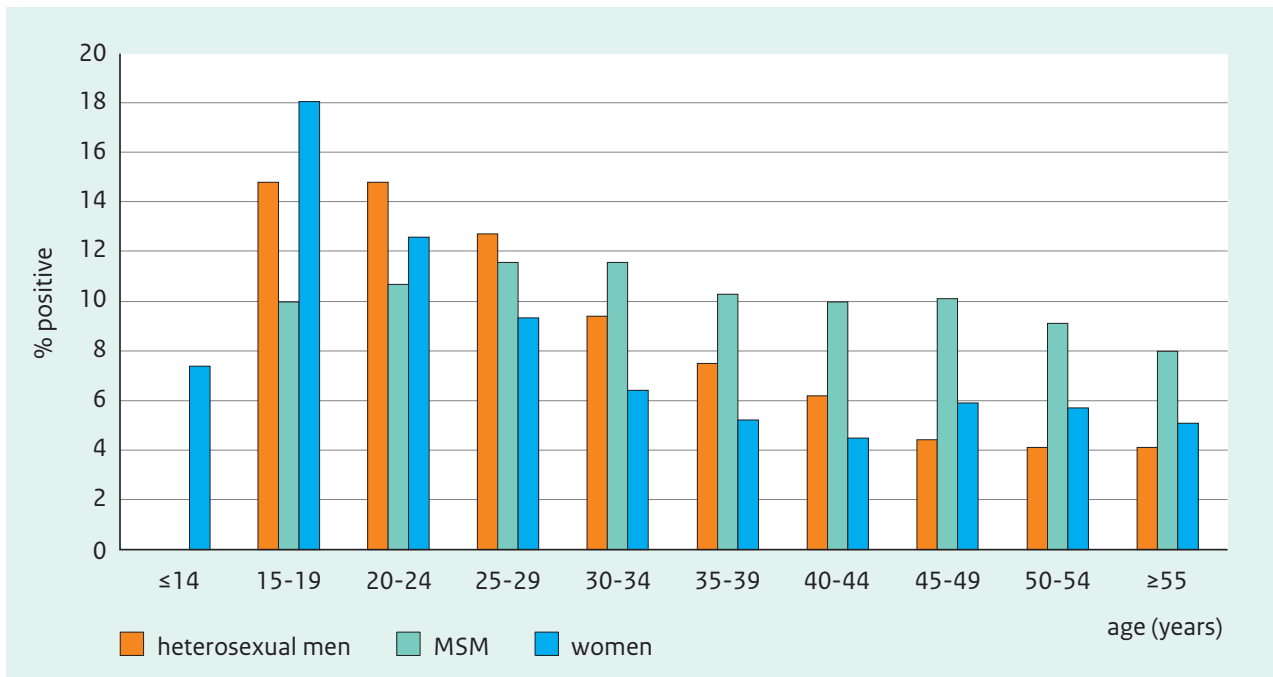


Table 3.2 Number of positive tests and persons tested for chlamydia by ethnicity, gender and sexual preference, 2010.

Ethnicity	Heterosexual men		MSM		Women	
	n positive	N tested	n positive	N tested	n positive	N tested
The Netherlands	3205	29,548	1619	16,102	4725	42,601
Turkey	40	345	18	120	18	121
North Africa/Morocco	70	582	12	119	30	219
Surinam	274	1351	38	289	209	1286
Netherlands Antilles/Aruba	103	447	30	189	66	400
Sub-Saharan Africa	65	578	7	90	48	486
Eastern Europe	28	247	51	345	134	1538
Latin America	32	244	50	430	63	765
Asia	45	469	49	344	75	604
Europe other	46	501	45	388	109	1367
Else	51	632	95	1085	56	616
Unknown	10	52	2	18	8	41
Total	3969	34,996	2016	19,519	5541	50,044

Figure 3.5 Percentage of positive tests for chlamydia by ethnicity, gender and sexual preference, 2010.

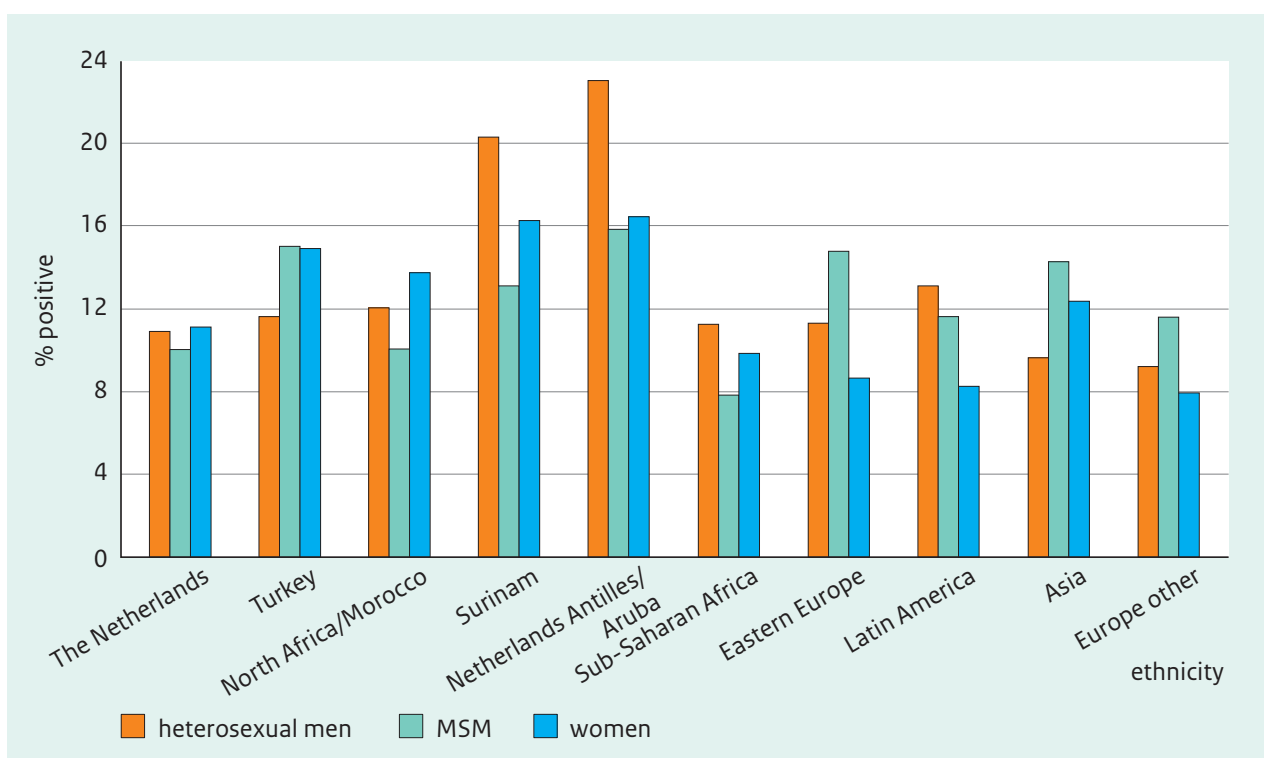


Table 3.3 Number and percentage of positive tests and total persons tested for chlamydia by sexual behavioural characteristics, gender and sexual preference, 2010.

	Heterosexual men		MSM		Women	
	n positive/N	%	n positive/N	%	n positive/N	%
Number of partners in past 6 months						
0 partners	21/523	4.0	5/164	3.0	36/713	5.0
1 partner	917/8742	10.5	184/2324	7.9	1808/16,853	10.7
2 partners	940/8558	11.0	194/2300	8.4	1582/13,037	12.1
3 or more partners	1998/16,173	12.4	1503/13,499	11.1	1830/15,432	11.9
Unknown	93/1000	9.3	130/1232	10.6	285/4009	7.1
Condom use at last sexual contact*						
No	1782/13,923	12.8	492/4169	11.8	2650/20,944	12.7
Yes	520/6501	8.0	359/3486	10.3	732/8488	8.6
Unknown	19/270	7.0	38/595	6.4	40/478	8.4
Previous GO/CT/syphilis in anamnesis						
No	3161/29,490	10.7	1352/14,137	9.6	4336/41,361	10.5
Yes	507/2957	17.1	607/4379	13.9	800/5271	15.2
Do not know	222/1888	11.8	27/340	7.9	300/2502	12.0
Unknown	79/661	12.0	30/663	4.5	105/910	11.5
Previous HIV test						
No	2143/17,047	12.6	245/2577	9.5	2773/21,986	12.6
Yes, positive	4/43	9.3	509/3004	16.9	2/25	8.0
Yes, negative	1742/17,271	10.1	1227/13,413	9.1	2654/26,985	9.8
Yes, result unknown	7/53	13.2	2/55	3.6	7/81	8.6
Unknown	73/582	12.5	33/470	7.0	105/967	10.9
CSW, women						
No					5175/44,956	11.5
Yes, in past 6 months					356/4978	7.2
Unknown					10/110	9.1
Client of CSW, men						
No	3691/31,172	11.8	1971/18,764	10.5		
Yes, in past 6 months	266/3736	7.1	25/416	6.0		
Unknown	12/88	13.6	20/339	5.9		
Swinger*						
No	2154/19,045	11.3	814/7117	11.4	3196/27,614	11.6
Yes	62/1553	4.0	42/787	5.3	148/2382	6.2
Unknown	4/29	13.8	15/352	4.3	11/82	13.4

* Voluntary question, condom use answered by 50% (n = 52,222) and swinger by 50% (n = 52,515) of persons tested for chlamydia.

Table 3.4 Concurrent STI by gender and sexual preference among persons diagnosed with chlamydia, 2010.

Concurrent infection	Heterosexual men	MSM	Women
	(N = 3969) n (%)	(N = 2016) n (%)	(N = 5541) n (%)
Gonorrhoea	164 (4.1)	383 (19.0)	237 (4.3)
Infectious syphilis	1 (0.03)	71 (3.5)	0 (0.0)
HIV newly diagnosed	5 (0.1)	82 (4.1)	4 (0.1)
Genital herpes	21 (0.5)	15 (0.7)	24 (0.4)
Genital warts	109 (2.7)	53 (2.6)	129 (2.3)
Hepatitis B, infectious	14 (0.4)	12 (0.6)	9 (0.2)

Table 3.5 Location of chlamydia infection by gender and sexual preference, 2010.

Location	Heterosexual men (N = 3969) n (%)	MSM (N = 2016) n (%)	Women (N = 5541) n (%)
Urogenital only	3914 (98.6)	572 (28.4)	4938 (89.1)
Anorectal only	10 (0.3)	1129 (56.0)	107 (1.9)
Oral only	2 (0.1)	53 (2.6)	97 (1.8)
Urogenital and anorectal	1 (0.03)	184 (9.1)	307 (5.5)
Urogenital and oral	6 (0.2)	13 (0.6)	117 (2.1)
Anorectal and oral	1 (0.03)	47 (2.3)	1 (0.02)
Urogenital and anorectal and oral	1 (0.03)	21 (1.0)	24 (0.4)
Pooled samples*	1 (0.03)	24 (1.2)	103 (1.9)

*Pooled samples are samples from more than one anatomical site tested in one molecular test, so that location of the infection is unknown.

Table 3.6 Number and percentage of positive tests for chlamydia by location, gender and sexual preference, 2007–2010.

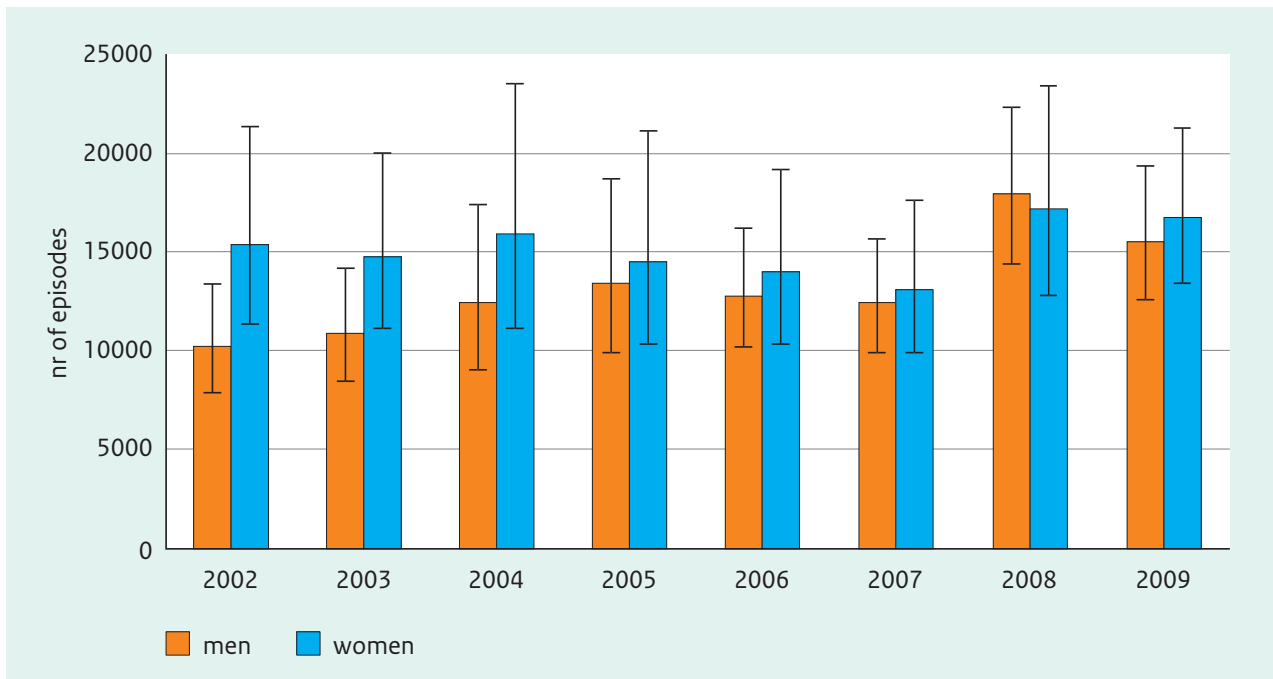
	2007		2008		2009		2010	
	n positive	%	n positive	%	n positive	%	n positive	%
Heterosexual men								
Urogenital	2807	9.9	3343	10.6	3480	10.8	3922	11.3
Anorectal	0	0.0	2	0.8	7	1.6	13	2.8
Oral	10	1.3	6	1.1	4	0.5	10	1.0
MSM								
Urogenital	454	4.2	651	4.8	661	4.1	790	4.1
Anorectal	710	10.4	1046	11.7	1081	9.5	1381	9.5
Oral	35	1.5	72	2.1	81	1.5	134	1.8
Women								
Urogenital	3757	9.9	4385	10.3	4521	10.3	5386	10.7
Anorectal	306	9.4	328	9.4	380	9.2	439	9.2
Oral	139	2.9	134	2.3	214	2.9	239	2.6

*Numbers do not add up to 100% since one client can have a positive test result at more than one location.

Footnote: Heterosexual men and women are not often tested anorectal or oral, therefore the fluctuation of positivity rates through the years has to be interpreted with caution.

3.3 General practitioner

Figure 3.6 Estimated number (and 95% CI) of episodes of chlamydia at GPs by gender, based on extrapolation from 61–114 practices in the surveillance network of GPs in the Netherlands, 2002–2009.



Footnote: The rates reported here for women from 2002–2008 are different from those reported in 2009 because of a correction in the calculated rates of the episodes of code X84 vaginitis. (Source: LINH).

Table 3.7 Reporting rate (number of episodes per 100,000 population) of chlamydia at GPs in the Netherlands by gender, 2002–2009.

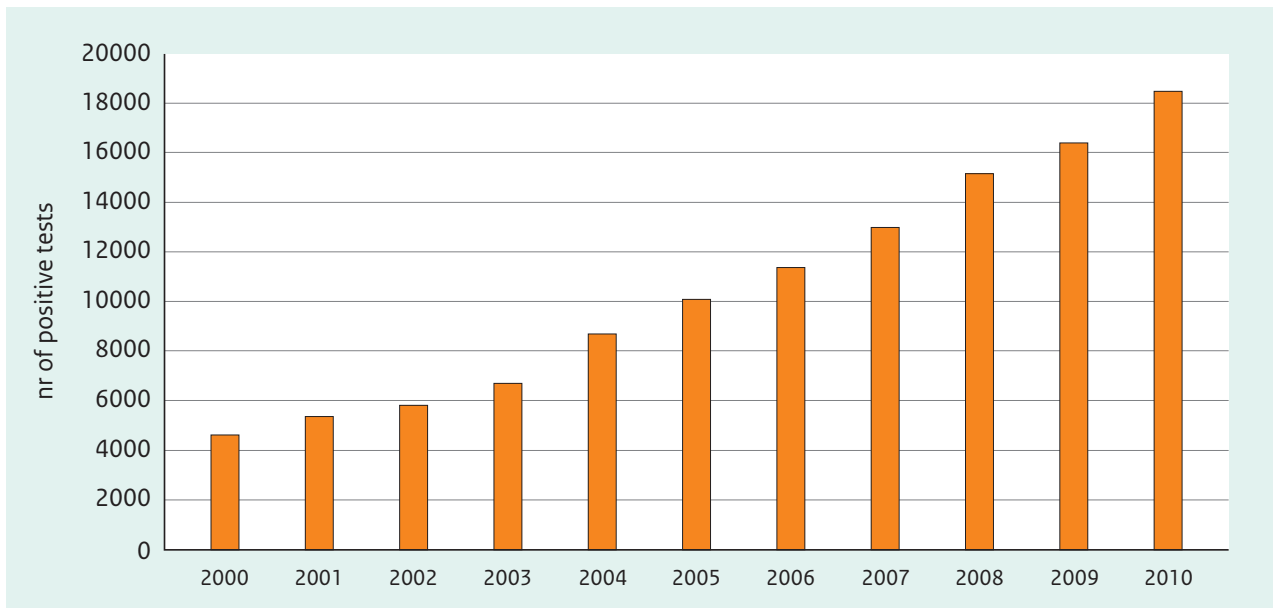
Year	Men		Women		Total	
	n/ 100,000	95% CI	n/ 100,000	95% CI	n/ 100,000	95% CI
2002	128.5	(99.5–168.2)	190.1	(139.7–262.5)	159.3	(119.6–215.3)
2003	135.8	(105.2–177.8)	180.3	(135.5–244.9)	158.1	(120.3–211.4)
2004	154.6	(112.8–215.9)	193.9	(135.9–286.7)	174.2	(124.4–251.3)
2005	166.8	(122.3–232.4)	176.9	(125.7–256.0)	171.8	(124.0–244.2)
2006	158.4	(126.5–200.4)	169.0	(125.6–232.6)	163.7	(126.1–216.5)
2007	153.7	(122.7–193.5)	158.0	(119.3–212.5)	155.8	(121.0–203.0)
2008	220.9	(178.5–275.4)	207.0	(154.0–283.3)	214.0	(166.3–279.4)
2009	190.9	(154.5–237.1)	200.9	(160.9–254.9)	195.9	(157.7–246.0)

CI = confidence interval.

Footnote: The rates reported here for women from 2002–2008 are different from those reported in 2009 because of a correction in the calculated rates of the episodes of code X84 vaginitis. (Source: LINH).

3.4 Laboratory surveillance

Figure 3.7 Number of positive test results for *Chlamydia trachomatis* from 17 hospital and regional laboratories, 2000–2010.



(Source: weekly virological reports).

3.5 Chlamydia Screening Implementation

Table 3.8 Number of persons (16–29 years old) invited for the Chlamydia Screening Implementation during the first screening round 2009/2010 and numbers participating and testing positive, per region, compared to persons tested and found positive in this age group in the regional STI centres.

	Chlamydia Screening 2 nd round, 2009/2010			STI centres age group 16-29 years, 2010		
	Men	Women	Total	Men	Women	Total
South Limburg						
Invited	13,013	12,073	25,086			
Participated/tested	826	1,553	2,379	1,529	2,103	3,632
Positive (%)	29 (3.5)	83 (5.3)	112 (4.7)	199 (13.0)	261 (12.4)	460 (12.7)
Amsterdam						
Invited	72,938	82,377	155,315			
Participated/tested	5,408	13,819	19,227	7,688	9,619	17,312
Positive (%)	179 (3.3)	482 (3.5)	661 (3.4)	1,080 (14.0)	1,218 (12.7)	2,298 (13.2)
Rotterdam						
Invited	59,894	61,331	121,225			
Participated/tested	4,301	8,700	13,001	2,603	3,048	5,652
Positive (%)	193 (4.5)	449 (5.2)	642 (4.9)	350 (13.4)	422 (13.8)	772 (13.7)

(Source: CSI group including Public Health Services Amsterdam, Rotterdam, South Limburg and the RIVM).

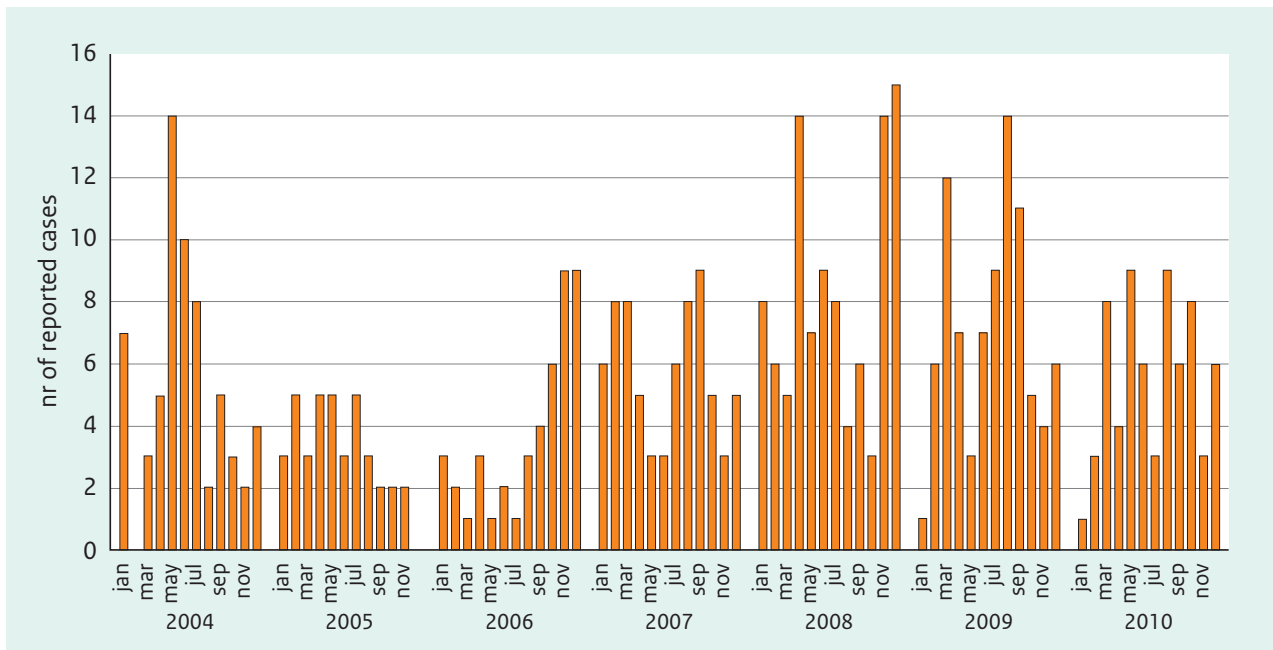
3.6 Lymphogranuloma venereum

Table 3.9 Characteristics of MSM diagnosed with LGV, 2008–2010.

	2008 (N = 100) n (%)	2009 (N = 84*) n (%)	2010 (N = 66) n (%)
Median age (range)	41 (26–63)	41 (20–61)	41 (21–65)
Dutch ethnicity	74 (74.0)	64 (76.2)	56 (84.8)
Known HIV-positive	71 (71.0)	59 (70.2)	49 (74.2)
LGV with anorectal chlamydia infection only	96 (96.0)	75 (89.3)	58 (87.9)
LGV with urethral chlamydia infection only	3 (3.0)	–	0 (0.0)
LGV with anorectal and urethral chlamydia	1 (1.0)	9 (10.7)	8 (12.1)
Concurrent gonorrhoea	26 (26.0)	24 (28.6)	14 (21.2)
Concurrent syphilis	11 (11.0)	3 (3.6)	5 (7.6)
Concurrent new HIV diagnosis	2 (2.0)	2 (2.4)	1 (1.5)

*In addition one case was reported in a man with unknown sexual preference.

Figure 3.8 Number of cases of LGV diagnosed per month in the STI centres, the Netherlands, 2004–2010.

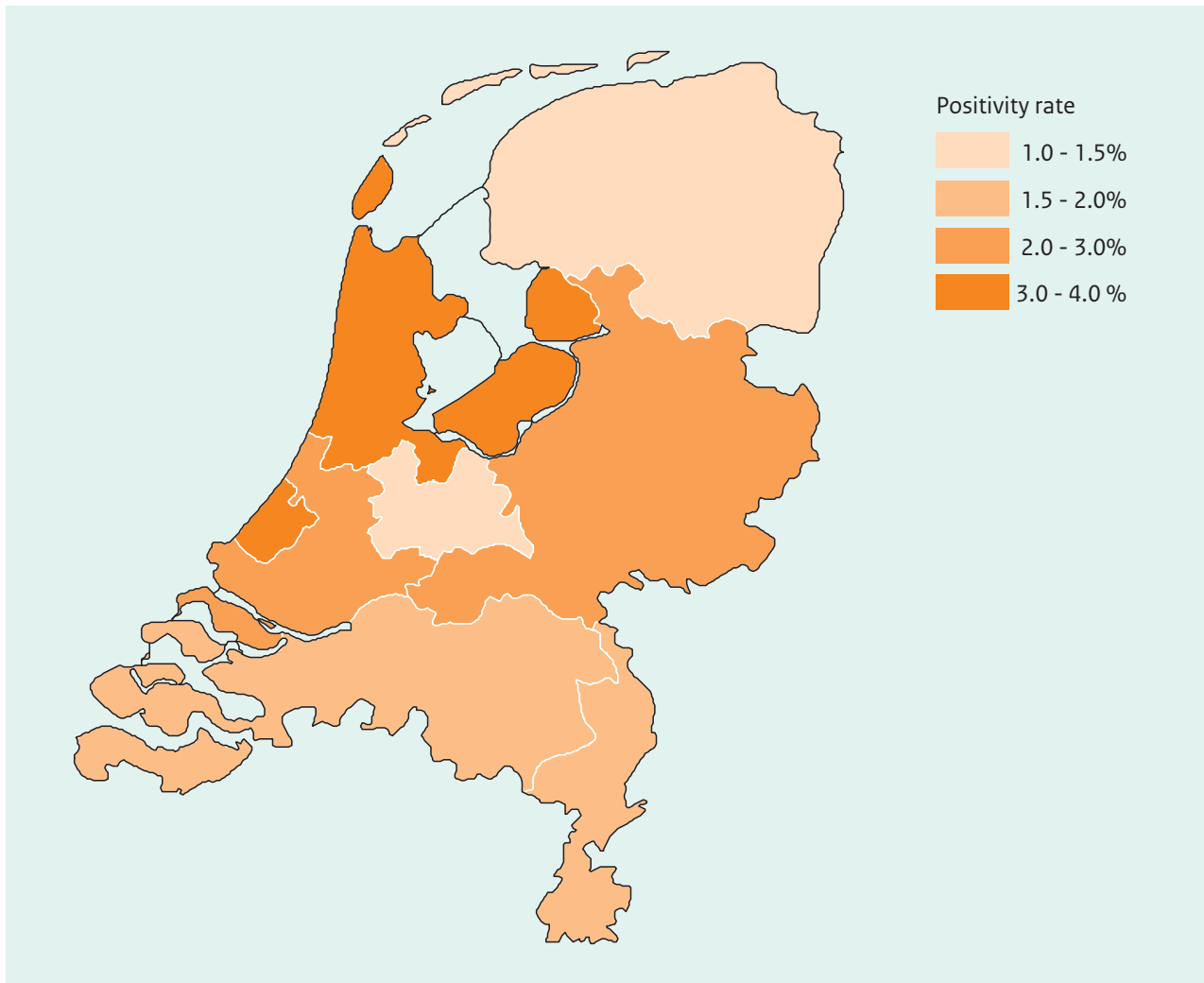


4 Gonorrhoea

4.1 Key points

- In 2010, 2815 patients were diagnosed with gonorrhoea in the STI centres in the Netherlands (19% in heterosexual men, 57% in MSM, 23% in women), an increase of 16% compared with 2009.
- Overall, the positivity rate was 2.7% in 2010 (MSM: 8.3%, heterosexual men: 1.6%, women: 1.3%) compared with 2.6% in 2009.
- In heterosexual men and women, the positivity rate was highest in those aged 15–19 years (2.8% and 2.1% respectively).
- Positivity rates were highest in particular risk groups: MSM aware of their HIV-positive status (15%), MSM and women with a previous STI (13%) and in specific ethnic groups.
- 28% of the gonorrhoea cases had a chlamydia co-infection, 2% had a new HIV infection.
- At GPs, the number of reported gonorrhoea infections was estimated at 3340 (95% CI 2411–4631) in 2009 (71% men and 30% women), a decrease of 20% compared with 2008.
- Ciprofloxacin resistance remained very high in 2010 with 47% and was highest in MSM (55%).
- Resistance to third generation cephalosporin was not found, although there was an increase in the proportion of isolates less susceptible (MIC > 0.12 mg/L) for third generation cephalosporins; from 1% in 2006 up to 9% in 2010. Clinical failure has not been reported in the Netherlands yet.

Figure 4.1 Positivity rates of gonorrhoea by STI centre, the Netherlands, 2010.



4.2 STI centres: characteristics, risk groups and trends

Table 4.1 Number of positive tests and persons tested for gonorrhoea by age, gender and sexual preference, 2010.

Age (years)	Heterosexual men		MSM		Women	
	n positive	N tested	n positive	N tested	n positive	N tested
≤ 14	0	7	0	1	1	93
15–19	48	1728	32	500	141	6560
20–24	170	11,764	236	2505	261	22,299
25–29	122	8351	269	2542	106	9589
30–34	58	4091	275	2735	41	3969
35–39	52	2799	222	2621	28	2520
40–44	28	2336	236	2840	38	2042
45–49	36	1771	195	2468	23	1564
50–54	20	999	84	1469	11	866
≥ 55	12	1124	65	1828	5	492
Unknown	0	13	0	6	0	18
Total	546	34,983	1614	19,515	655	50,012

Figure 4.2 Percentage of positive tests for gonorrhoea by age, gender and sexual preference, 2010.

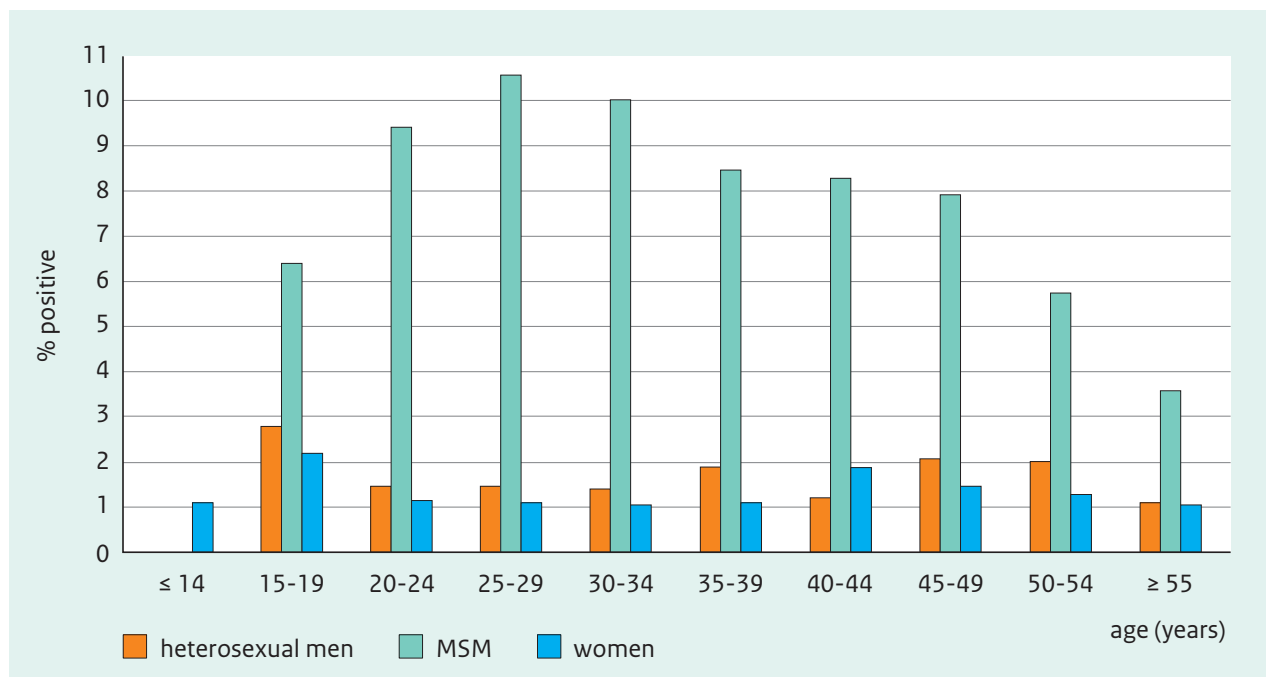


Table 4.2 Number of positive tests and persons tested for gonorrhoea by ethnicity, gender and sexual preference, 2010.

Ethnicity	Heterosexual men		MSM		Women	
	n positive	N tested	n positive	N tested	n positive	N tested
The Netherlands	358	29,538	1253	16,098	462	42,581
Turkey	14	346	7	120	1	121
North Africa/Morocco	24	582	17	119	5	219
Surinam	87	1351	31	289	55	1286
Netherlands Antilles/Aruba	18	446	19	189	13	400
Sub-Saharan Africa	9	576	11	90	9	483
Eastern Europe	8	246	51	345	37	1536
Latin America	5	244	54	430	18	765
Asia	9	469	29	344	12	602
Europe other	5	501	31	388	37	1362
Unknown	2	52	1	18	0	41
Else	7	632	110	1085	6	616
Total	546	34,983	1614	19,515	655	50,012

Figure 4.3 Percentage of positive tests for gonorrhoea by ethnicity, gender and sexual preference, 2010.

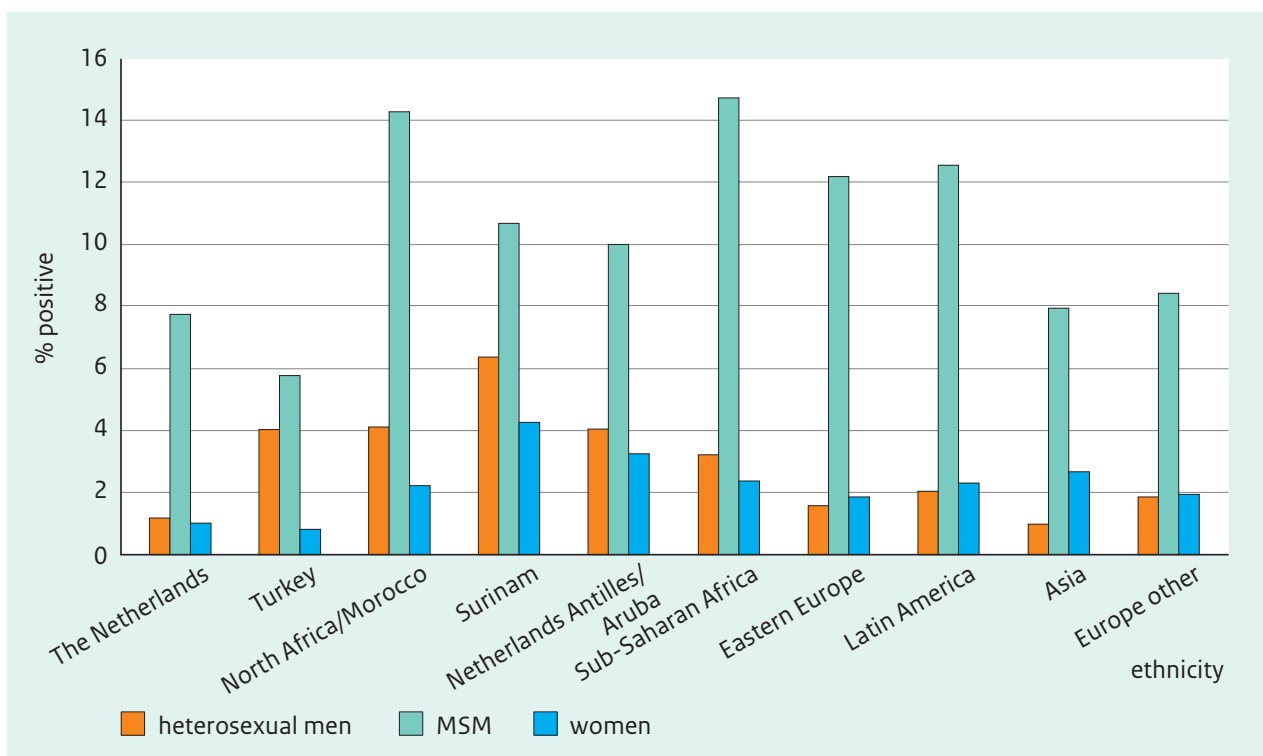


Table 4.3 Number and percentage of positive tests and total persons tested for gonorrhoea by sexual behavioural characteristics, gender and sexual preference, 2010.

	Heterosexual men		MSM		Women	
	n positive/N	%	n positive/N	%	n positive/N	%
Number of partners in past 6 months						
0 partners	2/522	0.4	2/164	1.2	1/713	0.1
1 partner	107/8732	1.2	122/2323	5.3	195/16,839	1.2
2 partners	121/8559	1.4	160/2300	7.0	146/13,025	1.1
3 or more partners	298/16,176	1.8	1243/13,497	9.2	254/15,431	1.6
Unknown	18/994	1.8	87/1231	7.1	59/4004	1.5
Condom use at last sexual contact*						
No	204/13,929	1.5	348/4168	8.3	253/20,942	1.2
Yes	62/6501	1.0	244/3487	7.0	120/8487	1.4
Unknown	1/262	0.4	27/595	4.5	7/479	1.5
Previous GO/CT/syphilis in anamnesis						
No	421/29,479	1.4	1025/14,136	7.3	1025/41,344	2.5
Yes	103/2959	3.5	550/4376	12.6	550/5273	10.4
Do not know	12/1883	0.6	19/340	5.6	19/2486	0.8
Unknown	10/662	1.5	20/663	3.0	20/909	2.2
Previous HIV test						
No	224/17,031	1.3	161/2577	6.2	240/21,952	1.1
Yes, positive	2/43	4.7	450/3003	15.0	2/25	8.0
Yes, negative	311/17,275	1.8	981/13,410	7.3	391/26,990	1.4
Yes, result unknown	2/52	3.8	4/55	7.3	0/81	0.0
Unknown	7/582	1.2	18/470	3.8	22/964	2.3
CSW, women						
No					529/44,926	1.2
Yes, in past 6 months					123/4976	2.5
Unknown					3/110	2.7
Client of CSW, men						
No	464/31,171	1.5	1590/18,761	8.5		
Yes, in past 6 months	77/3736	2.1	16/416	3.8		
Unknown	5/76	6.6	8/338	2.4		
Swinger*						
No	231/19,046	1.2	538/7117	7.6	325/27,604	1.2
Yes	33/1557	2.1	31/788	3.9	55/2384	2.3
Unknown	1/29	3.4	8/351	2.3	9/82	11.0

* Voluntary question, condom use answered by 56% (n = 58,850) and swinger by 56% (n = 58,958) of persons tested for gonorrhoea.

Table 4.4 Concurrent STI by gender and sexual preference among persons diagnosed with gonorrhoea, 2010.

Concurrent infection	Heterosexual men		MSM		Women	
	(N = 546)	n (%)	(N = 1614)	n (%)	(N = 655)	n (%)
Chlamydia	164	(30.0)	383	(23.7)	237	(36.2)
Infectious syphilis	2	(0.4)	54	(3.3)	0	(0.0)
HIV newly diagnosed	2	(0.4)	65	(4.0)	1	(0.2)
Genital herpes	4	(0.7)	6	(0.4)	7	(1.1)
Genital warts	10	(1.8)	53	(3.3)	10	(1.5)
Hepatitis B, infectious	3	(0.5)	8	(0.5)	3	(0.5)

Table 4.5 Location of gonorrhoea infection by gender and sexual preference, 2010.

Location	Heterosexual men (N = 546) n (%)	MSM (N = 1614) n (%)	Women (N = 655) n (%)
Urogenital only	512 (93.8)	282 (17.5)	393 (60.0)
Anorectal only	7 (1.3)	419 (26.0)	18 (2.7)
Oral only	21 (3.8)	457 (28.3)	83 (12.7)
Urogenital and anorectal	1 (0.2)	84 (5.2)	49 (7.5)
Urogenital and oral	3 (0.5)	91 (5.6)	61 (9.3)
Anorectal and oral	0 (0.0)	209 (12.9)	8 (1.2)
Urogenital and anorectal and oral	2 (0.4)	59 (3.7)	27 (4.1)
Pooled samples*	0 (0.0)	13 (0.8)	16 (2.4)

*Pooled samples are samples from more than one anatomical site tested in one molecular test, so that location of the infection is unknown.

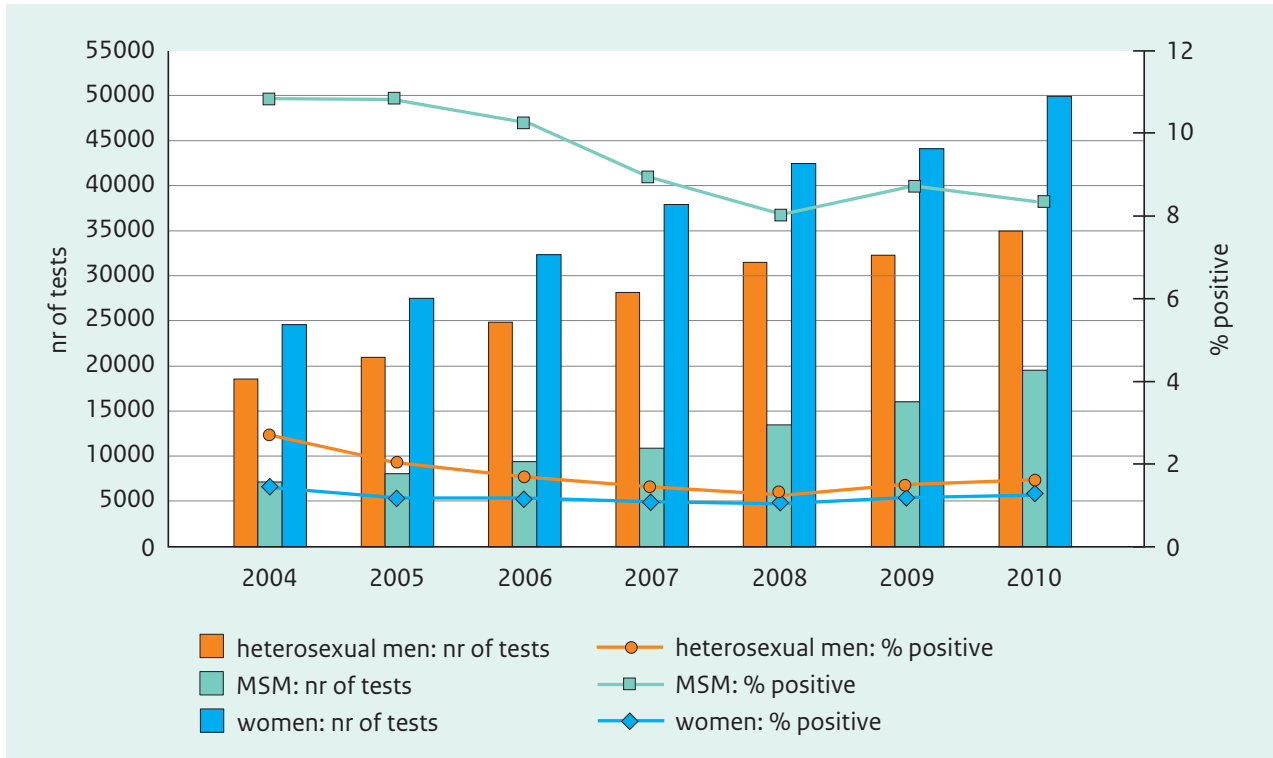
Table 4.6 Number and percentage of positive tests for gonorrhoea by location, gender and sexual preference, 2007–2010.

	2007		2008		2009		2010	
	n positive*	%	n positive*	%	n positive*	%	n positive*	%
Heterosexual men								
Urogenital	429	1.5	401	1.3	471	1.5	518	1.5
Anorectal	0	0.0	0	0.0	2	0.5	10	2.1
Oral	7	0.8	17	2.7	11	1.2	26	2.2
MSM								
Urogenital	430	4.0	453	3.4	475	3.0	521	2.7
Anorectal	554	6.7	573	5.4	698	5.3	779	4.7
Oral	209	2.6	353	3.3	651	4.8	820	4.7
Women								
Urogenital	358	1.0	362	0.9	426	1.0	546	1.1
Anorectal	88	1.2	81	1.1	106	1.4	105	1.2
Oral	89	0.9	121	1.2	154	1.3	185	1.4

*Numbers do not add up to 100% since one client can have a positive test result at more than one location.

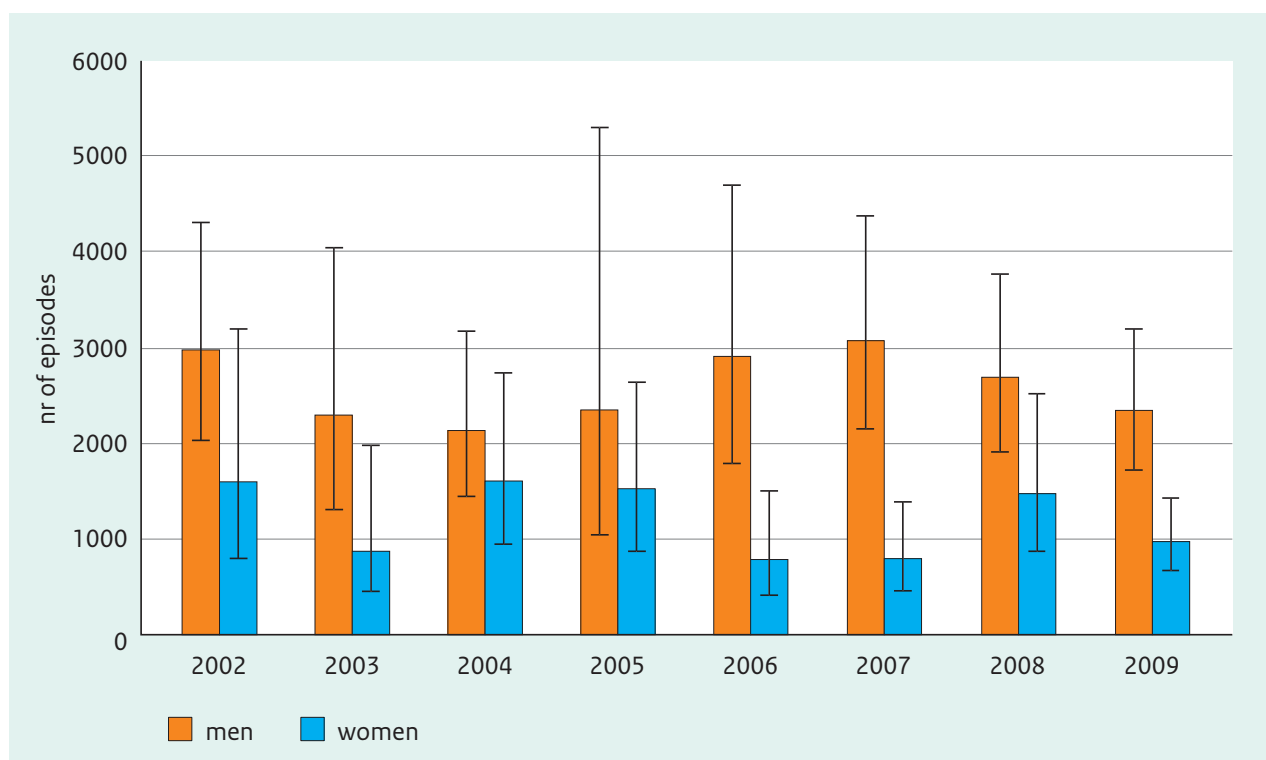
Footnote: Heterosexual men and women are not frequently tested anorectal or oral, therefore the fluctuation of positivity rates through the years has to be interpreted with caution.

Figure 4.4 Total number of tests and positivity rate of gonorrhoea by gender and sexual preference, 2004–2010.



4.3 General practitioner

Figure 4.5 Estimated number (and 95% CI) of episodes of gonorrhoea at GPs by gender, based on extrapolation from 61–114 practices in the surveillance network of GPs in the Netherlands, 2002–2009.



(Source: LINH).

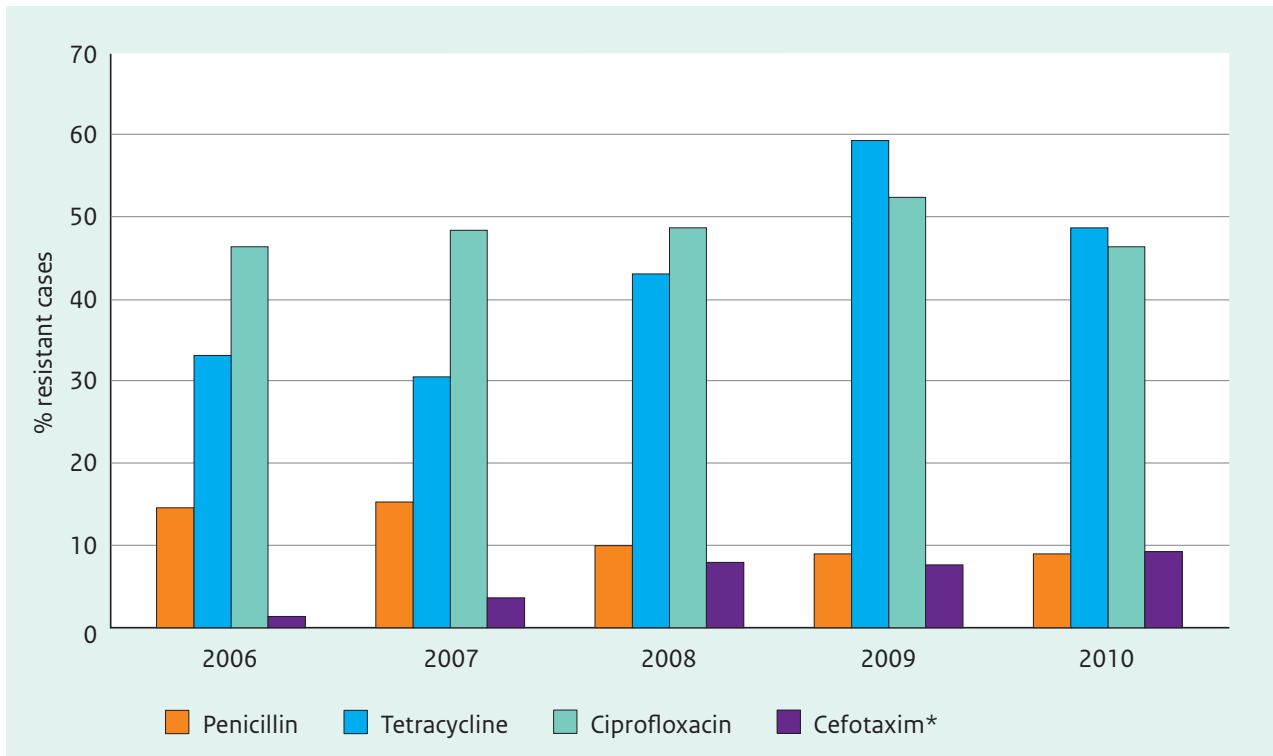
Table 4.7 Reporting rate (number of episodes per 100,000 population) of gonorrhoea at GPs in the Netherlands by gender, 2002–2009.

Year	Men		Women		Total	
	n/100,000	95% CI	n/100,000	95% CI	n/100,000	95% CI
2002	37.2	(25.6–54.1)	19.6	(9.8–39.3)	28.4	(17.7–46.7)
2003	28.8	(16.4–50.4)	10.8	(4.8–24.0)	19.8	(10.6–37.2)
2004	26.5	(17.9–39.2)	19.5	(11.4–33.3)	23.0	(14.6–36.3)
2005	29.1	(12.8–65.7)	18.4	(10.6–31.9)	23.7	(11.7–48.8)
2006	35.9	(22.2–58.0)	9.6	(5.0–18.3)	22.7	(13.6–38.1)
2007	38.0	(26.6–54.3)	9.7	(5.7–16.6)	23.8	(16.1–35.4)
2008	33.1	(23.6–46.4)	17.9	(10.6–30.3)	25.5	(17.1–38.3)
2009	28.8	(21.2–39.1)	11.8	(8.1–17.1)	20.3	(14.6–28.1)

CI = confidence interval.

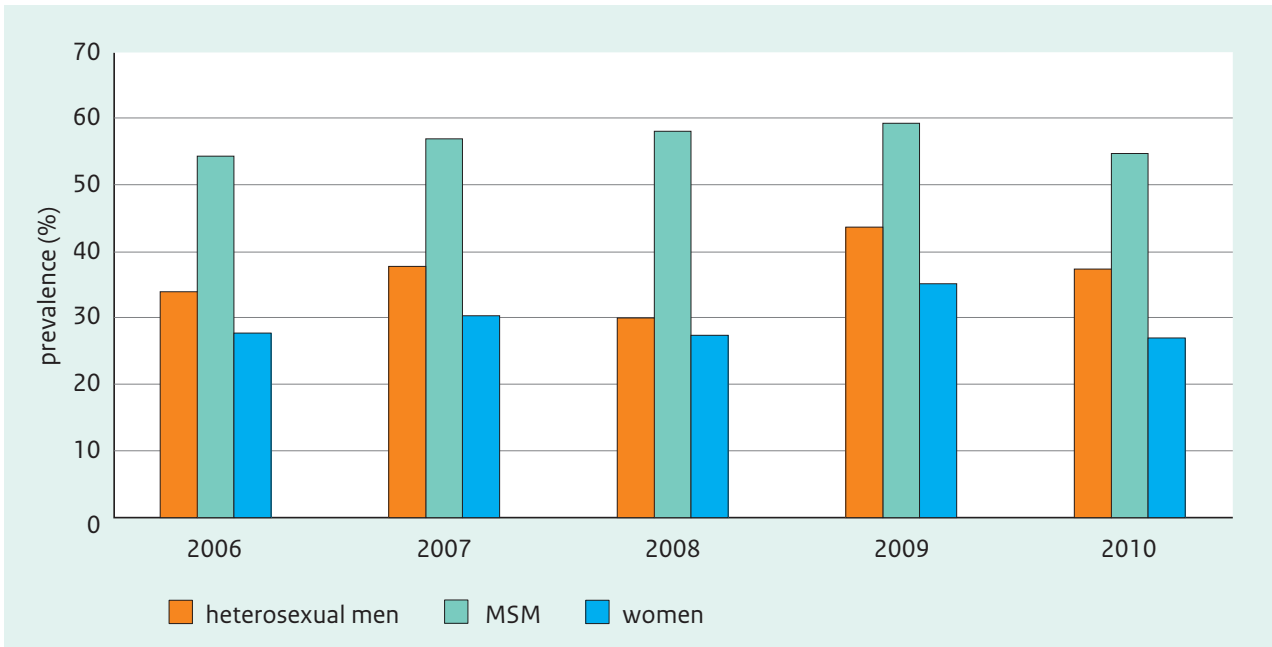
4.4 Antimicrobial resistance of gonococci in the Netherlands

Figure 4.6 Gonococcal resistance (following Eucast breakpoints) in the Netherlands, proportion of resistant cases, 2006–2010.



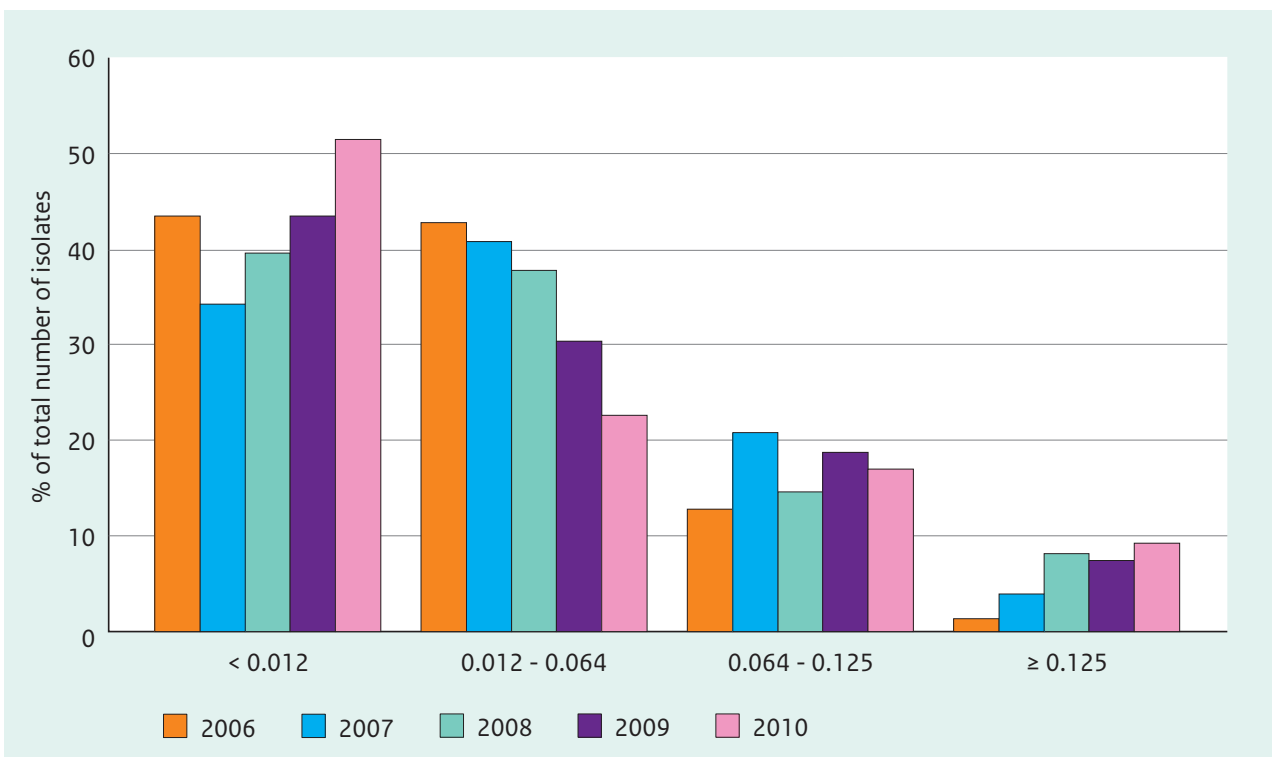
* Resistant following Eucast criteria, however no clinical resistance has been reported yet.
(Source: GRAS, STI centres).

Figure 4.7 Prevalence of ciprofloxacin resistance (following Eucast breakpoints) by sexual preference and gender, 2006–2010.



(Source: GRAS, STI centres).

Figure 4.8 MIC (= minimum inhibitory concentration) distribution for third generation cephalosporin (cefotaxim), 2006–2010.



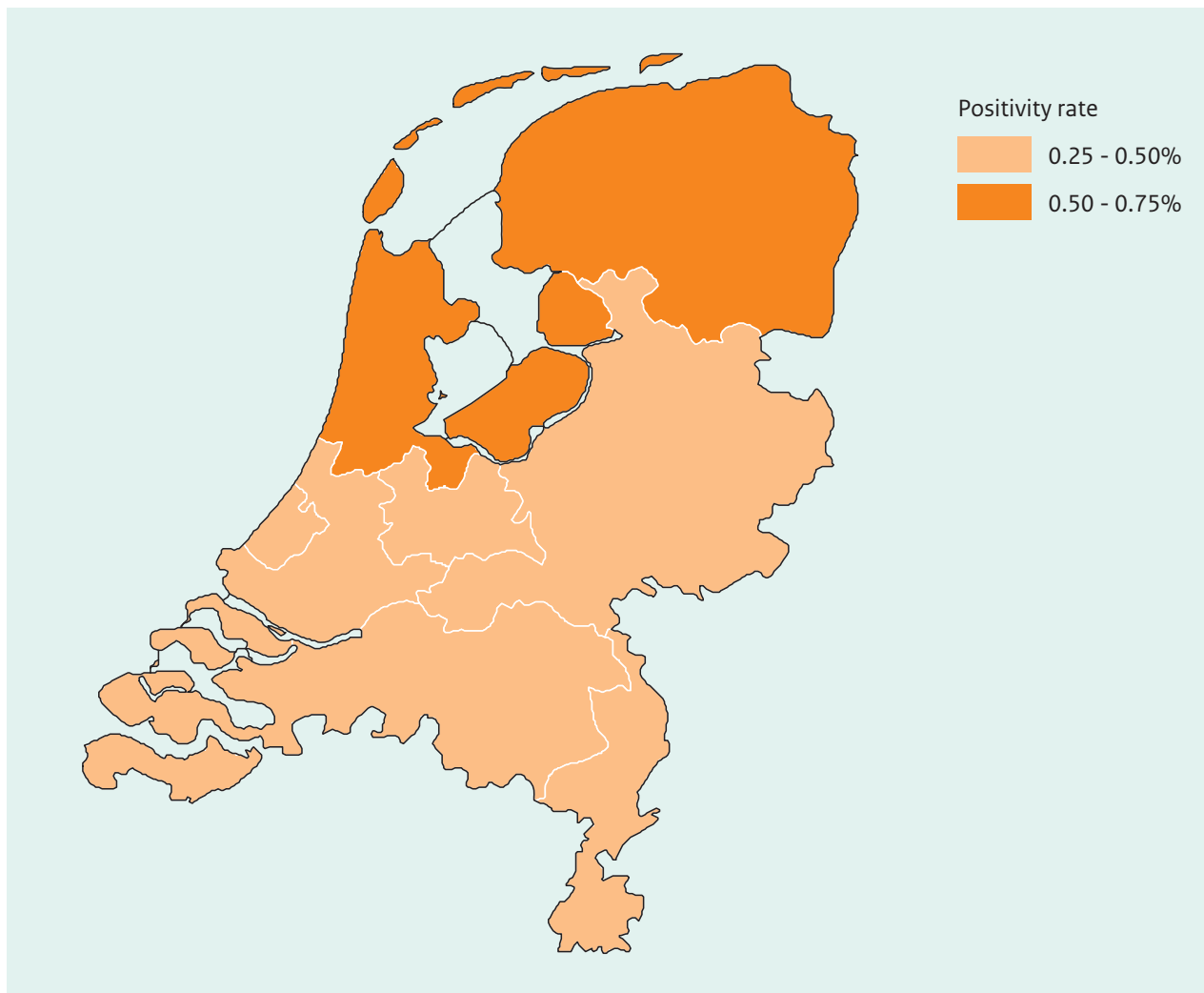
(Source: GRAS, STI centres).

5 Syphilis

5.1 Key points

- In 2010, 500 diagnoses of infectious syphilis were made in the STI centres in the Netherlands (89% in MSM, 7% in heterosexual men, 4% in women) compared with 512 diagnoses in 2009.
- As in previous years, the positivity rates among MSM decreased further from 4.3% in 2007, to 3.9% in 2008, 2.8% in 2009 and 2.3% in 2010. The positivity rates among heterosexual men and women remained low (< 0.1%).
- 36% of infectious syphilis cases were diagnosed in HIV-positive MSM who were aware of their HIV-positive status, 3% in newly diagnosed HIV cases.
- As in previous years, the positivity rate of infectious syphilis was higher in known HIV positive MSM (5.4%) compared with MSM who previously tested HIV-negative (1.8%).
- Of all MSM with syphilis, 16% had a co-infection with chlamydia and 12% had a co-infection with gonorrhoea.
- Data from screening of pregnant women showed an estimated prevalence of syphilis of 0.20% in 2009. A slightly increasing trend over the years was observed (0.12% in 2006).

Figure 5.1 Positivity rates of infectious syphilis by STI centre, the Netherlands, 2010.



5.2 STI centres: characteristics, risk groups and trends

Table 5.1 Number of positive tests and persons tested for infectious syphilis by age, gender and sexual preference, 2010.

Age (years)	Heterosexual men		MSM		Women	
	n positive	N tested	n positive	N tested	n positive	N tested
≤ 14	0	7	0	1	0	89
15–19	1	1709	7	498	1	6439
20–24	4	11,683	34	2499	4	22,018
25–29	8	8324	58	2535	7	9543
30–34	6	4083	52	2733	3	3941
35–39	4	2784	68	2614	1	2502
40–44	5	2328	66	2831	2	2034
45–49	3	1761	77	2462	0	1553
50–54	4	994	43	1463	0	857
≥ 55	1	1114	41	1828	0	488
Unknown	0	13	0	6	0	18
Total	36	34,800	446	19,470	18	49,482

Figure 5.2 Percentage of positive tests for infectious syphilis by age, gender and sexual preference, 2010.

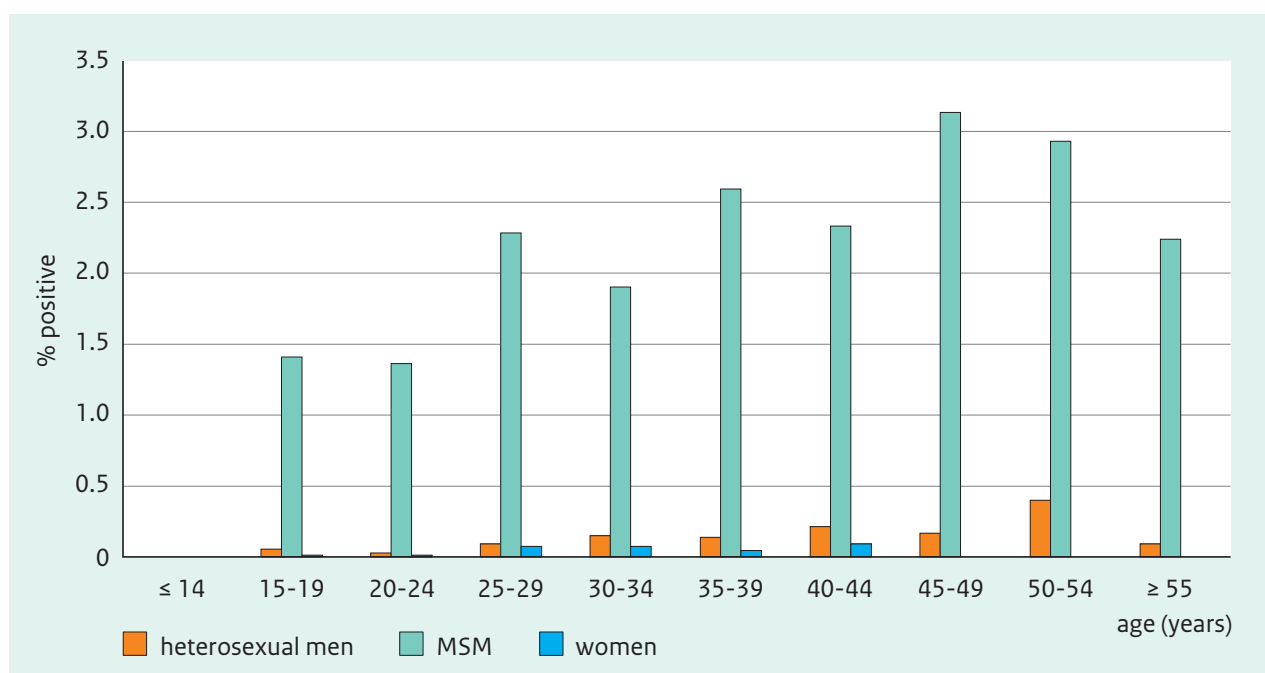


Table 5.2 Number of positive tests and persons tested for infectious syphilis by ethnicity, gender and sexual preference, 2010.

Ethnicity	Heterosexual men		MSM		Women	
	n positive	N tested	n positive	N tested	n positive	N tested
The Netherlands	27	29,369	334	16,061	9	42,078
Turkey	1	344	1	119	0	119
North Africa/Morocco	0	580	5	119	0	220
Surinam	0	1351	14	288	0	1282
Netherlands Antilles/Aruba	1	443	9	189	0	398
Sub-Saharan Africa	0	575	3	90	0	476
Eastern Europe	2	246	15	342	3	1533
Latin America	3	243	20	429	3	763
Asia	1	466	8	344	0	596
Europe other	1	499	6	387	3	1360
Else	0	632	31	1084	0	616
Unknown	0	52	0	18	0	41
Total	36	34,800	446	19,470	18	49,482

Figure 5.3 Percentage of positive tests for infectious syphilis by ethnicity, gender and sexual preference, 2010.

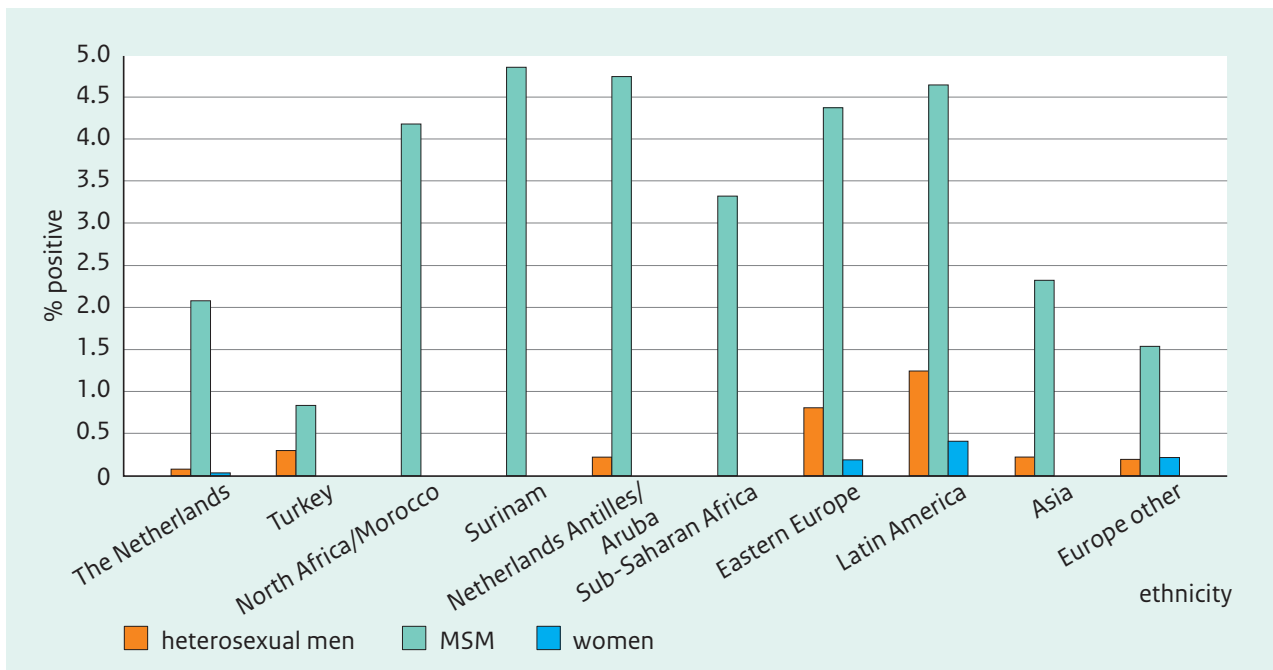


Table 5.3 Number and percentage of positive tests and total persons tested for infectious syphilis by sexual behavioural characteristics, gender and sexual preference, 2010.

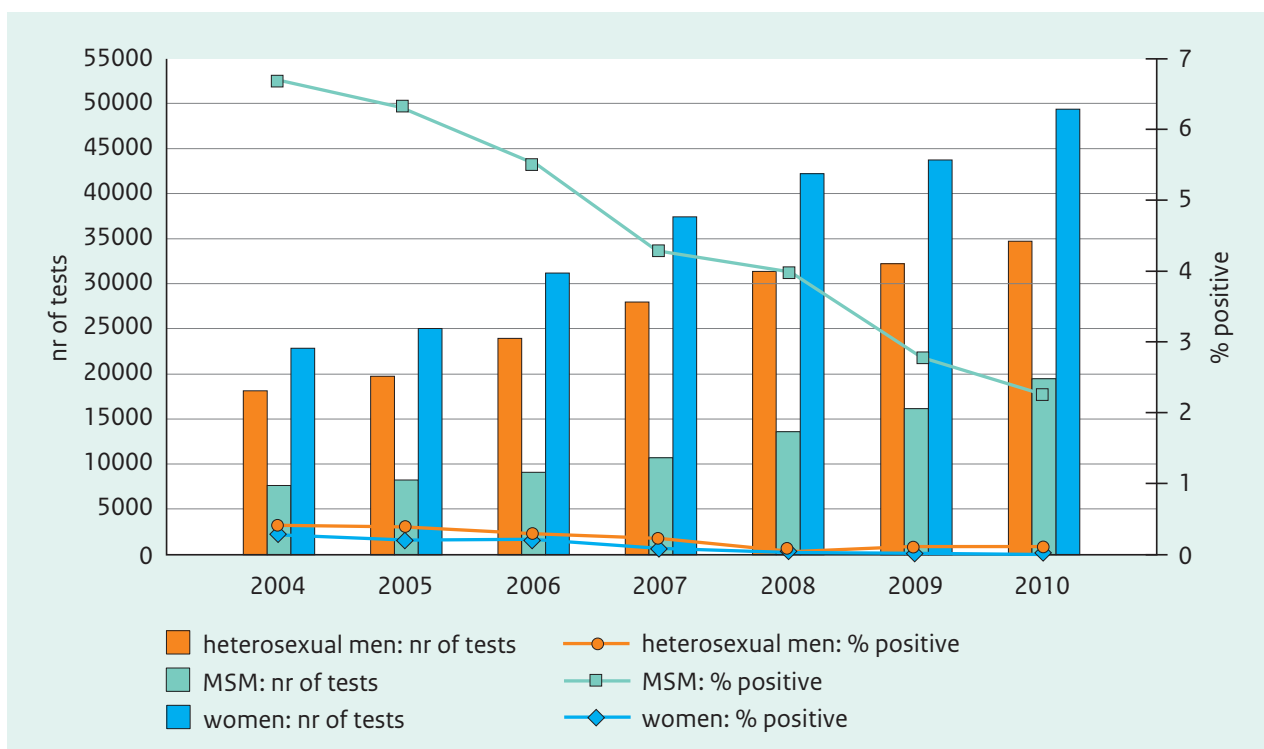
	Heterosexual men		MSM		Women	
	n positive/N	%	n positive/N	%	n positive/N	%
Number of partners in past 6 months						
0 partners	1/519	0.2	1/163	0.6	1/701	0.1
1 partner	13/8678	0.1	46/2325	2.0	4/16,628	0.02
2 partners	4/8511	0.05	61/2296	2.7	1/12,922	0.01
3 or more partners	12/16,132	0.1	305/13,475	2.3	5/15,338	0.03
Unknown	6/960	0.6	33/1211	2.7	7/3893	0.2
Condom use at last sexual contact*						
No	11/13,878	0.1	102/4151	2.5	4/20,801	0.02
Yes	3/6485	0.05	75/3477	2.2	7/8423	0.1
Unknown	0/257	0.0	3/593	0.5	1/467	0.2
Previous GO/CT/syphilis in anamnesis						
No	29/29,387	0.1	293/14,110	2.1	14/41,050	0.03
Yes	3/2931	0.1	141/4364	3.2	3/5217	0.1
Do not know	3/1828	0.2	6/339	1.8	0/2323	0.0
Unknown	1/654	0.2	6/657	0.9	1/892	0.1
Previous HIV test						
No	14/16,932	0.1	40/2574	1.6	4/21,685	0.02
Yes, positive	3/43	7.0	160/2984	5.4	0/24	0.0
Yes, negative	18/17,202	0.1	237/13,389	1.8	13/26,749	0.05
Yes, result unknown	0/51	0.0	1/55	1.8	0/81	0.0
Unknown	1/572	0.2	8/468	1.7	1/943	0.1
CSW, women						
No					8/44,455	0.02
Yes, in past 6 months					10/4928	0.2
Unknown					0/99	0.0
Client of CSW, men						
No	29/31,006	0.1	433/18,719	2.3		
Yes, in past 6 months	7/3724	0.2	8/417	1.9		
Unknown	0/70	0.0	5/334	1.5		
Swinger*						
No	13/18,973	0.1	156/7093	2.2	10/27,405	0.04
Yes	0/1550	0.0	2/788	0.3	1/2373	0.04
Unknown	0/28	0.0	4/347	1.2	1/78	1.3

* Voluntary question, condom use answered by 56% (N = 58,532) and swinger by 57% (N = 58,635) of persons tested for syphilis.

Table 5.4 Concurrent STI by gender and sexual preference among persons diagnosed with infectious syphilis, 2010.

Concurrent infection	Heterosexual men		MSM		Women	
	(N = 36)	n (%)	(N = 446)	n (%)	(N = 18)	n (%)
Chlamydia	1	(2.8)	71	(15.9)	0	(0.0)
Gonorrhoea	2	(5.6)	54	(12.1)	0	(0.0)
HIV newly diagnosed	0	(0.0)	13	(2.9)	0	(0.0)
Genital herpes	0	(0.0)	4	(0.9)	0	(0.0)
Genital warts	2	(5.6)	14	(3.1)	0	(0.0)
Hepatitis B, infectious	1	(2.8)	3	(0.7)	1	(5.6)

Figure 5.4 Total number of tests and positivity rate of infectious syphilis by gender and sexual preference, 2004–2010.



5.3 Screening pregnant women

Table 5.5 Syphilis prevalence estimates in pregnant women, based on test results of antenatal screening, 2006–2009.

Year	No. of women screened	Positive result 12 weeks test	Confirmed positive test results (%)	Prevalence estimate [min, max] *
2006	185,941	320	142 (44%)	0.12 [0.08–0.13]
2007	186,137	331	181 (55%)	0.14 [0.10–0.15]
2008	190,139	359	197 (55%)	0.16 [0.10–0.17]
2009	185,219	398	257 (65%)	0.20 [0.14–0.21]

Footnote: Terminated pregnancies (induced or spontaneous) are excluded.

*Prevalence estimated under the assumption that pregnant women with a first positive test result without a confirmation test would be as often positive as those with a confirmation test; minimum prevalence: number of confirmed positive test results divided by the total number of registered pregnant women; maximum prevalence: under the assumption that all pregnant women with a first positive test result without a confirmation test would also have a positive confirmation test.

(Source: Praeventis, RIVM).

5.4 Blood donors

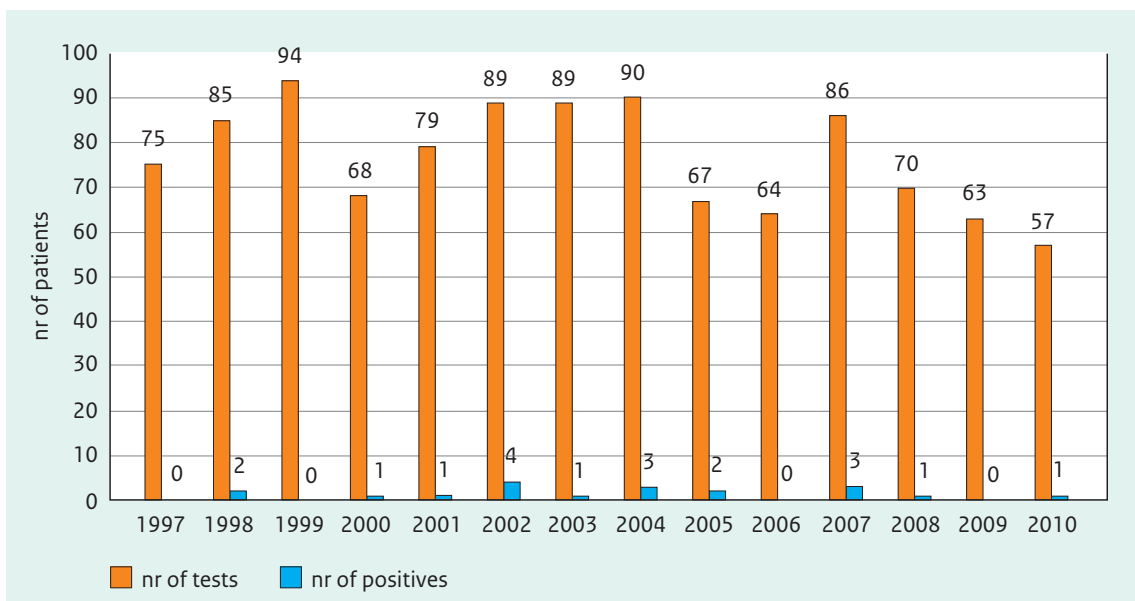
Figure 5.5 Syphilis incidence (per 100,000) among regular blood donors in the Netherlands, 2000–2009.



(Source: Sanquin).

5.5 Congenital syphilis

Figure 5.6 Number of tests of neonates and young infants (< 1 year) suspected of being infected with congenital syphilis and the number of IgM-positives, 1997–2010.



(Source: CIB/LIS).

VIRAL STI

6

HIV and AIDS

6.1 Key points

- In 2010, 375 individuals were newly diagnosed with HIV at the STI clinics in the Netherlands (85% in MSM, 8% in heterosexual men and 7% in women) compared with 387 individuals in 2009.
- Among MSM the positivity rate decreased further to 2.0% (in 2009 2.4% and in 2008 3.0%), and among heterosexual men and women it remained 0.1%.
- HIV test uptake increased from 56% in 2004 to 97% in 2010 among STI clinic attendees who were not previously diagnosed with HIV.
- Among newly diagnosed HIV-positive MSM, 26% had a concurrent chlamydia infection and 21% a gonorrhoea infection. Among known HIV-positive visitors, 17% were diagnosed with chlamydia and 15% with gonorrhoea.
- We estimated that 21,500 (95% CI 17,204–28,694) people were living with HIV/AIDS in the Netherlands as of January 2008, aged between 15 and 70 years. An estimated 40% (95% CI 25–55%) of the HIV-infected population remained undiagnosed, varying from 17% (95% CI 11–26%) in Amsterdam to 46% (95% CI 24–65%) in the remainder of the country. The estimated number of PLWHA increased by 10% compared with 2005.⁹
- A cumulative total of 17,868 HIV patients in care were reported up to December 2010 of whom 90.4% are still alive. In 2010, 1256 new HIV patients were reported in care of whom 826 were newly diagnosed in 2010 (incomplete due to reporting delay). The proportion of MSM accounting for new HIV patients in care was 66% in 2010. The proportion of heterosexuals was 28%.
- Data from screening of pregnant women showed an estimated prevalence of HIV of 0.05% in 2009.

⁹ M.G. van Veen et al., AIDS 2011

6.2 STI centres: characteristics, risk groups and trends

Table 6.1 Number of positive tests and persons tested for HIV by age, gender and sexual preference, 2010.

Age (years)	Heterosexual men		MSM		Women	
	n positive	N tested	n positive	N tested	n positive	N tested
≤ 14	0	4	0	1	0	69
15–19	0	1681	7	485	2	6310
20–24	6	11,599	37	2393	4	21,858
25–29	4	8236	48	2266	6	9442
30–34	7	4029	65	2328	7	3903
35–39	5	2732	51	2069	7	2477
40–44	3	2289	33	2111	1	2016
45–49	1	1716	42	1756	0	1537
50–54	1	972	19	1086	1	845
≥ 55	2	1087	15	1448	0	478
Unknown	1	12	0	4	0	18
Total	30	34,357	317	15,947	28	48,953

Figure 6.1 Percentage of positive tests for HIV by age, gender and sexual preference, 2010.

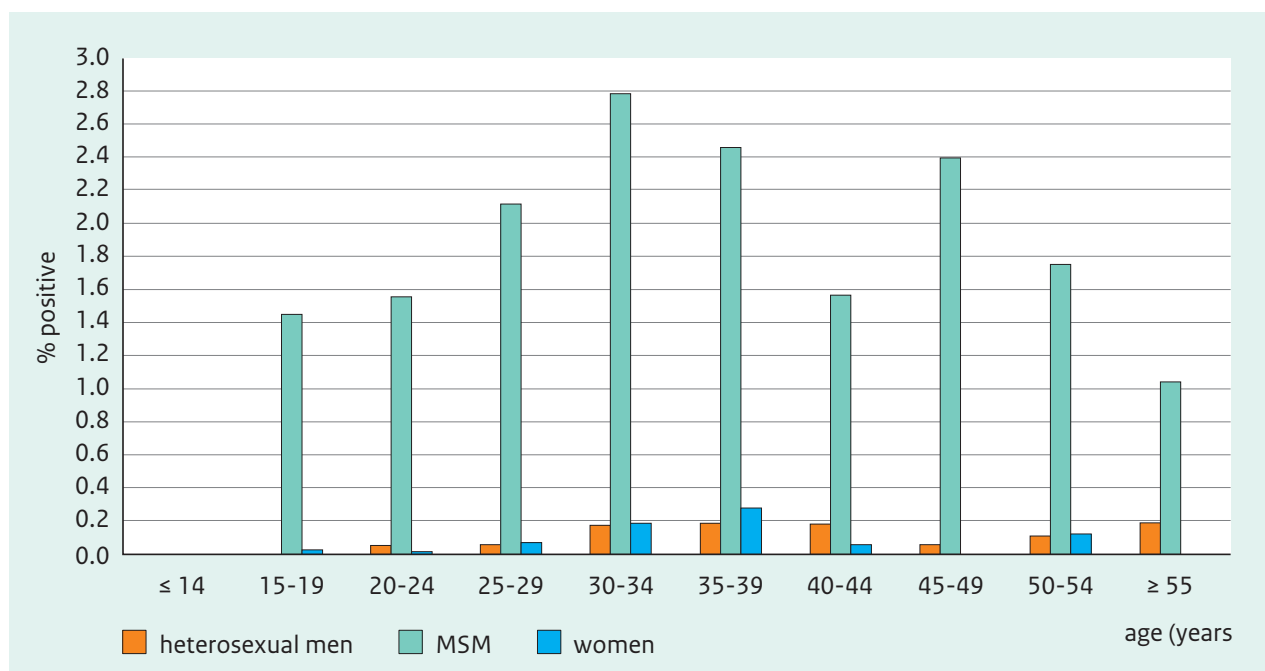


Table 6.2 Number of positive tests and persons tested for HIV by ethnicity, gender and sexual preference, 2010.

Ethnicity	Heterosexual men		MSM		Women	
	n positive	N tested	n positive	N tested	n positive	N tested
The Netherlands	19	29,032	229	13,360	13	41,630
Turkey	0	340	1	107	0	119
North Africa/Morocco	1	571	4	104	0	218
Surinam	1	1319	12	211	1	1266
Netherlands Antilles/Aruba	2	439	6	129	1	393
Sub-Saharan Africa	7	550	4	67	7	467
Eastern Europe	0	242	15	275	0	1521
Latin America	0	235	12	283	2	753
Asia	0	463	4	285	2	586
Europe other	0	495	3	344	1	1356
Else	0	619	27	770	1	605
Unknown	0	52	0	12	0	39
Total	30	34,357	317	15,947	28	48,953

Figure 6.2 Percentage of positive tests for HIV by ethnicity, gender and sexual preference, 2010.

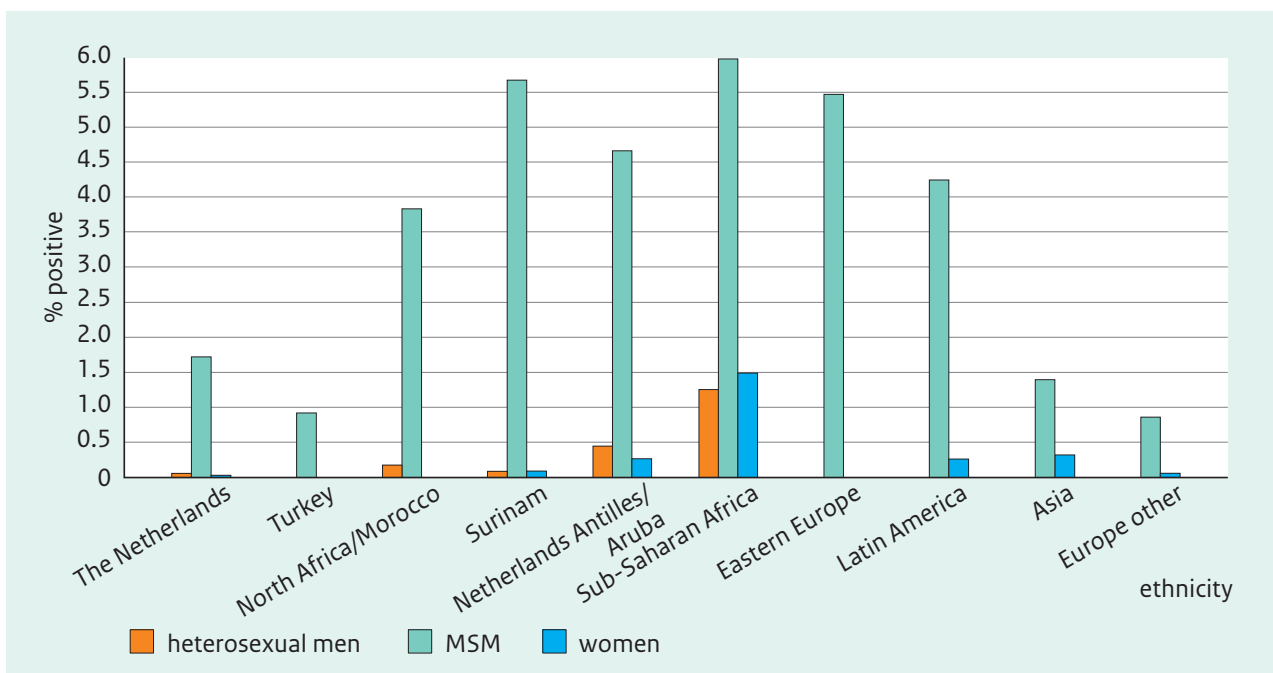


Table 6.3 Number and percentage of positive tests and total persons tested for HIV at the STI centres by sexual behavioural characteristics, gender and sexual preference, 2010.

	Heterosexual men		MSM		Women	
	n positive/N	%	n positive/N	%	n positive/N	%
Number of partners in past 6 months						
0 partners	2/503	0.4	1/128	0.8	1/695	0.1
1 partner	13/8551	0.2	37/2007	1.8	10/16,406	0.1
2 partners	5/8383	0.1	34/2027	1.7	6/12,795	0.05
3 or more partners	8/15,974	0.1	228/10,777	2.1	7/15,192	0.05
Unknown	2/946	0.2	17/1008	1.7	4/3865	0.1
Condom use at last sexual contact*						
No	7/13,790	0.1	74/3808	1.9	4/20,590	0.02
Yes	7/6408	0.1	51/3098	1.6	7/8348	0.1
Unknown	1/253	0.4	5/510	1.0	2/459	0.4
Previous GO/CT/syphilis in anamnesis						
No	27/29,040	0.1	231/12,269	1.9	25/40,649	0.1
Yes	1/2858	0.03	79/2754	2.9	0/5127	0.0
Do not know	1/1809	0.1	1/323	0.3	1/2298	0.04
Unknown	1/650	0.2	6/601	1.0	1/879	0.1
Previous HIV test						
No	16/16,787	0.1	51/2,464	2.1	11/21,484	0.1
Yes, positive	0/3	0.0	0/10	0.0	0/1	0.0
Yes, negative	14/16,953	0.1	253/13,009	1.9	13/26,455	0.05
Yes, result unknown	0/46	0.0	5/48	10.4	0/78	0.0
Unknown	0/568	0.0	8/416	1.9	4/935	0.4
CSW, women						
No					8/43,970	0.02
Yes, in past 6 months					10/4885	0.2
Unknown					0/98	0.0
Client of CSW, men						
No	28/30,608	0.1	311/15,264	2.0		
Yes, in past 6 months	2/3677	0.1	3/380	0.8		
Unknown	0/72	0.0	3/303	1.0		
Swinger*						
No	15/18,808	0.1	134/6,360	2.1	13/27,125	0.05
Yes	0/1548	0.0	3/768	0.4	1/2362	0.04
Unknown	0/29	0.0	2/317	0.6	1/78	1.3

* Voluntary question, condom use answered by 54% (N = 44,827) and swinger by 56% (N = 46,763) of persons tested for HIV.

Table 6.4 Concurrent STI by gender and sexual preference among persons newly diagnosed with HIV at the STI centres, 2010.

Concurrent infection	Heterosexual men		MSM		Women	
	(N = 30) n (%)		(N = 317) n (%)		(N = 28) n (%)	
Chlamydia	5 (16.7)		82 (25.9)		4 (14.3)	
Gonorrhoea	2 (6.7)		65 (20.5)		1 (3.6)	
Infectious syphilis	0 (0.0)		13 (4.1)		0 (0.0)	
Genital herpes	1 (3.3)		1 (0.3)		0 (0.0)	
Genital warts	0 (0.0)		16 (5.0)		1 (3.6)	
Hepatitis B, infectious	4 (13.3)		3 (0.9)		1 (3.6)	

Figure 6.3 Total number of tests and positivity rate of new HIV cases by gender and sexual preference, STI centres, the Netherlands, 2004–2010.

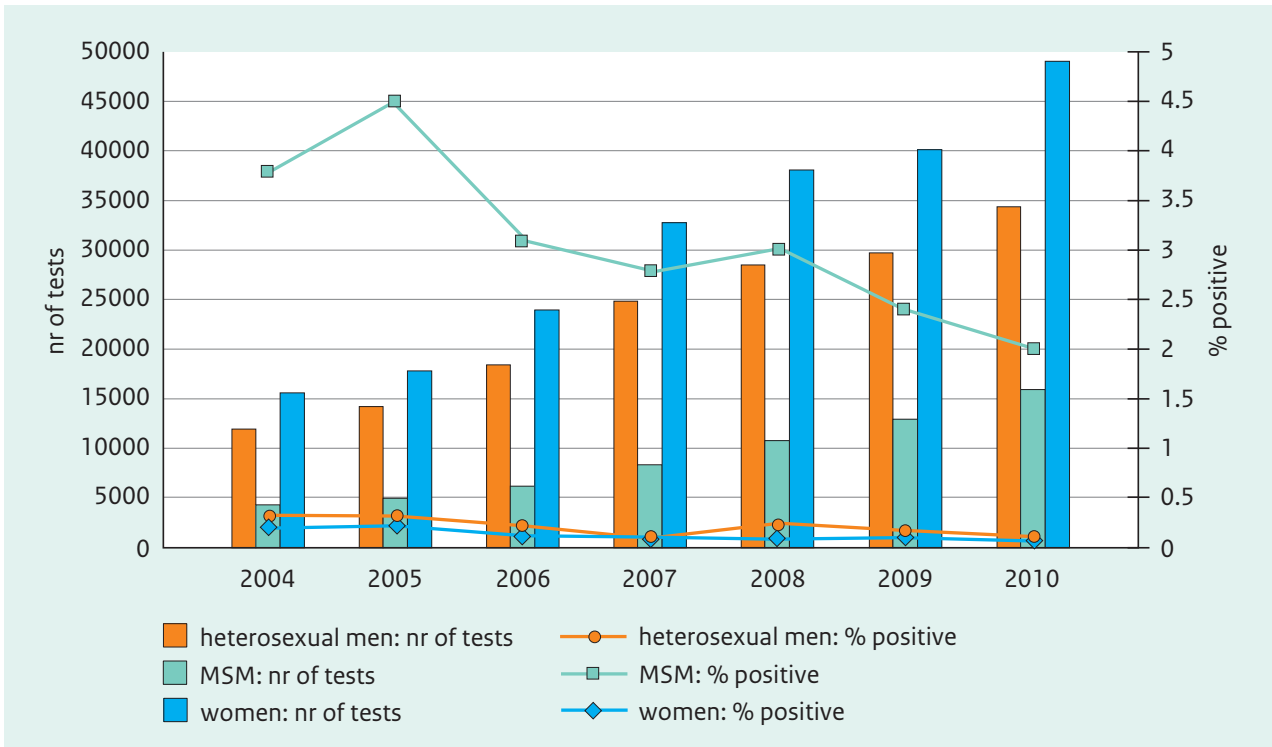


Table 6.5 HIV positivity rates among STI clinic attendees and other test sites, 2004–2010.

Region and source	2004	2005	2006	2007	2008	2009	2010
	%	%	%	%	%	%	%
MSM							
STI clinic Amsterdam							
Regular	5.7	6.0	4.0	3.5	3.5	2.3	2.3
Anonymous*	18.8#	19.4	21.5	21.9	29.3	27.0	28.3
Anonymous**			5.1	1.9	3.5	3.0	3.3
STI clinic Rotterdam							
Regular	4.5	6.3	3.6	3.0	3.1	3.3	2.6
Anonymous*	32.1	25.7	38.5	58.4	60.7	NA	NA
Anonymous**			3.6	12.5	13.0	5.9	NA
STI (sentinel) surveillance network							
	4.2	5.0	3.1	2.8	3.0	2.4	2.0
Heterosexual risk groups							
STI clinic Amsterdam							
Regular, men	0.2	0.3	0.3	0.2	0.2	0.2	0.1
Anonymous, men*	0.5#	0.0	0.4	0.4	0.3	0.1	0.1
Anonymous, men**			0.1	0.4	0.1	0.0	0.1
Regular, women	0.3	0.4	0.2	0.3	0.1	0.1	0.1
Anonymous, women*	0.2#	0.4	0.4	0.0	0.0	0.1	0.2
Anonymous, women**			0.2	0.0	0.0	0.0	0.2
STI clinic Rotterdam							
Regular, men	1.0	0.3	0.2	0.1	0.2	0.2	0.1
Anonymous, men*	0.9	0.4	0.5	0.6	10.0	NA	NA
Anonymous, men**			0.0	0.0	0.0	0.0	NA
Regular, women	0.3	0.2	0.2	0.1	0.2	0.1	0.03
Anonymous, women*	0.7	0.5	0.2	2.8	0.0	NA	NA
Anonymous, women**			0.0	0.0	0.0	0.0	NA
STI (sentinel) surveillance network							
Men	0.3	0.3	0.2	0.1	0.2	0.1	0.1
Women	0.2	0.2	0.1	0.1	0.1	0.1	0.1

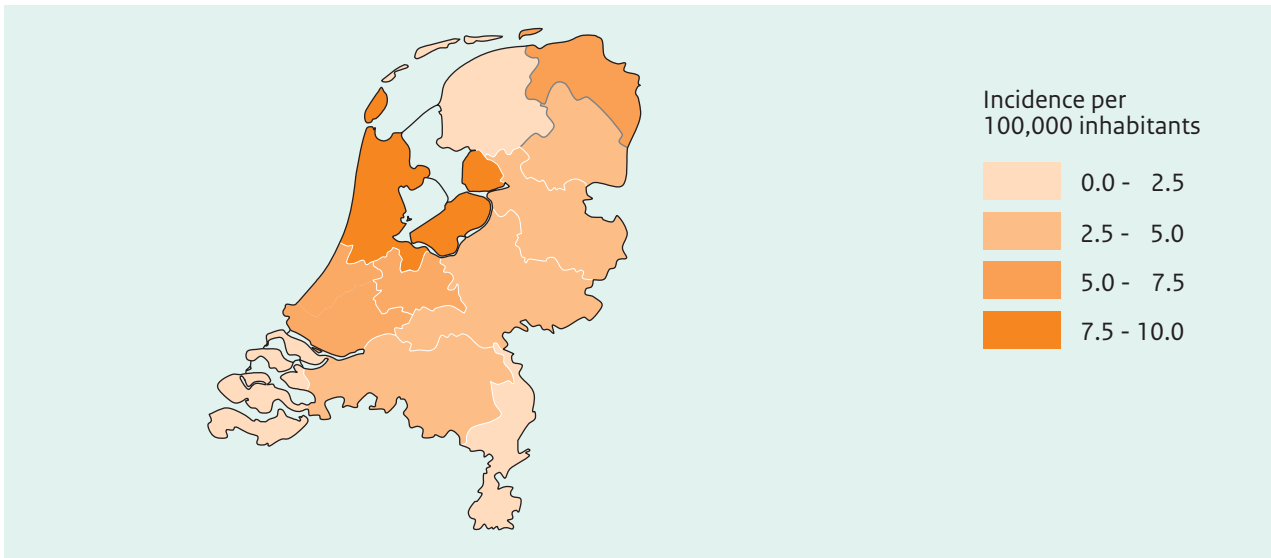
*Known HIV-infected included; **Excluding known HIV-infected STI clinic attendees; # based on 1 research period.

NA = not available.

6.3 HIV treatment centres

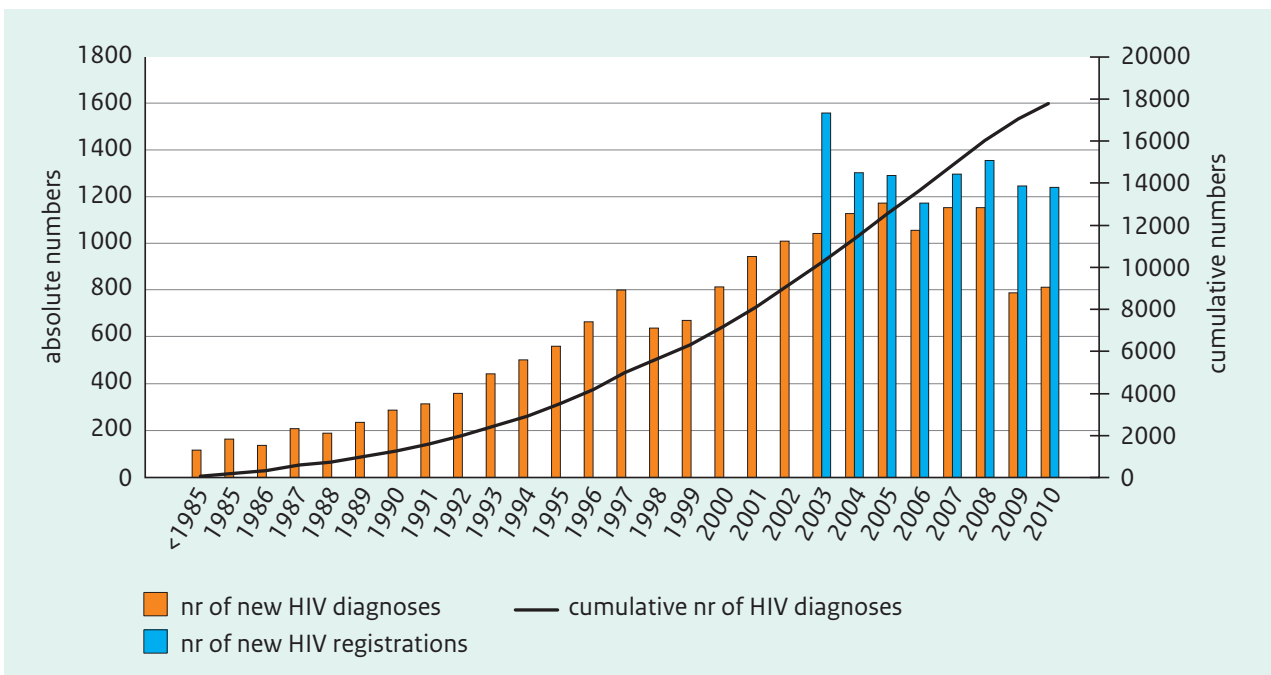
6.3.1 HIV cases newly diagnosed in 2010 versus all registered HIV cases (cumulative)

Figure 6.4 Number of new HIV diagnoses per 100,000 inhabitants, the Netherlands, 2010.



Footnote: calculations based on HIV infections recorded in the various HIV treatment centres in each province.

Figure 6.5 Number of newly diagnosed HIV cases (orange; cumulative: black) and newly registered HIV patients (blue) by year, < 1985–2010.



Footnote: only HIV patients with a known date of diagnosis are included (217 cases excluded from the analysis). (Source: ATHENA: 1996–2001, national registration from 2002 to date (Source: Stichting HIV Monitoring, 2010 incomplete)).

Table 6.6a Number of HIV cases diagnosed in 2010 by age and gender.

Age (years)	Men (%)	Women (%)	Total (%)
0–14	5 (0.7)	4 (3.5)	9 (1.1)
15–19	11 (1.5)	2 (1.8)	13 (1.6)
20–24	55 (7.7)	13 (11.5)	68 (8.2)
25–29	83 (11.6)	19 (16.8)	102 (12.3)
30–39	198 (27.8)	34 (30.1)	232 (28.1)
40–49	210 (29.5)	22 (19.5)	232 (28.1)
50–59	112 (15.7)	11 (9.7)	123 (14.9)
60–69	33 (4.6)	6 (5.3)	39 (4.7)
70–79	6 (0.8)	2 (1.8)	8 (1.0)
≥ 80	0 (0.0)	0 (0.0)	0 (0.0)
Total	713	113	826

Table 6.6b Cumulative number of HIV cases by age (at year of diagnosis) and gender up to 2010.

Age (years)	Men (%)	Women (%)	Total (%)
0–14	133 (0.9)	104 (2.8)	237 (1.3)
15–19	198 (1.4)	238 (6.4)	436 (2.4)
20–24	1011 (7.2)	577 (15.4)	1588 (8.9)
25–29	2037 (14.4)	847 (22.7)	2884 (16.1)
30–39	5387 (38.1)	1258 (33.7)	6645 (37.2)
40–49	3578 (25.3)	461 (12.3)	4039 (22.6)
50–59	1402 (9.9)	183 (4.9)	1585 (8.9)
60–69	324 (2.3)	56 (1.5)	380 (2.1)
70–79	60 (0.4)	7 (0.2)	67 (0.4)
≥ 80	1 (0.0)	2 (0.1)	3 (0.0)
Unknown	2 (0.0)	2 (0.1)	4 (0.0)
Total	14,133	3735	17,868

Table 6.7a Number of HIV cases diagnosed in 2010 by main reported transmission risk group and gender.

Transmission risk group	Men (%)	Women (%)	Total (%)
MSM	541 (75.9)	-	541 (65.6)
Heterosexual contact	128 (18.0)	101 (90.2)	229 (27.8)
Injecting drug use	5 (0.7)	0 (0.0)	5 (0.6)
Blood (products)	0 (0.0)	0 (0.0)	0 (0.0)
Mother to child	4 (0.6)	5 (4.5)	9 (1.1)
Needle stick injury	2 (0.3)	0 (0.0)	2 (0.2)
Other/unknown	33 (4.6)	6 (5.4)	39 (4.7)
Total	713	112	825

Footnote: 1 woman registered as MSM (excluded from table).

Table 6.7b Cumulative number of HIV cases by main reported transmission risk group and gender up to 2010.

Transmission risk group	Men (%)	Women (%)	Total (%)
MSM	10,005 (70.8)	-	10,005 (56.0)
Heterosexual contact	2486 (17.6)	3181 (85.3)	5667 (31.7)
Injecting drug use	511 (3.6)	184 (4.9)	695 (3.9)
Blood (products)	130 (0.9)	75 (2.0)	205 (1.1)
Mother to child	102 (0.7)	96 (2.6)	198 (1.1)
Needle stick injury	23 (0.2)	7 (0.2)	30 (0.2)
Other/unknown	876 (6.2)	188 (5.0)	1064 (6.0)
Total	14,133	3731	17,864

Footnote: 4 women registered as MSM (excluded from table).

Table 6.8a Number of HIV cases diagnosed in 2010 by age and transmission risk group.

Age	MSM	Heterosexual contact	Other/unknown*
	n (%)	n (%)	n (%)
0–14	1 (0.2)	0 (0.0)	8 (14.5)
15–19	10 (1.8)	2 (0.9)	1 (1.8)
20–24	43 (7.9)	21 (9.2)	4 (7.3)
25–29	69 (12.7)	30 (13.1)	3 (5.5)
30–39	161 (29.7)	57 (24.9)	14 (25.5)
40–49	165 (30.4)	51 (22.3)	16 (29.1)
50–59	75 (13.8)	42 (18.3)	6 (10.9)
60–69	13 (2.4)	23 (10.0)	3 (5.5)
70–79	5 (0.9)	3 (1.3)	0 (0.0)
≥ 80	0 (0.0)	0 (0.0)	0 (0.0)
Total	542	229	55

* Including IDU (n = 5), blood(products) (n = 2), mother to child (n = 9).

Table 6.8b Cumulative number of HIV cases by age and transmission risk group up to 2010.

Age	MSM	Heterosexual contact	Injecting drug use	Blood (products)*	Mother to child	Other/unknown
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
0–14	3 (0.03)	5 (0.1)	0 (0.0)	24 (11.7)	190 (96.9)	15 (1.4)
15–19	111 (1.1)	253 (4.5)	20 (2.9)	15 (7.3)	3 (1.5)	34 (3.1)
20–24	714 (7.1)	668 (11.8)	95 (13.7)	21 (10.2)	1 (0.5)	89 (8.1)
25–29	1503 (15.0)	1044 (18.4)	142 (20.4)	33 (16.1)	2 (1.0)	160 (14.6)
30–39	3883 (38.8)	2041 (36.0)	285 (41.0)	63 (30.7)	0 (0.0)	373 (34.1)
40–49	2607 (26.0)	1026 (18.1)	138 (19.9)	19 (9.3)	0 (0.0)	249 (22.8)
50–59	968 (9.7)	460 (8.1)	14 (2.0)	19 (9.3)	0 (0.0)	124 (11.3)
60–69	190 (1.9)	143 (2.5)	1 (0.1)	8 (3.9)	0 (0.0)	38 (3.5)
70–79	30 (0.3)	23 (0.4)	0 (0.0)	2 (1.0)	0 (0.0)	12 (1.1)
≥ 80	0 (0.0)	3 (0.1)	0 (0.0)	1 (0.5)	0 (0.0)	0 (0.0)
Total**	10,009	5666	695	205	196	1094

*Including needle stick injury; **Unknown age not included.

Table 6.9a Number of HIV cases diagnosed in 2010 by region of origin and transmission risk group.

Ethnicity	MSM n (%)	Heterosexual contact n (%)	Other/ unknown n (%)
The Netherlands	406 (74.9)	108 (47.2)	26 (47.3)
Western Europe	22 (4.1)	4 (1.7)	3 (5.5)
Central Europe	23 (4.2)	5 (2.2)	0 (0.0)
Eastern Europe	4 (0.7)	3 (1.3)	1 (1.8)
Sub-Saharan Africa	9 (1.7)	65 (28.4)	19 (34.5)
Caribbean	20 (3.7)	11 (4.8)	0 (0.0)
Latin America	26 (4.8)	16 (7.0)	3 (5.5)
North America	6 (1.1)	0 (0.0)	1 (1.8)
North Africa and Middle East	5 (0.9)	4 (1.7)	1 (1.8)
Australia and Pacific	3 (0.6)	2 (0.9)	0 (0.0)
South (East) Asia	16 (3.0)	11 (4.8)	1 (1.8)
Unknown	2 (0.4)	0 (0.0)	0 (0.0)
Total	542	229	55

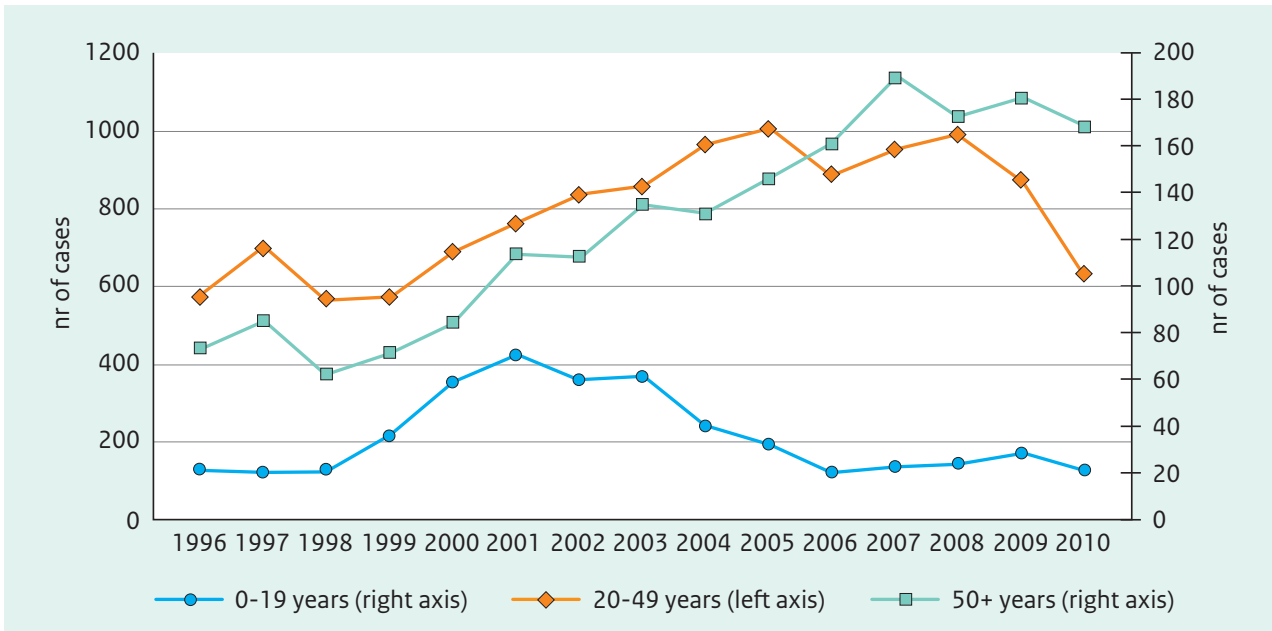
*Including IDU (n = 5), blood(products) (n = 2), mother to child (n = 9).

Table 6.9b Cumulative number of HIV cases by transmission risk group and five most common regions of origin up to 2010.

Region of origin	MSM n (%)	Heterosexual contact n (%)	Injecting drug use n (%)	Blood (products)* n (%)	Mother to child n (%)	Other/ unknown n (%)
The Netherlands	7242 (83.3)	1754 (34.6)	428 (71.3)	100 (54.9)	105 (55.6)	552 (52.8)
Sub-Saharan Africa	141 (1.6)	2450 (48.4)	7 (1.2)	64 (35.2)	74 (39.2)	307 (29.4)
Surinam	274 (3.2)	442 (8.7)	20 (3.3)	8 (4.4)	2 (1.1)	47 (4.5)
Neth. Antilles/Aruba	255 (2.9)	241 (4.8)	11 (1.8)	1 (0.5)	3 (1.6)	30 (2.9)
Western Europe	781 (9.0)	176 (3.5)	134 (22.3)	9 (4.9)	5 (2.6)	109 (10.4)

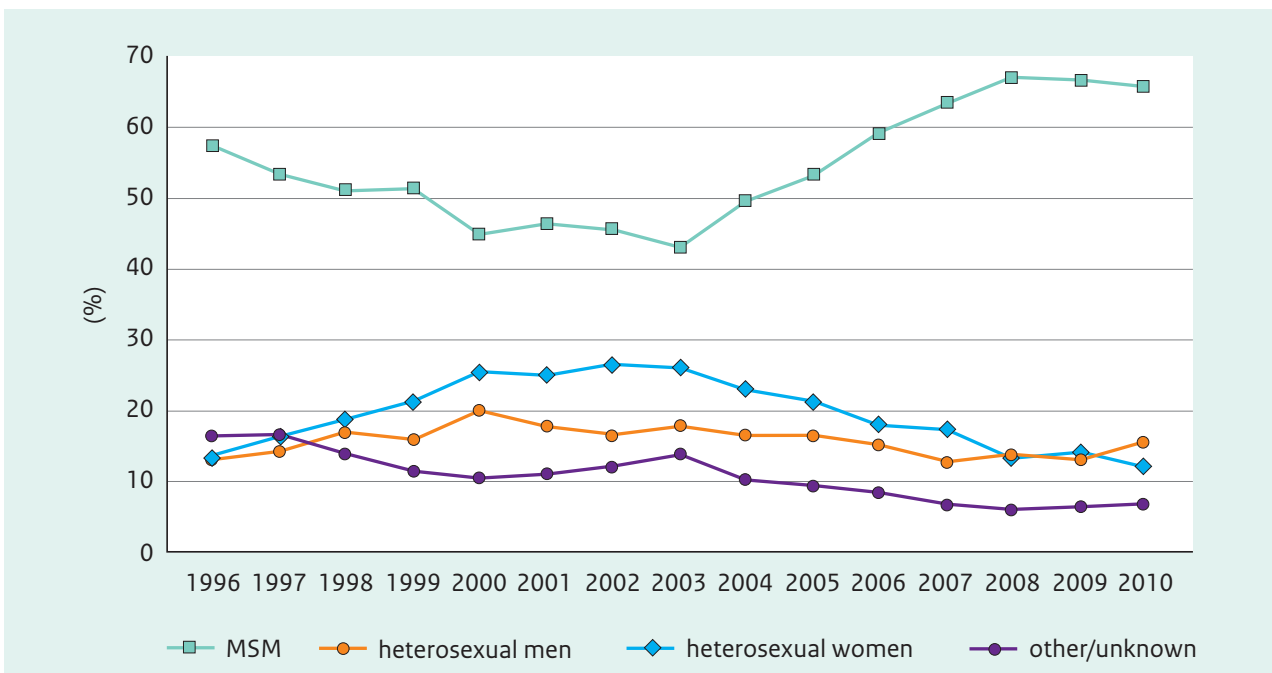
*Including needle stick injury.

Figure 6.6 Number of HIV cases by age group (left axis: 20–49, right axis: 0–19 and 50+) and year of diagnosis, 1996–2010.



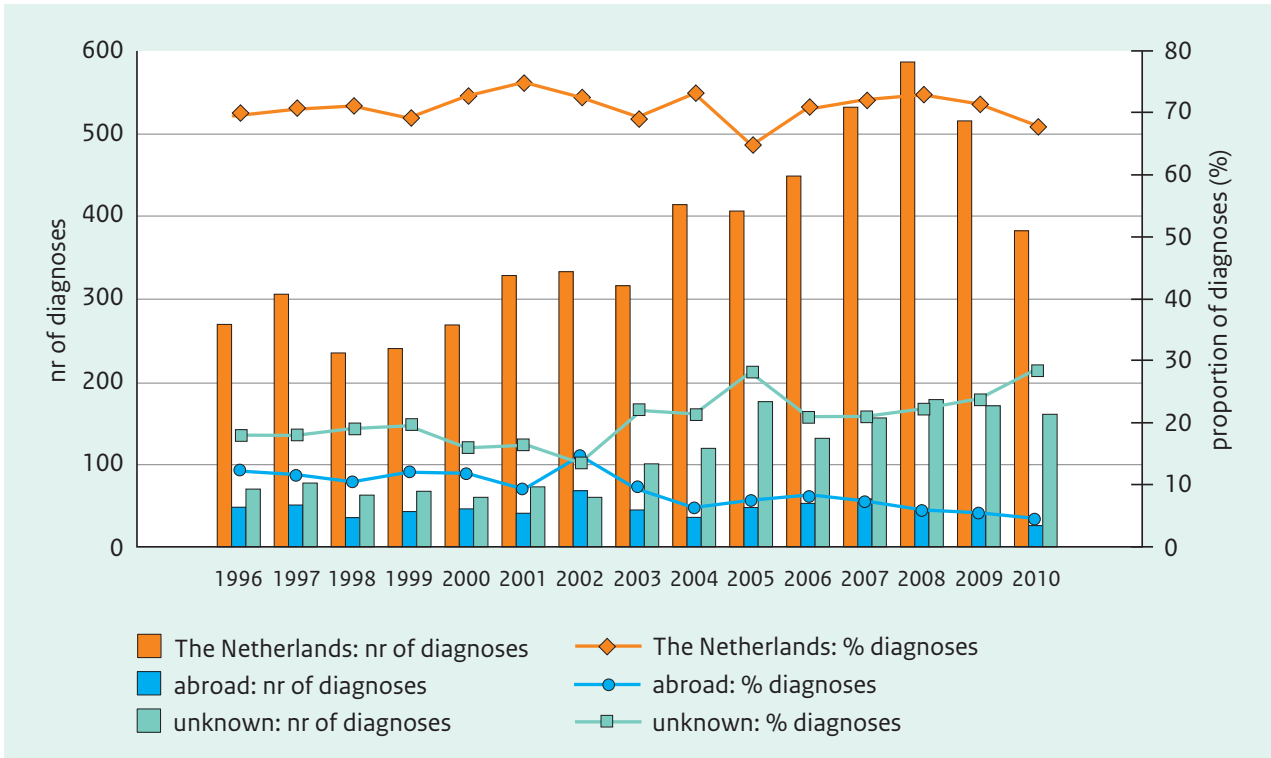
(Source: Stichting HIV Monitoring, 2010 incomplete).

Figure 6.7 Proportion of annual HIV cases in care by transmission risk group and year of diagnosis, 1996–2010.



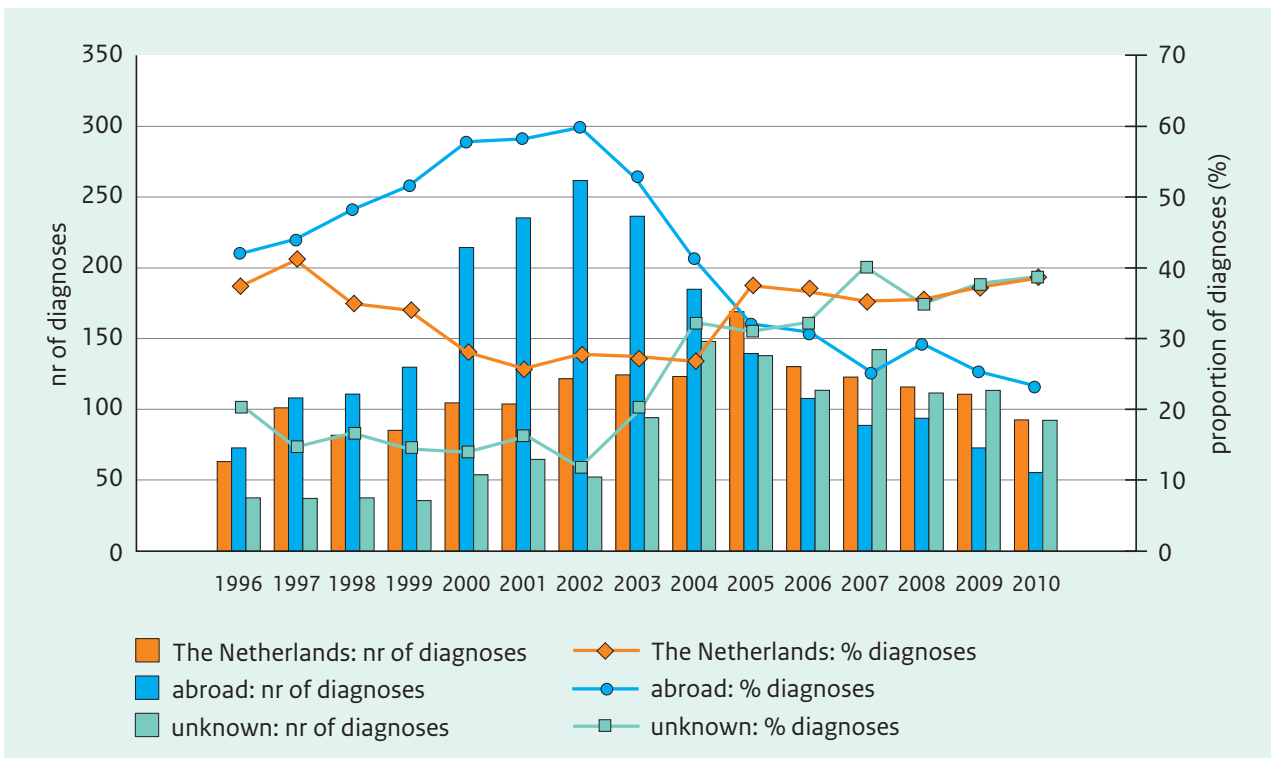
(Source: Stichting HIV Monitoring, 2010 incomplete).

Figure 6.8a Reported country of infection of MSM by year of diagnosis, 1996–2010.



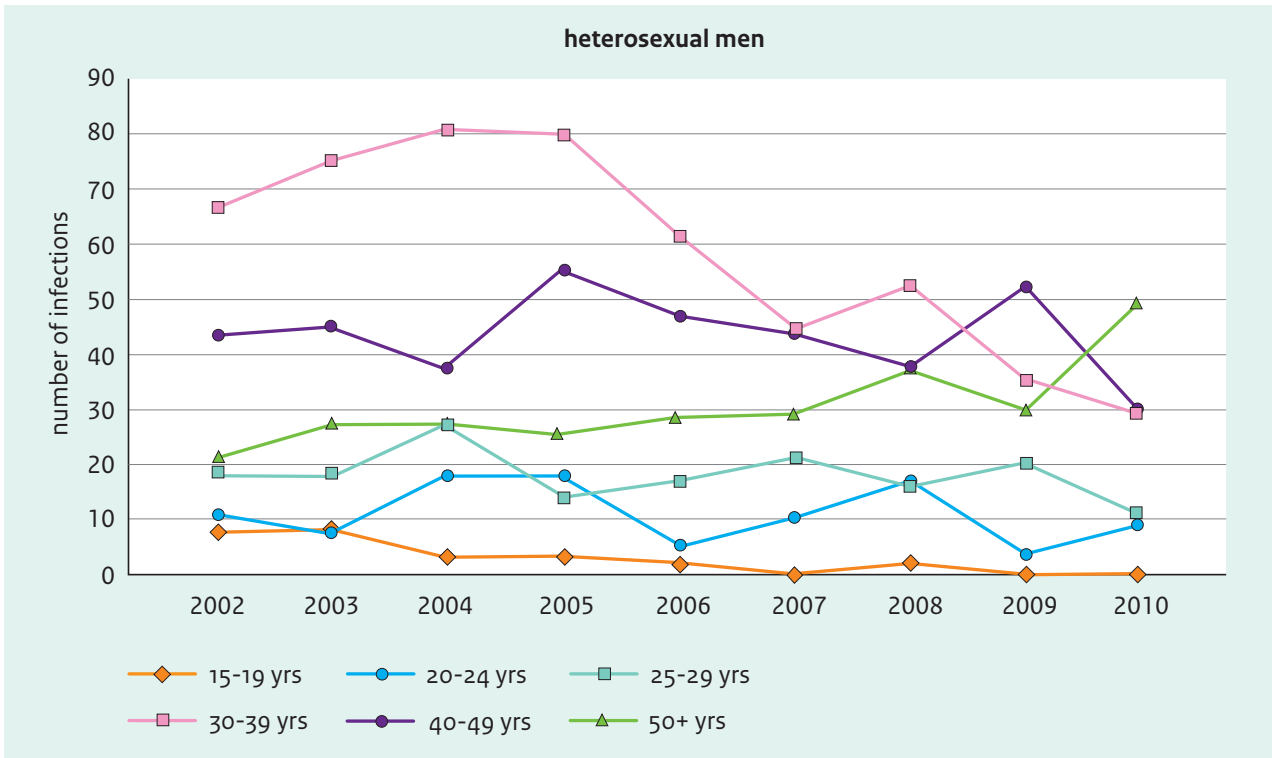
(Source: Stichting HIV Monitoring, 2010 incomplete).

Figure 6.8b Reported country of infection of heterosexuals by year of diagnosis, 1996–2010.



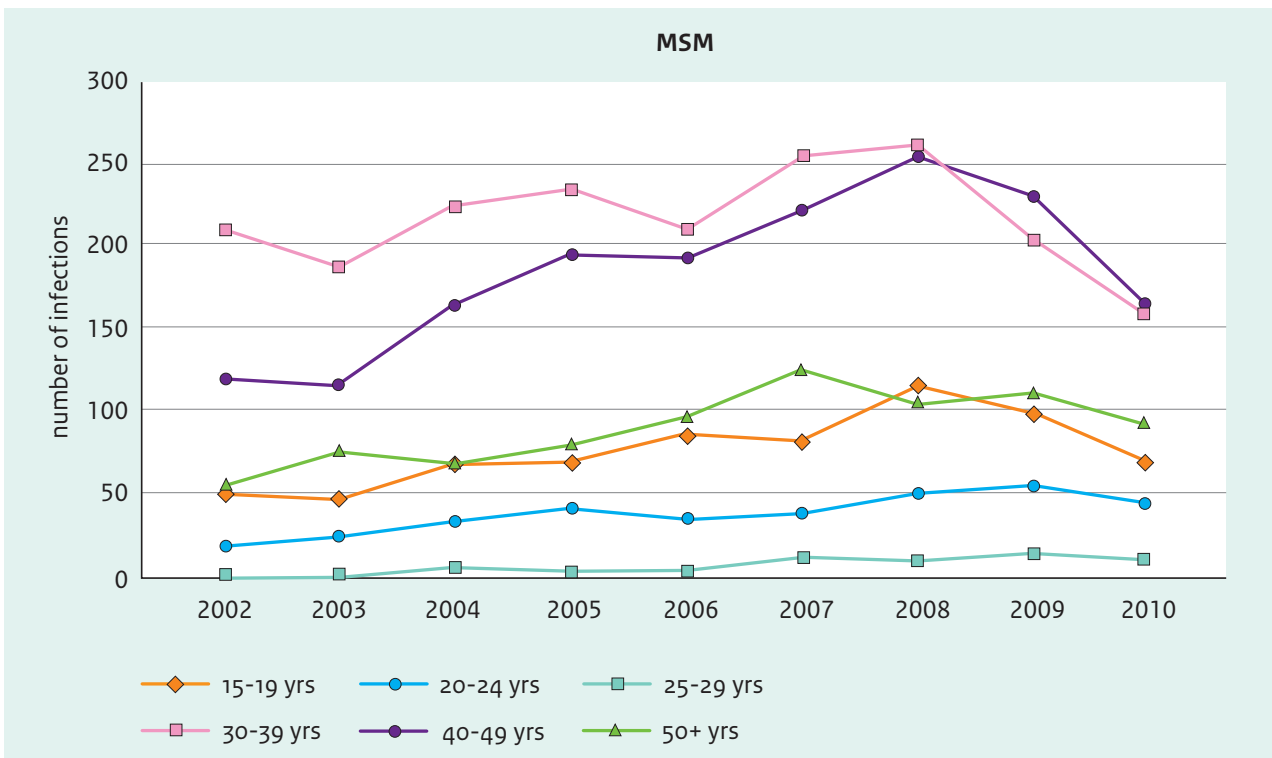
(Source: Stichting HIV Monitoring, 2010 incomplete).

Figure 6.9a Absolute number of reported HIV infections of heterosexual men by age and year of diagnosis, 2002–2010.



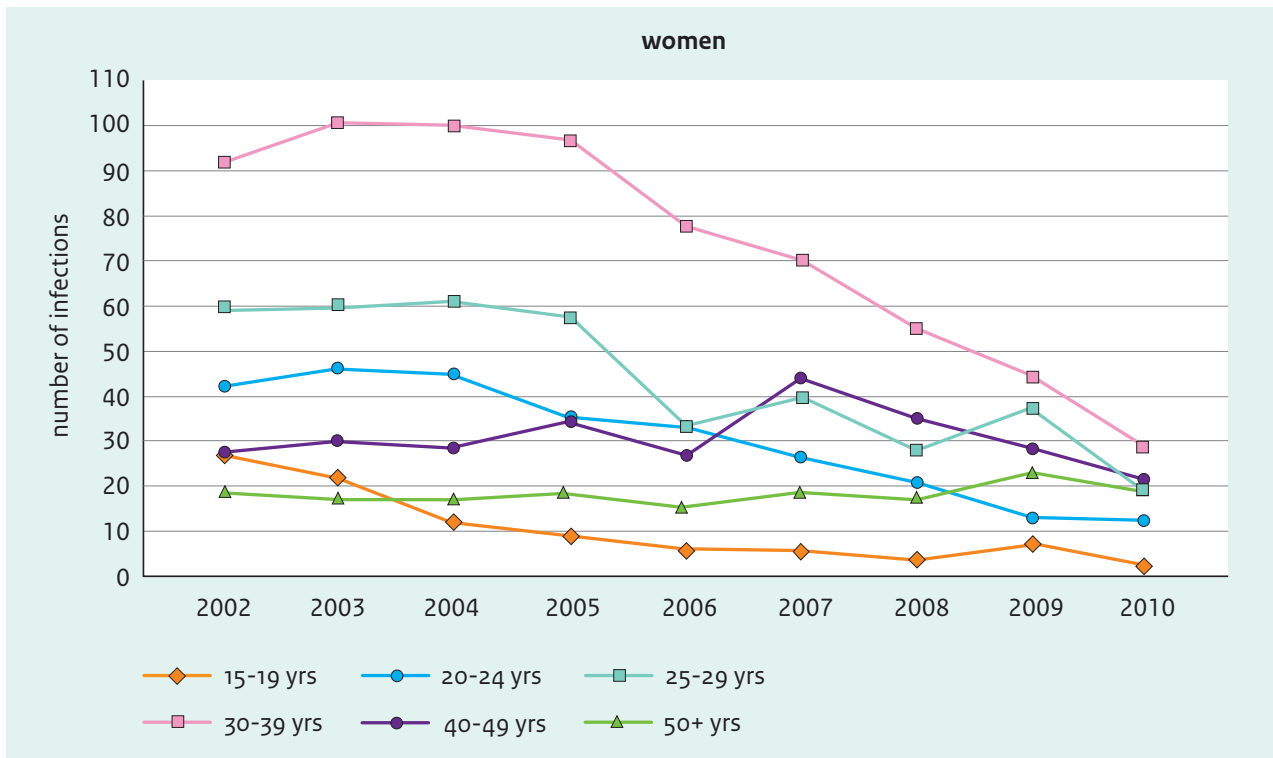
(Source: Stichting HIV Monitoring, 2010 incomplete).

Figure 6.9b Absolute number of reported HIV infections of MSM by age and year of diagnosis, 2002–2010.



(Source: Stichting HIV Monitoring, 2010 incomplete).

Figure 6.9c Absolute number of reported HIV infections of women by by age and year of diagnosis, 2002–2010.



(Source: Stichting HIV Monitoring, 2010 incomplete).

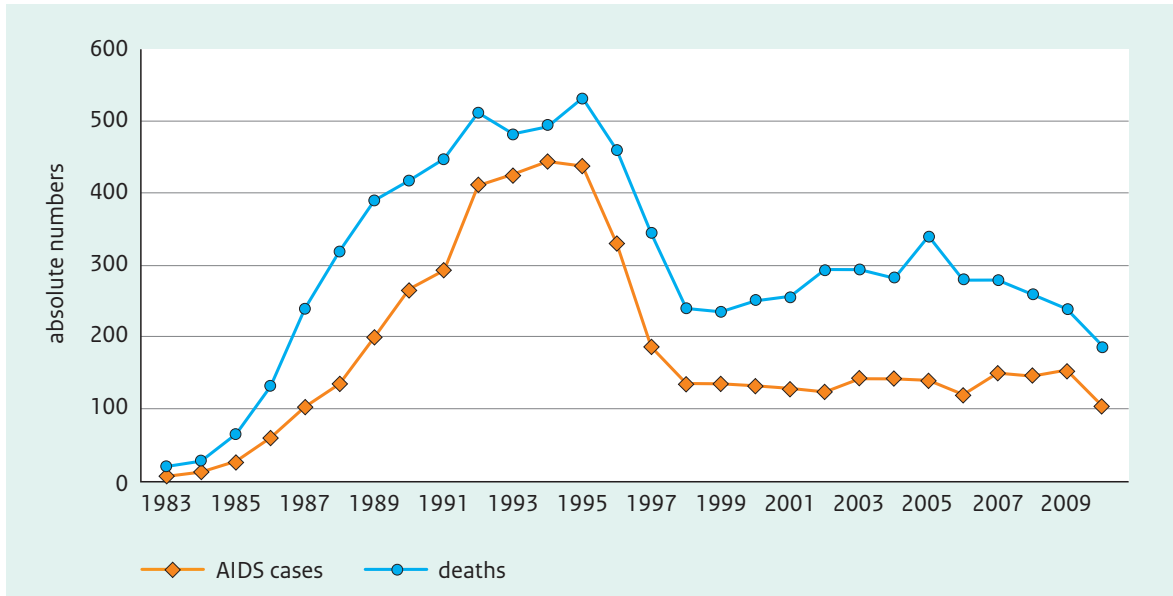
6.3.2 AIDS cases and deaths among HIV patients

Table 6.10 Number (per year and cumulative) of AIDS diagnoses and deaths among HIV patients, 1983–2010.

Year	AIDS diagnoses (per year)	AIDS diagnoses (cumulative)	Deaths (per year)	Deaths (cumulative)
1983	22	22	6	6
1984	31	53	16	22
1985	65	118	30	52
1986	137	255	63	115
1987	245	500	106	221
1988	325	825	135	356
1989	391	1216	202	558
1990	419	1635	269	827
1991	450	2085	294	1121
1992	510	2595	412	1533
1993	481	3076	427	1960
1994	494	3570	444	2404
1995	533	4103	439	2843
1996	459	4562	327	3170
1997	337	4899	184	3354
1998	238	5137	136	3490
1999	234	5371	137	3627
2000	249	5620	132	3759
2001	259	5879	128	3887
2002	296	6175	124	4011
2003	294	6469	143	4154
2004	285	6754	144	4298
2005	341	7095	141	4439
2006	280	7375	120	4559
2007	280	7655	150	4709
2008	260	7915	147	4856
2009	241	8156	153	5009
2010	189	8345	106	5115

(Sources: deaths among HIV patients: < 2002: Statistics Netherlands, CBS, ≥ 2002: data from the Stichting HIV Monitoring. Sources AIDS cases: < 1999: Health Inspectorate, ≥ 1999: Stichting HIV Monitoring, 2010 incomplete).

Figure 6.10 Number of AIDS cases and deaths among HIV patients, 1983–2010.



(Sources: AIDS cases: < 1999: AIDS registration Health Inspectorate, ≥ 1999: Stichting HIV Monitoring. Sources for deaths: < 2002: CBS, ≥ 2002: Stichting HIV Monitoring, 2010 incomplete).

Table 6.11 Number of AIDS patients by year of AIDS diagnosis and transmission risk group, ≤1987–2010.

Year of diagnosis	MSM	Heterosexual contact	Injecting drug use	Blood (contacts)	Mother to child	Other/unknown
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
≤ 1987	424 (84.8)	26 (5.2)	28 (5.6)	18 (3.6)	3 (0.6)	1 (0.2)
1988	250 (76.9)	18 (5.5)	39 (12.0)	13 (4.0)	2 (0.6)	3 (0.9)
1989	305 (78.0)	33 (8.4)	36 (9.2)	11 (2.8)	1 (0.3)	5 (1.3)
1990	318 (75.9)	34 (8.1)	42 (10.0)	17 (4.1)	3 (0.7)	5 (1.2)
1991	335 (74.4)	46 (10.2)	43 (9.6)	19 (4.2)	2 (0.4)	5 (1.1)
1992	376 (73.7)	51 (10.0)	60 (11.8)	12 (2.4)	2 (0.4)	9 (1.8)
1993	317 (65.9)	80 (16.6)	61 (12.7)	8 (1.7)	3 (0.6)	12 (2.5)
1994	314 (63.6)	94 (19.0)	65 (13.2)	14 (2.8)	2 (0.4)	5 (1.0)
1995	314 (58.9)	116 (21.8)	74 (13.9)	7 (1.3)	9 (1.7)	13 (2.4)
1996	299 (65.1)	95 (20.7)	50 (10.9)	5 (1.1)	2 (0.4)	8 (1.7)
1997	174 (51.6)	104 (30.9)	43 (12.8)	3 (0.9)	2 (0.6)	11 (3.3)
1998	116 (48.7)	78 (32.8)	27 (11.3)	1 (0.4)	3 (1.3)	13 (5.5)
1999	120 (51.3)	76 (32.5)	12 (5.1)	4 (1.7)	6 (2.6)	16 (6.8)
2000	103 (41.4)	103 (41.4)	15 (6.0)	4 (1.6)	4 (1.6)	20 (8.0)
2001	106 (40.9)	106 (40.9)	11 (4.2)	6 (2.3)	6 (2.3)	24 (9.3)
2002	112 (37.8)	137 (46.3)	9 (3.0)	5 (1.7)	2 (0.7)	31 (10.5)
2003	115 (39.1)	116 (39.5)	14 (4.8)	7 (2.4)	6 (2.0)	36 (12.2)
2004	114 (40.0)	113 (39.6)	11 (3.9)	3 (1.1)	3 (1.1)	41 (14.4)
2005	146 (42.8)	134 (39.3)	20 (5.9)	4 (1.2)	2 (0.6)	35 (10.3)
2006	119 (42.5)	110 (39.3)	11 (3.9)	4 (1.4)	0 (0.0)	36 (12.9)
2007	131 (46.8)	105 (37.5)	11 (3.9)	3 (1.1)	1 (0.4)	29 (10.4)
2008	127 (48.8)	92 (35.4)	6 (2.3)	6 (2.3)	0 (0.0)	29 (11.2)
2009	121 (50.2)	89 (36.9)	8 (3.3)	1 (0.4)	0 (0.0)	22 (9.1)
2010	91 (48.4)	78 (41.5)	4 (2.1)	1 (0.5)	0 (0.0)	14 (7.4)
Total	4947 (59.3)	2034 (24.4)	700 (8.4)	176 (2.1)	64 (0.8)	423 (5.1)

(Sources: < 1999: Health Inspectorate, 1999–2010: Stichting HIV Monitoring, 2010 incomplete).

Table 6.12 Number of deaths among HIV/AIDS patients by year of death and transmission risk group, 2002–2010.

Year of death	MSM	Heterosexual contact	Injecting drug use	Blood (products)*	Other/unknown
	n (%)	n (%)	n (%)	n (%)	n (%)
2002	55 (44.4)	31 (25.0)	18 (14.5)	4 (3.2)	16 (12.9)
2003	54 (37.8)	35 (24.5)	33 (23.1)	4 (2.8)	17 (11.9)
2004	81 (56.3)	37 (25.7)	15 (10.4)	1 (0.7)	10 (6.9)
2005	63 (44.7)	41 (29.1)	16 (11.3)	1 (0.7)	20 (14.2)
2006	57 (47.5)	27 (22.5)	15 (12.5)	2 (1.7)	19 (15.8)
2007	82 (54.7)	34 (22.7)	17 (11.3)	3 (2.0)	14 (9.3)
2008	76 (51.7)	39 (26.5)	22 (15.0)	1 (0.7)	9 (6.1)
2009	81 (52.9)	36 (23.5)	15 (9.8)	3 (2.0)	18 (11.8)
2010	49 (46.2)	26 (24.5)	13 (12.3)	3 (2.8)	15 (14.2)

Footnote: mother to child transmission did not lead to death.

*Including needle stick injury.

(Source: Stichting HIV Monitoring).

6.4 Other sources

6.4.1 Screening pregnant women

Table 6.13 HIV prevalence estimates in pregnant women, based on test results of antenatal screening, 2006–2009.

Year	No. of women screened	Positive result 12 weeks test	Confirmed positive test results (%)	Prevalence estimate [min, max] *
2006	185,602	342	81 (24%)	0.05 [0.04–0.08]
2007	185,791	327	90 (27%)	0.05 [0.05–0.05]
2008	189,765	289	68 (24%)	0.05 [0.04–0.07]
2009	185,219	324	100 (31%)	0.05 [0.05–0.07]

Footnote: Terminated pregnancies (induced or spontaneous) are excluded.

*Prevalence estimated under the assumption that pregnant women with a first positive test result without a confirmation test would be as often positive as those with a confirmation test; minimum prevalence: number of confirmed positive test results divided by the total number of registered pregnant women; maximum prevalence: under the assumption that all pregnant women with a first positive test result without a confirmation test would also have a positive confirmation test.

(Source: Praeventis, RIVM).

6.4.2 Blood donors

Figure 6.11 HIV incidence (per 100,000) among regular blood donors in the Netherlands, 2000–2009.



(Source: Sanquin).

6.4.3 HIV incidence in MSM and IDU in the Amsterdam Cohort Studies

Figure 6.12 Yearly HIV incidence among MSM in Amsterdam Cohort Studies, 1985–2010.

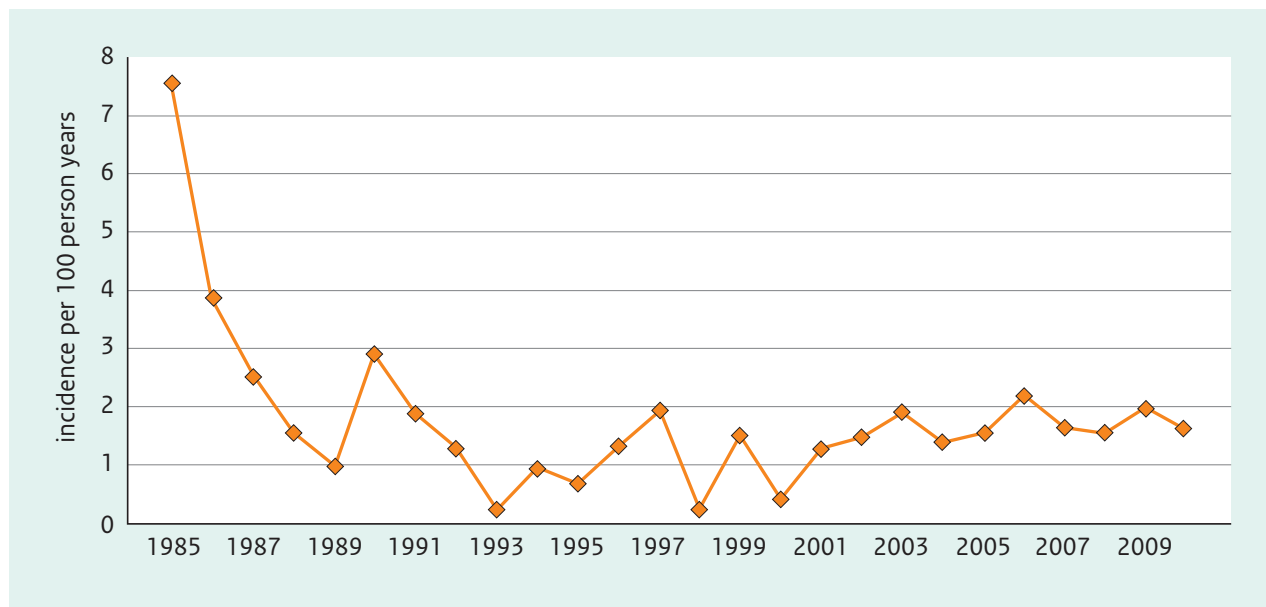
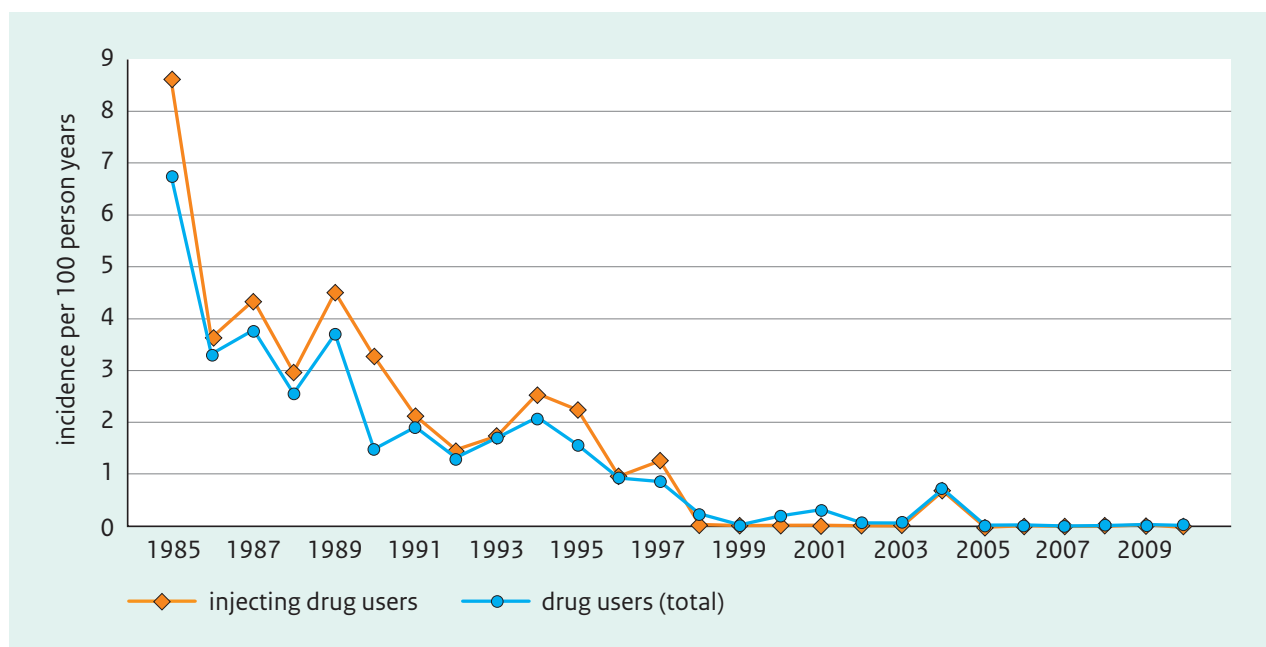


Figure 6.13 Yearly HIV incidence among IDUs (≤ 30 years at entry) in Amsterdam Cohort Studies, 1986–2010.



7 Genital warts

7.1 Key points

- In 2010, the number of diagnoses of genital warts reported in the national surveillance of STI centres remained the same (2729 in 2010 versus 2726 in 2009). Distribution of diagnoses in gender was: 43% in heterosexual men, 39% in women and 18% in MSM.
- Women and heterosexual men were diagnosed at younger age than MSM. They had a median age of 23 and 27 years, respectively. In MSM the median age was 34 years.
- The most frequently diagnosed co-infection was chlamydia, which was found in 10.7% of the cases with genital warts, slightly lower than the overall positivity rate of chlamydia (11.2%).
- At GPs, the number of reported diagnoses of genital warts was estimated at 21,654 (95% CI 17,374–27,337) in 2009 (53% men and 47% women), a small increase of 7% compared with 2008. In particular, the number of diagnoses of genital warts among men increased (by 13% compared with 2008).
- Genital warts are caused by the Human Papillomavirus (HPV). In 2010, HPV vaccination against HPV types 16 and 18, associated with cervical carcinoma, is implemented in the National Immunisation Programme (NIP) for 12 year old girls.¹⁰ The quadrivalent vaccine which also protects against HPV types 6 and 11, associated with genital warts, is also available in the Netherlands, but is not offered by the NIP.

¹⁰ van der Avoort HGAM, et al. The National Immunisation Programme in the Netherlands; Developments in 2010. Report 210021013. RIVM, Bilthoven, 2010.

7.2 STI centres: characteristics, risk groups and trends

Figure 7.1 Number of new cases of genital warts by gender and sexual preference, 2004–2010.

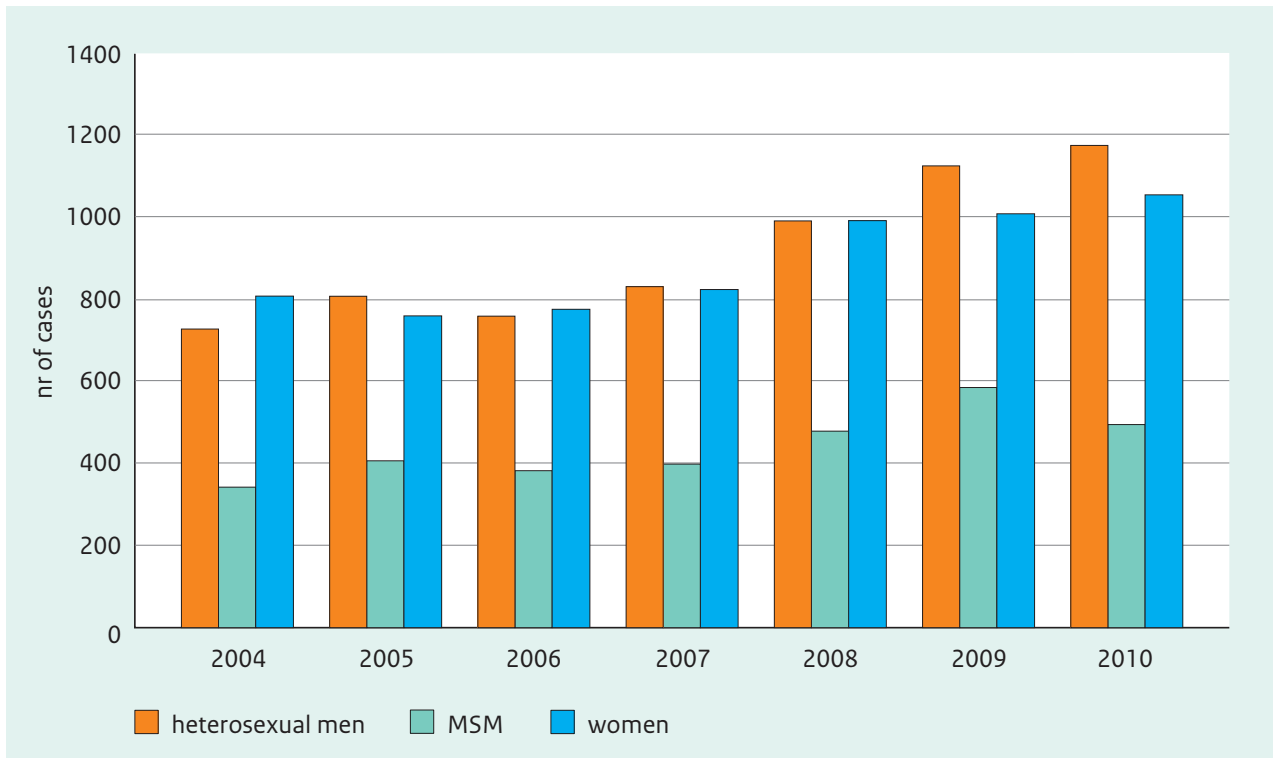


Table 7.1 Number of diagnoses of genital warts by age, gender and sexual preference, 2010.

Age (years)	Heterosexual men	MSM	Women
	n (%)	n (%)	n (%)
0–14	0 (0.0)	0 (0.0)	0 (0.0)
15–19	32 (2.7)	11 (2.2)	150 (14.2)
20–24	344 (29.3)	100 (20.2)	456 (43.2)
25–29	377 (32.1)	74 (14.9)	210 (19.9)
30–34	157 (13.4)	82 (16.5)	92 (8.7)
35–39	85 (7.2)	64 (12.9)	63 (6.0)
40–44	66 (5.6)	61 (12.3)	43 (4.1)
45–49	63 (5.4)	41 (8.3)	23 (2.2)
50–54	31 (2.6)	25 (5.0)	12 (1.1)
≥ 55	20 (1.7)	38 (7.7)	6 (0.6)
Unknown	0 (0.0)	0 (0.0)	0 (0.0)
Total	1175	496	1055

Table 7.2 Number of diagnoses of genital warts by ethnicity, gender and sexual preference, 2010.

Ethnicity	Heterosexual men	MSM	Women
	n (%)	n (%)	n (%)
The Netherlands	990 (84.3)	409 (82.5)	936 (88.7)
Turkey	17 (1.4)	4 (0.8)	2 (0.2)
North Africa/Morocco	38 (3.2)	3 (0.6)	9 (0.9)
Surinam	31 (2.6)	8 (1.6)	13 (1.2)
Netherlands Antilles/Aruba	13 (1.1)	5 (1.0)	5 (0.5)
Sub-Saharan Africa	12 (1.0)	2 (0.4)	5 (0.5)
Eastern Europe	6 (0.5)	11 (2.2)	24 (2.3)
Latin America	8 (0.7)	17 (3.4)	11 (1.0)
Asia	16 (1.4)	11 (2.2)	12 (1.1)
Europe other	19 (1.6)	3 (0.6)	21 (2.0)
Else	23 (2.0)	23 (4.6)	14 (1.3)
Unknown	2 (0.2)	0 (0.0)	3 (0.3)
Total	1175	496	1055

Table 7.3 Number of diagnoses of genital warts by sexual behavioural characteristics, gender and sexual preference, 2010.

	Heterosexual men n (%)	MSM n (%)	Women n (%)
Number of partners in past 6 months			
0 partners	30 (2.6)	8 (1.6)	32 (3.0)
1 partner	411 (35.0)	61 (12.3)	436 (41.3)
2 partners	231 (19.7)	55 (11.1)	240 (22.7)
3 or more partners	479 (40.8)	344 (69.4)	287 (27.2)
Unknown	24 (2.0)	28 (5.6)	60 (5.7)
Condom use at last sexual contact*			
No	422 (70.8)	100 (53.5)	413 (73.2)
Yes	169 (28.4)	81 (43.3)	144 (25.5)
Unknown	5 (0.8)	6 (3.2)	7 (1.2)
Previous GO/CT/syphilis in anamnesis			
No	996 (84.8)	374 (75.4)	902 (85.5)
Yes	120 (10.2)	105 (21.2)	104 (9.9)
Do not know	45 (3.8)	10 (2.0)	34 (3.2)
Unknown	14 (1.2)	7 (1.4)	15 (1.4)
Previous HIV test			
No	503 (42.8)	67 (13.5)	455 (43.1)
Yes, positive	3 (0.3)	65 (13.1)	0 (0.0)
Yes, negative	646 (55.0)	361 (72.8)	584 (55.4)
Yes, result unknown	2 (0.2)	1 (0.2)	1 (0.1)
Unknown	21 (1.8)	2 (0.4)	15 (1.4)
CSW, women			
No			995 (94.3)
Yes, in past 6 months			55 (5.2)
Unknown			5 (0.5)
Client of CSW, men			
No	1061 (90.3)	486 (98.0)	
Yes, in past 6 months	114 (9.7)	8 (1.6)	
Unknown	0 (0.0)	2 (0.4)	
Swinger*			
No	540 (93.4)	163 (92.6)	495 (92.5)
Yes	37 (6.4)	13 (7.4)	37 (6.9)
Unknown	1 (0.2)	0 (0.0)	3 (0.6)

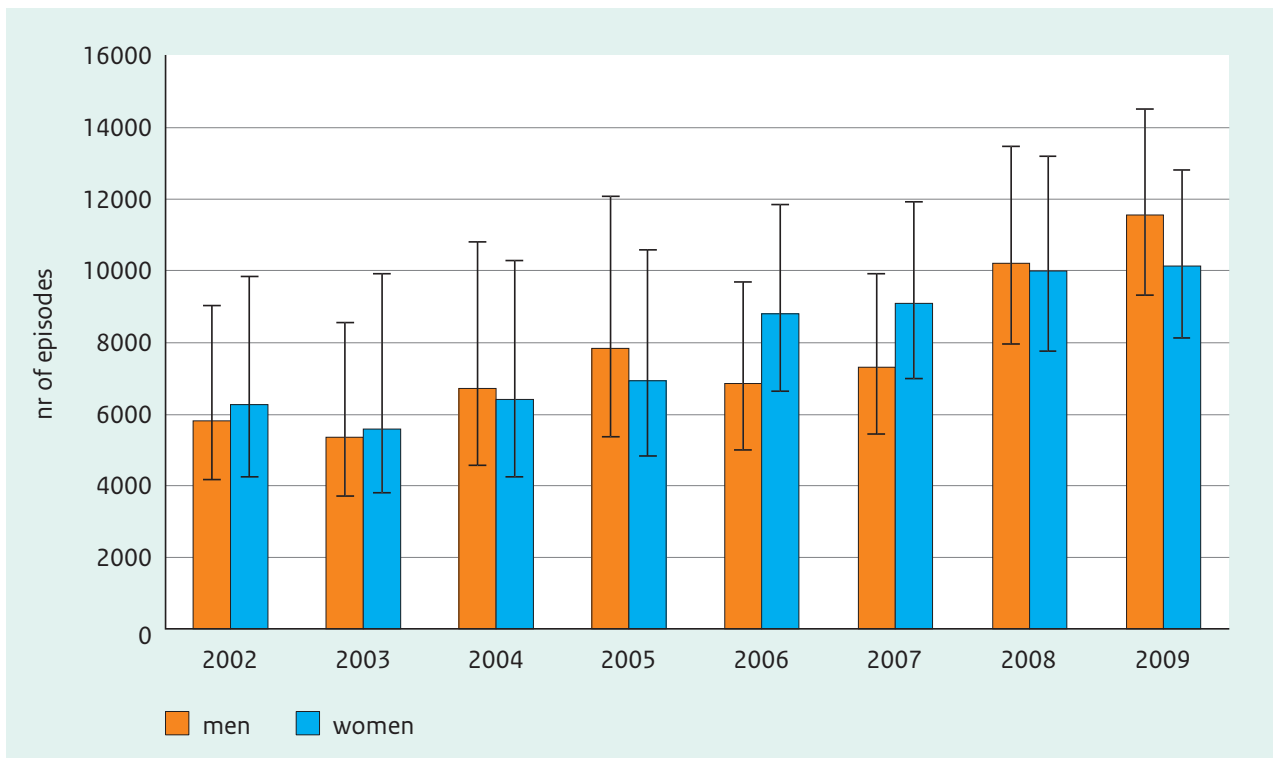
* Voluntary question, condom use answered by 44% (n = 1347) and swinger by 45% (n = 1289) of persons with genital warts.

Table 7.4 Concurrent STI by gender and sexual preference among persons diagnosed with genital warts, 2010.

Concurrent infection	Heterosexual men (N = 1175) n (%)	MSM (N = 496) n (%)	Women (N = 1055) n (%)
Gonorrhoea	10 (0.9)	53 (10.7)	10 (0.9)
Chlamydia	109 (9.3)	53 (10.7)	129 (12.2)
Infectious syphilis	2 (0.2)	14 (2.8)	0 (0.0)
HIV newly diagnosed	0 (0.0)	16 (3.2)	1 (0.1)
Genital herpes	4 (0.3)	3 (0.6)	4 (0.4)
Hepatitis B, infectious	1 (0.1)	0 (0.0)	0 (0.0)

7.3 General practitioner

Figure 7.2 Estimated number (and 95% CI) of episodes of genital warts at GPs by gender, based on extrapolation from 61–114 practices in the surveillance network of GPs in the Netherlands, 2002–2009.



(Source: LINH).

Table 7.5 Reporting rate (number of episodes per 100,000 population) of genital warts at GPs in the Netherlands by gender, 2002–2009.

Year	Men		Women		Total	
	n/100,000	95% CI	n/100,000	95% CI	n/100,000	95% CI
2002	72.6	(52.3–113.1)	76.7	(52.5–120.9)	74.6	(52.4–117.0)
2003	66.6	(46.7–106.4)	68.0	(46.1–121.2)	67.3	(46.4–113.8)
2004	83.1	(56.0–133.8)	77.7	(51.6–125.0)	80.4	(53.8–129.4)
2005	96.8	(66.7–149.2)	84.1	(58.5–128.4)	90.4	(62.6–138.8)
2006	84.5	(61.9–119.7)	106.0	(80.0–143.6)	95.2	(70.9–131.7)
2007	89.8	(67.5–122.1)	110.1	(84.8–144.4)	99.9	(76.2–133.2)
2008	126.1	(97.8–166.3)	120.5	(93.4–158.4)	123.3	(95.6–162.4)
2009	141.2	(113.7–177.8)	121.5	(97.0–153.9)	131.3	(105.4–165.8)

CI = confidence interval.

(Source: LINH).

8

Genital herpes

8.1 Key points

- In 2010, 691 diagnoses of genital herpes were made in the national surveillance of STI centres (35% in heterosexual men, 16% in MSM, 49% in women), an increase of 6% in comparison with 2009.
- In women, almost half of all diagnoses were made in those younger than 25 years (47%), for heterosexual men the median age was 29 years. MSM were found positive at a higher age, median age of 38 years.
- At GPs, the number of reported diagnoses of genital herpes was estimated at 12,174 (95% CI 9,461–15,785) in 2009 (28% men and 72% women), a decline of 8% compared with 2008. In particular, the number of diagnoses of genital herpes among men decreased (by 16% compared with 2008).

8.2 STI centres: characteristics, risk groups and trends

Figure 8.1 Number of new diagnoses of genital herpes infections by gender and sexual preference, 2004–2010.

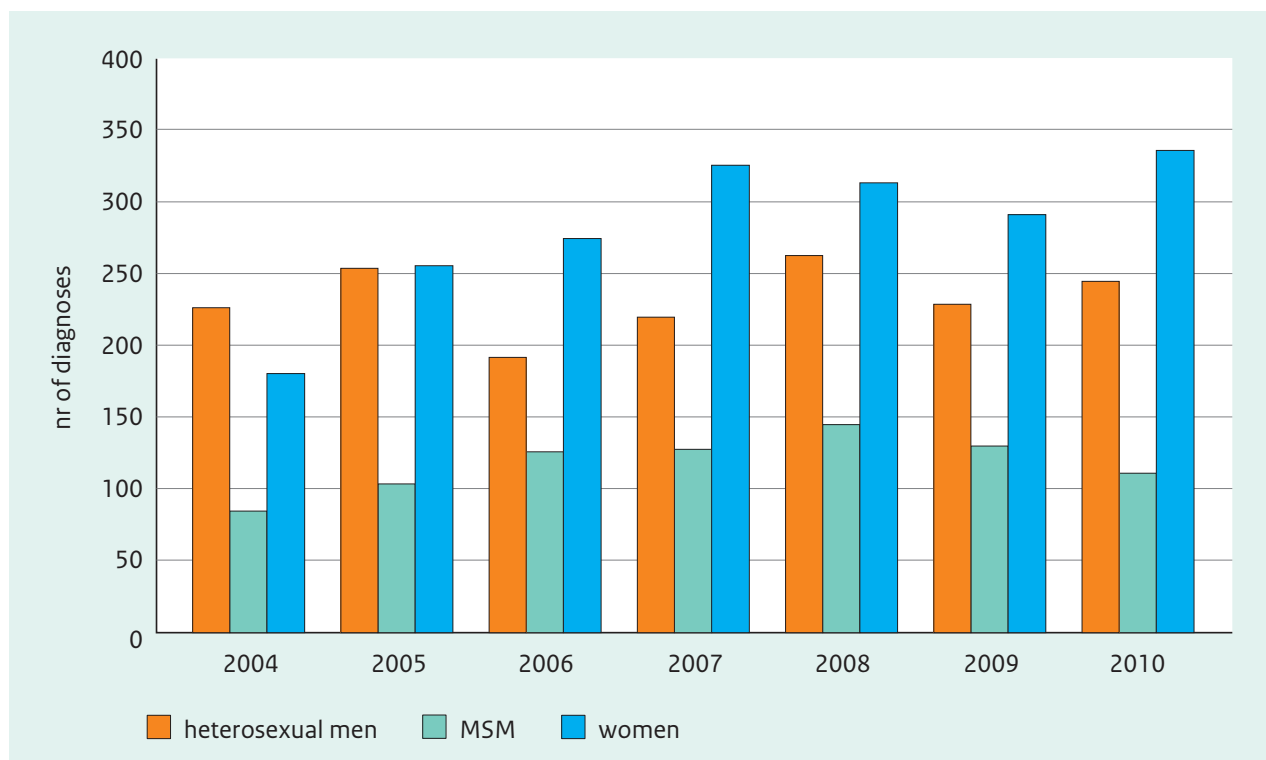


Table 8.1 Number of diagnoses of genital herpes by age, gender and sexual preference, 2010.

Age (years)	Heterosexual men	MSM	Women
	n (%)	n (%)	n (%)
0–14	0 (0.0)	0 (0.0)	0 (0.0)
15–19	12 (4.9)	1 (0.9)	41 (12.2)
20–24	50 (20.5)	12 (10.9)	119 (35.3)
25–29	64 (26.2)	12 (10.9)	84 (24.9)
30–34	43 (17.6)	19 (17.3)	35 (10.4)
35–39	24 (9.8)	17 (15.5)	18 (5.3)
40–44	20 (8.2)	17 (15.5)	19 (5.6)
45–49	15 (6.1)	17 (15.5)	12 (3.6)
50–54	4 (1.6)	6 (5.5)	6 (1.8)
≥ 55	12 (4.9)	9 (8.2)	3 (0.9)
Unknown	0 (0.0)	0 (0.0)	0 (0.0)
Total	244	110	337

Table 8.2 Number of diagnoses of genital herpes by ethnicity, gender and sexual preference, 2010.

Ethnicity	Heterosexual men	MSM	Women
	n (%)	n (%)	n (%)
The Netherlands	190 (77.9)	92 (83.6)	263 (78.0)
Turkey	2 (0.8)	1 (0.9)	0 (0.0)
North Africa/Morocco	3 (1.2)	1 (0.9)	4 (1.2)
Surinam	18 (7.4)	2 (1.8)	18 (5.3)
Netherlands Antilles/Aruba	3 (1.2)	0 (0.0)	5 (1.5)
Sub-Saharan Africa	6 (2.5)	1 (0.9)	3 (0.9)
Eastern Europe	0 (0.0)	1 (0.9)	8 (2.4)
Latin America	9 (3.7)	5 (4.5)	8 (2.4)
Asia	4 (1.6)	2 (1.8)	3 (0.9)
Europe other	4 (1.6)	1 (0.9)	11 (3.3)
Else	4 (1.6)	4 (3.6)	0 (0.0)
Unknown	1 (0.4)	0 (0.0)	14 (4.2)
Total	244	110	337

Table 8.3 Number of diagnoses of genital herpes by sexual behavioural characteristics, gender and sexual preference, 2010.

	Heterosexual men n (%)	MSM n (%)	Women n (%)
Number of partners in past 6 months			
0 partners	4 (1.6)	0 (0.0)	2 (0.6)
1 partner	70 (28.7)	11 (10.0)	144 (42.7)
2 partners	59 (24.2)	12 (10.9)	91 (27.0)
3 or more partners	106 (43.4)	83 (75.5)	91 (27.0)
Unknown	5 (2.0)	4 (3.6)	9 (2.7)
Condom use at last sexual contact*			
No	76 (80.0)	12 (52.2)	119 (81.5)
Yes	18 (18.9)	11 (47.8)	27 (18.5)
Unknown	1 (1.1)	0 (0.0)	0 (0.0)
Previous GO/CT/syphilis in anamnesis			
No	206 (84.4)	74 (67.3)	292 (86.6)
Yes	30 (12.3)	36 (32.7)	37 (11.0)
Do not know	6 (2.5)	0 (0.0)	6 (1.8)
Unknown	2 (0.8)	0 (0.0)	2 (0.6)
Previous HIV test			
No	97 (39.8)	8 (7.3)	121 (35.9)
Yes, positive	1 (0.4)	41 (37.3)	2 (0.6)
Yes, negative	144 (59.0)	61 (55.5)	205 (60.8)
Yes, result unknown	1 (0.4)	0 (0.0)	1 (0.3)
Unknown	1 (0.4)	0 (0.0)	8 (2.4)
CSW, women			
No			318 (94.4)
Yes, in past 6 months			18 (5.3)
Unknown			1 (0.3)
Client of CSW, men			
No	217 (88.9)	110 (100.0)	
Yes, in past 6 months	26 (10.7)	0 (0.0)	
Unknown	1 (0.4)	0 (0.0)	
Swinger*			
No	92 (95.8)	28 (100.0)	140 (97.2)
Yes	4 (4.2)	0 (0.0)	4 (2.8)
Unknown	0 (0.0)	0 (0.0)	0 (0.0)

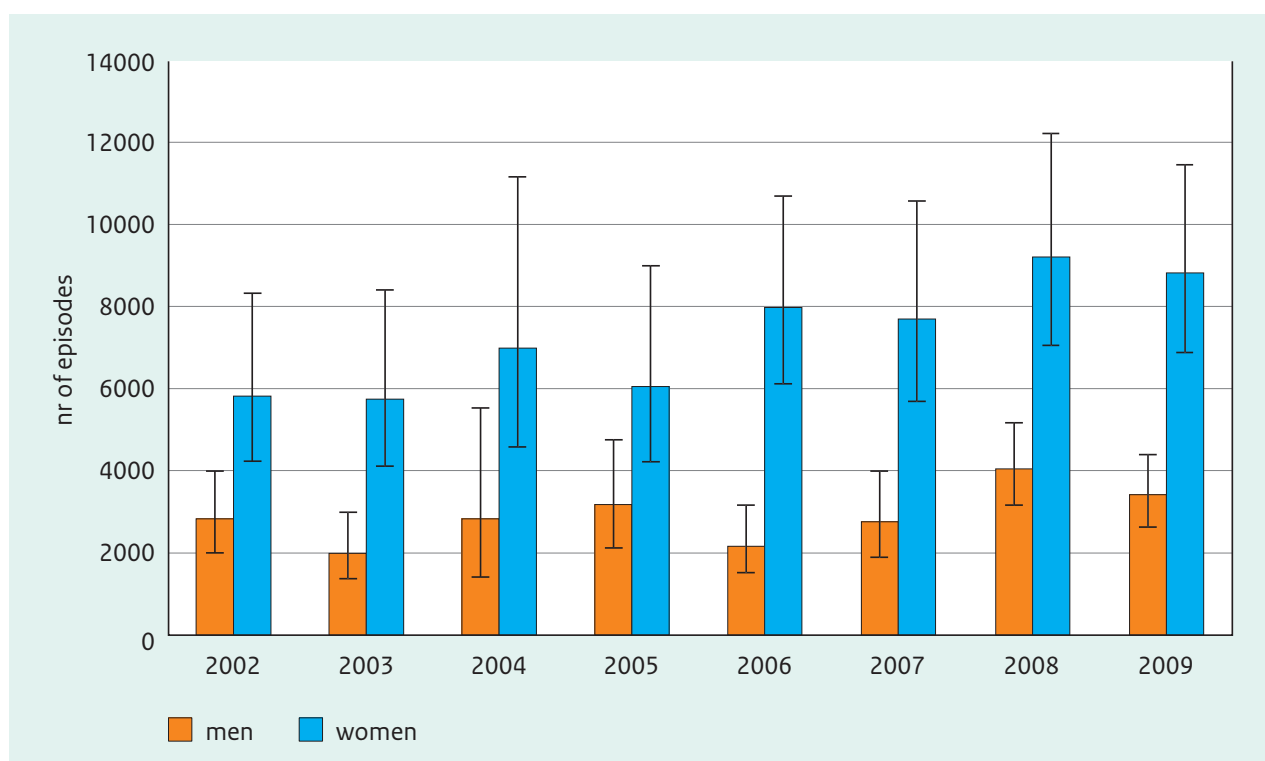
* Voluntary question, condom use answered by 38% (n = 264) and swinger by 39% (n = 268) of persons with genital herpes.

Table 8.4 Concurrent STI by gender and sexual preference among persons diagnosed with genital herpes, 2010.

Concurrent infection	Heterosexual men (N = 244) n (%)	MSM (N = 110) n (%)	Women (N = 337) n (%)
Gonorrhoea	4 (1.6)	6 (5.5)	7 (2.1)
Chlamydia	21 (8.6)	15 (13.6)	24 (7.1)
Infectious syphilis	0 (0.0)	4 (3.6)	0 (0.0)
HIV newly diagnosed	1 (0.4)	1 (0.9)	0 (0.0)
Genital warts	4 (1.6)	3 (2.7)	4 (1.2)
Hepatitis B, infectious	1 (0.4)	0 (0.0)	0 (0.0)

8.3 General practitioner

Figure 8.2 Estimated number (and 95% CI) of episodes of genital herpes at GPs by gender, based on extrapolation from 61–114 practices in the surveillance network of GPs in the Netherlands, 2002–2009.



(Source: LINH).

Table 8.5 Reporting rate (number of episodes per 100,000 population) of genital herpes at GPs in the Netherlands by gender, 2002–2009.

Year	Men		Women		Total	
	n/100,000	95% CI	n/100,000	95% CI	n/100,000	95% CI
2002	35.5	(25.0–50.5)	71.9	(52.0–102.8)	53.7	(38.5–76.6)
2003	25.0	(16.6–37.5)	70.2	(50.5–103.0)	47.6	(33.6–70.3)
2004	34.8	(17.7–68.7)	85.0	(56.2–136.2)	59.9	(36.9–102.4)
2005	39.4	(26.3–59.1)	73.3	(51.4–109.3)	56.4	(38.8–84.2)
2006	27.1	(18.6–39.5)	96.8	(74.0–129.6)	62.0	(46.3–84.6)
2007	34.1	(23.6–49.2)	93.1	(68.9–128.3)	63.6	(46.3–88.7)
2008	49.9	(39.2–63.6)	111.1	(85.4–147.3)	80.5	(62.3–105.4)
2009	41.9	(32.5–54.1)	105.8	(82.3–137.4)	73.8	(57.4–95.8)

CI = confidence interval.

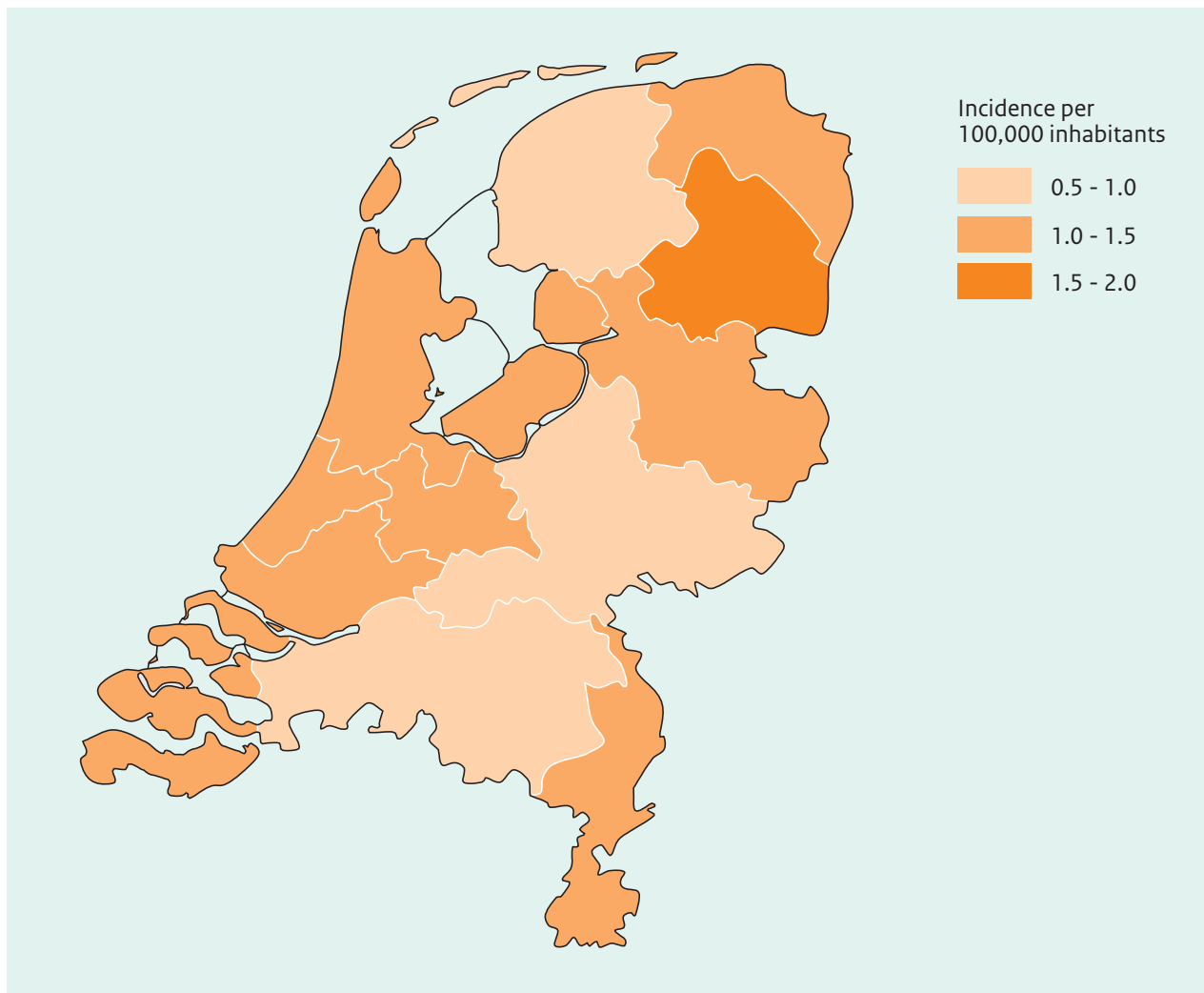
(Source: LINH).

9 Hepatitis B

9.1 Key points

- In 2010, the incidence of notified cases of acute hepatitis B was 1.1 per 100,000 inhabitants and was higher in men (1.7) than in women (0.5). In 2009, 1.2 per 100,000 inhabitants were notified with acute hepatitis B.
- The number of acute hepatitis B notifications decreased by 11% compared with 2009, mainly due to a decrease in heterosexual transmission (-18%) and transmission by MSM (-16%).
- Unprotected sexual contact remained the most important risk factor for acute hepatitis B (66%).
- In the STI centres, 195 diagnoses of infectious hepatitis B were made.
- Data from the screening of pregnant women showed an estimated prevalence of hepatitis B of 0.36% in 2009.
- At the end of 2010 more than 100,000 people entered the vaccination programme for behavioural risk groups since the beginning of the programme in 2002.
- Within the programme nearly 600 carriers of hepatitis B have been encountered among the specific risk groups and 7.7% of the participants in this programme have been into contact with hepatitis B previously.

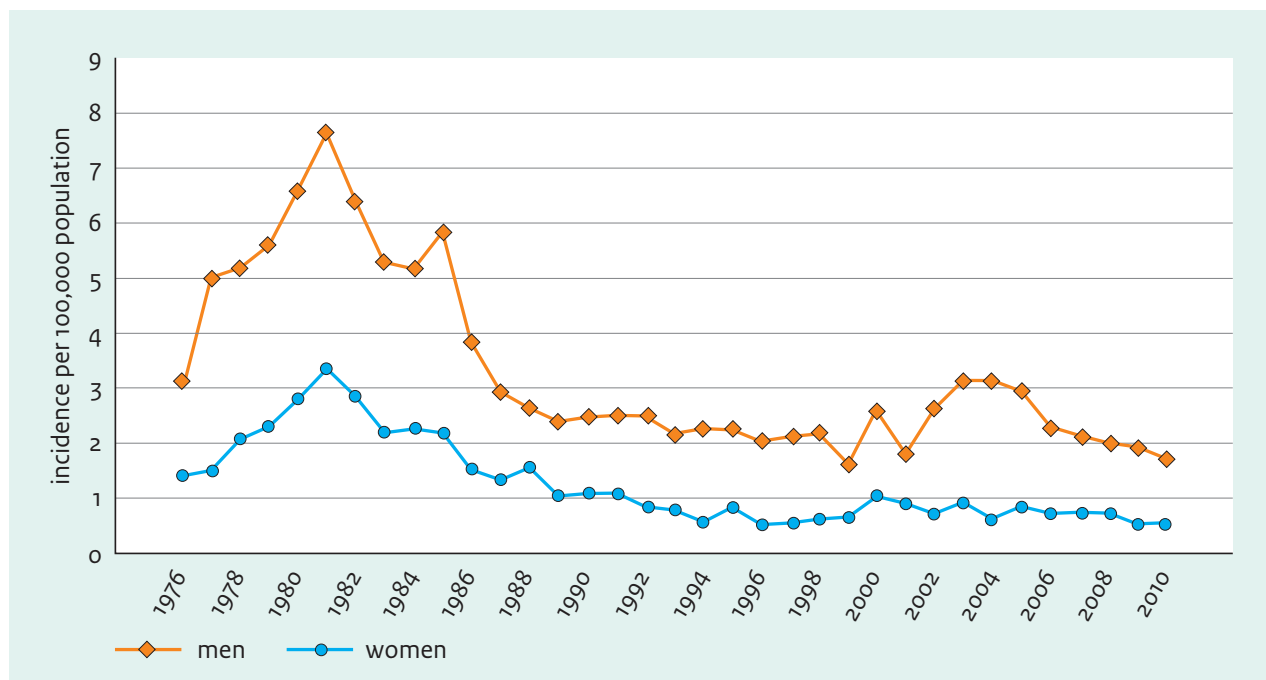
Figure 9.1 Incidence of acute hepatitis B per 100,000 inhabitants by region, the Netherlands, 2010.



(Source: RIVM-OSIRIS, notification data).

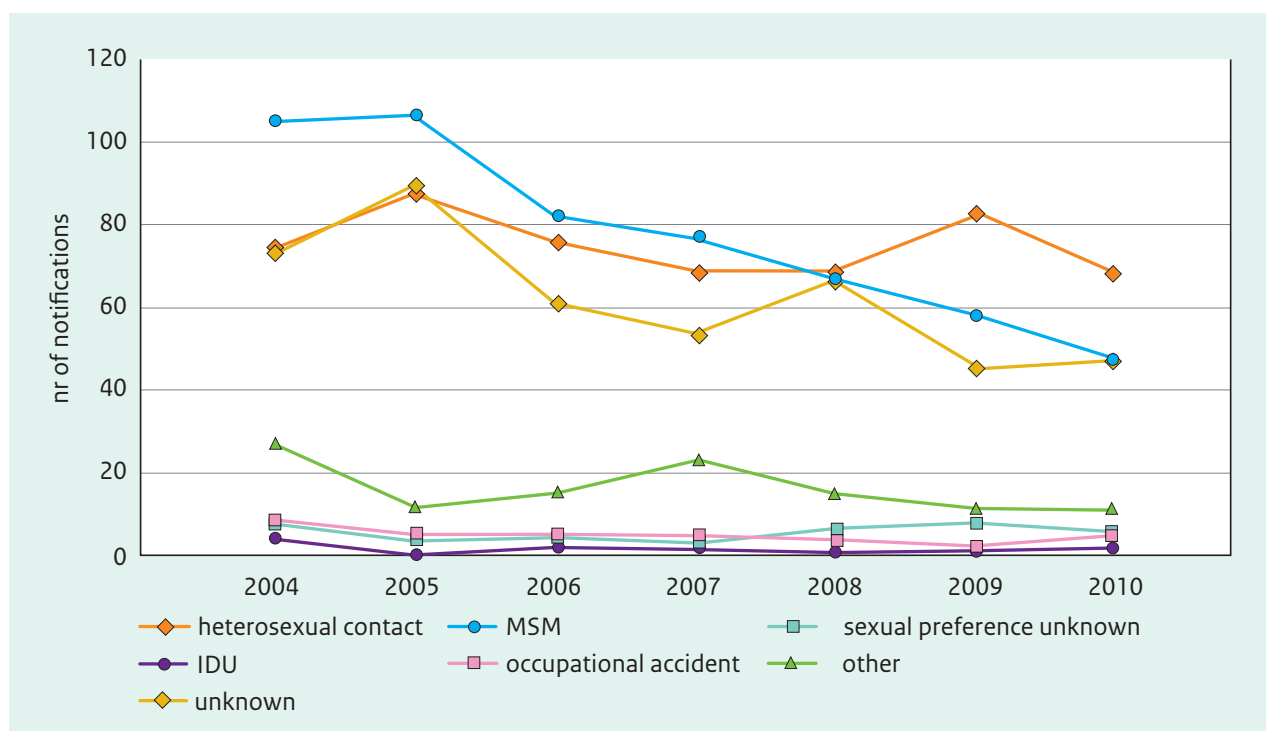
9.2 Notification data: characteristics, risk groups and trends

Figure 9.2 Incidence of acute hepatitis B by gender, 1976–2010.



(Source: RIVM-OSIRIS, notification data).

Figure 9.3 Number of infections of acute hepatitis B by route of transmission, 2004–2010.



(Source: RIVM-OSIRIS, notification data).

Table 9.1 Proportion of acute hepatitis B cases by most common route of transmission, the Netherlands, 2010.

	Heterosexual contact (N = 68) n (%)*	MSM (N = 47) n (%)*	Other (N = 67) n (%)*
Infected abroad	16 (23.5)	7 (14.9)	15 (22.4)
Born abroad	16 (23.5)	5 (10.6)	14 (20.9)
Infected by casual partner	45 (66.2)	36 (76.6)	–
Median age (+ range)	37 (14–69)	46 (21–78)	44 (20–86)

*Proportions per category can overlap, so percentages do not add up to 100%.

(Source: RIVM-OSIRIS, notification data).

9.3 Infectious hepatitis B in the STI centres

Table 9.2 Number of diagnoses of infectious hepatitis B by age, gender and sexual preference, 2010.

Age (years)	Heterosexual men n (%)	MSM n (%)	Women n (%)
0–14	0 (0.0)	0 (0.0)	0 (0.0)
15–19	1 (1.0)	0 (0.0)	9 (17.6)
20–24	15 (15.6)	5 (10.4)	10 (19.6)
25–29	31 (32.3)	11 (22.9)	11 (21.6)
30–34	17 (17.7)	9 (18.8)	7 (13.7)
35–39	11 (11.5)	2 (4.2)	8 (15.7)
40–44	13 (13.5)	5 (10.4)	3 (5.9)
45–49	3 (3.1)	7 (14.6)	3 (5.9)
50–54	2 (2.1)	5 (10.4)	0 (0.0)
≥ 55	3 (3.1)	4 (8.3)	0 (0.0)
Total	96	48	51

Table 9.3 Number of diagnoses of infectious hepatitis B by ethnicity, gender and sexual preference, 2010.

Ethnicity	Heterosexual men n (%)	MSM n (%)	Women n (%)
The Netherlands	29 (30.2)	24 (50.0)	7 (13.7)
Turkey	7 (7.3)	0 (0.0)	1 (2.0)
North Africa/Morocco	4 (4.2)	0 (0.0)	0 (0.0)
Surinam	8 (8.3)	1 (2.1)	3 (5.9)
Netherlands Antilles/Aruba	1 (1.0)	0 (0.0)	1 (2.0)
Sub-Saharan Africa	30 (31.3)	0 (0.0)	10 (19.6)
Eastern Europe	5 (5.2)	7 (14.6)	12 (23.5)
Latin America	0 (0.0)	4 (8.3)	2 (3.9)
Asia	5 (5.2)	5 (10.4)	10 (19.6)
Europe other	3 (3.1)	3 (6.3)	3 (5.9)
Else	2 (2.1)	4 (8.3)	2 (3.9)
Unknown	2 (2.1)	0 (0.0)	0 (0.0)
Total	96	48	51

Table 9.4 Number of diagnoses of infectious hepatitis B by sexual behavioural characteristics, gender and sexual preference, 2010.

	Heterosexual men n (%)	MSM n (%)	Women n (%)
Number of partners in past 6 months			
0 partners	4 (4.2)	0 (0.0)	0 (0.0)
1 partner	41 (42.7)	6 (12.5)	15 (29.4)
2 partners	23 (24.0)	6 (12.5)	6 (11.8)
3 or more partners	24 (25.0)	34 (70.8)	15 (29.4)
Unknown	4 (4.2)	2 (4.2)	15 (29.4)
Condom use at last sexual contact*			
No	25 (26.0)	7 (14.6)	15 (29.4)
Yes	12 (12.5)	8 (16.7)	11 (21.6)
Unknown	1 (1.0)	2 (4.2)	2 (3.9)
Previous GO/CT/syphilis in anamnesis			
No	87 (90.6)	39 (81.3)	47 (92.2)
Yes	6 (6.3)	8 (16.7)	2 (3.9)
Do not know	2 (2.1)	0 (0.0)	1 (2.0)
Unknown	1 (1.0)	1 (2.1)	1 (2.0)
Previous HIV test			
No	54 (56.3)	9 (18.8)	23 (45.1)
Yes, positive	0 (0.0)	13 (27.1)	0 (0.0)
Yes, negative	41 (42.7)	25 (52.1)	27 (52.9)
Yes, result unknown	0 (0.0)	0 (0.0)	0 (0.0)
Unknown	1 (1.0)	1 (2.1)	1 (2.0)
CSW, women			
No			29 (56.9)
Yes, in past 6 months			21 (41.2)
Unknown			1 (2.0)
Client of CSW, men			
No	85 (88.5)	47 (97.9)	
Yes, in past 6 months	11 (11.5)	1 (2.1)	
Unknown	0 (0.0)	0 (0.0)	
Swinger*			
No	41 (42.7)	16 (33.3)	28 (54.9)
Yes	1 (1.0)	1 (2.1)	1 (2.0)
Unknown	0 (0.0)	0 (0.0)	0 (0.0)

* Voluntary question, condom use answered by 43% (n = 83) and swinger by 45% (n = 88) of persons diagnosed with hepatitis B.

Table 9.5 Concurrent STI by gender and sexual preference among persons diagnosed with hepatitis B, 2010.

Concurrent infection	Heterosexual men (N = 96) n (%)	MSM (N = 48) n (%)	Women (N = 51) n (%)
Gonorrhoea	3 (3.1)	8 (16.7)	3 (5.9)
Chlamydia	14 (14.6)	12 (25.0)	9 (17.6)
Infectious syphilis	1 (1.0)	3 (6.3)	1 (2.0)
HIV newly diagnosed	4 (4.2)	3 (6.3)	1 (2.0)
Genital warts	1 (1.0)	0 (0.0)	0 (0.0)
Genital herpes	1 (1.0)	0 (0.0)	0 (0.0)

9.4 Screening pregnant women

Table 9.6 Hepatitis B prevalence estimates for pregnant women, based on test results of antenatal screening, 2006–2009.

Year	No. of women screened	Positive result 12 weeks test	Confirmed positive test results (%)	Prevalence estimate [min, max] *
2006	185,941	966	714 (74%)	0.4 [0.38–0.4]
2007	186,137	868	620 (71%)	0.34 [0.33–0.34]
2008	190,140	932	605 (65%)	0.33 [0.32–0.33]
2009	185,528	680	636 (94%)	0.36 [0.34–0.36]

Footnote: Terminated pregnancies (induced or spontaneous) are excluded.

*Prevalence estimated under the assumption that pregnant women with a first positive test result without a confirmation test would be as often positive as those with a confirmation test; minimum prevalence: number of confirmed positive test results divided by the total number of registered pregnant women; maximum prevalence: under the assumption that all pregnant women with a first positive test result without a confirmation test would also have a positive confirmation test.

(Source: Praeventis, RIVM).

9.5 Blood donors

Figure 9.4 HBV incidence (per 100,000) among regular blood donors in the Netherlands, 2000–2009.



(Source: Sanquin).

9.6 Hepatitis B Vaccination programme for risk groups

Table 9.7 Number of vaccinated, chronically infected and immune participants of the HBV vaccination programme, 2002–2010.

	DU	CSW	MSM
First vaccination	17,052	14,483	32,660
Second vaccination	11,973	9087	24,615
Third vaccination	8477	6023	20,318
HBV status at first consultation*			
Hepatitis B carrier (%)	103 (0.6)	117 (0.8)	171 (0.5)
Hepatitis B immune (%)	1708 (10.0)	1318 (9.1)	2687 (8.2)

*During the consult of first vaccination all participants are tested serologically for markers of previous or current HBV infection.

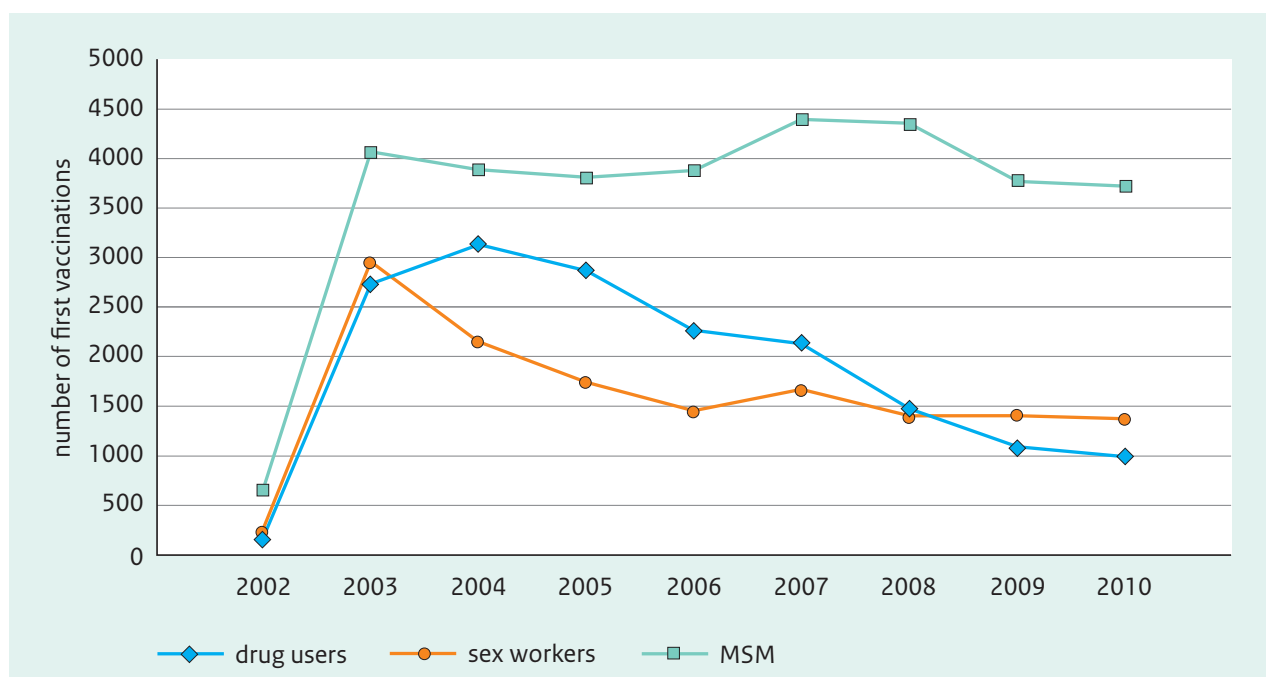
Footnote: Not included in the table are heterosexuals (n = 40,723) with multiple partners whom were included until October 2007.

Table 9.8 Number and percentage of first HBV vaccinations per risk group and location of first vaccination, 2002–2010.

Location of first vaccination	DU (N = 17,052) n (%)	CSW (N = 14,483) n (%)	MSM (N = 32,660) n (%)
STI centre	51 (0.3)	1845 (12.7)	8287 (25.4)
Public health service*	4714 (27.6)	8959 (61.9)	20,610 (63.1)
Penitentiary institution	1957 (11.5)	367 (2.5)	196 (0.6)
Drug location	10,143 (59.5)	20 (0.1)	128 (0.4)
Other	187 (1.1)	3292 (22.7)	3439 (10.5)

*The number of HBV vaccinations given at public health services can also consist of vaccinations given at a STI centre. In a number of regions the STI centre and the PHS work closely together.

Figure 9.5 Number of persons entering the HBV vaccination programme, 2002–2010.



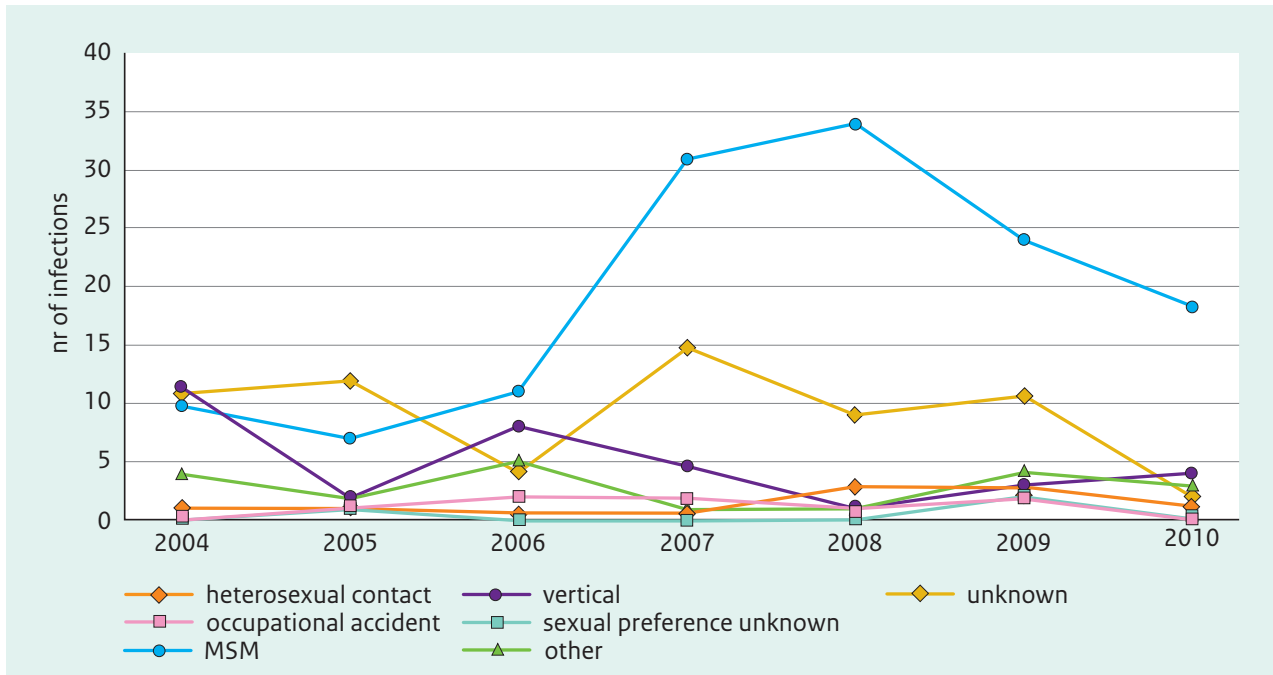
10 Hepatitis C

10.1 Key points

- In 2010, the total number of acute HCV notifications (n = 27) decreased compared with 2009 (n = 47). The number of infections in MSM decreased by 25%, from 24 notifications in 2009 to 18 notifications in 2010.
- Unprotected sexual contact between men remained the most important route of transmission for acute hepatitis C (67%). No infections by heterosexual contact were reported in 2010.

10.2 Notification data: characteristics, risk groups and trends

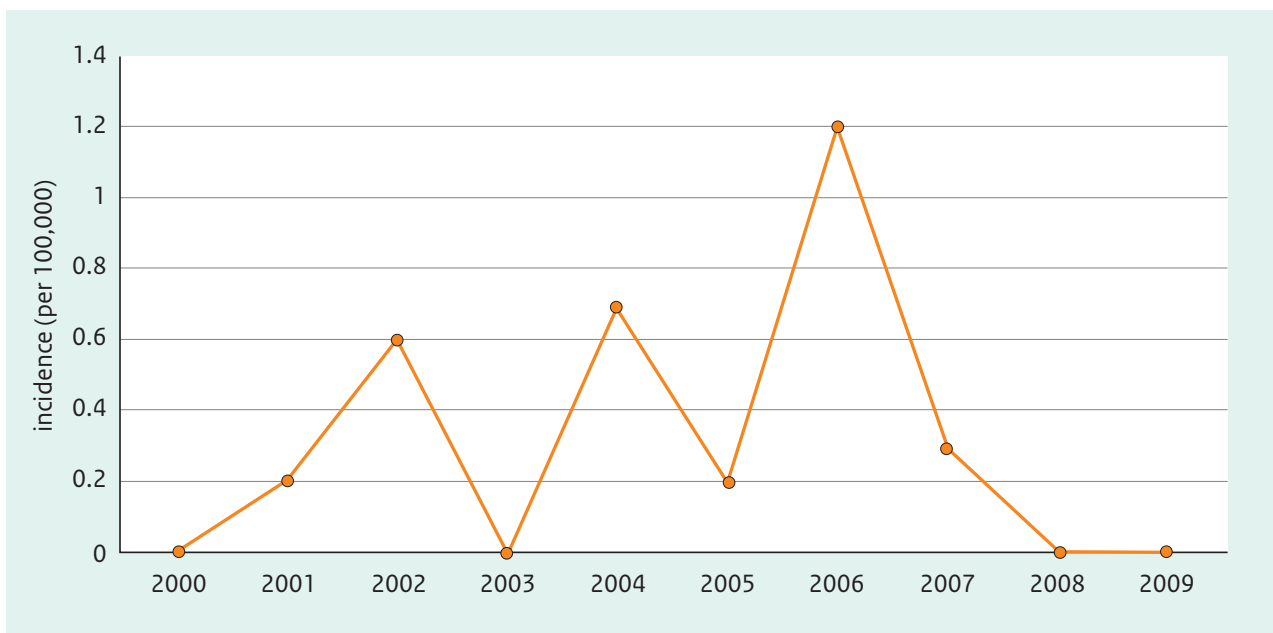
Figure 10.1 Number of infections of acute HCV infections by route of transmission, 2004–2010.



(Source: RIVM-OSIRIS, notification data).

10.3 Blood donors

Figure 10.2 HCV incidence (per 100,000) among regular blood donors in the Netherlands, 2000–2009.



(Source: Sanquin).

11

General conclusions and recommendations

Once again, the number of new consultations as well as the number of new infections diagnosed at the nationwide STI centres has increased with more than 10% over the past year. The declining positivity rates for syphilis and HIV suggest the approach of offering low threshold test and treat options is effective in reducing syphilis and HIV: two STI of which transmission networks tend to cluster in high-risk core groups. Unfortunately, no such declining trend is apparent for the more commonly diagnosed bacterial STI chlamydia and gonorrhoea.

In particular for chlamydia, this indicates that transmission is ongoing in a wider population than the high-risk groups reached by the STI clinics and that the testing rate among the group reached is insufficient to bring the positivity rate down. To control the persistently high prevalence of chlamydia by interrupting transmission among young people in general, a systematic screening approach was tested over the previous years in three regions of the Netherlands. The internet-based screening with home-sampling proved feasible and acceptable, but, although final data are still pending, the preliminary results of the first three years suggest that participation rates were too limited to make a significant persistent contribution on the reduction of population prevalences. Therefore, new efforts are likely to be needed to explore alternative strategies to reach those at highest risk of adverse outcomes, and those at highest risk of transmitting the infection; in addition to ongoing regular control efforts by GPs and STI centres. Additional strategies could include more systematic interventions among those testing chlamydia positive, as reinfection rates in the population testing positive tend to be significantly higher than in those testing negative at baseline. This increased positivity rate could be associated with ongoing high exposure, e.g. through participating in a sexual network with a high chlamydia prevalence. However, also among lower risk young people chlamydia prevalence remains high, and another option to interrupt transmission and reduce adverse outcomes could be to facilitate young people at risk to get tested for chlamydia only, when visiting the STI or sexual health clinics or by exploring the impact of developing an PHS-connected internet test-website, comparable to Testlab linked to the site 'Man-to-Man' for MSM. This could result in high-quality low-threshold testing for those at risk, followed by proper treatment and follow-up. These options need to be further explored. Furthermore, it could be worthwhile to examine the added benefit of including chlamydia screening in the routine pregnancy first trimester screening

programme where a large group of sexually active young adults can be reached, potentially also benefiting the baby.¹¹

On the other hand, the pathway and determinants from a chlamydia infection to a long term adverse outcome is still uncertain, as well as the role of persistent or recurrent infections on such outcomes. Ecological trends in registered chlamydia infections and PID do not coincide (chlamydia going up, and PID going down), suggesting that either more rapid treatment prevents such sequelae, or a less straightforward risk of PID following a (treated) chlamydia infection (Nicola Low, unpublished data). Improved insight in pathogenesis and immunological correlates of protection (or alternatively correlates of risk of progression) might provide new insights how to target interventions most efficiently with the goal to reduce adverse outcomes at population level.

Gonorrhoea transmission is highly concentrated among specific high-risk sexual networks, especially MSM. Effective control of gonorrhoea is particularly at risk by the threat of becoming non-susceptible to any of the available treatment options. Rapid changes in resistance patterns already necessitated frequent adaptation of guidelines. Where prescription practices in daily reality lag behind, a substantial proportion of infections is not treated adequately. Furthermore, it is unknown to what extent self-medication is prevalent, and if so, to what extent this exerts additional pressure on the development of resistance against still effective therapies. This implies the need to ensure systematic surveillance of drug susceptibility patterns of gonorrhoea isolates. Such integrated epidemiological-microbiological surveillance remains a vital early warning instrument. Due to the international dimensions of the threat of transmission of resistant gonorrhoea, surveillance of susceptibility patterns has been harmonized across Europe. In line with these recommendations, the national GRAS panel has been modified in 2011 and now includes cefotaxim, ceftriaxon, ciprofloxacin, spectinomycin and azithromycin. However, given the first reports of clinical failure of the still recommended third generation cephalosporins, emergence of panresistant gonorrhoea may only be a matter of time. The window of opportunity for third generation cephalosporins seems to close, based on increasing MICs in routine surveillance. Alternative treatment options need to be explored and registration supported. This could include drugs no longer or not yet registered for the treatment of gonorrhoea, or novel multidrug therapies, while innovative approaches might be needed to ensure rapid implementation of revised guidelines by clinicians diagnosing gonorrhoea.

Since 2010 the HIV opt-out policy was implemented in all STI centres, which has resulted in an increase in testing volume. Intensified testing to reduce the large proportion of HIV-infected people not aware of their infection may have contributed to an apparent discrepancy between the steadily declining the HIV positivity rate at the STI centres, versus the high number of newly registered HIV patients in care. On the other hand, testing in itself may not be sufficient, as preliminary data suggest that following a new diagnosis at an STI centre, in about 25% of cases entry into care takes four weeks or longer, while a small group delayed for over six months.

The targeted approach of the STI centres to screen and treat infections in high transmission networks may also have resulted in a gradual decrease in the number of diagnosed co-infections among HIV-infected MSM, including LGV and HCV infections, in spite of targeted screening for these novel STI among

¹¹ Thesis: Chlamydia Trachomatis infections during pregnancy, Erasmus University, Rotterdam, 2010

HIV-infected people in particular. Nevertheless, still nearly a third of all HIV-positive persons being tested are diagnosed with another treatable STI. In HIV treatment centres STI control and support for sexual health of HIV-infected MSM needs to compete with care for medical problems related to HIV. The absence of a systematic STI screening among HIV-infected patients in care might contribute to the ongoing transmission among HIV-infected patients. Such persistently high prevalence rates among HIV-infected MSM imply a threat of spill over to HIV-negative populations.

Finally, with the aging of the HIV population, surveillance, risk assessments and interventions may need to be modified to be most effective for the newly emerging risk group of elderly people living with HIV at risk or STI, as so far prevention is mostly developed to cater for the needs of young people in particular.

Apart from a targeted screen and treat strategy to minimize harmful consequences of STI, other interventions contribute to an overall successful STI control as well. Such strategies include vaccinations to prevent infection, effective partner notification to interrupt transmission, and quality control procedures to ensure optimal evidence-based methods being used. In addition, effective behavioural interventions should be continued as well.

Vaccinations are in general the most successful (and cost-effective) public health interventions available which can reduce susceptibility and ongoing transmission over a prolonged period of time. Currently, for STI control effective HBV and HPV vaccines are available. HBV vaccination of high-risk groups has resulted in a steady decrease of the number of newly diagnosed active infections over the past years. HPV vaccination for girls has been rolled out at a national scale in 2010, thus no or little impact on HPV transmission can be expected by now. However, in view of increasing knowledge on the association between persistent high-risk HPV infections and anal and oral cancers risk, there might come cause to reconsider current vaccination indications in the near future, and e.g. include (targeted) men or elderly age cohorts among those eligible for HPV vaccination as well. Furthermore, the current bivalent HPV vaccine unfortunately does not protect against the HPV types associated with genital warts, which a higher valent vaccine might be able to do as well.

While the STI centres focus on rapid and targeted interruption of STI transmission, the majority of STI in the Netherlands are diagnosed and treated by GPs, and the majority of people with an STI do not belong to a classical high-risk group. To ensure that STI control is effective, cooperation between GPs and STI centres (as well as between HIV treatment centres and STI clinics) and exchange of knowledge on guidelines, risk groups, testing routine, et cetera, is needed to ensure that individuals at risk for STI can access appropriate care, and that optimal care is provided, independent of the care setting. To ensure such care remains sustainable, the possibilities to support individuals through new media need to be explored further. For MSM, a successful start has been made by Schorer, GGD Amsterdam and GGD Rotterdam-Rijnmond, by development of a Testlab site linked to the sexual health website 'Man tot Man' and the development of an internet based partner notification system. For young people, an internet based approach with home testing as implemented in the CSI project may be feasible interventions. The Sense website coordinated by Soa Aids Netherlands (SANL) has shown that e-health and e-consultations can reach young people. The experiences of the HPV catch-up vaccination campaigns have stimulated a further professional use of new media to communicate about sexual health risks and support interventions.

Of particular concern remains the care for people belonging to ethnic minorities. Consistently, STI risks are higher compared to native Dutch, but available surveillance tools are limited in understanding to

what extent ethnic minority members have sufficient access to services. It is possible that those visiting the STI clinic are a specific subgroup, but it is also possible a much larger group is involved in ongoing transmission, without being reached with current control efforts. To contact such hard-to-reach minority groups through new media may also need a targeted approach. As available GP surveillance data do not include individual data on ethnicity of patients, it is as yet unclear to what extent increased risks for people living in areas with lower social economic status (SES) are linked to the observed risks among people from ethnic minorities.

Another major challenge for the integrated additional STI care and the regular care is the risk that financial disincentives may limit access, shift consultations to less appropriate (cheaper) settings, and/or reduce quality of prevention and care. The compulsory health insurance 'own risk' for GP-based testing may demotivate young people to be tested in regular care and encourage unintended crowding of STI centres, strained relations between PHS and laboratories due to negotiations on diagnostic tariffs for the STI diagnostics at the PHS may result in suboptimal quality, and hamper gradual integration of STI control with other infectious disease control.

Thus, in spite of remarkable successes so far in controlling STI among high-risk groups, challenges remain. These include still poor overall control of chlamydia, threatened control of gonorrhoea due to a panresistance threat, concern about the most optimal way to reach migrant populations and (elderly) HIV-infected people for STI screening. With restricted overall funding and lack of access to funding earmarked for PHS Infectious Disease control projects, possibilities to explore alternative more effective strategies to improve the current control equilibrium are highly limited.

Recommendations

- Stimulate STI clinics to focus primarily on high-risk transmission groups, which need intensive and specialised care to control transmission.
- Integrate systematic STI screening for HIV-infected people in regular care.
- Explore how 'new media' can be most effectively used to promote sexual health and to prevent ongoing STI transmission.
- Explore and evaluate options to integrate (successful elements of) systemic chlamydia screening in the current established control options, in particular explore the value of the addition of an internet-based option for chlamydia testing among young people, and the added value of including chlamydia in the pregnancy screening.
- Facilitate development of (a list of) alternative treatment regimes in case clinical resistance of gonorrhoea to third generation cephalosporins emerges in the Netherlands.

Appendix A List of abbreviations

ACS	Amsterdam Cohort Studies
AIDS	Acquired Immune Deficiency Syndrome
ATHENA	AIDS Therapy Evaluation in the Netherlands
Cib	Centrum Infectieziektebestrijding, Centre for Infectious Disease and Control
CSI	Chlamydia Screening Implementation
CSW	Commercial Sex Worker
DU	Drug Users
ECDC	European Centre for Disease Prevention and Control
GP	General Practitioner
GRAS	Gonococcal Resistance to Antimicrobials Surveillance programme
HAART	Highly active anti-retroviral therapy
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HIV	Human Immunodeficiency virus
HPV	Human papillomavirus
HSV	Herpes simplex virus
IDU	Intravenous Drug Users
IGZ	Inspectorate of Health
LGV	Lymphogranuloma venereum
LIS	Laboratory for Infectious Disease and Screening
LINH	Landelijk Informatienetwerk Huisartsen, Information Network of General Practice
MIC	Minimum Inhibitory Concentration
MSM	Men who have sex with men
NIVEL	Nederlands Instituut voor onderzoek van de Gezondheidszorg, Netherlands Institute for Health Services Research
PHS	Public Health Service
PID	Pelvic Inflammatory Disease
RIVM	Rijksinstituut voor Volksgezondheid en Milieu, National Institute for Public Health and the Environment
SHM	Stichting HIV Monitoring
SOAP	Online STI registration system
STI	Sexually Transmitted Infection

Appendix B National surveillance of STI centres

Coordinating STI centres

GGD Amsterdam:	P. van Leeuwen
GGD Den Haag:	A. van Camerijk
GGD Groningen:	F. de Groot
GGD Hart voor Brabant:	J.C.A.M. van de Sande
	H. van Kruchten
GGD Nijmegen:	A. van Daal
	H. Bos
GGD Rotterdam-Rijnmond:	B. Nuradini
	H. Götz
GGD Utrecht:	M. Langevoort
	V. Sigurdsson
GGD Zuid Limburg:	C.J.P.A. Hoebe
	E.J.W.M. Niekamp

Regional STI centres

GGD Brabant Zuid-Oost	P. Tolsma
GGD Drenthe:	G. Reitsema
GGD Flevoland:	H. Fortuin
GGD Fryslan:	A. Strikwerda
GGD Gelre-IJssel:	H. Bos
GGD Gooi en Vechtstreek:	R. Stumpel
GGD Hollands-Midden (Gouda):	K. Visser
GGD Hollands-Midden (Leiden):	B. Rump
GGD Hollands Noorden	I. Bargmann
GGD Kennemerland:	E. den Heijer
GGD Midden-Nederland	J. Ludding
GGD Limburg-Noord:	C. Niesen
GGD Regio Twente:	M. Besselse
GGD Rivierenland:	P. Cornelissen
GGD West-Brabant:	H. Driessen
GGD IJsselland:	H. Bruins
GGD Zaanstreek-Waterland:	P. Degenaar
GGD Zeeland:	F. Jacobs
GGD Zuid-Holland Zuid:	H. van den Kerkhof
Veiligheids- en Gezondheidsregio Gelderland-Midden:	M. Pelgrim

Laboratories

Academisch Ziekenhuis Maastricht:	E. Stobberingh
Albert Schweitzer Ziekenhuis Dordrecht:	I. Frenay
Alysis zorggroep Arnhem:	C. van Meerendonk
Amphia Ziekenhuis Breda:	P. van Keulen
Atrium Medisch Centrum Heerlen:	J.H.T. Wagenvoort
Canisius Wilhelmina Ziekenhuis Nijmegen:	T. Simons
Centraal Bacteriologisch and Serologisch laboratorium Hilversum:	C.P. Timmerman
Diagnostisch Centrum Eindhoven:	L. Harms
Erasmus MC Rotterdam:	M. Schutte
Gelre Ziekenhuizen Apeldoorn:	F.G.C. Heilman
Groene Hart Ziekenhuis Gouda:	F.C. van der Geest
Isala klinieken Zwolle:	P. van de Goor
Izore, Centrum Infectieziekten Friesland:	J. van Zeijl
Jeroen Bosch Ziekenhuis 's-Hertogenbosch:	P. Schneeberger
Laboratoria Pathologische Anatomie and Medische Microbiologie Veldhoven:	A. Jansz
Laboratorium Microbiologie Twente Achterhoek:	B. Mulder
Laboratorium voor Infectieziekten Groningen:	B.P. Overbeek
Laurentius Ziekenhuis Roermond:	F. Stals
Leiden Universitair Medisch Centrum:	A.C.M. Kroes
Meander Medisch Centrum Amersfoort:	H. Schreuder
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Zaans Medisch Centrum Zaanstad:	C. Fijen
Zeeuws-Vlaanderen, Ziekenhuis Terneuzen:	W. Westphaal

Appendix C Stichting HIV Monitoring

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

Treating physicians (*site coordinating physicians)

Academisch Medisch Centrum bij de Universiteit van Amsterdam - Amsterdam: Dr. J.M. Prins*, Drs. J.C. Bos, Dr. K. Boer, Dr. S.E. Geerlings, Dr. M.H. Godfried, Prof. dr. J.M.A. Lange, Dr. J.T.M. van der Meer, Dr. F.J.B. Nellen, Dr. T. van der Poll, Prof. dr. P. Reiss, Drs. M. van der Valk, Drs. S.M.E. Vrouwenraets, Dr. M. van Vugt, Dr. F.W.M.N. Wit.

Academisch Ziekenhuis Maastricht - Maastricht: Dr. G. Schreij*, Dr. A. Oude Lashof, Dr. S. Lowe.

Catharina Ziekenhuis - Eindhoven: Dr. B. Bravenboer*, Drs. M.J.H. Pronk

Emma Kinderziekenhuis - AMC Amsterdam: Prof. dr. T.W. Kuijpers, Drs. D. Pajkrt, Dr. H.J. Scherpbier.

Erasmus MC - Rotterdam: Dr. M.E. van der Ende*, Drs. M. van der Feltz, Dr. L.B.S. Gelinck, Dr. J.L. Nouwen, Dr. B.J.A. Rijnders, Dr. L. Slobbe, Drs. C.A.M. Schurink, Dr. A. Verbon, Dr. T.E.M.S. de Vries-Sluijs.

Erasmus MC - Sophia - Rotterdam: Dr. G. Driessen, Dr. N.G. Hartwig.

Flevoziekenhuis - Almere: Dr. J. Branger, Drs. M.H. Hoogewerf.

HagaZiekenhuis, locatie Leyenburg - Den Haag: Dr. R.H. Kauffmann*, Dr. E.F. Schippers.

Isala Klinieken - Zwolle: Dr. P.H.P. Groeneveld*, Dr. M.A. Alleman, Drs. J.W. Bouwhuis.

Kennemer Gasthuis - Haarlem: Prof. dr. R.W. ten Kate*, Dr. R. Soetekouw.

Leids Universitair Medisch Centrum - Leiden: Dr. F.P. Kroon*, Dr. S.M. Arend, Drs. M.G.J. de Boer, Prof. dr. P.J. van den Broek, Prof. dr. J.T. van Dissel, Drs. H. Jolink, Drs. C. van Nieuwkoop.

Maasstadziekenhuis - locatie Clara - Rotterdam: Dr. J.G. den Hollander*, Dr. K. Pogany.

Medisch Centrum Alkmaar - Alkmaar: Dr. G. van Twillert*, Drs. W Kortmann.

Medisch Centrum Haaglanden - locatie Westeinde - Den Haag: Dr. R. Vriesendorp*, Dr. E.M.S. Leyten.

Medisch Centrum Leeuwarden - Leeuwarden: Dr. D. van Houte*, Dr. M.G.A. van Vonderen.

Medisch Spectrum Twente - Enschede: Dr. C.H.H. ten Napel*, Dr. G.J. Kootstra.

Onze Lieve Vrouwe Gasthuis - Amsterdam: Prof. dr. K. Brinkman*, Drs. G.E.L. van den Berk, Dr. W.L. Blok, Dr. P.H.J. Frissen, Drs. W.E.M. Schouten.

St. Medisch Centrum Jan van Goyen - Amsterdam: Dr. A. van Eeden*, Dr. D.W.M. Verhagen.

Slotervaartziekenhuis - Amsterdam: Dr. J.W. Mulder*, Dr. E.C.M. van Gorp, Drs. P.M. Smit.

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St. Lucas Andreas Ziekenhuis - Amsterdam: Dr. J. Veenstra*, Dr. K.D. Lettinga.

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Research – PhD students

Patient Data & Quality Control – Manager

Patient Data & Quality Control – Registration

Patient Data & Quality Control – Data collectors

Patient Data & Quality Control – Data monitors

Office, Administration, Communication-Manager
Office

Administration – Personnel & Administration

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Dr. D.O. Bezemer

Drs. L.A.J. Gras

Dr. A.I. van Sighem

Dr. Ir. C. Smit

Drs. A.M. Kesselring (from April 1, 2010)

Drs. S. Zhang

Drs. S. Zaheri

R.F. Beard

M. van den Akker

Y.M. Bakker

M. Broekhoven-van Kruijne

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Y.M.C. Ruijs-Tiggelman

E.M. Tuijn-de Bruin

D.P. Veenenberg-Benschop

T.J. Woudstra

Drs. E. van der Beele (from May 17, 2010)

Drs. M. Berkhof (from January 15
until April 30, 2010)

Drs. S. Grivell

Drs. J.M.T. van der Heijden
(until March 31, 2010)

Drs. M.M.J. Hillebregt

Drs. A.M. Jansen (from April 1, 2010)

V. Kimmel MSc

Drs. B. Lascaris (from June 1, 2010)

Drs. B. Slieker

Drs. C.A.H. Welling (until June 23, 2010)

D. de Boer

M.M.T. Koenen Bsc

Drs. G.E. Scholte

I.H.M. de Boer

Drs. H.J.M. van Noort

L.J. Dolfing-Tompson BVSc
(from January 4, 2010)

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H.J. Vriend | F.D.H. Koedijk |
V.F. van den Broek | M.G. van Veen |
E.L.M. Op de Coul | A.I. van Sighem |
R.A. Verheij | M.A.B. van der Sande
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