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Sexually transmitted *infections*

in the Netherlands in 2020

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Synopsis

Sexually transmitted infections in the Netherlands in 2020

In 2020, the number of people tested at a Sexual Health Centre (SHC) for a sexually transmitted infection (STI) was lower compared with 2019 as a consequence of the COVID-19 pandemic. The percentage with an STI increased (21 percent). Chlamydia remained the most common STI among heterosexuals. Gonorrhoea was the most common infection among men who have sex with men (MSM).

The SHCs offer complimentary STI testing to people with a high risk of an STI, for example those aged under 25. In 2020 a total of 105,936 consultations were recorded at the SHCs. The number of consultations declined among women, heterosexual men, and MSM. Relatively, infections were found most frequently in people who had been notified as being at risk for an STI. In addition to the SHC figures, estimates of the number of STI consultations and diagnoses performed by general practitioners (GPs) have been made. The majority of STI consultations are performed by GPs. The data of GPs from the previous year are shown because the 2020 data are not yet available.

Chlamydia

In 2020 the SHCs made 15,979 chlamydia diagnoses, 24 percent less compared with 2019 (21,134). The percentage of women and heterosexual men with chlamydia remained stable between 2016 and 2019 (at 15 and 18 percent respectively). This increased to 17 percent among women and 22 percent among heterosexual men in 2020. For MSM, the percentage has remained stable at 10 percent for many years and increased slightly to 11.2 percent in 2020.

Gonorrhoea

The number of diagnoses of gonorrhoea made at SHCs declined by 18 percent in 2020 to 6,722 infections. The percentage of consultations with gonorrhoea diagnoses increased between 2016 and 2020 to 2.5 percent among heterosexual men (1.9 in 2016) and 2.1 percent among women (1.4 in 2016). The percentage of infections among MSM has remained stable between 2015 and 2019 at around 11 percent but increased to 12 percent in 2020. At SHCs, none of those infected showed resistance to the current 'first choice' antibiotic for gonorrhoea (ceftriaxone). However, there was resistance to other antibiotics. Resistance to ciprofloxacin remained high with 57 percent in 2020.

Syphilis

In 2020 the number of syphilis diagnoses among clients at SHCs declined by 7.4 percent compared to 2019 (1,324 versus 1,430), with 96 percent of these infections being diagnosed in MSM. The percentage of MSM with syphilis decreased from 2.9 percent in 2016 to 2.4 percent in 2018 and increased to 2.9 percent in 2020. The percentage was higher primarily among MSM who had been notified for syphilis (13 percent). The number of diagnoses among women and heterosexual men remained low in 2020, 17 and 35 respectively.

HIV

The number of new HIV diagnoses made by the SHCs declined by 26 percent (122) in 2020. Of these, 107 diagnoses were among MSM. The number of diagnoses among women and heterosexual men remained low, 5 and 10 respectively. The number of people with HIV who came for treatment at one of the Dutch HIV treatment centres ('in care') for the first time in 2020 was 755. This was less than in 2019 (972). In total, 21,186 people with HIV were registered in care in 2020.

Key words: STI, chlamydia, gonorrhoea, syphilis, HIV, AIDS, antibiotic resistance, young people, MSM, monitoring, sexual health centre.

Publiekssamenvatting

Seksueel overdraagbare aandoeningen in Nederland in 2020

In 2020 hebben minder mensen zich bij een Centrum voor Seksuele Gezondheid (CSG) laten testen op seksueel overdraagbare aandoeningen (soa) dan in 2019, door de uitbraak van het coronavirus. Het percentage dat ook echt een soa had (21 procent), is gestegen. Chlamydia bleef de meest voorkomende soa onder heteroseksuelen. Bij mannen die seks hebben met mannen (MSM) kwam gonorroe het meest voor.

Bij CSG's kunnen mensen die een grotere kans hebben op een soa, bijvoorbeeld jongeren onder de 25, zich gratis laten testen. In 2020 zijn er in totaal 105.936 consulten geregistreerd bij de CSG's. Het aantal consulten nam af onder zowel vrouwen, heteroseksuele mannen en MSM. Infecties zijn relatief het vaakst gevonden bij mensen die een melding hadden ontvangen dat ze een risico op een soa lopen. Naast de CSG-cijfers worden schattingen gemaakt van het aantal soa-consulten en -diagnoses bij huisartspraktijken. Zij voeren de meeste soa-consulten uit. Hun gegevens gaan over het voorgaande jaar omdat de 2020 data pas later beschikbaar zijn.

Chlamydia

In 2020 waren er 15.979 chlamydia-diagnoses bij cliënten van de CSG's, 24 procent minder dan in 2019 (21.134). Het percentage vrouwen en heteroseksuele mannen met chlamydia was stabiel tussen 2016 en 2019 (respectievelijk 15 en 18 procent). In 2020 is het percentage onder vrouwen toegenomen naar 17 procent en naar 22 procent onder heteroseksuele mannen. Voor MSM ligt dit percentage al jaren rond de 10 procent; in 2020 steeg het licht naar 11,2 procent.

Gonorroe

Het aantal gonorroe-diagnoses bij cliënten van de CSG's is het afgelopen jaar met 18 procent afgenomen tot 6.722 infecties. Het percentage consulten waarbij gonorroe is gevonden steeg tussen 2016 en 2020: onder heteroseksuele mannen van 1,9 naar 2,5 procent en onder vrouwen van 1,4 naar 2,1 procent. Het percentage onder MSM was tussen 2015 en 2019 stabiel rond de 11 procent maar nam toe tot 12 procent in 2020. Bij de CSG's is geen antibioticaresistentie tegen het huidige 'eerste keus' antibioticum voor gonorroe (ceftriaxon) gemeld. Wel is er resistentie tegen andere antibiotica. De resistentie tegen ciprofloxacine bleef hoog in 2020 met 57 procent.

Syfilis

In 2020 had 7,4 procent minder cliënten van de CSG's een syfilis-diagnose dan in 2019 (1.324 versus 1.430). Daarvan is 96 procent bij MSM gevonden. Het percentage met syfilis onder MSM daalde van 2,9 procent in 2016 naar 2,4 procent in 2018 en steeg weer naar 2,9 procent in 2020. Het percentage was voornamelijk hoger onder MSM die een melding hadden ontvangen voor syfilis (13 procent). Het aantal diagnoses onder vrouwen en heteroseksuele mannen bleef in 2020 laag, respectievelijk 17 en 35.

Hiv

In 2020 kregen 122 mensen via de CSG's te horen dat ze hiv hadden, 26 procent minder dan in 2019. Hiervan waren 107 diagnoses bij MSM. Het aantal diagnoses onder vrouwen en heteroseksuele mannen bleef laag, respectievelijk 5 en 10. Het aantal mensen met hiv dat in 2020 voor het eerst voor behandeling bij een van de Nederlandse hiv-behandelcentra kwam ('in zorg') was 755. Dat was minder dan in 2019 (972). In totaal zijn in 2020 21.186 mensen met hiv geregistreerd als in zorg.

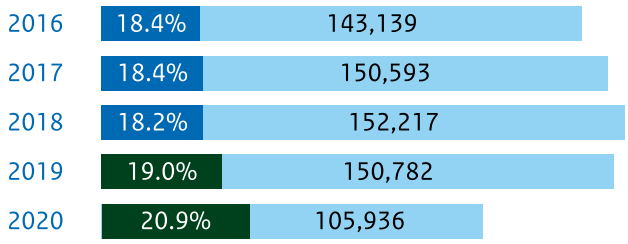
Kernwoorden: soa, chlamydia, gonorroe, syfilis, hiv, aids, antibioticaresistentie, jongeren, MSM, monitoring, centrum seksuele gezondheid.

Surveillance of STI in the Netherlands 2020

*SHC: Sexual Health Centre.
Targeted at high-risk groups for STI

SHC

Number of **SHC-consultations***



In 2020:

Women: **18.1%**

Heterosexual man: **23.3%**

MSM: **22.5%**

Number of **GP consultations**

Chlamydia

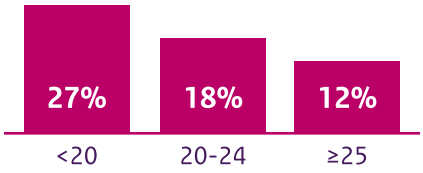
SHC: **15,979**

GP: **44,800**

Of diagnoses

Women & Hetero-sexual men <25 year

% women & heterosexual men with chlamydia decreases with age



% with chlamydia

Women: **17%**
Heterosexual man: **22%**
MSM: **11%**

% among notified attendees: **34%**

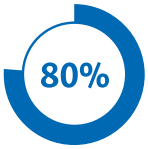
LGV among MSM: **258**
69% hiv-negative

Gonorrhoea

CSG: **6,722**

GP: **14,400**

Of diagnoses



MSM

% with gonorrhoea

MSM: **12%**
- Known HIV-positive: **19%**
- With symptoms: **25%**

Women: **2.1%** Heterosexual men: **2.5%**

% among notified attendees: **30%**

No resistance to ceftriaxone

Syphilis

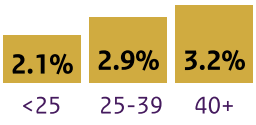
SHC: **1,324**

Of diagnoses

MSM

% with syphilis

MSM: **2.9%**
- Known HIV-positive: **8.1%**



% with syphilis increases with age

Women: **0.1%** Heterosexual men: **0.5%**

% among notified MSM: **13%**

HIV

SHC: **122**

Of diagnoses

MSM

% with HIV

MSM: **0.3%**

- Originating from Latin America: **1.2%**

% among notified MSM: **5.8%**

PrEP pilot

n= **6,332** HIV prevention drug

Of participants

MSM

At start

Median age: **36**

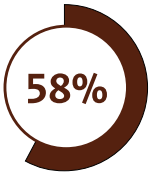
PrEP indication unprotected sex: **63%**

59% daily PrEP use

Genital warts

GP: **46,870** SHC: **882**

Of diagnoses



men

Genital herpes

GP: **28,840** SHC: **340**

Of diagnoses

women

Acute hepatitis B

GP, hospital and SHC: **86**

Transmission route
Sexual contact

Acute hepatitis C

GP, hospital and SHC: **45**

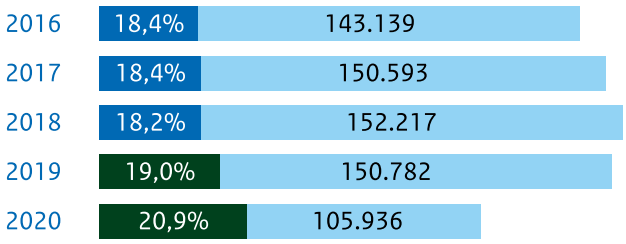
Transmission route
Sexual contact between men

Surveillance van soa in Nederland 2020

* CSG: Centrum voor Seksuele Gezondheid.
Bedoeld voor groepen die een hoog risico lopen op soa.

CSG

Aantal CSG-consulten*



In 2020:

Vrouwen: **18,1%**

Heteroman: **23,3%**

MSM: **22,5%**

Aantal huisartsconsulten

Chlamydia

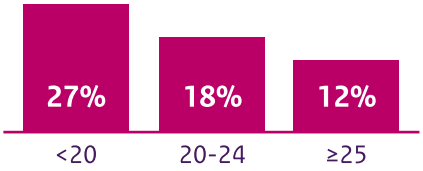
CSG: **15.979**

Huisarts: **44.800**

van de diagnoses

Vrouwen & Hetero mannen <25 jaar

% vrouwen en heteromannen met chlamydia neemt af met leeftijd



% met chlamydia

Vrouw: **17%**
Heteroman: **22%**
MSM: **11%**

% onder gewaarschuwde bezoekers: **34%**

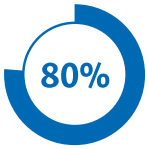
LGV bij MSM: **258**
69% hiv-negatief

Gonorroe

CSG: **6.722**

Huisarts: **14.400**

van de diagnoses



MSM

% met gonorroe

MSM: **12%**

- Bekend hiv-positief: **19%**
- Met klachten: **25%**

Vrouwen: **2,1%** Heteromannen: **2,5%**

% onder gewaarschuwde bezoekers: **30%**

Geen resistentie tegen ceftriaxon

Syfilis

CSG: **1.324**

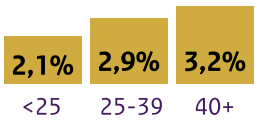
van de diagnoses

MSM

% met syfilis

MSM: **2,9%**

- Bekend hiv-positief: **8,1%**



% met syfilis neemt toe met leeftijd

Vrouwen: **0,1%** Heteromannen: **0,5%**

% onder gewaarschuwde MSM: **13%**

Hiv

CSG: **122**

van de diagnoses

MSM

% met hiv

MSM: **0,3%**

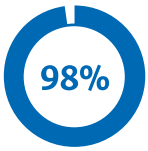
- Afkomstig uit Latijns Amerika: **1,2%**

% onder gewaarschuwde MSM: **5,8%**

PrEP pilot

n= **6,332** Hiv-preventiepil

van de deelnemers



MSM

Bij start

Mediane leeftijd: **36**

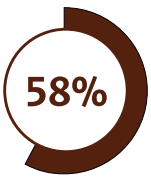
PrEP indicatie onbeschermde sex: **63%**

59% dagelijks PrEP gebruik

Genitale wratten

Huisarts: **46.870** CSG: **882**

van de diagnoses



mannen

Genitale herpes

Huisarts: **28.840** CSG: **340**

van de diagnoses

vrouwen

Acute hepatitis B

Huisarts, ziekenhuis en CSG: **86**

Transmissieroute seksueel contact

Acute hepatitis C

Huisarts, ziekenhuis en CSG: **45**

Transmissieroute seksueel contact MSM

Preface

This annual report provides an overview of the epidemiology of sexually transmitted infections (STI), including HIV, in the Netherlands in 2020. Data presented are derived from the national STI surveillance database in addition to other data sources registering STI and HIV in the Netherlands, such as the general practitioner, the antenatal screening programme, HIV treatment centres, and notification data.
We present a summary of recent trends ('key points') for each STI, followed by tabulations and figures relating to STI analysed in relation to a range of relevant characteristics. Finally, an overview of the major conclusions and recommendations is given.
We trust that this report will contribute to further awareness of the distribution and causes of STI, including HIV, in the Netherlands, supporting the development and targeting of (preventive) interventions, and enabling assessment of the effectiveness of control activities on STI transmission. The information aims to support policy makers and 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*. This report can be downloaded in PDF format from *www.rivm.nl/soa*.

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Comments
Please send any comments or suggestions to *soap@rivm.nl*.

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Summary

In 2020, a total of 105,936 consultations took place at Dutch Sexual Health Centres (SHCs); lower than the number of consultations held in 2019 (-30%), at least partly as a result of the COVID-19 lockdown and social distancing measures. The number of consultations decreased among MSM (-18%), heterosexual men (-39%) and women (-35%). Of all SHC visitors, 40% were female (42,265 consultations), 17% heterosexual male (18,019 consultations) and 42% MSM (44,931 consultations). At 721 consultations (0.7%), the client was a transgender person. Of all MSM who were tested at the SHCs in 2020, 38.2% had multiple consultations (34.9% in 2019). Among women and heterosexual men, the percentage was 11.4% (11.9% in 2019) and 7.4% (7.7% in 2019) respectively.

Among the SHC visitors, 20.9% tested positive for STI (chlamydia, gonorrhoea, infectious syphilis, HIV or infectious hepatitis B) in 2020. The positivity rate increased from 12.0% in 2010 to 18.1% in 2020 among women and from 12.8% in 2010 to 23.3% in 2020 among heterosexual men. Among MSM, the positivity rate has fluctuated around 20% in the past ten years, and increased slightly to 22.5% in 2020. Due to the downscaling of the health care system, triage took place on STI/HIV related symptoms and/or STI notification. Among clients diagnosed with an STI, 38.3% were detected through partner notification.

Since mid 2019, SHCs have started to provide PrEP to individuals at high risk of acquiring HIV. By 31 December 2020, 6,332 individuals (97.6% MSM) had had a first PrEP consultation in the national PrEP pilot programme at SHCs, 3,563 of which had their first consultation in 2020.

The total number of STI-related episodes recorded in general practice, based on a sample of 404 general practices in the Netherlands and extrapolated to the Dutch population, was estimated at 364,500 episodes (STI diagnoses and 'fear of STI') in 2019 (2020 data are not yet available). This is an increase from the 334,700 episodes recorded in 2018 and 307,400 episodes recorded in 2017. The increased reporting rate of STI-related episodes per 1,000 population at GP practices was found both among people 24 or younger (20.8 in 2019 versus 18.3 in 2018) and among people 25 or older (21.3 in 2019 versus 20.0 in 2018).

Bacterial STI

In 2020, chlamydia was diagnosed 15,979 times at the SHCs, which was lower compared with the number in 2019 (21,134). The positivity rate among women and heterosexual men remained stable between 2016 and 2019; 15% among women, 18% among heterosexual men and around 10% among MSM. In 2020, these positivity rates increased to 16.9% among women, 21.7% among heterosexual men and to 11.2% among MSM. The highest positivity rates were found among persons notified for chlamydia (36.4% among women, 37.1% among heterosexual men and 25.8% among MSM). Almost 24% of MSM with chlamydia were co-infected with gonorrhoea, 5% with syphilis and 0.6% were newly diagnosed with HIV.

The number of lymphogranuloma venereum (LGV, an infection caused by an invasive strain of chlamydia) diagnoses decreased from 420 in 2019 to 258 in 2020. The percentage of HIV-negative MSM among the LGV positives has continued to increase, from 23% in 2014 to 69% in 2020. The percentage of asymptomatic rectal LGV cases increased for several years, but decreased from 61% in 2019 to 55% in 2020. The number of estimated chlamydia episodes reported at general practices (44,800) increased in 2019, compared with 42,500 in 2018. Reporting rates of chlamydia episodes per 1,000 population mainly increased among people under 25 (from 3.6 in 2018 to 4.0 in 2019).

The number of gonorrhoea diagnoses at the SHCs decreased by 17.9% to 6,722 diagnoses in 2020, compared with 2019. Positivity rates for gonorrhoea increased between 2016 and 2020 among heterosexual men to 2.5% (1.7% in 2016) and among women to 2.1% (1.4% in 2016). Positivity rates among MSM were stable at around 11% between 2015 and 2019, but increased to 12.2% in 2020. Since 2015, gonorrhoea has been the most frequently reported STI among MSM attending SHCs. In general practices, the number of estimated gonorrhoea-episodes increased greatly, from 11,300 in 2018 to 14,400 in 2019, an increase of 27.4%. This increase was mainly due to an increase of gonorrhoea episodes among men. Antimicrobial resistance to ceftriaxone, the first-choice antibiotic for gonorrhoea treatment, has not been reported among SHC visitors. Resistance to cefotaxime and azithromycin decreased slightly, by 0.7% and 10.1% respectively. Resistance to ciprofloxacin remained high at 57.1% in 2020.

In 2020, 1,324 syphilis infections were diagnosed at the SHCs, a decrease of 7.4% from 2019 (1,430). Of all cases, 96.1% were among MSM. The syphilis positivity rate among MSM decreased from 2.9% in 2016 to 2.4% in 2018 and increased to 2.9% in 2020. Among HIV-positive MSM, there was an increase in the positivity rate (8.1% in 2020 compared with 7.5% in 2019). The syphilis positivity rate among HIV-negative MSM increased from 2.0% in 2019 to 2.4% in 2020. The number of tests conducted among women (15,242) and heterosexual men (7,749) largely decreased, compared with 2019 (24,903 and 13,607 tests respectively). The number of syphilis diagnoses was 35 among heterosexual men and 17 among women in 2020, the same as in 2019. Data on the number of syphilis episodes reported at general practices are lacking due to the small number of cases.

Viral STI

At the SHCs, 122 new HIV infections were diagnosed in 2020, a decrease of 25.6% compared with 2019 (164). Of these, 87.7% were among MSM. The HIV positivity rate among MSM at the SHCs continued to decline from 2.0% in 2011 to 0.3% in 2020. The HIV positivity rate was 0.13% among heterosexual men and 0.03% among women. According to Stichting HIV Monitoring, there were 755 newly registered HIV-positive individuals in care at the HIV treatment centres in 2020 (972 in 2019). Of these, 336 were diagnosed in 2020, a decline compared with 2019 (482), though this number can still increase due to reporting delays. Overall, 49% of newly diagnosed patients presented late for care (CD4 <350/mm3 or AIDS). This proportion was lower for MSM (39%) than it was for women (59%) or for heterosexual men (65%). In 2019, an estimated 93% of those living with HIV in the Netherlands had been diagnosed and linked to care. Of these, 93% started therapy and 96% had a suppressed viral load.

Most cases of genital warts and genital herpes are registered at general practices. In 2019, an estimated 46,870 cases of genital warts (44,700 in 2018), and 28,840 cases of genital herpes (27,950 in 2018) were diagnosed. At general practices, genital warts were more often reported in men (58% of all cases) than in women, while genital herpes was more often diagnosed in women (72% of all cases). In 2020, the number of diagnoses of genital warts and genital herpes at the SHCs was 882 and 340 respectively.

The number of acute hepatitis B cases reported in the registration of notifiable diseases in 2020 (86) was lower compared with 2019 (108 cases). Sexual contact remained the most reported transmission route (58%). The number of acute hepatitis C cases reported in 2020 (45) was comparable to those reported in 2019 (43). The main reported transmission route for acute hepatitis C was unprotected sexual contact between men (71%).

Conclusion

The downscaling of the STI and sexual health care at SHCs in 2020 due to the COVID-19 pandemic resulted in a decline in the number of consultations compared with 2019 and an increase in positivity rates as a result of stricter triaging during the lockdown periods. In 2019, the number of STI-related episodes reported at general practices continued to increase. The impact of the pandemic and social distancing measures on the Dutch STI healthcare and STI transmission requires continuous monitoring. Additionally, the occurrence of HIV, STI and changes in sexual behaviour among PrEP users should be evaluated.

Samenvatting

In 2020 hebben er in totaal 105.936 consulten plaatsgevonden bij de Centra Seksuele Gezondheid (CSG's); aanzienlijk minder dan het aantal consulten in 2019 (-30%), mede ten gevolge van de COVID-19 maatregelen. Het aantal consulten nam af onder MSM (-18%), heteroseksuele mannen (-39%) en vrouwen (-35%). Van alle CSG-bezoekers was 40% vrouw (42.265 consulten), 17% heteroseksuele man (18.019 consulten) en 42% MSM (44.931 consulten). Er waren 721 soa-consulten (0,7%) bij transgender personen. Onder alle MSM die zich in 2020 bij CSG's lieten testen had 38,2% meerdere consulten (34,9% in 2019). Onder vrouwen en heteroseksuele mannen was dit 11,4% (11,9% in 2019) en 7,4% (7,7% in 2019) respectievelijk.

Het percentage personen met een positieve soa-test (chlamydia, gonorroe, infectieuze syfilis, hiv of infectieuze hepatitis B) was 20,9% in 2020. Het soa-vindpercentage steeg van 12,0% in 2010 naar 18,1% in 2020 onder vrouwen en van 12,8% in 2010 naar 23,3% in 2020 onder heteroseksuele mannen. Het percentage MSM met één of meerdere soa fluctueert de afgelopen tien jaar rond de 20%, maar nam in 2020 licht toe naar 22,5%. Vanwege de afschaling van de zorg was er triagering van personen met soa/hiv gerelateerde klachten en/of soa notificatie. Onder personen met een soa diagnose was 38,3% gedetecteerd doormiddel van partner notificatie.

Sinds medio 2019 is er een nationaal Pre-Expositie Profylaxe (PrEP) pilot programma gestart bij de CSG's voor personen die een hoog risico lopen op een hiv-infectie. Op 31 december 2020 hadden 6.332 personen (97,6% MSM) hun eerste PrEP consult gehad binnen dit programma, waarvan 3.563 personen hun eerste consult in 2020 hadden.

Het totale aantal soa-gerelateerde episodes dat in 2019 (2020 data is nog niet beschikbaar) bij de huisarts werd geregistreerd gebaseerd op een selectie van 404 huisartsenpraktijken geëxtrapoleerd naar de Nederlandse populatie is naar schatting 364.500 episodes (infecties en 'angst voor soa'). Dit is een toename ten opzichte van 2018 (334.700 episodes) en 2017 (307.400 episodes). Het aantal soa-gerelateerde episodes per 1.000 inwoners steeg zowel onder personen onder de 25 jaar (20,8 in 2019 versus 18,3 in 2018) als bij personen ouder dan 25 (21,3 in 2019 versus 20,0 in 2018).

Bacteriële soa

In 2020 zijn er 15,979 chlamydia-diagnoses gesteld bij de CSG's, lager dan in 2019 (21.134). Het vindpercentage onder vrouwen en heteroseksuele mannen bleef stabiel tussen 2016 en 2019; rond 15% bij vrouwen, 18% bij heteroseksuele mannen en 10% bij MSM. In 2020 nam het toe naar 16,9% bij vrouwen, 21,7% bij heteroseksuele mannen en 11,2% bij MSM. De meeste infecties werden geregistreerd bij personen die partnernotificatie ontvangen hadden voor chlamydia (36,4% in vrouwen, 37,1% in heteroseksuele mannen en 25,8% in MSM).

Onder MSM met chlamydia had bijna 24% een gonorroe co-infectie, 5% syfilis co-infectie en 0,6% een HIV diagnose. Het aantal lymfogranuloma venereum (LGV, een infectie met een invasieve chlamydia variant) diagnoses daalde van 420 in 2019 naar 258 in 2020. Het percentage hiv-negatieve MSM onder LGV diagnoses bleef toenemen van 23% in 2014 naar 69% in 2020. Asymptomatische rectale LGV nam jarenlang toe maar nam af van 61% in 2019 naar 55% in 2020. Het geschatte aantal chlamydia episodes gerapporteerd door huisartsen (44,800) nam toe in 2019 ten opzichte van 42,500 in 2018. Het aantal chlamydia-episodes per 1.000 inwoners steeg voornamelijk bij mensen onder de 25 jaar (3,6 in 2018 tot 4,0 in 2019).

Het aantal gonorroe diagnoses bij de CSG's is met 17,9% toegenomen tot 6.722 diagnoses in 2020 vergeleken met 2019. Het gonorroe-vindpercentage nam toe tussen 2016 en 2020 onder heteroseksuele mannen naar 2,5% (1,7% in 2016), en onder vrouwen naar 2,1% (1,4% in 2016). Het vindpercentage onder MSM was tussen 2015 en 2019 rond de 11% maar nam in 2020 toe tot 12,2%. Sinds 2015 is gonorroe de meest gerapporteerde soa onder MSM. Het aantal geschatte gonorroe-episodes in de huisartsenpraktijk nam fors toe van 11.300 in 2018 naar 14.400 in 2019, een toename van 27,4%. Deze toename is voornamelijk te wijten aan de toename van episodes onder mannen. Antibioticaresistentie tegen ceftriaxon, het huidige eerste keus antibioticum voor de behandeling van gonorroe, is nog niet gerapporteerd bij CSG-bezoekers. Resistentie tegen cefotaxim en azitromycine na licht af naar 0,7% en 10,1% respectievelijk. Resistentie tegen ciprofloxacine bleef in 2020 hoog met 57,1%.

In 2020 werden er 1.324 syfilis infecties gediagnosticeerd bij de CSG's, een afname van 7,4% in vergelijking met 2019 (1.430). Hiervan werd 96,1% vastgesteld onder MSM. Het syfilis-vindpercentage onder MSM nam af van 2,9% in 2016 naar 2,4% in 2018 en nam toe naar 2,9% in 2020. Het vindpercentage onder bekend hiv-positieve MSM nam toe (van 7,5% in 2019 naar 8,1% in 2020). Het syfilis-vindpercentage onder hiv-negatieve MSM nam toe (2,0% in 2019 en 2,4% in 2020). Het aantal testen onder vrouwen (n=15.242) en heteroseksuele mannen (n=7.749) nam af in vergelijking met 2019 (24.903 en 13.607 testen respectievelijk). Het aantal syfilis diagnoses was 35 onder heteroseksuele mannen en 17 onder vrouwen in 2020, hetzelfde als in 2019. Een schatting van het aantal syfilis infecties in de huisartsenpraktijk is niet beschikbaar vanwege het lage aantal gevallen.

Virale soa

Bij de CSG's werden 122 nieuwe hiv infecties gevonden in 2020, een afname van 25,6% in vergelijking met 2019 (164). Hiervan werd 87,7% bij MSM vastgesteld. Het hiv-vindpercentage onder MSM bij de CSG's bleef dalen van 2,0% in 2011 tot 0,3% in 2020. Het hiv-vindpercentage was 0,13% onder heteroseksuele mannen en 0,03% onder vrouwen. In 2020 zijn 755 nieuwe hiv-patiënten aangemeld in zorg bij Stichting HIV Monitoring (SHM) (972 in 2019). Van hen waren 336 personen ook gediagnosticeerd in 2020 (dit was 482 in 2019), maar dit aantal kan nog oplopen door rapportagevertraging. Van de nieuw gediagnosticeerde patiënten kwam 49% laat in zorg (CD4 < 350/mm3 of aids). Dit percentage was lager voor MSM (39%) dan voor vrouwen (59%) en heteroseksuele mannen (65%).

Geschat wordt dat in 2019 93% van alle personen met hiv in Nederland gediagnosticeerd en in zorg was. Van hen was 93% ook gestart met behandeling, en daarvan had 96% een onderdrukte virale lading.

Voor genitale wratten en genitale herpes wordt veruit het grootste deel van de diagnoses gesteld bij de huisarts. In 2019 waren er naar schatting 46.870 diagnoses van genitale wratten (44.700 in 2018) en 28.840 diagnoses van genitale herpes (27.950 in 2018). Huisartsen rapporteerden genitale wratten vaker bij mannen dan bij vrouwen (58%), terwijl genitale herpes vaker bij vrouwen werd gezien (72%). In 2020 was het aantal diagnoses van genitale wratten en genitale herpes bij de CSG's 882 en 340 respectievelijk.

Het aantal acute hepatitis B infecties in de aangiftecijfers 2020 (86) was lager dan in 2019 (108). Onbeschermd seksueel contact was de meest gerapporteerde transmissieroute (58%). Het aantal acute hepatitis C gevallen in 2020 (45) was vergelijkbaar met 2019 (43). De belangrijkste transmissieroute van acute hepatitis C was onbeschermd seksueel contact tussen mannen (71%).

Conclusie

De afschaling van soa en seksuele gezondheidszorg bij de CSG's in 2020 vanwege de COVID-19 pandemie resulteerde in een afname van het aantal consulten in vergelijking met 2019 en een toename van vindpercentages als gevolg van de striktere triagering tijdens de lockdown periodes. Bij huisartsen bleef het aantal soa-gerelateerde episodes toenemen in 2019. De impact van de pandemie en de maatregelen op de Nederlandse soa zorg en soa transmissie behoeft constante monitoring. Aanvullend zal het voorkomen van hiv, soa en veranderingen in seksueel gedrag onder PrEP-gebruikers geëvalueerd moeten worden.

Introduction

This report summarises current trends in the epidemiology of STI, including HIV, in the Netherlands. It was prepared by the Centre for Infectious Disease Control (CIb) at the National Institute for Public Health and the Environment (RIVM). The CIb collaborated with various partners in the field of STI to collect data for surveillance and to generate insights into trends and determinants: These include Sexual Health Centres (SHCs), Stichting HIV Monitoring (SHM, HIV Monitoring Foundation), public health laboratories, general practitioners (GPs) participating in the Nivel Primary Care Database, and other health care providers.

The data that are systematically collected among high-risk groups by the nationwide network of SHCs under the responsibility of the Public Health Services (PHSs) form the backbone of the Dutch STI surveillance and STI trends and risk factors. Other available STI data from surveys, screening programmes, national registries, cohort studies and other surveillance systems are included where possible. Together, they provide an overview of the status of STI/HIV in the Netherlands.

Outline of the report

Chapter 1 describes the methodology of each data source used for STI surveillance in the Netherlands. In Chapter 2, the characteristics of the SHC attendees and data from sexual health consultations among young people (Sense) in 2020 are presented. Data from GPs are shown for 2019. Chapters 3-5 present data on bacterial STI (chlamydia, gonorrhoea and syphilis) and Chapters 6-10 focus on viral STI (HIV, genital warts, genital herpes, hepatitis B and hepatitis C). Conclusions and recommendations are given in Chapter 11.

1 Methodology of STI and HIV surveillance

The tables and figures in this report are based on a variety of data sources and present an up-to-date overview of the STI/HIV epidemic in the Netherlands. This overview is based on the systematic surveillance conducted among high-risk groups embodied in the nationwide system of Sexual Health Centres (SHCs). Data from general practitioners (GPs), who perform the bulk of STI consultations, were extrapolated from the Nivel Primary Care Database. We included data from the HIV treatment centres (Stichting HIV Monitoring) to gain insights into trends among HIV-positive individuals in care. Other additional data sources include the national Health Survey, weekly virological laboratory reports, the Gonococcal Resistance to Antimicrobials Surveillance (GRAS) programme, antenatal screening, the data on hepatitis B and C notifications, the hepatitis B vaccination programme for risk groups and the blood donor registry.

1.1 National surveillance at Sexual Health Centres

From 1995 onwards, STI diagnoses have been registered in an STI database at the RIVM in the Netherlands. In 2003, an STI sentinel surveillance system was implemented, which achieved national coverage in 2004. Since 2006, reporting to the national STI surveillance system has been organised in eight regions. One of the SHCs in each region is responsible for the coordination of STI surveillance (Figure 1.1). In total, 24 SHCs, mostly within the Public Health Services (PHSs), provide low-threshold, free-of-charge STI/HIV testing and care targeting high-risk groups. Inclusion criteria are those who: (1) report STI related symptoms, (2) are notified about STI exposure, (3) are MSM, (4) originate from an HIV/STI endemic area, (5) report a partner from an HIV/STI endemic area or who is MSM, (6) are under 25, (7) report performing sex work, or (8) are a victim of sexual violence. Since 2015, because of financial restrictions, the SHCs have more strongly prioritised populations at highest risk of STI, e.g. clients who are notified or report symptoms related to STI. This change should be taken into account when interpreting trends, as it can lead to higher STI positivity rates.

Until 2011, attendees were routinely tested for chlamydia, gonorrhoea and syphilis, with an opt-out policy for HIV testing. Between 2012 and 2014, attendees under 25 with no other indication criteria were tested for chlamydia only. If the chlamydia test result was positive, further testing for gonorrhoea, syphilis and HIV took place. From 2015 onwards, attendees under 25 were tested for chlamydia and gonorrhoea, and additionally for syphilis, HIV and/or HBV if indicated. Briefly, indications for additional STI testing are those who: (1) are notified for syphilis, HIV, LGV, HBV or HCV infection, (2) have symptoms related to syphilis or HIV, (3) have reported performing sex work, (4) are clients of sex work, (5) are MSM, (6) are first generation

migrants from STI/HIV endemic areas, (7) have a partner from STI/HIV endemic areas or who is MSM (8) are victims of sexual violence. The testing policy for attendees over 25 years of age did not change: routine testing for chlamydia, gonorrhoea and syphilis, and an opt-out policy for HIV testing.[1] The changes in testing policy need to be taken into account when interpreting trend data, as they may cause a break in the trends. Hepatitis B and C, genital herpes, trichomonas and LGV are tested on an indication-basis only. Before 2011, a self-defined migration background was recorded for each client. Since 1 January 2011, the migration background has been based on the client's and the client's parents' country of birth, according to the classification of Statistics Netherlands.[2] The classification distinguishes between first and second generations. The first generation consists of persons who are born abroad and have at least one parent who is also born abroad. The second generation consists of persons who are born in the Netherlands and have at least one parent belonging to the first generation. All consultations and corresponding diagnoses are reported online to the RIVM for surveillance purposes, a process facilitated by a web-based application (SOAP). The unit of analysis is 'new STI consultation' and reports contain epidemiological, behavioural, clinical and microbiological data on a wide range of STI. In 2014, an identification number was added to the data collection which allows the identification of clients who were tested repeatedly at the same clinic. We discuss the number of repeated visits and the STI positivity by number of consultations in Chapter 2.

Since July 2019, a national PrEP pilot programme has been implemented in the Netherlands at the SHCs. SHCs provide pre-Exposure Prophylaxis (PrEP) for HIV to high-risk groups. Before PrEP is provided, eligibility criteria are checked and STI testing is performed. During consultation, STI and HIV test results are discussed and, if HIV-negative, PrEP tablets are provided. During trimonthly follow-up consultations, STI tests and HIV tests are conducted.[1]

In this report, the results of SHCs national surveillance are presented with respect to the number and nature of new consultations and diagnoses. We focus on the major bacterial and viral STI, including HIV infection. Trends in positivity rate by risk profile (based on demographic and behavioural indicators) are based on data taken from SHCs under national surveillance from 2011 to 2020. In May 2018, the General Data Protection Regulation (GDPR) (AVG in Dutch) was implemented in the Netherlands. Initially, the interpretation of the GDPR resulted in a switch from opting-out to opting-in: all SHC attendees have had to give consent to share their consultation data with RIVM for surveillance purposes since May 2018. This switch led to high numbers of non-consenting attendees in some regions, thus jeopardizing the interpretability of data and the continuation of regional and national STI/HIV surveillance and therefore STI and HIV control - a task of general interest. For this reason, the SHCs switched back to opting-in from July 2019 onwards. Between May 2018 and December 2019, aggregated data of non-registered consultations were obtained from the SHCs on total chlamydia, LGV, gonorrhoea, syphilis, and HIV tests and diagnoses, stratified by gender and sexual contact. Aggregated data of non-registered consultations were added to registered consultations to calculate the total

[1] See Draaiboek: *https://lci.rivm.nl/draaiboeken/consult-seksuele-gezondheid*

[2] Statistics Netherlands: *https://www.cbs.nl/nl-nl/achtergrond/2016/47/afbakening-generaties-met-migratieachtergrond*

number of consultations and the positivity rates of chlamydia, LGV, gonorrhoea, syphilis and HIV by gender and sexual contact. Demographic and behavioural indicators were not available for non-registered consultations. Therefore, all tables and figures regarding positivity rates by risk profiles are based on registered consultations only. Where aggregated data of non-registered consultations have been added to registered consultations, this is indicated.

The Coronavirus Disease 2019 (COVID-19) pandemic has greatly affected the STI and sexual health care at the SHCs. During the first wave and accompanied lockdown, the healthcare system was downscaled. Only essential care was maintained, which included consultations with clients with (severe) STI-related symptoms, clients that received STI notification (for syphilis, HIV, hepatitis and gonorrhoea with symptoms) and victims of sexual violence. The downscaling of STI care due to the lockdown differed between SHCs. Clients with PrEP indication were allowed medication and essential PrEP care (i.e. creatinine, HIV and STI tests). Around June, the STI care scaled up again, albeit with decreased capacity also in the second half of 2020. 2020 can roughly be divided into four periods[3]: Prior to the introduction of COVID-19 in the Netherlands (1 January to 12 March), during the first wave (13 March to 31 May), after the first wave (1 June to 30 September), and the start of the second wave (1 October to 31 December). The effect of the social distancing measures on the transmission of STI is unknown. Positivity rates should be interpreted with caution. Several studies were initiated to investigate the influence of the social distancing measures on sexual behaviour, STI transmission and STI occurrence.

[3] See website: *https://www.rijksoverheid.nl/onderwerpen/coronavirus-tijdlijn*

Figure 1.1 Eight regions with coordinating SHC indicated

- Regio Noord - GGD Groningen
- Regio Noord-Holland en Flevoland - GGD Amsterdam
- Regio Noordelijk Zuid-Holland - GGD Haaglanden
- Regio Zuidelijk Zuid-Holland - GGD Rotterdam-Rijnmond
- Regio Zeeland Brabant - GGD Hart voor Brabant
- Regio Utrecht - GGD Regio Utrecht
- Regio Oost - GGD Gelderland-Zuid
- Regio Limburg - GGD Zuid Limburg

1.2 Sense

To strengthen primary prevention and to promote sexual health among young people (<25 years), the SHCs offer free, anonymous consultations (Sense consultations) on a broad range of subjects relating to sexual health, including (problems with) sexual intercourse, unwanted pregnancy, birth control, STI, homosexuality, sexual violence or "loverboys". Data on the number and demographics of Sense consultations visitors are presented. From 2014 onwards, demographic information and the subject of Sense consultations are reported in the national STI/HIV surveillance system. However, results are difficult to interpret, as the registration of Sense consultations is not uniform across SHCs.

1.3 Sexual health in the Health Survey/Lifestyle Monitor

From 2014, data on different lifestyle aspects in a representative sample of the Dutch population have been collected in the national Health Survey (Health Survey/Lifestyle Monitor, LSM), by Statistics Netherlands (CBS) in collaboration with RIVM, Rutgers and Soa Aids Nederland (SANL), (2019). Surveying lifestyle themes such as substance use, physical activity, nutrition, accidents and sexual health. A standard set of indicators is collected for each of these topics annually.[4] The 2019 sexual health data were collected for a total of 4,837 men and 4,939 women between the ages of 16 and 85. We present a selection of the 2019 results in this report with the aim of describing the characteristics related to sexual health and STI healthcare of the general population in the Netherlands. Data were weighted for demographic characteristics in order to correct for differences between the sample and the Dutch population.

1.4 STI in general practice

Data on the incidence of STI reported by general practices are obtained through the primary care network maintained at the Netherlands Institute for Health Services Research (Nivel), which is based on electronic health records in a network of general practices, the Nivel Primary Care Database (Nivel -PCD).[5] The network uses data routinely collected from general practices to monitor health and the utilisation of health services in general practice in a representative sample of the Dutch population. All complaints and illnesses are recorded using the International Classification of Primary Care (ICPC-1) codes.[6] From 2010 onwards, the network of general practices gradually expanded from 120 practices to a larger network including over 500 practices. Data on the incidence of STI episodes in the population covered by this network from 2010 to 2019 are included in this report. This is restricted to data from general practices

[4] Health Survey/Lifestyle Monitor, Statistics Netherlands (CBS) in collaboration with National Institute for Public Health and the Environment (RIVM), Rutgers and Soa Aids Nederland, 2019.

[5] Meijer, W. M., Verberne, L. D. M., & Weesie, Y. M. Zorg door de huisarts. Uit: Zorg door de huisarts-Nivel Zorgregistraties Eerste Lijn: Jaarcijfers 2018 en trendcijfers 2014-2018. Uit: Nivel Zorgregistraties eerste lijn. [internet]. 2020 [Geraadpleegd op 30-04-2020]. URL: *https://www.nivel.nl/sites/default/files/Jaarrapport%20Huisarts_2018.pdf*

[6] Lamberts H, Wood MR. ICPC: International Classification of Primary Care. Oxford: Oxford University Press, 1987.

with good quality morbidity data, which comprised 372 practices in 2014, 416 in 2015, 350 in 2016, 367 in 2017, 323 in 2018 and 404 in 2019. Incidence rates were calculated based on the number of episodes of illness per 1,000 population.[7] Annual estimates of the total number of episodes at general practices in the Netherlands were made by extrapolating the reporting rates at these practices to the total number of Dutch residents, as obtained from Statistics Netherlands (CBS) and reported by gender and age group (<25 years and ≥25 years). For syphilis and HIV, the number of incident cases reported was too small for reliable incidence estimates. For HIV, we report prevalence rates based on estimates from Nivel-PCD. HIV is defined as a 'chronic, non-reversible morbidity', which remains prevalent as long as the patient is registered in the network. For chlamydia, which does not have a main ICPC code, we used the 'chlamydia-related' ICPC codes in combination with prescription and laboratory data. The chlamydia-related ICPC codes include vaginitis (X84), cervicitis (X85) and Pelvic Inflammatory Disease (PID) (X74) in women, and orchitis/epididymitis (Y74) and other genital diseases (Y99) in men.[8]

The percentage of chlamydia episodes was estimated for each chlamydia-related ICPC main code. The chlamydia incidence rate was computed by combining these percentages with the incidence rates of the separate chlamydia-related ICPC codes. The percentage of chlamydia episodes per ICPC were based on the proportion of the chlamydia-related ICPC codes with:

- an appropriate chlamydia-related prescription, i.e. azithromycin or doxycycline, at GP practices with good quality morbidity and prescription data (all 404 practices in 2019)
- or: a positive chlamydia laboratory result. Because only some of the GP practices have sufficient laboratory reports (345 practices in 2019), the number of chlamydia infections based on a positive laboratory result was extrapolated to all GP practices with good quality morbidity and prescription data.

1.5 Laboratory surveillance

National laboratory surveillance data are not available for STI, except for data taken from the weekly virological reports, which include the total number of *Chlamydia trachomatis* positive tests from up to 21 participating laboratories (19 in 2020). The coverage of these laboratories and its representativeness of the Dutch population are not precisely known, but the laboratories are spread over the whole country and the coverage is sufficient to provide accurate and timely trends for (virological) infections and chlamydia.[9] There is an overlap between the laboratories reporting in this system and the laboratories connected to the SHCs.

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[7] Nielen MMJ, Spronk I, Davids R, Korevaar JC, Poos R, Hoeymans N, Opstelten W, van der Sande MAB, Biermans MCJ, Schellevis FG, Verheij RA. Estimating Morbidity Rates Based on Routine Electronic Health Records in Primary Care: Observational Study. JMIR Med Inform. 2019 Jul 26;7(3):e11929. doi: 10.2196/11929. PMID: 31350839

[8] 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 centres. BMC Family Practice, 2010, 11:39.

[9] See website: *https://www.rivm.nl/virologische-weekstaten.*

1.6 Antimicrobial resistance of gonococci

Concerns about increasing resistance to quinolones at the (inter)national level led to an RIVM laboratory survey of the resistance of gonococci in 2002.[10] Because the results demonstrated the need for systematic nationwide surveillance of gonococcal antimicrobial resistance, in 2006 the Gonococcal Resistance to Antimicrobials Surveillance (GRAS) was implemented in the Netherlands. This survey consists of the systematic collection of data on gonorrhoea and resistance patterns, linked with epidemiological data. In 2020, 14 out of 24 SHCs participated in GRAS, which together diagnosed 81% of all SHC gonorrhoea cases. Gonorrhoea is usually diagnosed using Polymerase Chain Reaction (PCR). Within GRAS, additional culture and susceptibility testing of isolates is performed using E-tests. Resistance levels are calculated using the European Committee on Antimicrobial Susceptibility Testing (EUCAST) breakpoints for resistance.[11] In 2019, the breakpoints for azithromycin resistance were changed. Trends of azithromycin resistance have retrospectively been altered based on the new cut-off value.

1.7 Antenatal screening

Each year in the Netherlands, around 175,000 pregnant women are screened for syphilis, HBV and HIV. The blood sample is collected at the first midwife appointment (<13th week of the pregnancy) according to the opting-out principle, whereby pregnant women undergo the test after being provided with information, unless they explicitly state that they do not wish to participate. Almost all pregnant women in the Netherlands participate in this infectious disease screening programme (0.04% refused HIV tests and 0.00% refused hepatitis B and syphilis testing in 2017).[12] The screening programme is coordinated by the Centre for Population Screening (CvB) at the RIVM.

1.8 Congenital syphilis

The RIVM-IDS (Centre for Infectious Diseases Research, Diagnostics and Screening) offers Immunoglobulin M (IgM) diagnostics for neonates and young infants (<1 year) who may have been exposed to syphilis. We present national results from the 2011-2020 period in this report.

[10] Van Loo IH, Spaargaren J, van de Laar MJW. Resistance of Gonococci in the Netherlands; Results of a survey of Medical Microbiology Laboratories. Ned Tijdschr Geneeskd. 2005;149(22):1217-1222. [Dutch].

[11] The European Committee on Antimicrobial Susceptibility Testing. Breakpoint tables for interpretation of MICs and zone diameters. Version 11.0, 2021. *https://www.eucast.org/clinical_breakpoints/*

[12] Van der Ploeg CPB, Schönbeck Y, Oomen P, Vos K. PSIE Procesmonitor 2017. Belangrijkste resultaten Prenatale Screening Infectieziekten en Erytrocytenimmunisatie (PSIE) over 2017. TNO/RIVM 2018.

1.9 National registration of patients registered at HIV treatment centres

In January 2002, an HIV reporting system for patients entering care was implemented in the Netherlands. Pseudonymised longitudinal data of almost all newly registered HIV-positive individuals are collected by the HIV Monitoring Foundation (SHM). The goal of SHM is to monitor HIV-positive individuals registered at the 24 recognised HIV treatment centres and four children's HIV centres in the Netherlands, in order to study changes in the epidemic, the effects of treatment and the quality of care. All HIV-positive individuals registered in this national cohort are followed prospectively from the time of reporting in care. HIV-positive individuals in care diagnosed prior to the start of SHM were included in the cohort retrospectively. HIV cases diagnosed before 1996 mainly include people who survived up to the start of the ATHENA clinical cohort in 1996, the predecessor of SHM. The epidemiological data on newly reported HIV infections as well as trends in new AIDS diagnoses after 2000 are reported in collaboration with the CIb at the RIVM.[13] The number of people living with HIV in the Netherlands in 2019 was estimated by using the European Centre for Disease Prevention and Control (ECDC) HIV Modelling Tool.[14]

1.10 HIV incidence data

HIV incidence data are obtained from the Amsterdam Cohort Studies (ACS) on HIV/AIDS and blood donations. In 1984, the Amsterdam Cohort Studies on HIV and AIDS started registering men who have sex with men (MSM). The original aims were to investigate the epidemiology, psychosocial determinants, natural history, and pathogenesis of HIV-1 infection and AIDS, as well as to evaluate the effect of interventions in HIV-negative and HIV-positive MSM. In the past decade, the focus has broadened to include the epidemiology and natural history of blood-borne and sexually transmitted infections other than HIV. The collaborating institutes within the ACS framework are the Sanquin Blood Supply Foundation, the PHS of Amsterdam (GGD Amsterdam), the Amsterdam University Medical Centre (Amsterdam UMC), the Jan van Goyen Medical Centre, the DC klinieken Amsterdam, and Stichting HIV Monitoring (SHM).

1.11 Notification of hepatitis B and C

The mandatory notification includes epidemiological data on newly diagnosed acute hepatitis B virus (HBV) infections (since 1976), and on chronic HBV infections and acute hepatitis C virus (HCV) infections. From January 2019, reporting chronic HCV infections has also been mandatory. Since 2002, all PHSs have given notifications of HBV and HCV infections using the web-based application OSIRIS. Since chronic HBV infections are already reported in the annual

[13] van Sighem A.I., Boender T.S., Wit F.W.N.M., Smit C., Matser A., Reiss P. HIV Monitoring Report 2020, Human Immunodeficiency Virus (HIV) Infection in the Netherlands. Amsterdam: Stichting HIV Monitoring, 2020. Available online at *www.hiv-monitoring.nl*

[14] European Centre for Disease Prevention and Control. HIV estimates accuracy tool [Internet, software application]. Stockholm: ECDC; 2018. Available from: *https://ecdc.europa.eu/en/publications-data/hiv-estimates-accuracy-tool*

report of the National Immunisation Programme in the Netherlands[15], this report only includes notification data for acute HBV. Data on chronic HCV cases are included in this report next to acute HCV infections from 2019 on.

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 MSM and persons that reported performing sex work (SW). Heterosexuals with an STI indication were also considered a risk group until October 2007, as were drug users until January 2012. PHSs and SHCs offer complimentary vaccination according to the six-month schedule. Participants are tested serologically for markers of previous or current HBV infection during their consultation for a first vaccination. Data are collected from the registration system specifically developed for the vaccination programme. Although universal childhood vaccination was adopted in 2011, the current targeted risk group vaccination programme will need to be continued in the coming years.

1.13 Blood donors

From 1985 onwards, blood donated by (new and regular) blood donors has been screened for HIV, hepatitis B and C, and syphilis. Volunteers are screened 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 registry of Sanquin, which provides representative information on the prevalence and incidence of these infections in a low-risk population. Data from the 2010-2019 period are reported.

[15] The National Immunisation Programme in the Netherlands, Surveillance and developments in 2017-2018. RIVM report 2018-0124. Available from: *https://www.rivm.nl/publicaties/national-immunisation-programme-in-netherlands-surveillance-and-developments-in-2017*

2 Sexual health, STI and Sense consultations

2.1 Key points

2.1.1 Sexual Health Centres

- In 2020, the total number of consultations at the SHCs was 105,936. This number was lower compared with 2019 (-30%), because of the impact of the COVID-19 pandemic on STI and sexual health care at the SHCs. The number of consultations decreased among MSM (-18%), heterosexual men (-39%) and women (-35%) compared with 2019 and was lowest in April.
- Of all SHC visitors, 40% were female (42,265 consultations), 17% heterosexual male (18,019 consultations) and 42% MSM (44,931).
- Of all consultations, 721 were with transgender clients.
- As a result of the downscaling of STI and sexual health care due to the COVID-19 pandemic, key characteristics of attendees changed during different periods of social distancing measures. Relatively more MSM and more clients with STI/HIV-related symptoms or STI notification were seen during the first COVID-19 wave and in the second half of 2020, compared with 2019.
- Key characteristics of these attendees were: MSM (42%), older age (52% ≥25 years), Dutch origin (66%), ≥3 sexual partners in the previous 6 months (59%), not tested for gonorrhoea/chlamydia/syphilis in the past year (47%), STI/HIV-related symptoms (29%), and notified by a partner (23.1%).
- The absolute number of clients with at least one STI was lower in 2020 (n=22,126) than it was in 2019 (n=24,122), but the percentage of clients with at least one STI increased from 19.0% in 2019 to 20.9% in 2020. STI positivity among MSM fluctuated around 20% over the past ten years and slightly increased to 22.5% in 2020. There was an overall increasing trend from 12.0% in 2010 to 18.1% in 2020 among women and from 12.8% in 2010 to 23.3% in 2020 among heterosexual men.
- Of all MSM, 76.5% reported having receptive anal sex and 81.8% insertive anal sex, 11.9% reported receptive anal sex with consistent condom use, and 13.0% reported having insertive anal sex with consistent condom use. Few women and heterosexual men reported consistent condom use with vaginal sex (6.4% and 5.8% respectively). Consistent condom use with oral sex was low (1.9% of women and 0.7% of MSM).
- Of all MSM, 31.3% reported group sex and 33.1% reported drug use in relation to sex in the preceding 6 months. STI positivity rates were higher among MSM who reported having group sex (29.5%) and drug use in relation to sex (29.1%), and were highest among MSM who used 4-MEC (38.2%), Crystal Meth (37.6%), or Mephedrone (37.1%).

- Of all MSM who were tested at the SHCs in 2020, 38.2% had multiple consultations (34.9% in 2019). Among women and heterosexual men, this was 11.4% (11.9% in 2019) and 7.4% (7.7% in 2019) respectively.
- Of all transgender clients, 70.1% had a non-Western migration background, 51.2% reported performing sex work in the previous 6 months and 34.0% reported PrEP use in the past 3 months. The STI positivity rate among transgender clients was 22.3%.
- Among clients diagnosed with an STI, 38.3% were detected through partner notification. Among MSM newly diagnosed with HIV, 36.1% were attributable to clients who were notified for STI exposure.
- In 2020, 6,550 and 2,290 Sense consultations were registered among women and men respectively. The registration of Sense consultations is not uniform across SHCs.

2.1.2 Regional comparisons

- In 2020, the number of STI consultations per 1,000 inhabitants between the ages of 15 and 65 was by far the highest in Amsterdam (31.9); a decrease compared with 2019 (66.6). For other regions, this number ranged from 0.7 in Drenthe to 11.5 in Zuid Limburg.
- STI positivity rates ranged by region between 15.8% and 22.2% among women, between 19.7% and 18.1% among heterosexual men and between 21.1% and 24.6% among MSM in 2020.
- Variability between the regions was seen in the percentage of attendees with low level of education, in age distribution, and the percentage of people who were notified of STI/HIV exposure or reported STI-related symptoms.

2.1.3 General practice

- In 2019, the number of STI-related episodes in general practice (based on ICPC codes for episodes of fear of STI and STI diagnoses recorded in the Nivel Primary Care Database (Nivel-PCD) was estimated at 364,500 in the Netherlands, an increase compared with 2018 (334,700). This increase occured among people under 25 years and those 25 and older**.**

2.1.4 Health Survey

- In 2019, 14.4% of women between the ages of 16 and 29 reported having been tested for an STI in the previous year, and 7.2% were tested for HIV. For heterosexual men in the 16-29 age group, these percentages were lower; 9.8% for STI and 5.9% for HIV. Higher proportions were seen among men attracted to men in the 16-44 age group, with 16.7% testing for STI and 22.2% for HIV in the past year. The percentages were highest in the age groups of 16-29 and 30-44 years, compared with the older age categories.

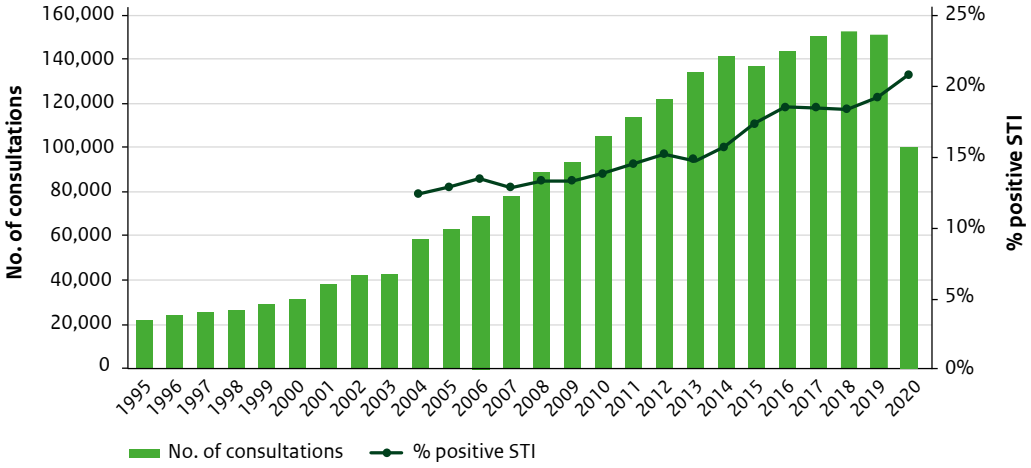
2.1.5 PrEP consultations

- SHCs have started to provide PrEP to individuals at high risk of acquiring HIV since July 2019. Between July 2019 and 31 December 2020, 6,332 individuals (97.6% MSM) had had a first PrEP consultation in the national PrEP pilot programme at SHCs, 3,563 of whom had their first consultation in 2020.

- A total of 18,501 PrEP consultations, including both start consultations and 3-monthly follow-up visits, have been performed since the start of the PrEP pilot programme.
- Unprotected sex with a partner with unknown HIV-status was the most frequently reported PrEP indication (62.9%).
- At start consultation, 47.3% of individuals reported PrEP use in the past 3 months; 48.9% reported no PrEP use in the past year.
- An estimated 5,346 individuals participated in the SHC national PrEP pilot on 31 December 2020. PrEP discontinuation was registered for 190 individuals, among whom reduced risk was the most frequently reported reason for discontinuation. In addition, 796 persons were lost to follow-up, 541 of whom were lost to follow-up directly after the first PrEP consultation.
- At follow-up consultation, 59.3% reported daily PrEP use in the past 3 months, 36.5% reported event-driven PrEP use and 3.0% reported both daily and event driven PrEP use (1.2% missing).
- HIV-negative MSM who had not used PrEP in the past 3 months reported lower risk behaviour compared with both MSM participating in the PrEP pilot programme at SHCs and MSM who used PrEP in the past 3 months via other health care providers.
- In addition, the rate of chlamydia and gonorrhoea was lower among HIV-negative MSM who did not use PrEP compared with MSM who did use PrEP. STI rates were highest among MSM not included in the PrEP pilot programme, but who had used PrEP in the past 3 months via other health care providers.

2.2 Consultations and characteristics of Sexual Health Centre attendees

Figure 2.1 Number of consultations and percentage of positive STI tests in the national STI surveillance in the Netherlands, 1995–2020



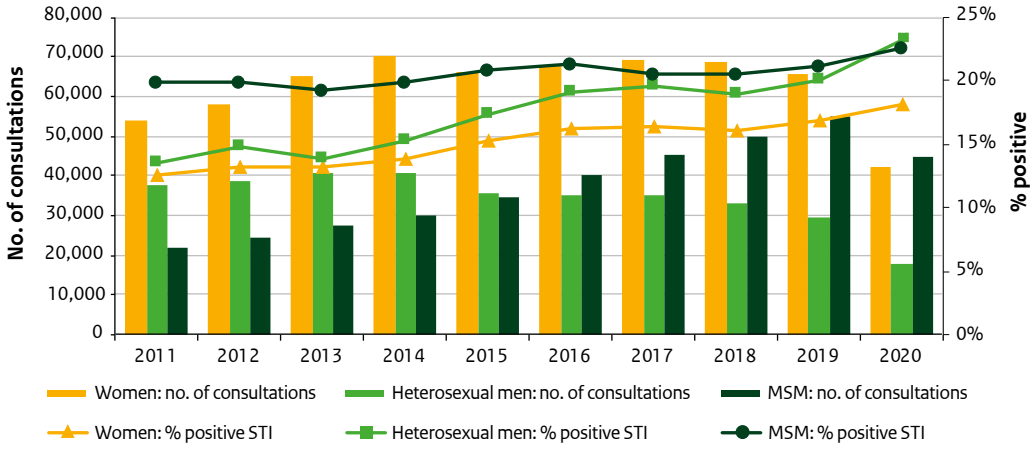
Footnote 1: 1995–2002: STI registration; 2000: STI clinic Erasmus Medical Centre Rotterdam was included; 2003: Implementation of STI sentinel surveillance network; 2004–2020: National STI surveillance network.
Footnote 2: STI include: chlamydia, gonorrhoea, infectious syphilis, HIV and infectious hepatitis B
Footnote 3: Aggregated data of non-registered consultations included for 2018 and 2019.
Footnote 4: The percentage of positive STI was calculated based on consultations registered in SOAP only; for 2018 aggregated numbers of non-registered consultations were also included.

Table 2.1 Number of consultations by gender and type of sexual contact, 2016-2020

Gender and type of sexual contact	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)
Women	67,600 (47.2)	69,375 (46.1)	68,710 (45.1)	65,461 (43.5)	42,265 (39.9)
Heterosexual men	35,065 (24.5)	35,242 (23.4)	33,041 (21.7)	29,317 (19.5)	18,019 (17.0)
MSM	40,340 (28.2)	45,553 (30.2)	49,873 (32.8)	54,906 (36.5)	44,931 (42.4)
Transgender*	56 (0.04)	416 (0.3)	484 (0.3)	654 (0.4)	721 (0.7)
Unknown*	78 (0.05)	7 (0.00)	109 (0.1)	25 (0.0)	0 (0.0)
Total	**143,139**	**150,593**	**152,217**	**150,363**	**105,936**

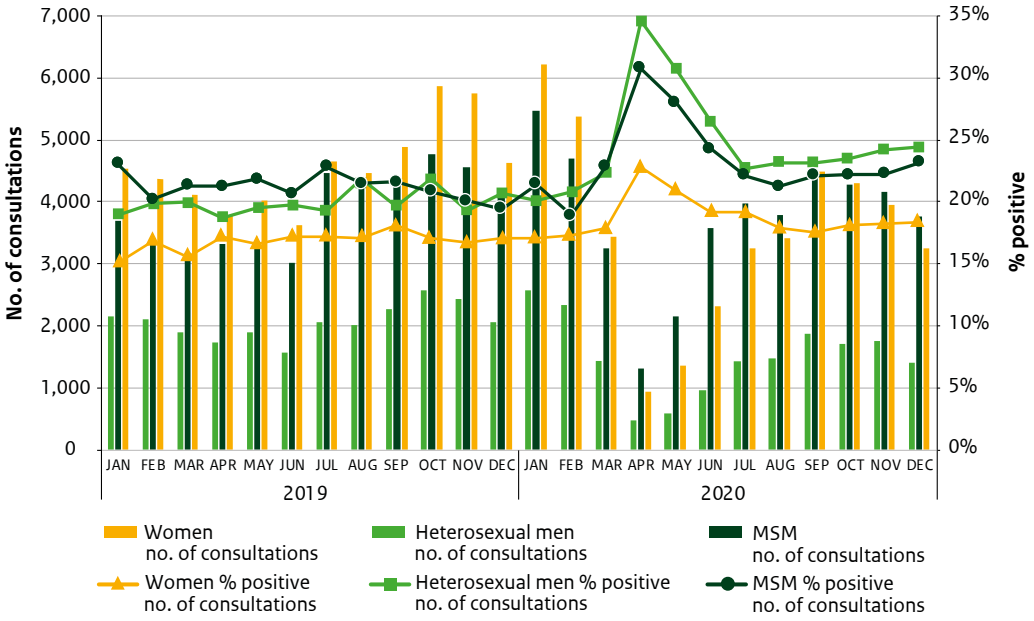
Footnote: Available aggregated data of non-registered consultations included for 2018 and 2019.
*Categories 'transgender' and 'unknown' are disregarded in the rest of the tables.

Figure 2.2 Number of consultations and percentage of positive STI tests by gender and type of sexual contact, 2011–2020



Footnote 1: STI include: chlamydia, gonorrhoea, infectious syphilis, HIV and infectious hepatitis B.
Footnote 2: Available aggregated data of non-registered consultations included in the number of consultations for 2018 and 2019. Percentage of positive STI was calculated based on consultations registered in SOAP only; for 2018 aggregated numbers of non-registered consultations were also included.

Figure 2.3 Number of consultations and STI positivity rate by gender, sexual contact and month in 2019 and 2020

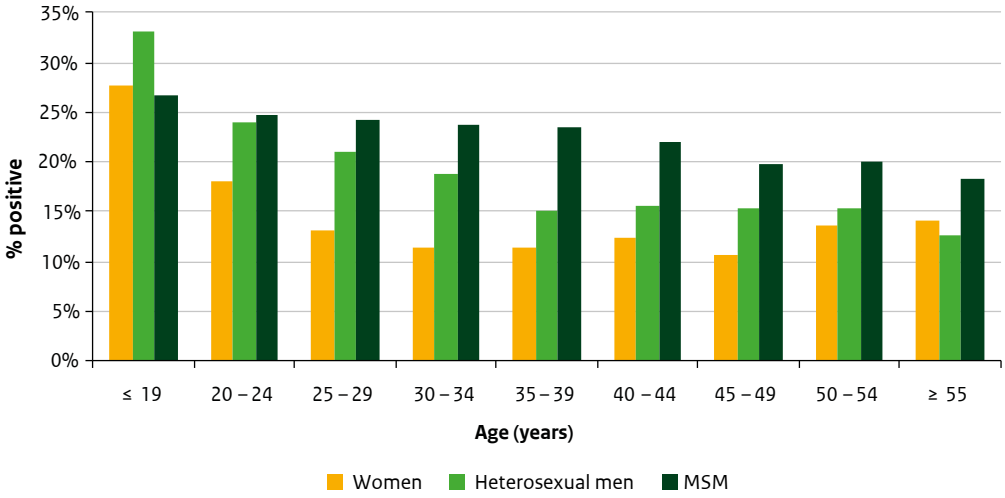


Footnote: In 2019 there were 24,153 diagnoses not registered in SOAP, the majority of which were diagnosed between January and June. These diagnoses are not included in this figure.

Table 2.2 Number of consultations by age, gender and type of sexual contact, 2020

Age (years)	Women n (%)	Heterosexual men n (%)	MSM n (%)
≤ 19	6,039 (14.3)	1,757 (9.8)	713 (1.6)
20–24	25,904 (61.3)	10,295 (57.1)	5,325 (11.9)
25–29	5,932 (14.0)	3,464 (19.2)	8,629 (19.2)
30–34	1,772 (4.2)	1,272 (7.1)	7,530 (16.8)
35–39	894 (2.1)	554 (3.1)	5,220 (11.6)
40–44	558 (1.3)	259 (1.4)	4,662 (10.4)
45–49	449 (1.1)	156 (0.9)	3,777 (8.4)
50–54	383 (0.9)	118 (0.7)	3,623 (8.1)
≥ 55	333 (0.8)	144 (0.8)	5,452 (12.1)
Total	**42,265**	**18,019**	**44,931**

Figure 2.4 Percentage of positive STI tests by age, gender and type of sexual contact, 2020



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

Table 2.3 Number of consultations by region of origin, generation, gender and type of sexual contact, 2020

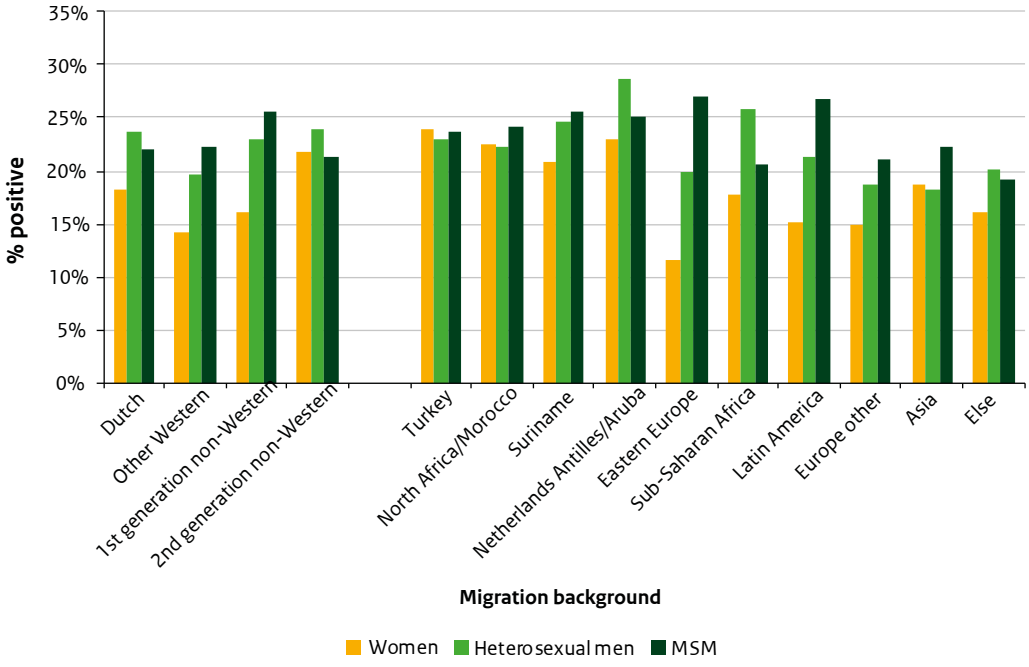
Migration background	Women n (%)	Heterosexual men n (%)	MSM n (%)
The Netherlands	**30,425 (72.0)**	**11,080 (61.5)**	**27,964 (62.2)**
Turkey	**530 (1.3)**	**478 (2.7)**	**756 (1.7)**
First generation	68 (12.8)	57 (11.9)	272 (36.0)
Second generation	462 (87.2)	421 (88.1)	484 (64.0)
North Africa/Morocco	**710 (1.7)**	**908 (5.0)**	**851 (1.9)**
First generation	67 (9.4)	125 (13.8)	401 (47.1)
Second generation	642 (90.4)	783 (86.2)	450 (52.9)
Suriname	**1,974 (4.7)**	**1,426 (7.9)**	**1,385 (3.1)**
First generation	305 (15.5)	299 (21.0)	583 (42.1)
Second generation	1,669 (84.5)	1,127 (79.0)	797 (57.5)
Netherlands Antilles/Aruba	**948 (2.2)**	**722 (4.0)**	**1,041 (2.3)**
First generation	340 (35.9)	336 (46.5)	791 (76.0)
Second generation	608 (64.1)	386 (53.5)	250 (24.0)

Table 2.3 (continued) Number of consultations by region of origin, generation, gender and type of sexual contact, 2020

Migration background	Women n (%)	Heterosexual men n (%)	MSM n (%)
Eastern Europe	**1,485 (3.5)**	**354 (2.0)**	**1,764 (3.9)**
First generation	1,095 (73.7)	224 (63.3)	1,621 (91.9)
Second generation	390 (26.3)	130 (36.7)	143 (8.1)
Sub-Saharan Africa	**949 (2.2)**	**815 (4.5)**	**610 (1.4)**
First generation	326 (34.4)	335 (41.1)	436 (71.5)
Second generation	623 (65.6)	480 (58.9)	174 (28.5)
Latin America	**1,019 (2.4)**	**361 (2.0)**	**2,115 (4.7)**
First generation	655 (64.3)	183 (50.7)	1,933 (91.4)
Second generation	364 (35.7)	177 (49.0)	182 (8.6)
Europe other	**2,236 (5.3)**	**944 (5.2)**	**4,137 (9.2)**
First generation	1,174 (52.5)	532 (56.4)	3,276 (79.2)
Second generation	1,061 (47.5)	411 (43.5)	861 (20.8)
Asia	**1,582 (3.7)**	**781 (4.3)**	**3,596 (8.0)**
First generation	550 (34.8)	370 (47.4)	2,461 (68.4)
Second generation	1,032 (65.2)	411 (52.6)	1,133 (31.5)
Else	**389 (0.9)**	**144 (0.8)**	**697 (1.6)**
First generation	174 (44.7)	69 (47.9)	586 (84.1)
Second generation	215 (55.3)	75 (52.1)	111 (15.9)
Unknown	**18 (0.0)**	**6 (0.0)**	**15 (0.0)**
Total	**42,265**	**18,019**	**44,931**

Footnote: The numbers of first and second generation migrants do not always add up to 100%. The generation of the remaining group is unknown.

Figure 2.5 Percentage of positive STI tests by migration background (left side: aggregated data; right side: region of origin of non-Western migrants), gender and type of sexual contact, 2020



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

Table 2.4 Reported triage indication by gender and type of sexual contact, 2020

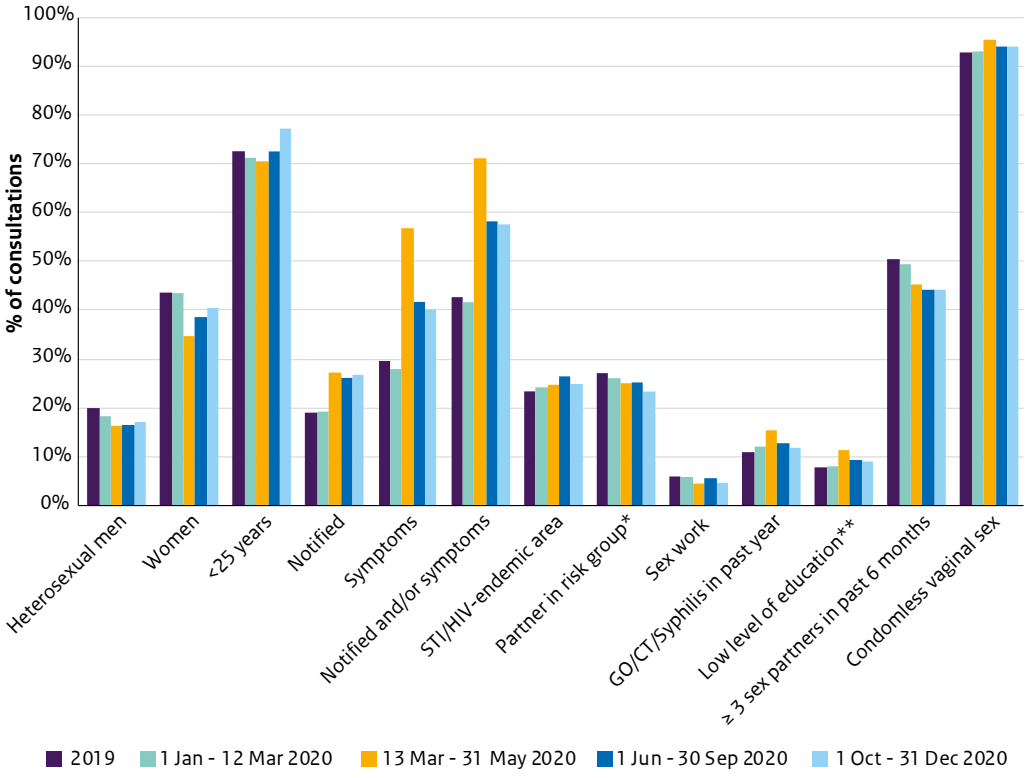
	Women n (%)	Heterosexual men n (%)	MSM n (%)
Notified			
No	33,988 (80.4)	11,754 (65.2)	35,045 (78.0)
Yes	8,215 (19.4)	6,246 (34.7)	9,847 (21.9)
Unknown	62 (0.1)	19 (0.1)	39 (0.1)
Symptoms			
No	26,195 (62.0)	11,152 (61.9)	36,971 (82.3)
Yes	15,896 (37.6)	6,819 (37.8)	7,879 (17.5)
Unknown	174 (0.4)	48 (0.3)	81 (0.2)
STI/HIV-endemic area			
No	33,068 (78.2)	12,174 (67.6)	32,813 (73.0)
Yes	9,197 (21.8)	5,845 (32.4)	12,118 (27.0)

Table 2.4 (continued) Reported triage indication by gender and type of sexual contact, 2020

	Women n (%)	Heterosexual men n (%)	MSM n (%)
Age			
<25 years	31,943 (75.6)	12,052 (66.9)	6,038 (13.4)
≥25 years	10,322 (24.4)	5,967 (33.1)	38,893 (86.6)
Partner in risk group*			
No	31,240 (73.9)	13,473 (74.8)	28,234 (62.8)
Yes	10,562 (25.0)	4,461 (24.8)	16,075 (35.8)
Unknown	463 (1.1)	85 (0.5)	622 (1.4)
Sex work			
No	39,141 (92.6)	17,864 (99.1)	43,572 (97.0)
Yes, in past 6 months	3,037 (7.2)	122 (0.7)	1,079 (2.4)
Unknown	87 (0.2)	33 (0.2)	280 (0.6)
Gonorrhoea/chlamydia/syphilis in past year			
Not tested	25,649 (60.7)	13,325 (73.9)	10,919 (24.3)
Tested, negative	10,651 (25.2)	2,759 (15.3)	17,390 (38.7)
Tested, positive	5,632 (13.3)	1,833 (10.2)	15,480 (34.5)
Tested, unknown	51 (0.1)	20 (0.1)	243 (0.5)
Unknown	282 (0.7)	82 (0.5)	899 (2.0)
Victim of sexual violence			
No	40,788 (96.5)	17,924 (99.5)	38,921 (86.6)
Yes	1,238 (2.9)	29 (0.2)	199 (0.4)
Unknown	238 (0.6)	66 (0.4)	5,810 (12.9)
At least one indication (including MSM)			
No	1,216 (2.9)	531 (2.9)	0 (0.0)
Yes	41,049 (97.1)	17,488 (97.1)	44,931 (100.0)

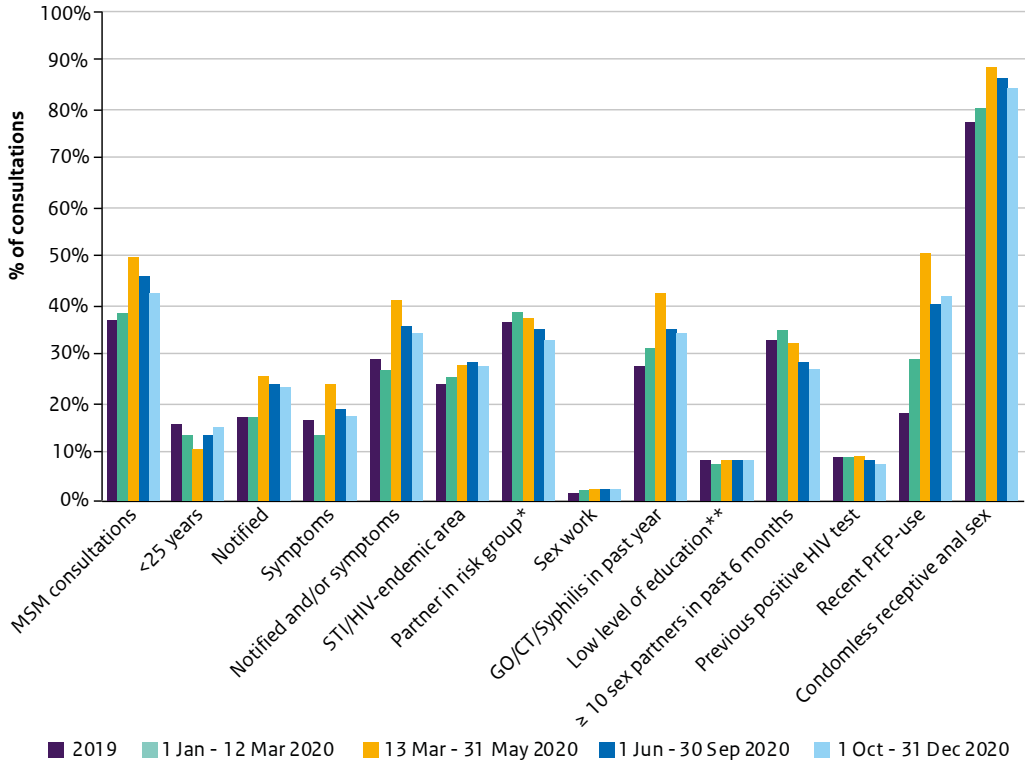
* For heterosexual men and MSM: partner originating from a high STI/HIV endemic country.
For women: partner originating from a high STI/HIV endemic country or a male partner who had sex with men.

Figure 2.6a Characteristics of heterosexual men and women at the SHCs by period of governmental measures



* For heterosexual men: partner originating from a high STI/HIV endemic country. For women: partner originating from a high STI/HIV endemic country or a male partner who had sex with men.
**Low level of education: no education, elementary school, lbo, mavo, vmbo, mbo-1.

Figure 2.6b Characteristics of MSM at the SHCs by period of governmental measures



*Partner originating from a high STI/HIV endemic country.
**Low level of education: no education, elementary school, lbo, mavo, vmbo, mbo-1.

Table 2.5 Number of consultations by demographics, (sexual) behavioural characteristics, gender and type of sexual contact, 2020

	Women n (%)	Heterosexual men n (%)	MSM n (%)
Educational level*			
High	24,268 (57.4)	9,396 (52.1)	28,623 (63.7)
Medium	12,726 (30.1)	6,163 (34.2)	9,673 (21.5)
Low	3,361 (8.0)	1,939 (10.8)	3,601 (8.0)
Unknown	1,910 (4.5)	521 (2.9)	3,034 (6.8)
Number of partners in past 6 months			
0 partners	396 (0.9)	174 (1.0)	700 (1.6)
1 partner	12,177 (28.8)	3,883 (21.5)	3,714 (8.3)
2 partners	11,403 (27.0)	4,087 (22.7)	4,942 (11.0)
3 or more partners	17,401 (41.2)	9,836 (54.6)	35,144 (78.2)
Unknown	888 (2.1)	39 (0.2)	431 (1.0)
Receptive anal sex, in past 6 months			
No receptive anal sex	33,184 (78.5)		9,844 (21.9)
Yes, consistently with a condom	1,004 (2.4)		5,336 (11.9)
Yes, not consistently with a condom	2,103 (5.0)		16,316 (36.3)
Yes, never with a condom	5,454 (12.9)		12,701 (28.3)
Unknown	520 (1.2)		734 (1.6)
Insertive anal sex, in past 6 months			
No insertive anal sex		14,905 (82.7)	7,504 (16.7)
Yes, consistently with a condom		342 (1.9)	5,850 (13.0)
Yes, not consistently with a condom		640 (3.6)	17,315 (38.5)
Yes, never with a condom		1,355 (7.5)	13,587 (30.2)
Unknown		777 (4.3)	675 (1.5)
Vaginal sex, in past 6 months**			
No vaginal sex	366 (0.9)	156 (0.9)	760 (14.2)
Yes, consistently with a condom	2,720 (6.4)	1,039 (5.8)	694 (13.0)
Yes, not consistently with a condom	15,756 (37.3)	7,900 (43.8)	1,515 (28.3)
Yes, never with a condom	22,014 (52.1)	8,327 (46.2)	1,692 (31.7)
Unknown	1,409 (3.3)	597 (3.3)	683 (12.8)

Table 2.5 (continued) Number of consultations by demographics, (sexual) behavioural characteristics, gender and type of sexual contact, 2020

	Women n (%)	Heterosexual men n (%)	MSM n (%)
Receptive oral sex, in past 6 months			
No receptive oral sex	4,971 (11.8)		1,779 (4.0)
Yes, consistently with a condom	802 (1.9)		315 (0.7)
Yes, not consistently with a condom	4,757 (11.3)		7,902 (17.6)
Yes, never with a condom	29,905 (70.8)		33,938 (75.5)
Unknown	1,830 (4.3)		997 (2.2)
Client of sex work			
No	29,091 (68.8)	17,118 (95.0)	43,326 (96.4)
Yes, in past 6 months	101 (0.2)	823 (4.6)	980 (2.2)
Unknown	13,073 (30.9)	78 (0.4)	625 (1.4)
Previous HIV test			
No	30,485 (72.1)	13,308 (73.9)	3,425 (7.6)
Yes, positive	14 (0.0)	13 (0.1)	3,856 (8.6)
Yes, negative	11,339 (26.8)	4,517 (25.1)	37,474 (83.4)
Yes, result unknown	61 (0.1)	25 (0.1)	77 (0.2)
Unknown	366 (0.9)	156 (0.9)	99 (0.2)

*Low: no education, elementary school, lbo, mavo, vmbo, mbo-1; medium: mbo-2-4, havo, vwo; high: university of applied sciences, university.
** For MSM: numbers are reported for men who had sex with both men and women (N=5,344). Men who had sex with men only are excluded.

Table 2.6 Number of consultations and percentage of positive tests among MSM by (sexual) behavioural characteristics, 2020

	MSM	
	n (%)	% STI
Total number of consultations	**44,931 (100.0)**	**22.5**
Anal sex in past 6 months		
No	2,198 (4.9)	10.2
Receptive anal sex only	3,631 (8.1)	19.2
Insertive anal sex only	5,205 (11.6)	16.3
Both insertive and receptive	17,331 (38.6)	24.2
Unknown	16,566 (36.9)	25.0
Group sex		
No	23,458 (52.2)	20.2

Table 2.6 (continued) Number of consultations and percentage of positive tests among MSM by (sexual) behavioural characteristics, 2020

	MSM	
	n (%)	% STI
Yes	14,067 (31.3)	29.5
Unknown	7,406 (16.5)	16.6
Sex with HIV-positive MSM*		
No	6,671 (14.8)	21.5
Yes	2,751 (6.1)	30.5
Don't know	6,305 (14.0)	21.9
Missing	29,204 (65.0)	22.1
Drug use in relation to sex, in past 6 months**		
No	29,512 (65.7)	19.3
Yes	14,863 (33.1)	29.1
Unknown	556 (1.2)	18.5
Injected/slammed drugs in past 6 months*		
No	11,209 (24.9)	27.5
Yes	420 (0.9)	40.7
Missing	33,302 (74.1)	20.6
Drugs type		
Alcohol	12,780 (28.4)	24.4
Erection stimulants	4,757 (10.6)	27.2
Cocaine	4,007 (8.9)	29.1
XTC/MDMA/Speed	10,970 (24.4)	30.4
Heroin	15 (0.0)	26.7
Crystal Meth	956 (2.1)	37.6
Mephedrone	1,141 (2.5)	37.1
3-MMC	1,238 (2.8)	34.5
4-MEC	102 (0.2)	38.2
4-FA	147 (0.3)	25.9
GHB/GBL	8,083 (18.0)	32.3
Ketamine	3,214 (7.2)	32.5
Poppers	8,847 (19.7)	27.5
Cannabis/hashish	5,233 (11.6)	26.4
Other	698 (1.1)	25.8

* Voluntary to ask and register in SOAP.
**Included drugs are cocaine, XTC/MDMA/Speed, Heroin, Crystal Meth, Mephedrone, 3-MMC, 4-MEC, 4-FA, GHB/GBL and ketamine.
Footnote: STI include: chlamydia, gonorrhoea, infectious syphilis, HIV and infectious hepatitis B.

Table 2.7 Number of consultations and percentage of positive tests by age, level of education, gender and type of sexual contact, 2020

Education level	Age group				
	≤ 19 n (%)	20-24 n (%)	25-34 n (%)	≥35 n (%)	Total n (%)
Women					
Low	1,070 (30.5)	1,364 (22.9)	513 (12.9)	414 (13.5)	3,361 (22.6)
Medium	3,096 (29.7)	7,059 (23.1)	1,799 (17.5)	772 (15.2)	12,726 (23.4)
High	1,745 (22.0)	17,021 (15.7)	4,755 (11.5)	747 (12.6)	24,268 (15.2)
Heterosexual men					
Low	403 (33.7)	861 (29.3)	483 (22.4)	192 (16.7)	1,939 (27.2)
Medium	964 (32.8)	3,424 (28.0)	1,413 (25.0)	362 (14.9)	6,163 (27.3)
High	355 (33.2)	5,824 (20.7)	2,670 (17.5)	547 (14.1)	9,396 (19.9)
MSM					
Low	91 (27.5)	360 (28.6)	999 (29.7)	2,151 (23.0)	3,601 (25.5)
Medium	398 (29.1)	1,529 (28.3)	3,192 (27.4)	4,554 (23.3)	9,673 (25.7)
High	197 (21.8)	3,187 (22.2)	10,898 (22.0)	14,341 (19.5)	28,623 (20.8)

Footnote: Low level of education: no education, elementary school, lbo, mavo, vmbo, mbo-1; medium level of education: mbo 2-4, havo, vwo; high level of education: university of applied sciences, university.

Table 2.8a Number of 'big five' STI diagnoses and percentage of positive tests by gender and type of sexual contact, 2020

Diagnosis	Women n (% pos.)	Heterosexual men n (% pos.)	MSM n (% pos.)
Chlamydia	7,134 (16.9)	3,908 (21.7)	4,937 (11.2)
Gonorrhoea	872 (2.1)	452 (2.5)	5,398 (12.2)
Syphilis, infectious*	17 (0.1)	35 (0.5)	1,272 (2.9)
HIV	5 (0.0)	10 (0.1)	108 (0.3)
Hepatitis B, infectious	6 (0.1)	8 (0.4)	20 (0.2)

*Infectious syphilis includes primary infection, secondary infection and latens recens.
Footnote: 'Big five' STI includes chlamydia, gonorrhoea, syphilis, HIV and hepatitis B.

Table 2.8b Number of other STI diagnoses and percentage of positive tests (in case of laboratory-confirmed diagnoses) by gender and type of sexual contact, 2020

	Women	Heterosexual men	MSM
Laboratory-confirmed diagnoses			
Syphilis, non-infectious or not specified			
latens tarda	8 (0.1)	4 (0.1)	77 (0.2)
not specified	5 (0.0)	8 (0.1)	73 (0.2)
Hepatitis B, recovered	65 (0.4)	54 (2.5)	262 (0.7)
Hepatitis C	1 (1.3)	0 (0.0)	35 (0.2)
LGV Total			258 (7.4)
Rectal LGV			254 (7.3)
Urogenital LGV			4 (0.1)
Oral LGV			0 (0.0)
LGV ulcus			1 (0.0)
Other syndromes/ clinical diagnoses			
Trichomoniasis*	51	6	8
Genital herpes			
primary: HSV1**	78	29	42
primary: HSV2**	57	36	78
primary: HSV unknown	10	2	1
recurrent	5	2	4
Genital warts	314	378	190
Urethritis	0	342	410
Proctitis	3	0	102
Candidiasis	245	36	22
Bacterial vaginosis	565		
Scabies	1	5	21
Pubic Lice	0	0	0
PID	17		
Epididymitis		3	13
Mycoplasma genitalium	38	26	15
Ulcus e.c.i.	11	10	41

* Trichomoniasis tests are usually performed on clinical indication (e.g. women with bacterial vaginosis), and in persons notified for trichomoniasis.

** Laboratory-confirmed.

2.3 Repeated testing at the Sexual Health Centres

Table 2.9 Number and percentage of unique clients visiting the SHC repeatedly and the percentage of positive STI tests at each visit by gender and type of sexual contact, 2020

No. of consultation	Women		Heterosexual men		MSM	
	n (%)	% STI	n (%)	% STI	n (%)	% STI
1st	37,096 (100)	18.6	16,608 (100)	23.3	25,865 (100)	22.5
2nd	4,245 (11.4)	16.1	1,228 (7.4)	22.8	9,878 (38.2)	20.9
3rd	718 (1.9)	10.6	149 (0.9)	28.2	5,090 (19.7)	23.3
4th	155 (0.4)	9.7	22 (0.1)	13.6	2,669 (10.3)	22.7

Footnote: Number of visits reach up to 15 in MSM, 7 in women and 7 in heterosexual men. 5th-15th consultation not shown because of low numbers.

Table 2.10 Characteristics of unique clients at each consultation by gender and type of sexual contact, 2020

	Women n (%)	Heterosexual men n (%)	MSM n (%)
Notified for STI/HIV			
1st	7,303 (19.7)	5,767 (34.7)	5,952 (23.0)
2nd	784 (18.5)	429 (34.9)	2,102 (21.3)
3rd	105 (14.6)	47 (31.5)	937 (18.4)
STI-related symptoms			
1st	14,041 (37.9)	6,225 (37.5)	4,958 (19.2)
2nd	1,592 (37.5)	532 (43.3)	1,631 (16.5)
3rd	223 (31.1)	51 (34.2)	721 (14.2)
STI/HIV-endemic area			
1st	7,872 (21.2)	5,196 (31.3)	67,311 (260.2)
2nd	1,057 (24.9)	546 (44.5)	2,769 (28.0)
3rd	213 (29.7)	77 (51.7)	1,425 (28.0)
Age <25 years			
1st	28,084 (75.7)	11,058 (66.6)	4,131 (16.0)
2nd	3,208 (75.6)	859 (70.0)	1,118 (11.3)
3rd	507 (70.6)	108 (72.5)	461 (9.1)

Table 2.10 (continued) Characteristics of unique clients at each consultation by gender and type of sexual contact, 2020

	Women n (%)	Heterosexual men n (%)	MSM n (%)
Partner in risk group*			
1st	8,985 (24.2)	4,044 (24.3)	9,347 (36.1)
2nd	1,251 (29.5)	353 (28.7)	3,466 (35.1)
3rd	254 (35.4)	48 (32.2)	1,797 (35.3)
Sex work			
1st	2,256 (6.1)	96 (0.6)	572 (2.2)
2nd	568 (13.4)	17 (1.4)	241 (2.4)
3rd	155 (21.6)	5 (3.4)	134 (2.6)
Gonorrhoea/chlamydia/syphilis in past year			
1st	3,784 (10.2)	1,268 (7.6)	6,152 (23.8)
2nd	1,412 (33.3)	468 (38.1)	4,095 (41.5)
3rd	332 (46.2)	74 (49.7)	2,629 (51.7)
≥3 sexual contacts in the past 6 months			
1st	14,928 (40.2)	9,007 (54.2)	20,062 (77.6)
2nd	1,967 (46.3)	725 (59.0)	7,677 (77.7)
3rd	381 (53.1)	88 (59.1)	4,078 (80.1)
Client of sex work			
1st	82 (0.2)	756 (4.6)	681 (2.6)
2nd	17 (0.4)	58 (4.7)	177 (1.8)
3rd	2 (0.3)	7 (4.7)	69 (1.4)
Known HIV positive			
1st	13 (0.0)	13 (0.1)	2,393 (9.3)
2nd	1 (0.0)	0 (0.0)	903 (9.1)
3rd	0 (0.0)	0 (0.0)	350 (6.9)
Low level of education**			
1st	2,832 (7.6)	1,746 (10.5)	2,067 (8.0)
2nd	427 (10.1)	168 (13.7)	776 (7.9)
3rd	81 (11.3)	23 (15.4)	415 (8.2)

Footnote: Number of visits reach up to 15 in MSM, 7 in women and 7 in heterosexual men. 4th-15th consultation not shown because of low numbers.

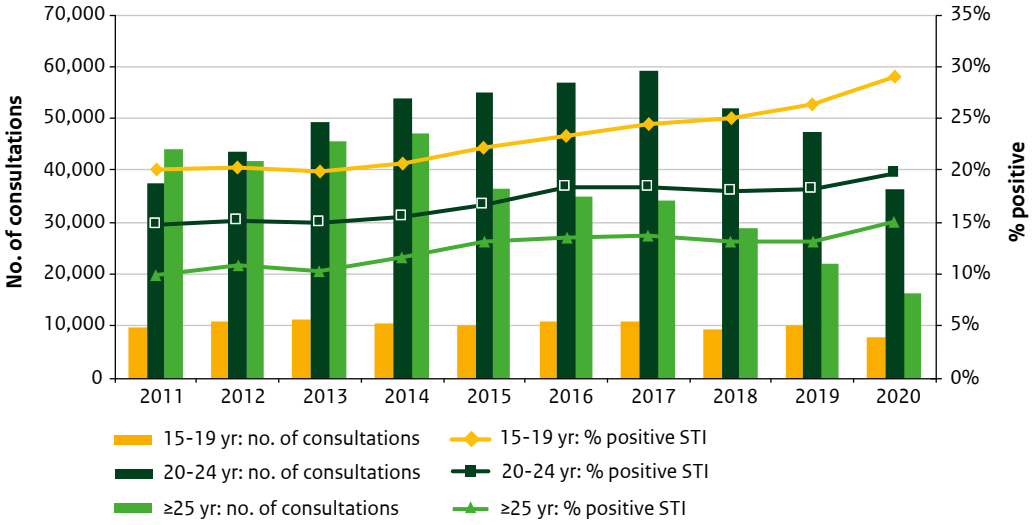
* For heterosexual men and MSM: partner originating from an high STI/HIV endemic country. For women: partner originating from an high STI/HIV endemic country or a male partner who had sex with men.

** Low level of education: no education, elementary school, lbo, mavo, vmbo, mbo-1.

2.4 Trends in Sexual Health Centre consultations

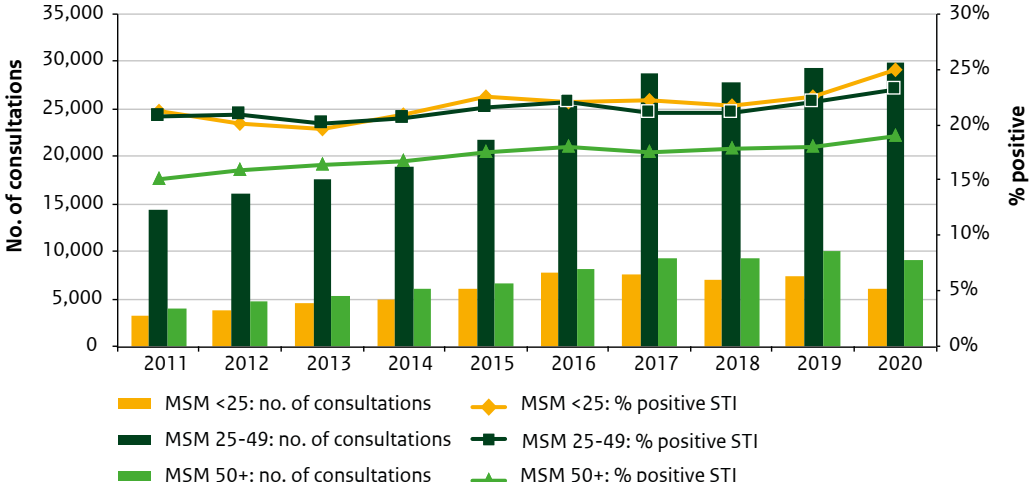
2.4.1 Trends in specific risk groups

Figure 2.7 Number of consultations and percentage of positive STI tests among women and heterosexual men by age group, 2011–2020



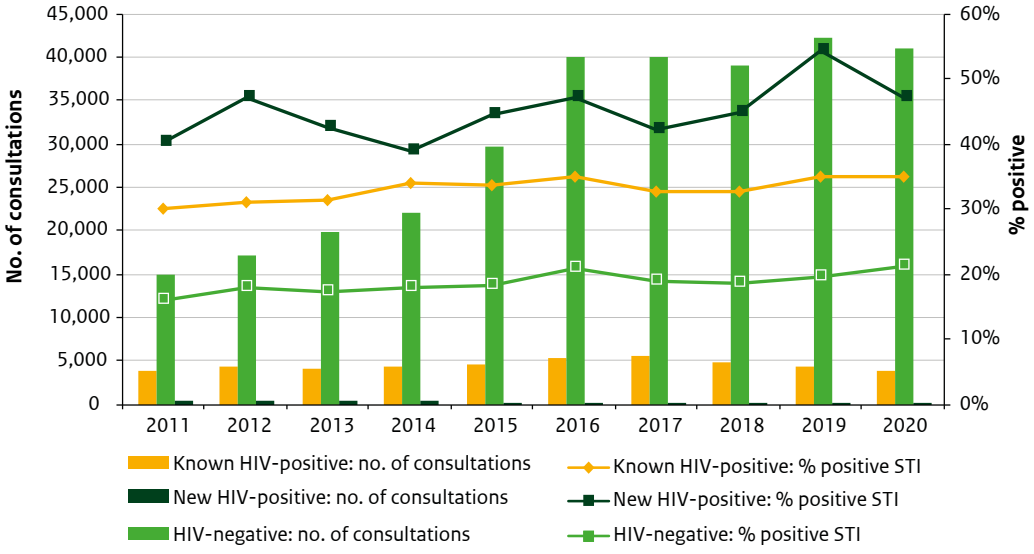
Footnote: STI include: chlamydia, gonorrhoea, infectious syphilis, HIV and infectious hepatitis B.

Figure 2.8 Number of consultations and percentage of positive STI tests among MSM by age group, 2011-2020



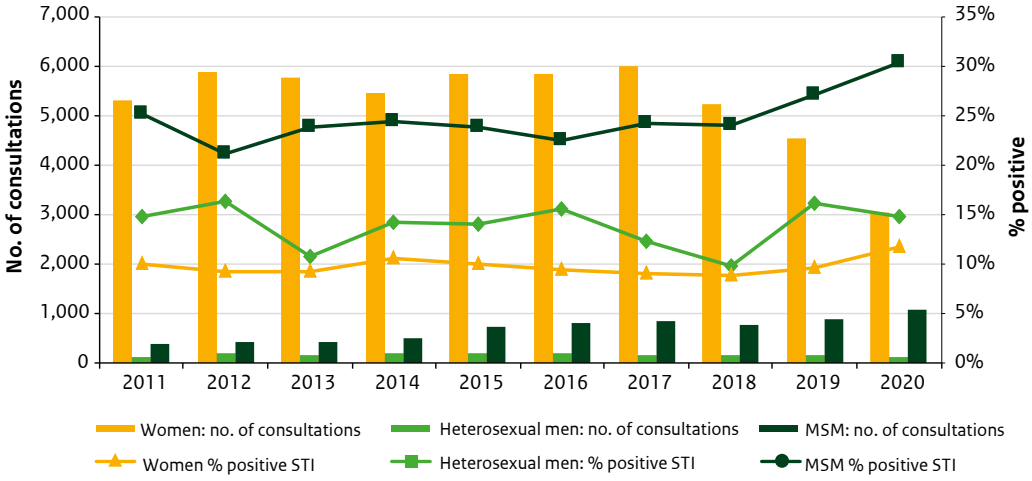
Footnote: STI include: chlamydia, gonorrhoea, infectious syphilis, HIV and infectious hepatitis B.

Figure 2.9 Number of consultations and percentage of positive STI tests among MSM by HIV status, 2011-2020



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

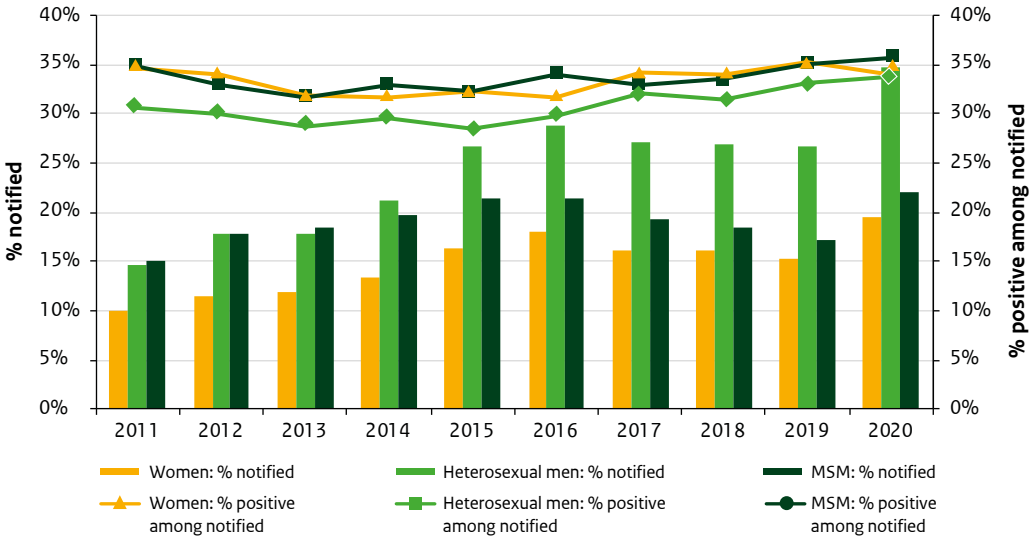
Figure 2.10 Number of consultations and percentage of positive STI tests among clients who reported performing sex work in the past six months by gender and type of sexual contact, 2011-2020



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

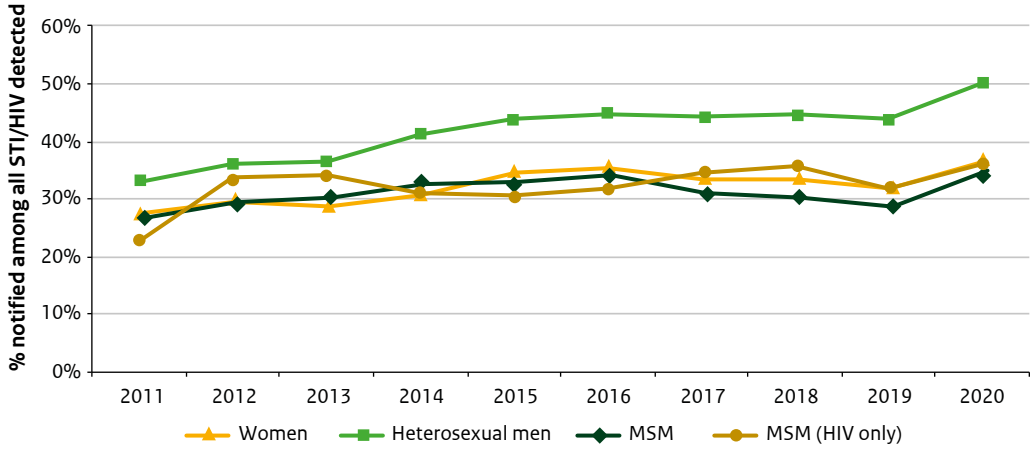
2.4.2 Partner notification trends

Figure 2.11 Percentage of SHC clients who reported being notified for potential risk of exposure to STI and the STI positivity rate among notified clients by gender and type of sexual contact, 2011-2020



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

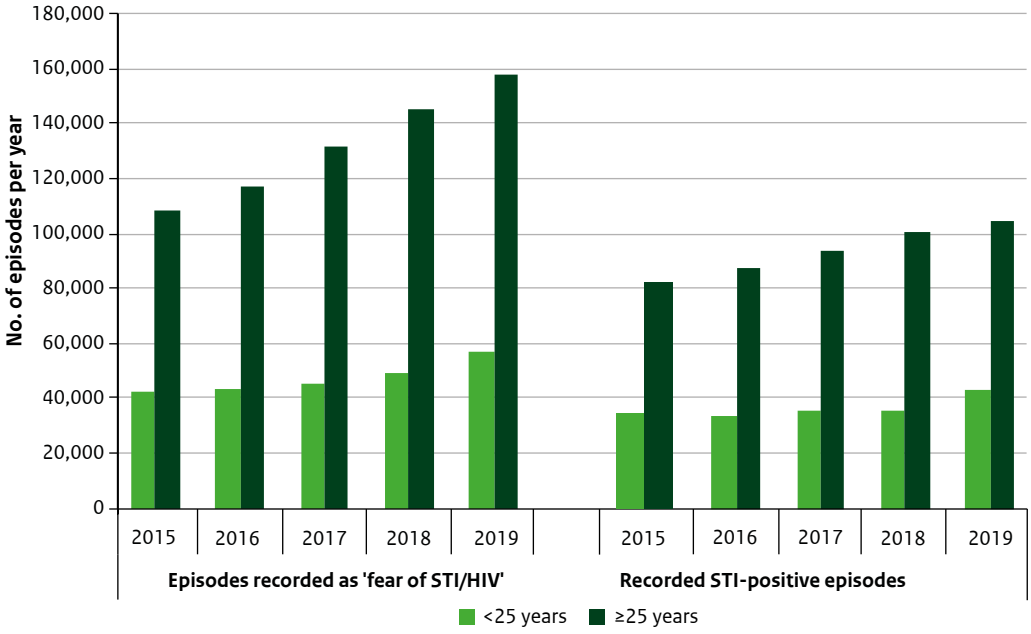
Figure 2.12 Percentage of STI detected through partner notification among heterosexual men, MSM and women, and percentage of HIV detected through partner notification among MSM, 2011-2020



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

2.5 General practice

Figure 2.13 Estimated annual number of recorded episodes of fear of STI/HIV and positive STI diagnoses in general practice by age-group, based on extrapolation from GP practices in Nivel-PCD, 2015-2019



Footnote 1: Diagnoses included are chlamydia, gonorrhoea, syphilis, HIV, trichomonas, genital herpes, genital warts, non-specific urethritis.
Footnote 2: About 70% of the total Dutch population consists of persons aged ≥25 years and about 30% consists of persons aged <25 years.

Table 2.11 Annual reporting rate (number of STI-related episodes per 1,000 population) of STI-diagnoses and fear of STI/HIV in general practice in the Netherlands by gender and age group, based on GP practices in Nivel-PCD, 2015-2019

	Women n/1,000			Men n/1,000			Total n/1,000		
	All	**<25**	**≥25**	**All**	**<25**	**≥25**	**All**	**<25**	**≥25**
2015	**16.1**	19.6	15.0	**15.3**	11.7	16.9	**15.7**	15.7	15.9
2016	**16.9**	19.8	15.9	**16.2**	11.8	18.0	**16.5**	15.8	16.9
2017	**19.1**	21.2	18.3	**17.0**	12.6	18.8	**18.0**	16.9	18.5
2018	**20.6**	22.8	19.8	**18.4**	13.7	20.3	**19.5**	18.3	20.1
2019	**21.8**	25.7	20.3	**20.4**	15.9	22.2	**21.1**	20.8	21.3

Footnote: Diagnoses included are chlamydia, gonorrhoea, syphilis, HIV, trichomonas, genital herpes, genital warts, non-specific urethritis.

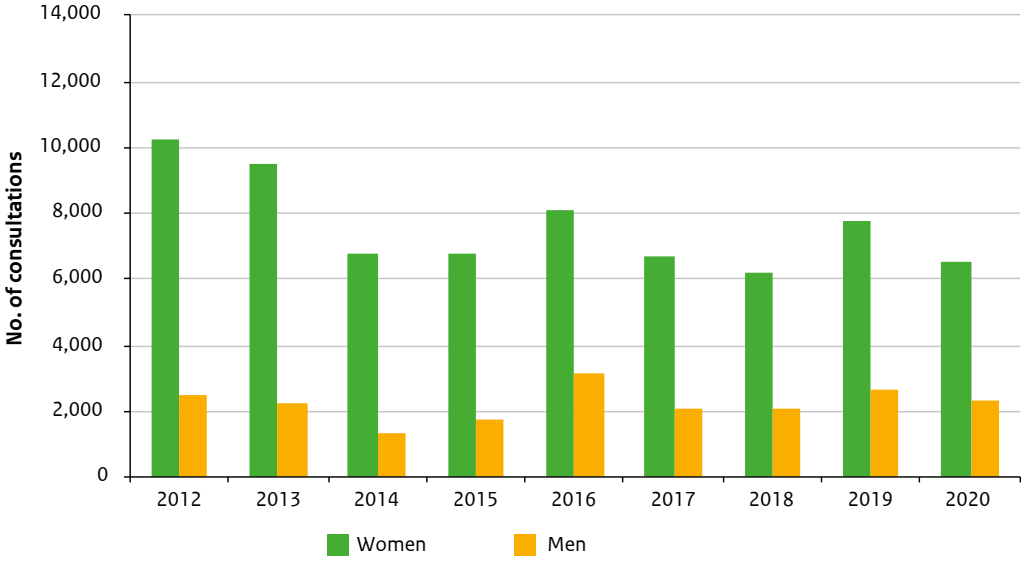
2.6 Sense

Table 2.12 Number of Sense consultations by age and gender, 2020

Age (years)	Women n (%)	Men n (%)
≤ 14	51 (0.8)	10 (0.4)
15-19	1,439 (22.0)	275 (12.0)
20-24	3,581 (54.7)	1,054 (46.0)
≥ 25	1,479 (22.6)	951 (41.5)
Total	**6,550**	**2,290**

Footnote: Consultations with transgender persons (n=103) were excluded from the analyses.

Figure 2.14 Number of Sense consultations by gender, 2012-2020



Footnote: Consultations with transgender persons (n=103) were excluded from the analyses.

Table 2.13 Number of Sense consultations by country of birth and gender, 2020

Country of birth	Women n (%)	Men n (%)
The Netherlands	3,744 (57.2)	1,246 (54.4)
Netherlands Antilles	276 (4.2)	115 (5.0)
Suriname	469 (7.2)	159 (6.9)
North Africa/Morocco	217 (3.3)	118 (5.2)
Turkey	121 (1.8)	86 (3.8)
Eastern Europe	358 (5.5)	82 (3.6)
Sub-Saharan Africa	280 (4.3)	113 (4.9)
Latin America	272 (4.2)	87 (3.8)
Asia	319 (4.9)	139 (6.1)
Europe other	381 (5.8)	120 (5.2)
Else	113 (1.7)	25 (1.1)
Total	**6,550**	**2,290**

Footnote: Consultations with transgender persons (n=103) were excluded from the analyses.

Table 2.14 Subjects discussed during Sense consultations by gender, 2020

Subjects	Women n (%)	Men n (%)
STI	386 (5.4)	702 (29.5)
Sexuality	2,179 (30.8)	1,343 (56.4)
Birth control	2,761 (39.0)	19 (0.8)
Unwanted sexual behaviour/sexual violence	745 (10.5)	88 (3.7)
Unintended pregnancy	612 (8.6)	7 (0.3)
Else	400 (5.6)	221 (9.3)
Total	**7,083**	**2,380**

Footnote: Consultations with transgender persons (n=103) were excluded from the analyses. Numbers do not add up to total number of consultations, as for some consultations multiple topics were registered.

Table 2.15 Sexuality topics discussed during Sense consultations by gender, 2020

Questions/problems related to:	Women n (%)	Men n (%)
Human body	160 (7.2)	42 (3.1)
Sexual dysfunction	561 (25.3)	257 (18.7)
Sexual orientation	18 (0.8)	85 (6.2)
Gender identity	1 (0.0)	5 (0.4)
Sexual behaviour/sex techniques	1,194 (53.9)	791 (57.7)
Unknown/other	283 (12.8)	192 (14.0)
Total	**2,217**	**1,372**

Footnote: Consultations with transgender persons (n=103) were excluded from the analyses. Numbers do not add up to total number of sexuality topics in Table 2.14, as for some consultations multiple sexuality topics were registered.

2.7 Sexual Health in the Health Survey

Table 2.16 Characteristics of respondents to the national Health Survey 2019, by gender and sexual orientation

	Women	Heterosexual men	Men attracted to men*
	n %	n %	n %
Total	**4,126 (52.8)**	**3,519 (45.0)**	**174 (2.2)**
Age group			
16-29 years	752 (18.2)	643 (18.3)	
30-44 years	890 (21.6)	774 (22.0)	
45-59 years	1,103 (26.7)	903 (25.7)	
60 years and older	1,381 (33.5)	1,199 (34.1)	
Migration background			
Dutch	3,356 (81.3)	2,895 (82.3)	
Non-Dutch Western	383 (9.3)	302 (8.6)	
Non-Dutch non-Western	387 (9.4)	322 (9.2)	
Urbanisation			
(Highly) urbanized areas	2,094 (50.8)	1,819 (51.7)	
Moderately urbanized area	659 (16.0)	558 (15.9)	
Less/non-urbanized areas	1,373 (33.3)	1,142 (32.5)	

Source: Health Survey/Lifestyle Monitor, CBS in collaboration with RIVM, Rutgers and Soa Aids Nederland, 2019

* The questionnaire scored respondents' sexual attraction as own sex, opposite sex or both; we included men attracted to men or men attracted to both sexes in the category 'Men attracted to men'. No subcategories are shown for 'Men attracted to men' due to low numbers (n≤50).

Table 2.17 Weighted prevalence of sexual behaviour characteristics of respondents to the national Health Survey 2019, by age, gender and sexual orientation

	Women	Heterosexual men	Men attracted to men*
	%	%	%
Two or more sex partners in the past 12 months	**6.2**	**8.7**	**19.3**
16-29 years	15.3	19.0	
30-44 years	6.2	7.7	
45-59 years	3.7	7.8	
60 years and older	0.4	1.6	
Last sexual contact with a casual partner	**4.0**	**6.4**	**13.8**
16-29 years	11.7	14.6	
30-44 years	3.6	6.2	
45-59 years	2.2	4.2	
60 years and older	0.6	2.4	
Last sexual contact with a steady partner	**54.6**	**63.1**	**45.1**
16-29 years	55.3	46.4	
30-44 years	77.0	80.4	
45-59 years	65.6	73.8	
60 years and older	29.5	52.2	
Condom use at last sexual contact if contact was casual**	**46.6**	**48.2**	
16-29 years	50.0	54.0	
30 years and older	41.3	42.5	

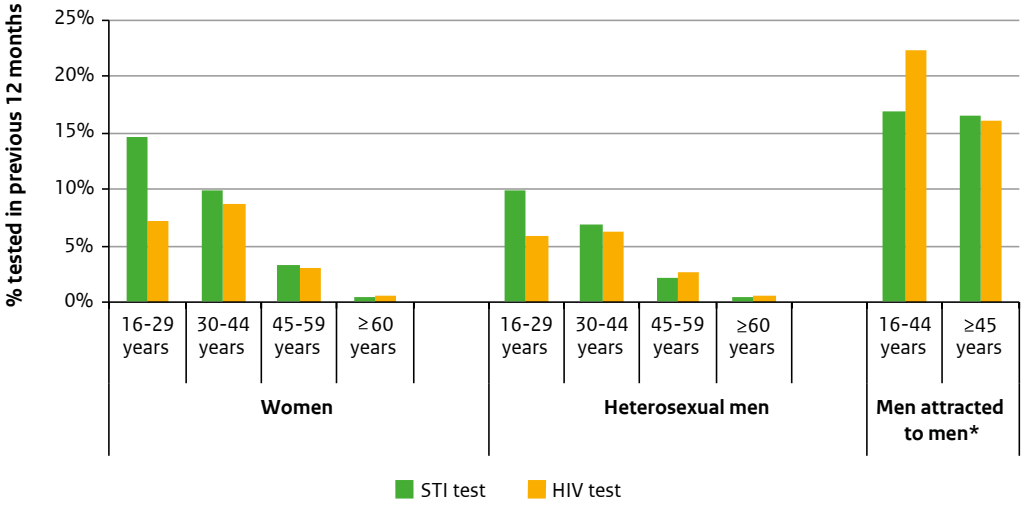
Source: Health Survey/Lifestyle Monitor, CBS in collaboration with RIVM, Rutgers and Soa Aids Nederland, 2019

* The questionnaire scored respondents' sexual attraction as own sex, opposite sex or both; we included men attracted to men or men attracted to both sexes in the category 'Men attracted to men'. No subcategories are shown for 'Men attracted to men' due to low numbers (n≤50).

** Fewer subcategories are shown for the characteristic 'Condom use at last sexual contact if contact was casual' due to low numbers (50≥n≤100). Women 30 years and older: n=63, 41.3% (95% confidence interval (CI) 29.1-54.3%).

Footnote: Respondents were weighted for demographic characteristics to correct for differences between the sample and the total Dutch population.

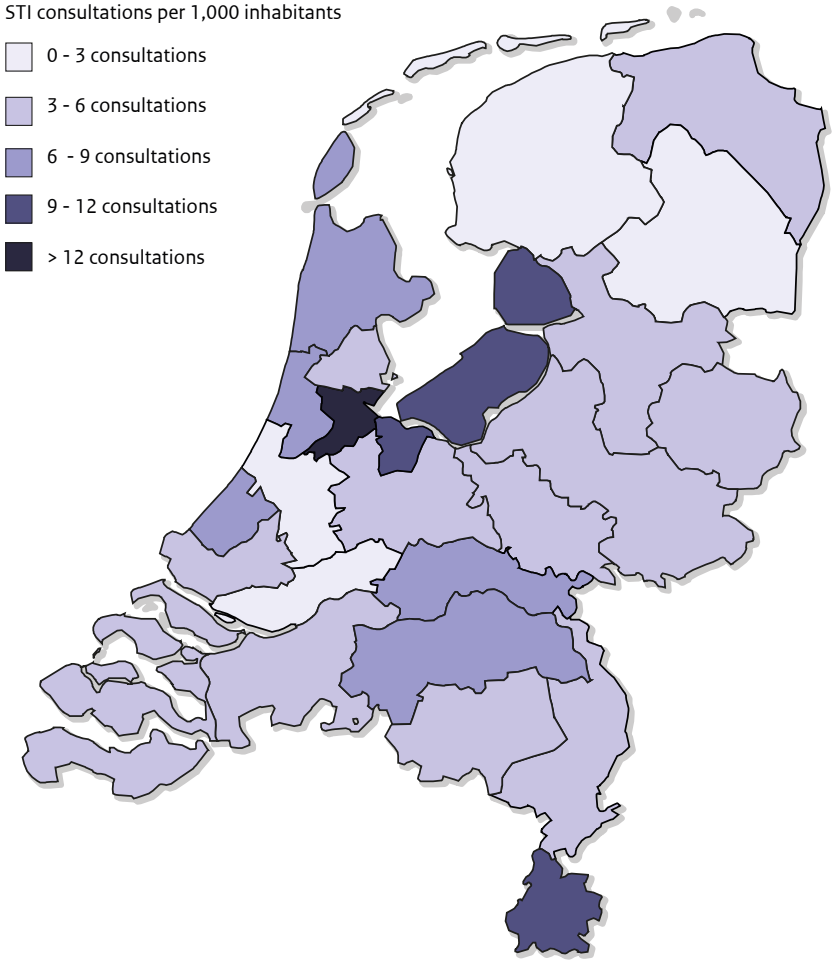
Figure 2.15 Weighted percentage tested for STI and HIV in the previous year in the Health Survey 2019, by age group, gender and sexual contact



Source: Health Survey/Lifestyle Monitor, CBS in collaboration with RIVM, Rutgers and Soa Aids Nederland, 2019
* The questionnaire scored respondents' sexual attraction as own sex, opposite sex or both; we included men attracted to men or men attracted to both sexes in the category 'Men attracted to men'. Larger subcategories are shown for 'Men attracted to men' due to low numbers (50≥ n≤100). 16-44 years: n=96, STI test: 16.7% (95% confidence interval (CI) 10.3–25.1%) and n=94, HIV test: 22.2% (95%CI 14.8–31.5%), ≥45 years: n=88, STI test: 16.4% (95%CI 9.4-24.6) and n=90, HIV test: 16.0% (95%CI 9.3-24.3%).
Footnote: Respondents were weighted for demographic characteristics to correct for differences between the sample and the Dutch population.

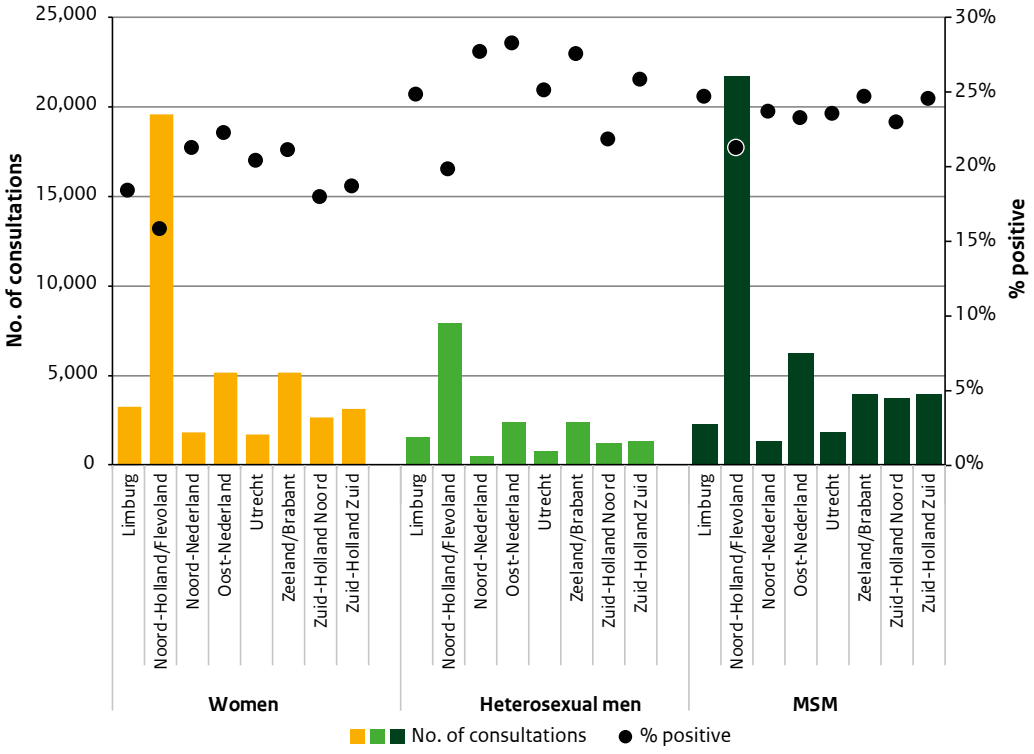
2.8 Consultations and characteristics of Sexual Health Centre attendees by region

Figure 2.16 Number of persons with at least one SHC consultation per 1,000 inhabitants of 15-65 years of age by region, 2020



Footnote: GGD Amsterdam = 31.9 per 1,000 inhabitants

Figure 2.17 Number of consultations and percentage of positive STI tests by region, gender and type of sexual contact, 2020



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

Figure 2.18 Distribution of age and type of sexual contact of all SHC consultations by region, 2020

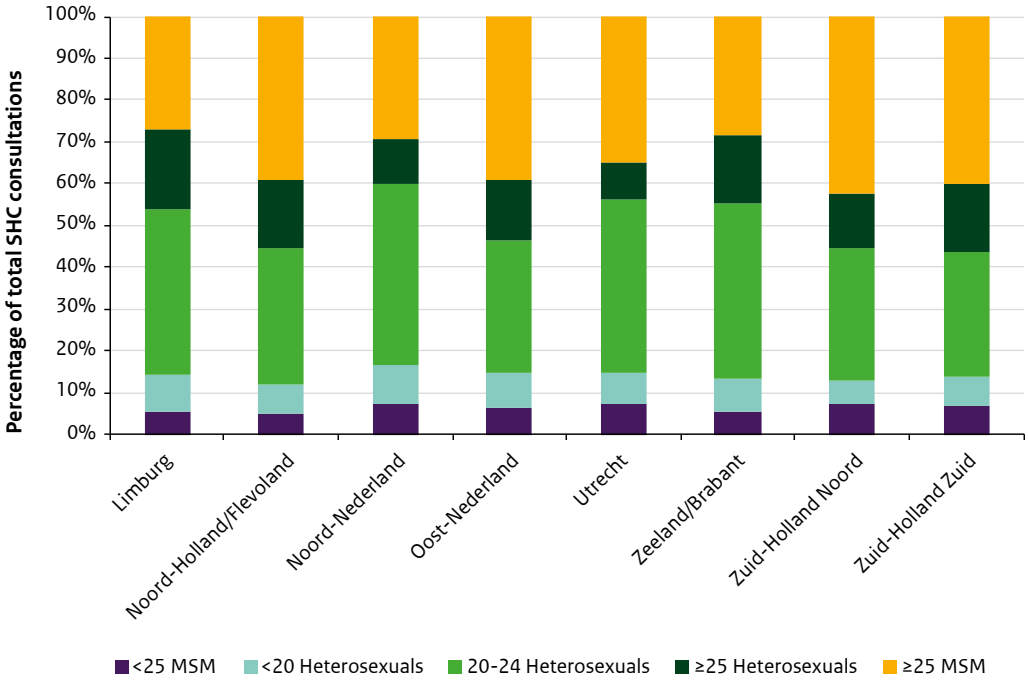


Figure 2.19 Distribution of consultations among notified clients and/or consultations among clients with symptoms of all SHC consultations among heterosexuals ≥25 years by region, 2020

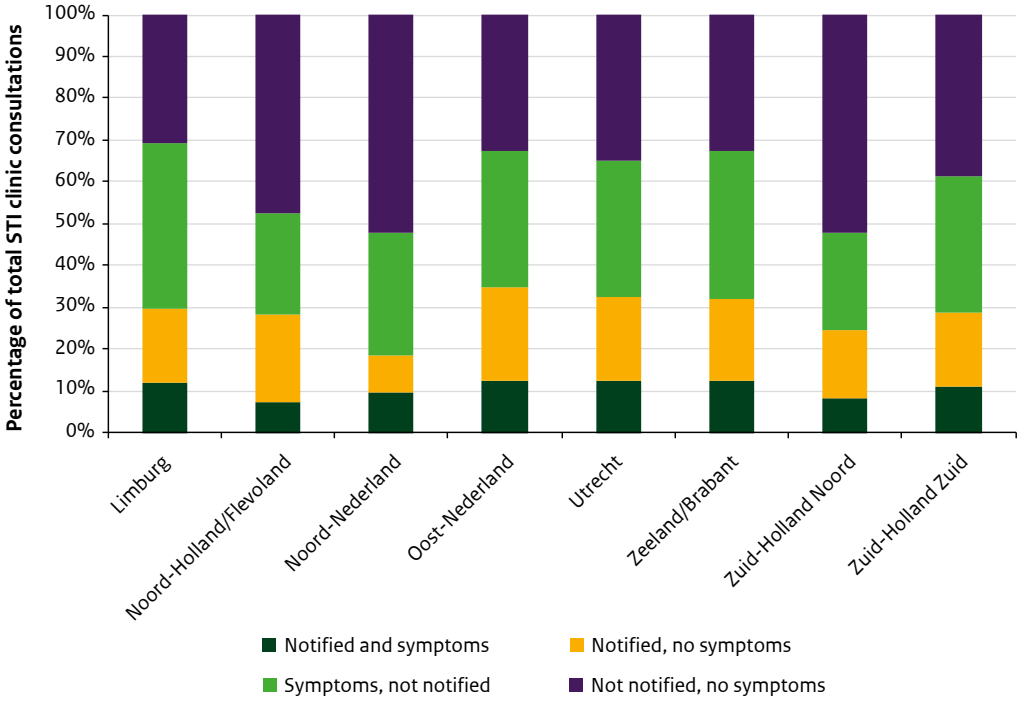
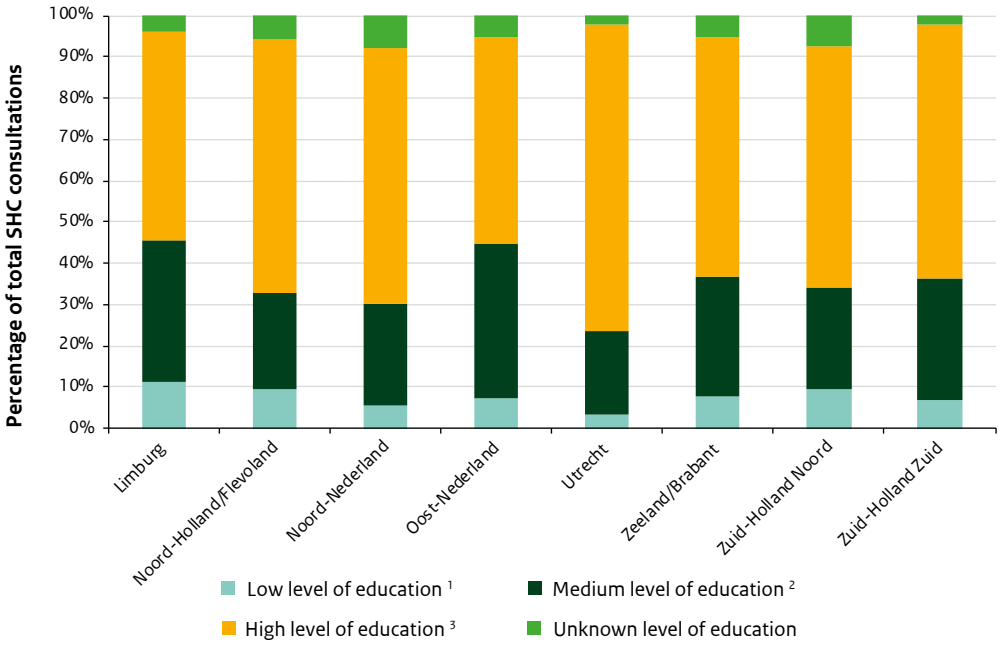


Figure 2.20 Distribution of level of education of all SHC consultations by region, 2020



1 No education, elementary school, lbo, mavo, vmbo, mbo-1.
2 Havo, vwo, mbo 2-4.
3 University of applied sciences, university.

2.9 PrEP consultations at Sexual Health Centres

Table 2.18 Characteristics of individuals at first PrEP consultation in the national PrEP pilot at the Sexual Health Centres, July 2019 - December 2020 and 2020

	Total in pilot (Jul 2019 - Dec 2020)		2020	
	n individuals	%	n individuals	%
Total number of individuals with a first PrEP consultation	6,332	100	3,563	100
Number of individuals with n PrEP consultation				
2nd consultation	4,596	72.6		
3rd consultation	3,425	54.1		
4th consultation	2,418	38.2		
5th consultation	1,278	20.2		
6th consultation	408	6.4		
7th consultation	46	0.7		
8th consultation	2	0.0		
Sex and sexual contact				
Men who have sex with men	6,179	97.6	3,471	97.4
Women	13	0.2	8	0.2
Men who have sex exclusively with women	0	0.0	0	0.0
Transgender	134	2.1	84	2.4
Median age at first consultation (IQR)	36 (28 - 47)		34 (28-46)	
Migratory background at first PrEP consultation				
Dutch	3,885	61.4	2,187	61.4
Other Western	1,010	16.0	558	15.7
First generation non-Western	1,060	16.7	598	16.8
Second generation non-Western	373	5.9	217	6.1
Unknown	4	0.1	3	0.1

Table 2.18 (continued) Characteristics of individuals at first PrEP consultation in the national PrEP pilot at the Sexual Health Centres, July 2019 - December 2020 and 2020

	Total in pilot (Jul 2019 - Dec 2020)		2020	
	n individuals	%	n individuals	%
Educational level at first PrEP consultation[1]				
High	3,894	61.5	2,225	62.4
Medium	1,399	22.1	813	22.8
Low	484	7.6	245	6.9
Unknown	555	8.8	280	7.9
Previously tested for HIV at first PrEP consultation				
No	212	3.3	126	3.5
Yes	6,108	96.5	3,430	96.3
Unknown	12	0.2	7	0.2
Type of first consultation				
Start consultation	4,801	75.8	2,980	83.6
3-monthly follow-up consultation[2]	1,531	24.2	583	16.4
PrEP indications at start consultation, all in the preceding 6 months[3]				
Rectal STI diagnosis	1,133	17.9	648	18.2
Unprotected sex with partner with unknown HIV-status	3,984	62.9	2,491	69.9
PEP	206	3.3	126	3.5
Other[4]	543	8.6	301	8.4
Missing for 3-monthly follow-up consultations	1,531	24.2	583	16.4
PrEP use in the past year at first PrEP consultation				
No, not in past year	3,097	48.9	1,980	55.6
Yes, but 4-12 months previously	240	3.8	125	3.5
Yes, in the past 3 months	2,995	47.3	1,458	40.9

Table 2.18 (continued) Characteristics of individuals at first PrEP consultation in the national PrEP pilot at the Sexual Health Centres, July 2019 - December 2020 and 2020

	Total in pilot (Jul 2019 - Dec 2020)		2020	
	n individuals	%	n individuals	%
Previous PrEP prescriber at first PrEP consultation[5]				
SHC	490	15.1	187	11.8
General practitioner	730	22.6	444	28.0
HIV practitioner	163	5.0	147	9.3
Other physician	102	3.2	74	4.7
PrEP study	27	0.8	38	2.4
Informal routes	136	4.2	81	5.1
Other	118	3.6	80	5.1
Missing	1,521	47.0	576	36.4

1 Low: no education, elementary school, lbo, mavo, vmbo, mbo-1; medium: mbo-2-4, havo, vwo; high: university of applied sciences, university.
2 Includes persons who started using PrEP via SHC, study, or other health care providers.
3 PrEP indications are registered for start consultations only. An individual can have more than one indication for PrEP, therefore the total PrEP indications can be higher than the number start consultations.
4 Main other reasons included for example fear for HIV, did not want to go to GP or the GP does not prescribe PrEP, financial reasons, vulnerable (including migrants, MSM younger than 25 years of age, sex work or transgender persons) and client wants optimal protection against HIV.
5 Percentage was calculated among those who used PrEP in the past year.

Table 2.19 Characteristics of individuals not continuing participation in the SHC national PrEP pilot

	Total in programme		2020	
	n individuals	%	n individuals	%
Total number of persons participating in the SHC national PrEP pilot on December 31st 2020[1]	5,346			
Number of persons who reported discontinuation of SHC national PrEP pilot	190	100	145	100
Stopped using PrEP	152	80.0	123	84.8
Stopped using PrEP via SHC, but continues via other health care provider	38	20.0	22	15.2
Reasons for discontinuation[2]				
Renal impairment	8	5.3	5	4.1
Drug interactions	3	2.0	2	1.6
Therapy compliance (medical)	0	0.0	0	0.0
HIV diagnosis	3	2.0	2	1.6
Reduced risk	99	65.1	85	69.1
Side effects	22	14.5	16	13.0
Therapy compliance (client)	1	0.7	1	0.8
Logistics	6	3.9	3	2.4
Unknown	3	2.0	2	1.6
Other[3]	22	14.5	15	12.2
Number of persons lost to follow-up[4]	796			
After first consultation	541			
After >1 consultations	255			

1 Calculated as the number of persons with a first PrEP consultation minus the number of persons who discontinued or were lost to follow-up.
2 Only registered for persons who stopped using PrEP.
3 Other reasons include for example financial reasons or other health related issues.
4 Lost to follow-up defined as no PrEP consultation registered within 7 month after the last consultation.

Table 2.20 Characteristics of consultations among persons participating in the national PrEP pilot at the Sexual Health Centres, July 2019 – December 2020

	n consultations	%
Consultations since participation in the PrEP pilot		
Total	20,832	100
Start consultations including a 1-month follow-up	2,200	10.6
Start consultations without a 1-month follow-up[1]	2,733	13.1
3-monthly follow-up consultation	13,568	65.1
Regular STI consultations since PrEP start	2,029	9.7
Testlab	300	1.4
Median time in weeks (IQR) between PrEP follow-up consultations[2]	13 (12 - 15)	
PrEP use in the past 3 months at follow-up consultations[3]		
Daily	8,049	59.3
Event-Driven	4,948	36.5
Both	412	3.0
Missing	159	1.2
Number of pills provided at follow-up consultations[3]		
0	2,106	15.5
30	1,453	10.7
60	2,039	15.0
90	7,468	55.0
Other	341	2.5

1. Due to the registration of multiple start consultations for some individuals or the registration of start consultations after a first follow-up consultation, the total number of start consultations is higher than at first PrEP consultation in Table 2.18.
2. One month follow-up consultations might not be carried out for clients who were using PrEP in the 3 months prior to the start consultation.
3. Percentage calculated using the number of 3-month follow-up consultations as denominator (n=13,568).

Table 2.21 Number of consultations among PrEP and non-PrEP using HIV-negative MSM by demographics and (sexual) behavioural characteristics, 2020

	PrEP use				No PrEP use in the past 3 months & HIV-negative	
	via SHC PrEP pilot[1]		via other health care providers			
	n	%	n	%	n	%
Total number of MSM consultations	16,487	100	3,562	100	21,026	100
Median age (IQR)	38 (29 - 49)		38 (31 - 46)		31 (25 - 42)	
Migratory background						
Dutch	10,217	62.0	2,113	59.3	13,526	64.3
Western migrant	2,722	16.5	748	21.0	3,274	15.6
First-generation non-Western migrant	2,587	15.7	541	15.2	2,616	12.4
Second-generation non-Western migrant	950	5.8	160	4.5	1,600	7.6
Unknown	11	0.1	-	-	10	0.0
Educational level[2]						
High	10,619	64.4	2,637	74.0	13,199	62.8
Medium	3,444	20.9	535	15.0	4,818	22.9
Low	1,290	7.8	229	6.4	1,612	7.7
Unknown	1,134	6.9	161	4.5	1,397	6.6
Partner originating from an STI/HIV endemic area, in the past 6 months						
No	10,450	63.4	1,883	52.9	13,582	64.6
Yes	5,788	35.1	1,636	45.9	7,152	34.0
Unknown	249	1.5	43	1.2	292	1.4
Reported sex work, in the past 6 months						
No	15,846	96.1	3,484	97.8	20,536	97.7
Yes, in past 6 months	440	2.7	73	2.0	433	2.1
Unknown	201	1.2	5	0.1	57	0.3
Chlamydia/gonorrhoea/syphilis, in past year						
Not tested	1,475	8.9	312	8.8	8,481	40.3
Tested, negative	6,549	39.7	1,465	41.1	8,190	39.0
Tested, positive	7,992	48.5	1,725	48.4	3,827	18.2
Tested, unknown	126	0.8	17	0.5	71	0.3
Unknown	345	2.1	43	1.2	457	2.2

Table 2.21 (continued) Number of consultations among PrEP and non-PrEP using HIV-negative MSM by demographics and (sexual) behavioural characteristics, 2020

	PrEP use				No PrEP use in the past 3 months & HIV-negative	
	via SHC PrEP pilot[1]		via other health care providers			
	n	%	n	%	n	%
Number of partners, in past 6 months						
0-1	1,681	10.2	92	2.6	2,364	11.2
2-5	6,556	39.8	1,102	30.9	10,558	50.2
6-9	2,376	14.4	636	17.9	3,386	16.1
≥10	5,752	34.9	1,696	47.6	4,536	21.6
Unknown	122	0.7	36	1.0	182	0.9
Notified for STI/HIV						
No	14,356	87.1	2,579	72.4	15,821	75.2
Yes	2,120	12.9	982	27.6	5,185	24.7
Unknown	11	0.1	1	0.0	20	0.1
STI symptoms						
No	14,796	89.7	2,842	79.8	16,452	78.2
Yes	1,663	10.1	619	17.4	4,527	21.5
Unknown	28	0.2	1	0.0	47	0.2
Receptive anal sex, in past 6 months						
No receptive anal sex	2,474	15.0	555	15.6	6,407	30.5
Yes, consistently with a condom	939	5.7	247	6.9	3,927	18.7
Yes, not consistently with a condom	6,238	37.8	1,855	52.1	6,451	30.7
Yes, never with a condom	6,474	39.3	868	24.4	3,955	18.8
Unknown	362	2.2	37	1.0	286	1.4
Insertive anal sex, in past 6 months						
No insertive anal sex	1,957	11.9	389	10.9	4,670	22.2
Yes, consistently with a condom	918	5.6	240	6.7	4,464	21.2
Yes, not consistently with a condom	6,489	39.4	1,934	54.3	7,209	34.3
Yes, never with a condom	6,759	41.0	965	27.1	4,443	21.1
Unknown	364	2.2	34	1.0	240	1.1

Table 2.21 (continued) Number of consultations among PrEP and non-PrEP using HIV-negative MSM by demographics and (sexual) behavioural characteristics, 2020

	PrEP use				No PrEP use in the past 3 months & HIV-negative	
	via SHC PrEP pilot[1]		via other health care providers			
	n	%	n	%	n	%
Group sex, in the past 6 months						
No	5,469	33.2	1,567	44.0	14,635	69.6
Yes	5,107	31.0	1,845	51.8	5,376	25.6
Unknown	5,911	35.9	150	4.2	1,015	4.8
Drug use in the context of sex, in past 6 months						
No	9,508	57.7	1,954	54.9	16,072	76.4
Yes	6,786	41.2	1,587	44.6	4,677	22.2
Unknown	193	1.2	21	0.6	277	1.3
Chlamydia[3]						
Negative	14,042	88.9	3,074	86.6	18,820	90.0
Positive	1,745	11.1	477	13.4	2,100	10.0
Gonorrhoea[3]						
Negative	13,922	88.1	2,959	83.2	18,735	89.5
Positive	1,881	11.9	596	16.8	2,206	10.5
Infectious syphilis[3]						
Negative	15,522	97.8	3,396	96.3	20,208	97.6
Positive	343	2.2	129	3.7	494	2.4

1 Regular STI clinic visits from persons included in the SHC national PrEP pilot also included.
2 Low: no education, elementary school, lbo, mavo, vmbo, mbo-1; medium: mbo-2-4, havo, vwo; high: university of applied sciences, university.
3 Excluding those not tested.

BACTERIAL STI

3 Chlamydia, including *Lymphogranuloma venereum*

3.1 Key points

3.1.1 Sexual Health Centres

- In 2020, 15,979 chlamydia infections were diagnosed at the SHCs (44.6% women, 24.5% heterosexual men, 30.9% MSM). This was a decrease of 24.4% compared with 2019.
- The 15,979 chlamydia diagnoses were made among 15,003 individuals. 875 persons had more than 1 chlamydia diagnosis in 2020.
- Due to downscaled STI care related to the COVID-19 pandemic, the number of chlamydia tests decreased in 2020 compared with 2019. The number of tests decreased by 35.5% among women (2020: 42,160; 2019: 65,358), 38.6% among heterosexual men (2020: 17,970; 2019: 29,281), and by 19.1% among MSM (2020: 44,106 ; 2019: 54,532).
- Decreased testing and stricter triaging during the downscaled STI care resulted in decreased numbers of diagnoses and increased positivity rates. Chlamydia positivity rates were stable between 2016 and 2019; around 15% in women, 18% in heterosexual men and around 10% in MSM. In 2020, these percentages increased to 16.9% in women, 21.7% in heterosexual men and 11.2% in MSM. Positivity rates by month peaked in April, after which they decreased, but remained slightly higher compared with 2019 and early 2020.

- The highest positivity rates were found in persons notified for chlamydia (36.4% in women, 37.1% in heterosexual men and 25.8% in MSM). Other groups with high positivity rates were women with a Turkish migration background (22.2%) and women and heterosexual men from Antillean/Aruban origin (21.3% and 24.4% respectively), heterosexual men with symptoms (28.3%) or medium education level (25.1%) or a history of STI in the past year (23.8%).
- An increasing high positivity rate was seen among heterosexuals of all ages, but was strongest in adolescents (26.5% among girls and 31.7% among boys aged under 19 years).
- Almost 24% of MSM with chlamydia were co-infected with gonorrhoea, 5% with syphilis and 0.6% were newly diagnosed with HIV.
- There is a decreasing trend in chlamydia positivity among MSM who used PrEP in the last three months: from 14.9% in 2017 to 11.9% in 2020. The positivity rate among MSM who used PrEP was lower than the positivity rate among HIV-positive MSM (16.3%), but higher than the rate for HIV-negative MSM who did not use PrEP in the last three months (9.9%).

3.1.2 General practice

- An estimated 44,800 chlamydia infections were diagnosed at general practices in 2019, an increase compared with 42,500 estimated infections in 2018.
- At general practices, the estimated number of chlamydia episodes increased by 7.1% among men (to around 19,800 episodes in 2019) and by 3.5% among women (to around 25,000 episodes in 2019) compared with 2018.
- The annual reporting rate among women was higher for women under 25 (5.1 per 1,000) than for women 25 and older (2.0 per 1,000), as well as among men under 25 compared with men aged 25 and older (2.9 vs 2.1 per 1,000 respectively).

3.1.3 Lymphogranuloma venereum at Sexual Health Centres

- The number of LGV cases decreased from 420 in 2019 to 258 in 2020. The percentage of HIV-negative MSM among LGV positives increased from 23% in 2014 to 69% in 2020. The rectal LGV positivity rate among HIV-positive MSM tested for rectal chlamydia fluctuated and was 2.0% in 2020. Among HIV-negative MSM, the LGV positivity rate was low over the full period, but slowly increased from 0.1 % in 2011 to 0.4% in 2020.
- After years of increase, the percentage of asymptomatic rectal LGV decreased from 61% in 2019 to 55% in 2020.

3.2 Sexual Health Centres: characteristics, risk groups and trends

Figure 3.1 Number of chlamydia tests and percentage of chlamydia positives by region, gender and type of sexual contact, 2020

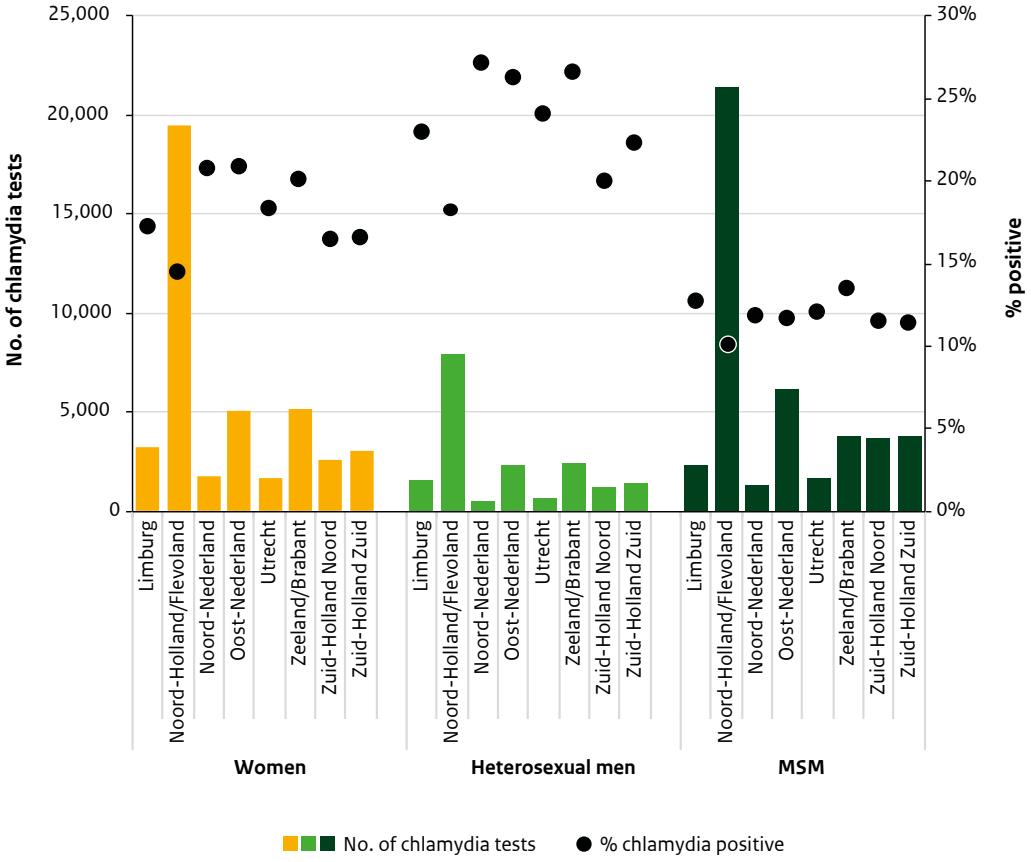
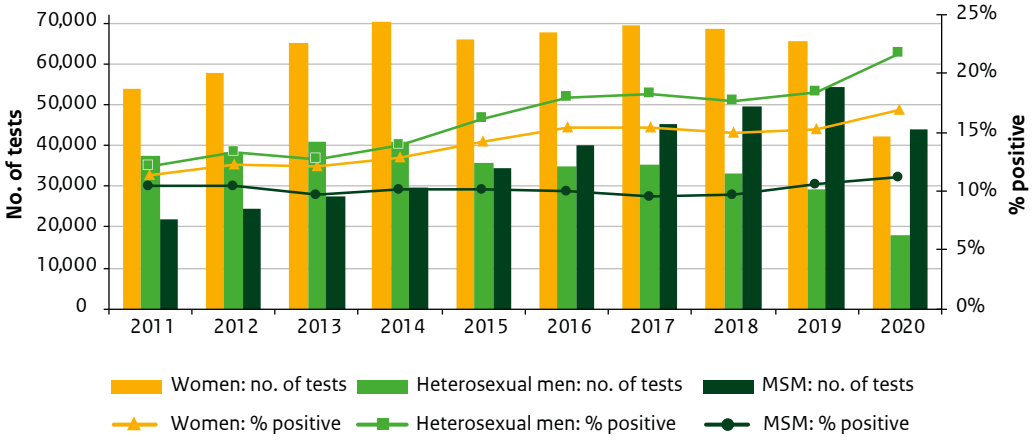
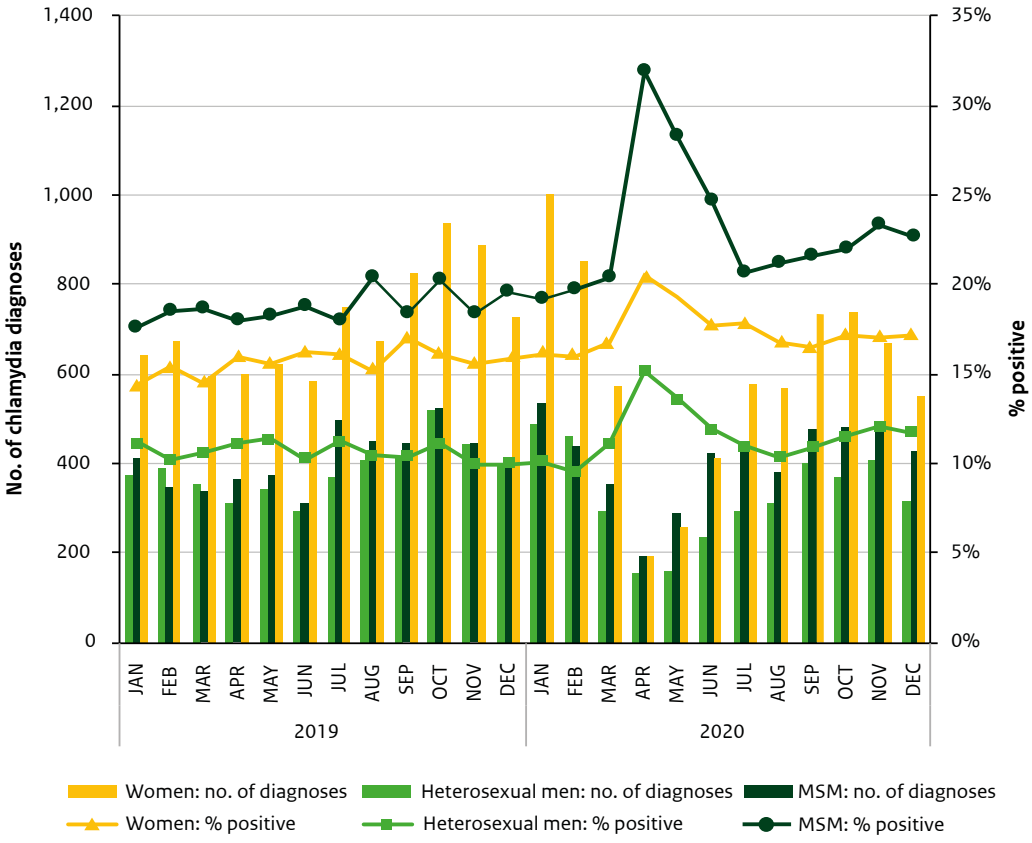


Figure 3.2 Total number of tests and positivity rate of chlamydia by gender and type of sexual contact, 2011–2020



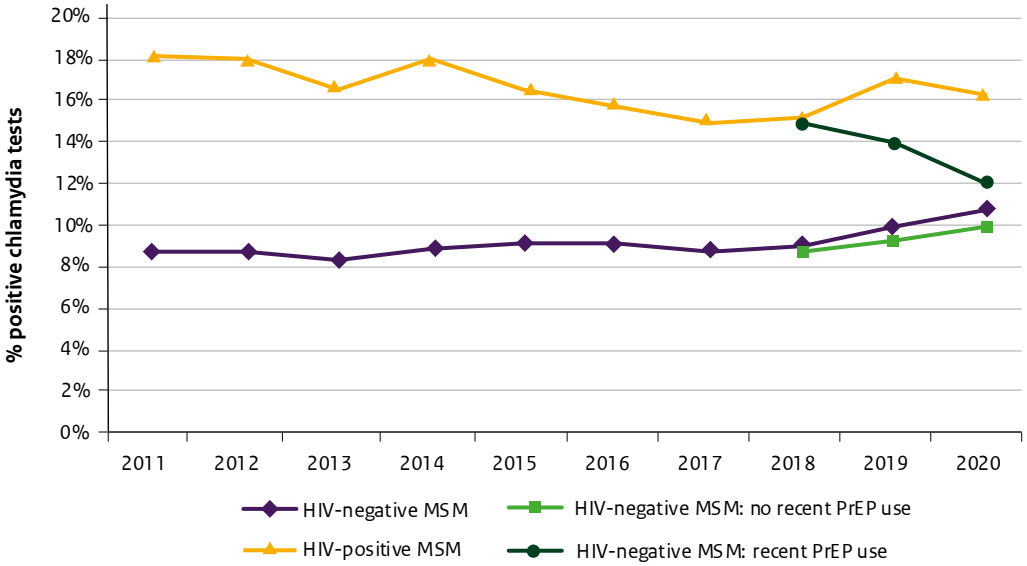
Footnote: Aggregated data of non-registered consultations included for 2018 and 2019.

Figure 3.3 Number of chlamydia diagnoses and positivity rate of chlamydia by gender, sexual contact and month in 2019 and 2020



Footnote: In 2019 there were 3,024 diagnoses not registered in SOAP, the majority of which were diagnosed between January and June. These diagnoses are not included in this figure.

Figure 3.4 Trends in positivity rate for chlamydia in MSM by HIV-status and PrEP use, 2011-2020



Footnote: Recent PrEP users includes PrEP users via the SHC pilot programme and via other health care providers. Information on PrEP use has been collected since 2018. In 2018, recent PrEP use was defined as use in the past 6 months. Since 2019, recent PrEP use has been defined as use in the past 3 months.

Table 3.1 Number of chlamydia diagnoses and persons tested for chlamydia by age, gender and type of sexual contact, 2020

Age (years)	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
≤19	1,596/6,019	26.5	555/1,749	31.7	108/702	15.4
20–24	4,473/25,856	17.3	2,360/10,281	23.0	621/5,212	11.9
25–29	702/5,916	11.9	661/3,452	19.1	1,011/8,450	12.0
30–34	165/1,769	9.3	199/1,270	15.7	861/7,387	11.7
35–39	62/885	7.0	65/552	11.8	613/5,143	11.9
40–44	43/557	7.7	28/257	10.9	485/4,591	10.6
45–49	23/445	5.2	18/155	11.6	360/3,726	9.7
50–54	34/381	8.9	10/115	8.7	359/3,555	10.1
≥ 55	36/332	10.8	12/139	8.6	519/5,340	9.7
Total	**7,134/42,160**	**16.9**	**3,908/17,970**	**21.7**	**4,937/44,106**	**11.2**

Figure 3.5 Trends in positivity rate in women and heterosexual men by age group, 2011–2020

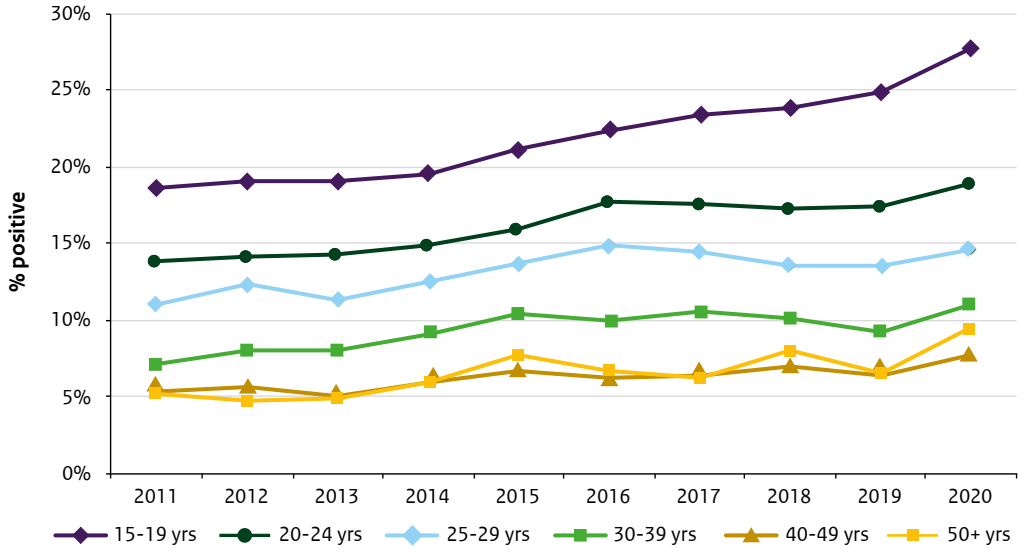


Table 3.2a Number of chlamydia diagnoses and persons tested for chlamydia by migration background, gender and type of sexual contact, 2020

Migration background	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Dutch	5,254/30,356	17.3	2,523/11,054	22.8	2,997/27,473	10.9
Other Western	572/4,476	12.8	295/1,576	18.7	769/7,308	10.5
First generation non-Western	314/2,255	13.9	327/1,684	19.4	843/6,473	13.0
Second generation non-Western	993/5,055	19.6	762/3,649	20.9	326/2,831	11.5
Non-Western, generation unknown	0/1	0.0	0/1	0.0	1/7	14.3
Unknown	1/17	5.9	1/6	16.7	1/14	7.1
Total	**7,134/42,160**	**16.9**	**3,908/17,970**	**21.7**	**4,937/44,106**	**11.2**

Table 3.2b Number of chlamydia diagnoses and persons tested for chlamydia among first and second generation migrants from an STI/HIV endemic area by region of origin, gender and type of sexual contact, 2020

Region of origin	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Turkey	117/528	22.2	90/478	18.8	97/739	13.1
North Africa/Morocco	147/704	20.9	170/907	18.7	99/831	11.9
Suriname	359/1,971	18.2	309/1,419	21.8	176/1,365	12.9
Netherlands Antilles/Aruba	200/941	21.3	175/718	24.4	132/1,013	13.0
Sub-Saharan Africa	150/947	15.8	184/811	22.7	66/595	11.1
Eastern Europe	141/1,480	9.5	67/353	19.0	222/1,731	12.8
Latin America	133/1,016	13.1	67/360	18.6	270/2,072	13.0
Asia	267/1,579	16.9	129/777	16.6	420/3,513	12.0
Total	**1,514/9,166**	**16.5**	**1,191/5,823**	**20.5**	**1,482/11,859**	**12.5**

Table 3.3a Number of chlamydia diagnoses and persons tested for chlamydia by triage indication, gender and type of sexual contact, 2020

	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Notified						
Not notified	4,533/33,901	13.4	1,871/11,715	16.0	3,202/34,302	9.3
Notified for chlamydia	2,290/6,285	36.4	1,883/5,078	37.1	976/3,789	25.8
Notified for other STI/HIV	81/667	12.1	35/457	7.7	670/5,287	12.7
Unknown	230/1,307	17.6	119/720	16.5	89/728	12.2
Symptoms						
No	3,983/26,135	15.2	1,978/11,130	17.8	3,557/36,234	9.8
Yes	3,126/15,853	19.7	1,919/6,792	28.3	1,375/7,794	17.6
Unknown	25/172	14.5	11/48	22.9	5/78	6.4
STI/HIV endemic area						
No	5,620/32,994	17.0	2,717/12,147	22.4	3,455/32,247	10.7
Yes	1,514/9,166	16.5	1,191/5,823	20.5	1,482/11,859	12.5
Age						

Table 3.3a (continued) Number of chlamydia diagnoses and persons tested for chlamydia by triage indication, gender and type of sexual contact, 2020

	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
< 25 years	6,069/31,875	19.0	2,915/12,030	24.2	729/5,914	12.3
≥ 25 years	1,065/10,285	10.4	993/5,940	16.7	4,208/38,192	11.0
Partner in risk group*						
No	5,459/31,190	17.5	3,188/13,442	23.7	3,021/27,758	10.9
Yes	1,627/10,519	15.5	700/4,447	15.7	1,851/15,774	11.7
Unknown	48/451	10.6	20/81	24.7	65/574	11.3
Sex work						
No	6,875/39,049	17.6	3,883/17,817	21.8	4,753/42,840	11.1
Yes, in past 6 months	242/3,026	8.0	15/121	12.4	163/1,037	15.7
Unknown	17/85	20.0	10/32	31.3	21/229	9.2
Gonorrhoea/chlamydia/syphilis in past year						
Not tested	4,553/25,607	17.8	2,974/13,292	22.4	1,248/10,798	11.6
Tested, negative	1,432/10,620	13.5	480/2,751	17.4	1,451/17,106	8.5
Tested, positive	1,096/5,616	19.5	435/1,826	23.8	2,131/15,135	14.1
Tested, unknown	6/50	12.0	2/20	10.0	30/234	12.8
Unknown	47/267	17.6	17/81	21.0	77/833	9.2

* For heterosexual men and MSM: partner originating from a high STI/HIV endemic country. For women: partner originating from a high STI/HIV endemic country or a male partner who had sex with men.

Table 3.3b Number of chlamydia diagnoses and persons tested for chlamydia by demographics, (sexual) behavioural characteristics, gender and type of sexual contact, 2020

	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Educational level[1]						
High	3,512/24,223	14.5	1,801/9,374	19.2	2,884/28,140	10.2
Medium	2,770/12,701	21.8	1,542/6,150	25.1	1,238/9,491	13.0
Low	678/3,348	20.3	463/1,930	24.0	445/3,530	12.6
Unknown	174/1,888	9.2	102/516	19.8	370/2,945	12.6
Number of partners in past 6 months						
0 partners	41/378	10.8	15/170	8.8	35/571	6.1
1 partner	1,864/12,141	15.4	814/3,863	21.1	292/3,640	8.0
2 partners	2,008/11,386	17.6	929/4,081	22.8	416/4,868	8.5
3 or more partners	3,155/17,375	18.2	2,140/9,818	21.8	4,127/34,614	11.9
Unknown	66/880	7.5	10/38	26.3	67/413	16.2

Table 3.3b (continued) Number of chlamydia diagnoses and persons tested for chlamydia by demographics, (sexual) behavioural characteristics, gender and type of sexual contact, 2020

	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Receptive anal sex, in past 6 months						
No receptive anal sex	5,614/33,124	16.9			724/9,729	7.4
Yes, consistently with a condom	126/1,001	12.6			396/5,275	7.5
Yes, not consistently with a condom	356/2,099	17.0			2,114/16,028	13.2
Yes, never with a condom	976/5,445	17.9			1,656/12,451	13.3
Unknown	62/491	12.6			47/623	7.5
Insertive anal sex, in past 6 months						
No insertive anal sex			3,289/14,866	22.1	672/7,391	9.1
Yes, consistently with a condom			44/341	12.9	420/5,791	7.3
Yes, not consistently with a condom			112/638	17.6	2,117/17,031	12.4
Yes, never with a condom			273/1,355	20.1	1,687/13,329	12.7
Unknown			190/770	24.7	41/564	7.3
Vaginal sex, in past 6 months[2]						
No vaginal sex	35/365	9.6	10/155	6.5	91/748	12.2
Yes, consistently with a condom	221/2,713	8.1	85/1,036	8.2	62/685	9.1
Yes, not consistently with a condom	2,647/15,727	16.8	1,621/7,878	20.6	175/1,499	11.7
Yes, never with a condom	3,985/21,970	18.1	2,057/8,309	24.8	197/1,672	11.8
Unknown	246/1,385	17.8	135/592	22.8	52/675	7.7
Receptive oral sex, in past 6 months						
No receptive oral sex	816/4,955	16.5			168/1,740	9.7
Yes, consistently with a condom	68/800	8.5			30/314	9.6
Yes, not consistently with a condom	704/4,739	14.9			855/7,807	11.0
Yes, never with a condom	5,215/29,861	17.5			3,798/33,357	11.4

Table 3.3b (continued) Number of chlamydia diagnoses and persons tested for chlamydia by demographics, (sexual) behavioural characteristics, gender and type of sexual contact, 2020

	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Unknown	331/1,805	18.3			86/888	9.7
Client of sex work						
No	5,457/29,009	18.8	3,800/17,071	22.3	4,794/42,597	11.3
Yes, in past 6 months	11/101	10.9	86/821	10.5	83/965	8.6
Unknown	1,666/13,050	12.8	22/78	28.2	60/544	11.0
Previous HIV test						
No	5,772/30,422	19.0	3,167/13,276	23.9	444/3,380	13.1
Yes, positive	1/12	8.3	0/13	0.0	615/3,848	16.0
Yes, negative	1,300/11,301	11.5	689/4,501	15.3	3,851/36,710	10.5
Yes, result unknown	7/60	11.7	5/25	20.0	9/75	12.0
Unknown	54/365	14.8	47/155	30.3	18/93	19.4
Drug use, in past 6 months[3, 4]						
No					2,867/29,009	9.9
Yes, in past 6 months					2,019/14,585	13.8
Unknown					51/512	10.0
Group sex, in past 6 months[4]						
No					2,376/23,139	10.3
Yes, in past 6 months					1,963/13,828	14.2
Unknown					598/7,139	8.4
Prep use, in past 3 months[4]						
No					2,316/23,357	9.9
Yes					2,006/16,901	11.9
Known HIV-infection, not eligible					615/3,848	16.0

1 Low level of education: no education, elementary school, lbo, mavo, vmbo, mbo-1; medium level of education: mbo2-4, havo, vwo; high level of education: university of applied sciences, university.
2 For MSM: numbers are reported for men who had sex with both men and women (N=5,279). Men who had sex with men only are excluded.
3 Included drugs are cocaine, XTC/MDMA/Speed, Heroin, Crystal Meth, Mephedrone, 3-MMC, 4-MEC, 4-FA, GHB/GBL and ketamine.
4 Data not obligatory to collect for heterosexual men and women; results are therefore not shown.

Table 3.4 Concurrent STI by gender and type of sexual contact among persons diagnosed with chlamydia, 2020

Concurrent infection	Women	Heterosexual men	MSM
	(N=7,134) n (%)	(N=3,908) n (%)	(N=4,937) n (%)
Gonorrhoea	370 (5.2)	209 (5.3)	1173 (23.8)
Syphilis, infectious	1 (0.0)	4 (0.1)	246 (5.0)
HIV newly diagnosed	0 (0.0)	0 (0.0)	28 (0.6)
Genital herpes	16 (0.2)	7 (0.2)	13 (0.3)
Genital warts	56 (0.8)	66 (1.7)	15 (0.3)
Hepatitis B, infectious	0 (0.0)	3 (0.1)	2 (0.0)
Hepatitis C	1 (0.0)	0 (0.0)	8 (0.2)

Footnote: SHCs check for genital herpes and genital warts on indication only. In addition, clients are not routinely tested on hepatitis C.

Table 3.5 Number of persons tested, number of diagnoses and positivity rate for chlamydia by anatomic location, gender and type of sexual contact, 2013-2020

	2013	2014	2015	2016	2017	2018	2019	2020
Women								
Urogenital								
N tested	64,776	69,978	65,809	67,483	69,204	60,990	54,538	42,134
n diagnoses	7,435	8,481	8,809	9,764	10,023	8,763	8,043	6,643
% positive	11.5	12.1	13.4	14.5	14.5	14.4	14.7	15.8
Anorectal								
N tested	10,095	15,245	17,866	21,224	23,155	219,60	19,629	16,381
n diagnoses	1007	1819	2375	2850	2976	2702	2645	2403
% positive	10.0	11.9	13.3	13.4	12.9	12.3	13.5	14.7
Oral								
N tested	22,087	23,994	22,278	23,292	24,367	20,920	19,546	15,239
n diagnoses	660	693	601	611	629	505	531	699
% positive	3.0	2.9	2.7	2.6	2.6	2.4	2.7	4.6
Heterosexual men								
Urogenital								
N tested	40,696	40,714	35,623	34,991	35,186	29,417	24,747	17,966
n diagnoses	5,147	5,602	5,706	6,283	6,441	5,218	4,637	3,902
% positive	12.6	13.8	16.0	18.0	18.3	17.7	18.7	21.7

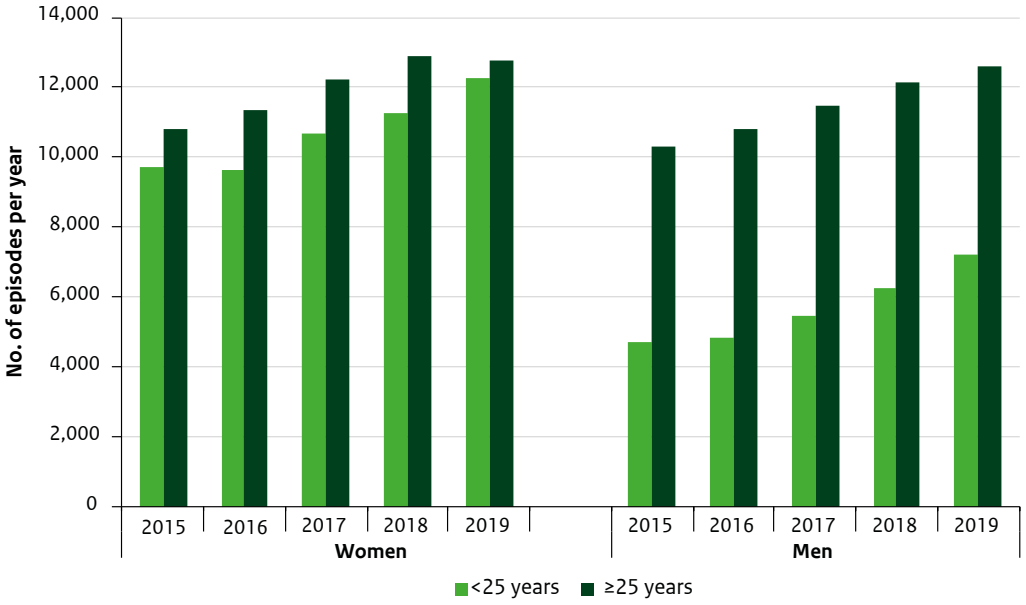
Table 3.5 (continued) Number of persons tested, number of diagnoses and positivity rate for chlamydia by anatomic location, gender and type of sexual contact, 2013-2020

	2013	2014	2015	2016	2017	2018	2019	2020
Anorectal								
N tested	850	876	490	238	281	230	208	150
n diagnoses	24	31	26	13	13	13	11	12
% positive	2.8	3.5	5.3	5.5	4.6	5.7	5.3	8
Oral								
N tested	1,611	1,775	986	374	351	264	247	188
n diagnoses	18	18	8	2	5	3	4	1
% positive	1.1	1.0	0.8	0.5	1.4	1.1	1.6	0.5
MSM								
Urogenital								
N tested	26,365	28,274	33,523	40,115	45,324	43,765	46,186	44,017
n diagnoses	938	1,005	1,143	1,316	1,429	1,345	1,529	1,459
% positive	3.6	3.6	3.4	3.3	3.2	3.1	3.3	3.3
Anorectal								
N tested	21,820	25,501	31,975	38,496	43,861	42,499	45,296	43,506
n diagnoses	1,815	2,141	2,453	2,949	3,118	3,168	3,758	3,741
% positive	8.3	8.4	7.7	7.7	7.1	7.5	8.3	8.6
Oral								
N tested	23,116	24,607	30,424	36,589	41,296	41,572	45,194	43,730
n diagnoses	262	299	404	414	443	453	543	658
% positive	1.1	1.2	1.3	1.1	1.1	1.1	1.2	1.5

Footnote 1: Heterosexual men are usually only tested urogenital, while women are tested on indication for anorectal or oral chlamydia; indications vary by region. MSM are usually tested in all three locations.
Footnote 2: Please note that people can have positive tests at multiple locations.

3.3 General practice

Figure 3.6 Estimated annual number of recorded episodes of chlamydia in general practice by gender and age group, based on extrapolation from GP practices in Nivel-PCD, 2015-2019



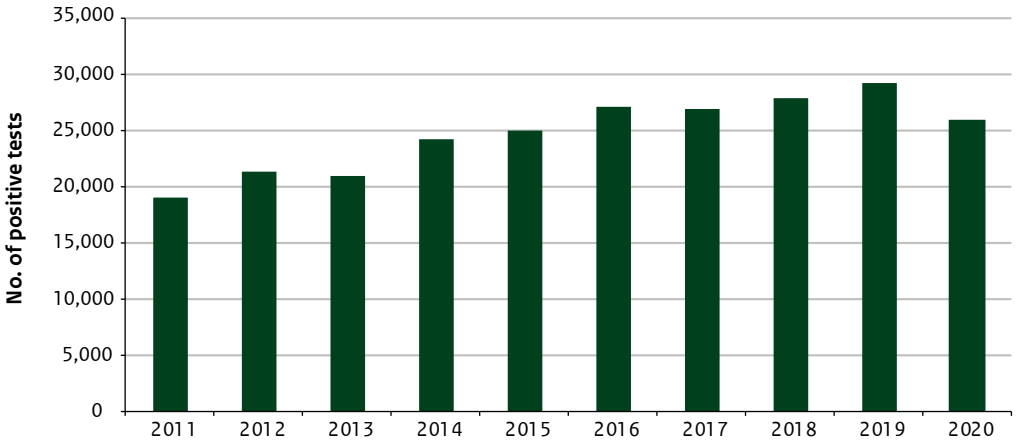
Footnote: About 70% of the total Dutch population consists of persons aged ≥25 years and about 30% consists of persons aged <25 years.

Table 3.6 Annual reporting rate (number of episodes per 1,000 persons) of chlamydia in general practice in the Netherlands by gender and age group, based on GP practices in Nivel-PCD, 2015-2019

	Women n/1,000			Men n/1,000			Total n/1,000		
	All	**<25**	**≥25**	**All**	**<25**	**≥25**	**All**	**<25**	**≥25**
2015	**2.3**	4.0	1.8	**1.8**	1.9	1.8	**2.1**	3.0	1.8
2016	**2.4**	4.0	1.8	**1.9**	1.9	1.8	**2.1**	3.0	1.8
2017	**2.6**	4.5	2.0	**2.0**	2.2	1.9	**2.3**	3.3	1.9
2018	**2.8**	4.7	2.1	**2.2**	2.5	2.0	**2.5**	3.6	2.0
2019	**2.9**	5.1	2.0	**2.3**	2.9	2.1	**2.6**	4.0	2.0

3.4 Laboratory surveillance

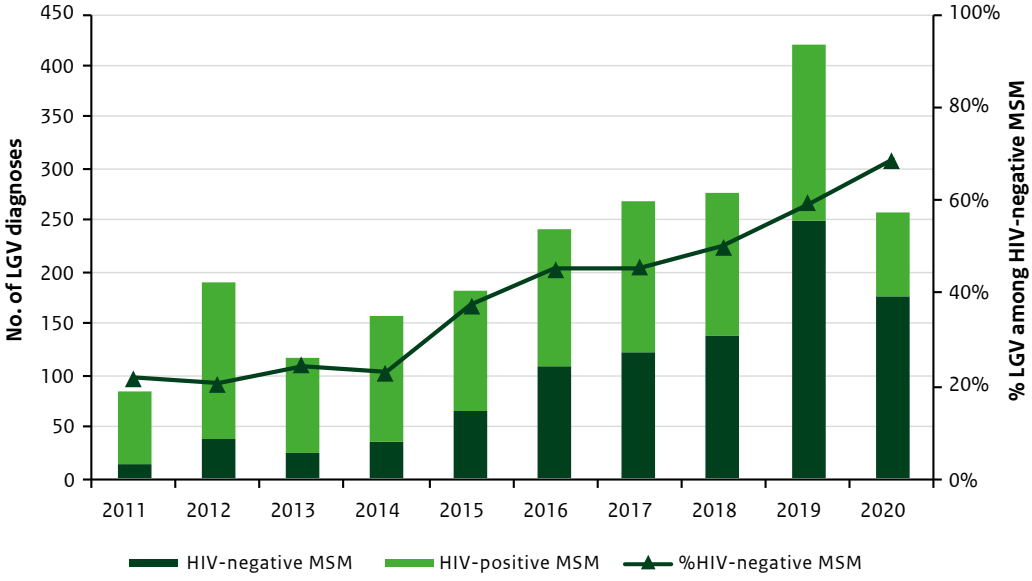
Figure 3.7 Number of positive tests for *Chlamydia trachomatis* from up to 21 medical microbiology laboratories, 2011–2020



Source: 'Virologische weekstaten'
Footnote: 19 medical microbiology laboratories in 2020.

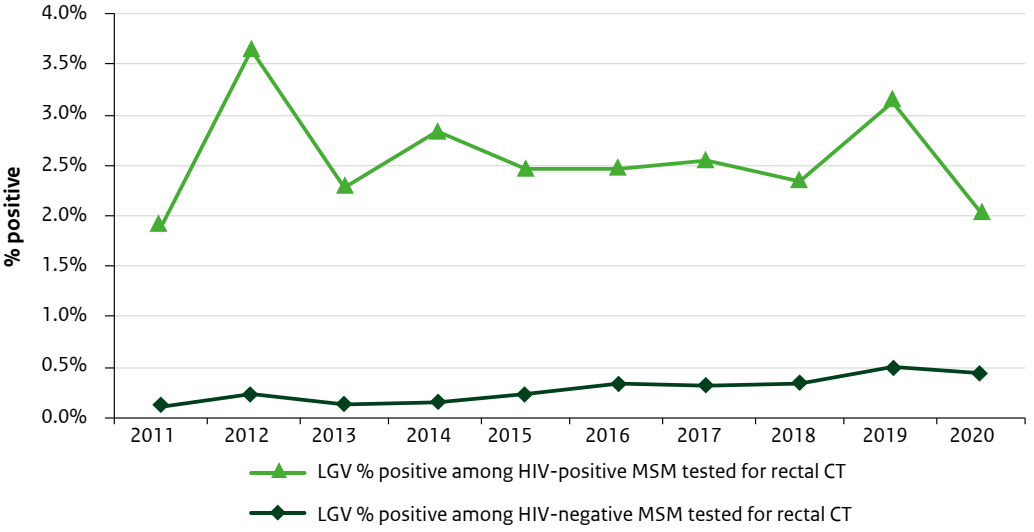
3.5 Lymphogranuloma venereum at Sexual Health Centres

Figure 3.8 Total number of LGV diagnoses among MSM by HIV status, 2011-2020



Footnote: Aggregated data of non-registered consultations included in 2018 and 2019.

Figure 3.9 Rectal LGV positivity rate by HIV status among MSM tested for rectal chlamydia infection, 2011-2020



Footnote: Aggregated data of non-registered consultations included for 2018.

Table 3.7 Characteristics of MSM diagnosed with LGV, 2015-2020

	2015 (N=179) n (%)	2016 (N=242) n (%)	2017 (N=271) n (%)	2018 (N=231) n (%)	2019 (N=356) n (%)	2020 (N=258) n (%)
Median age (range)	41 (18-66)	39 (16-75)	40 (19-73)	43 (20-74)	40 (18-70)	38 (19-72)
Dutch migration background	118 (65.9)	158 (65.3)	163 (60.1)	134 (58.0)	220 (61.8)	151 (58.5)
Known HIV-positive	113 (63.1)	131 (54.1)	144 (53.1)	107 (46.3)	138 (38.8)	79 (30.6)
Notified for LGV	NA	12 (5.0)	11 (4.1)	15 (6.5)	21 (5.9)	11 (4.3)
Concurrent gonorrhoea	48 (26.8)	91 (37.6)	96 (35.4)	73 (31.6)	117 (32.9)	74 (28.7)
Concurrent syphilis	18 (10.1)	31 (12.8)	35 (12.9)	24 (10.4)	28 (7.9)	27 (10.5)
Concurrent new HIV diagnosis	1 (0.6)	2 (0.8)	4 (1.5)	4 (1.7)	4 (1.1)	2 (0.8)
Symptoms recorded	96 (53.6)	142 (58.7)	137 (50.6)	108 (46.8)	145 (40.7)	117 (45.3)

Footnote: One heterosexual man and no women was diagnosed with LGV in 2020. Of 258 LGV infections among MSM, 254 infections were rectal (n=1 had both rectal LGV and LGV ulcer), four infections were urethral and no infection was oral. Before 2018, anatomic location of LGV infection was not registered.

4 Gonorrhoea

4.1 Key points

4.1.1 Sexual Health Centres

- In 2020, 6,722 gonorrhoea infections were diagnosed at the SHCs (13.0% women, 6.7% heterosexual men, 80.3% MSM). This was a decrease of 17.9% compared with 2019 (8,186 diagnoses).
- The 6,722 gonorrhoea diagnoses were made among 5,816 individuals. 715 persons had more than 1 gonorrhoea diagnosis in 2020.
- Due to downscaled STI care related to the COVID-19 pandemic, the number of gonorrhoea tests decreased in 2020 compared with 2019. The number of tests decreased by 35.5% among women (2020: 42,147; 2019: 65,324), by 38.6% among heterosexual men (2020: 17,972; 2019: 29,285), and by 19.1% among MSM (2020: 44,148 ; 2019: 54,558).
- Decreased testing and stricter triaging during the downscaled STI care resulted in decreased numbers of diagnoses and increased positivity rates. Positivity rates peaked in April, after which they decreased, but did not again reach the levels of 2019 and early 2020.
- Positivity rates for gonorrhoea increased between 2016 and 2020 among heterosexual men (from 1.9% to 2.5%) and among women (from 1.4% to 2.1%). The positivity rate among MSM was stable at around 11% between 2015 and 2019 but increased to 12.2% in 2020 which can be explained by the decreased testing and stricter triaging during the downscaled STI care.

- The highest gonorrhoea positivity rates were seen among persons notified for gonorrhoea (MSM 31.2%, heterosexual men 19.9%, women 30.9%). Other groups with high positivity rates were persons with a previous STI, persons who reported performing sex work in the past 6 months, women and heterosexual men with a migration background from an STI/HIV endemic area, women and heterosexual men with a low education level and men with STI symptoms.
- Among MSM, additional high positivity rates were seen among HIV-positive individuals (18.6%), men using drugs in relation to sex (17.2%), and men engaging in group sex (17.3%).
- Gonorrhoea positivity rates among women and heterosexual men increased slightly in most age groups, but especially among people 40 and older in 2020, compared with 2019.
- Gonorrhoea positivity rates by anatomical location showed that among MSM positivity rates were higher at the anorectal (8.5%) and oral (7.1%) locations than they were at the urogenital location (2.9%) while among women these positivity rates were all very similar (1.8%, 2.0% and 1.6%, respectively).
- Among women and heterosexual men diagnosed with gonorrhoea, 43.7% had a chlamydia co-infection. Among MSM diagnosed with gonorrhoea, 21.7% had a chlamydia and 4.2% had a syphilis co-infection.

4.1.2 General practice

- The estimated number of gonorrhoea infections diagnosed at general practices has been increasing since 2015, among both women and men. The number of diagnoses increased by 27.4% in 2019 to 14,400, compared with 11,300 in 2018. This increase was mainly due to an increase in the number of gonorrhoea episodes among men. The reporting rate for gonorrhoea among men increased from 0.8 per 1,000 to 1.1 per 1,000 population.

4.1.3 Antimicrobial resistance of gonococci in the Netherlands

- The number of SHCs participating in the Gonococcal Resistance to Antimicrobials Surveillance (GRAS) programme decreased to 14 out of 24 in 2020 (17 in 2019). Together, these SHCs represent 81% of diagnosed gonorrhoea cases.
- Within participating SHCs, culture was performed for 68.3% of gonorrhoea patients. Due to negative or failed cultures, susceptibility testing results were available for 37.8% of patients. This was slightly less than in 2019 (77.5% culture, 39.8% results).
- Antimicrobial resistance to ceftriaxone, the first-choice treatment in the Netherlands, was not reported. The MIC shift towards decreased susceptibility observed in 2019 did not continue in 2020.
- Resistance to cefotaxime slightly decreased to 0.7%. Resistance to ciprofloxacin remained high with 57.1% in 2020. Resistance to azithromycin increased in past years, up to 10.8% in 2018, but this increase did not continue thereafter and was 10.1% in 2020.

4.2 Sexual health centres: characteristics, risk groups and trends

Figure 4.1 Number of gonorrhoea tests and percentage of gonorrhoea positives by region, gender and type of sexual contact, 2020

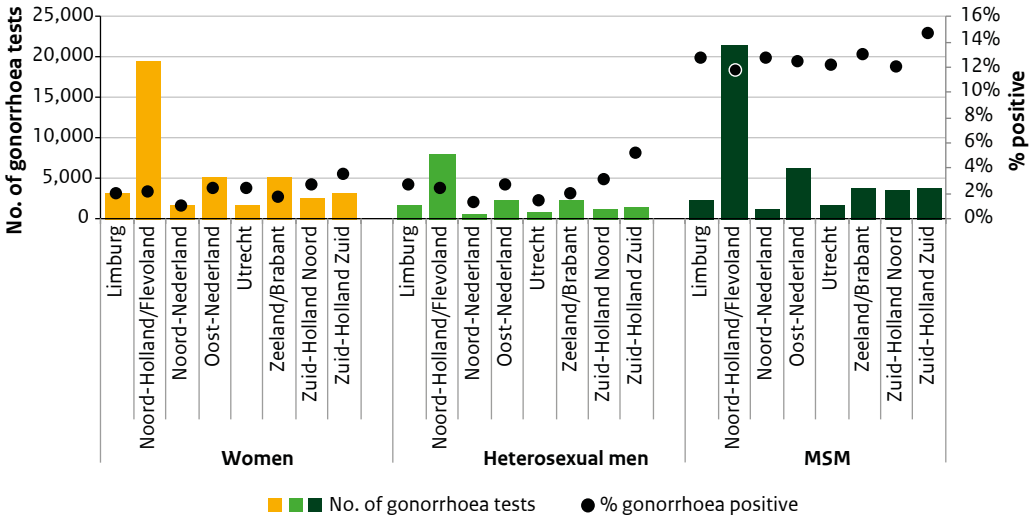
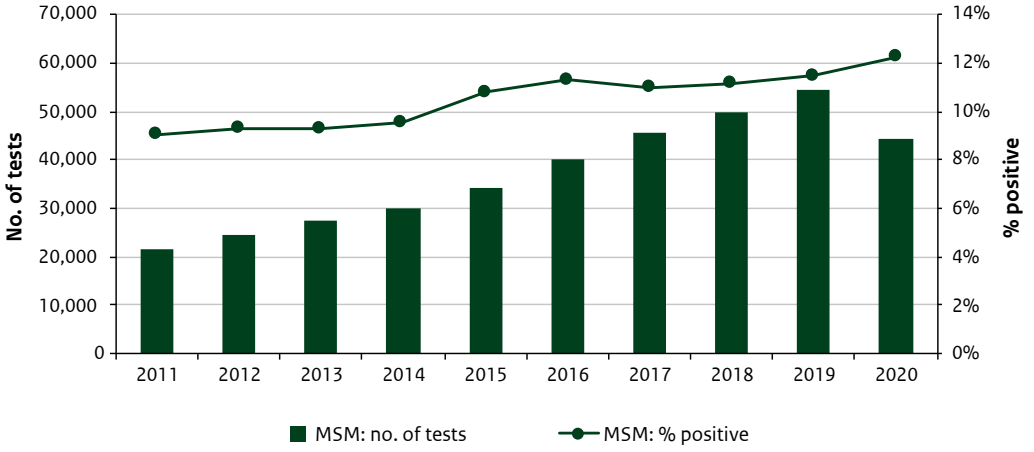
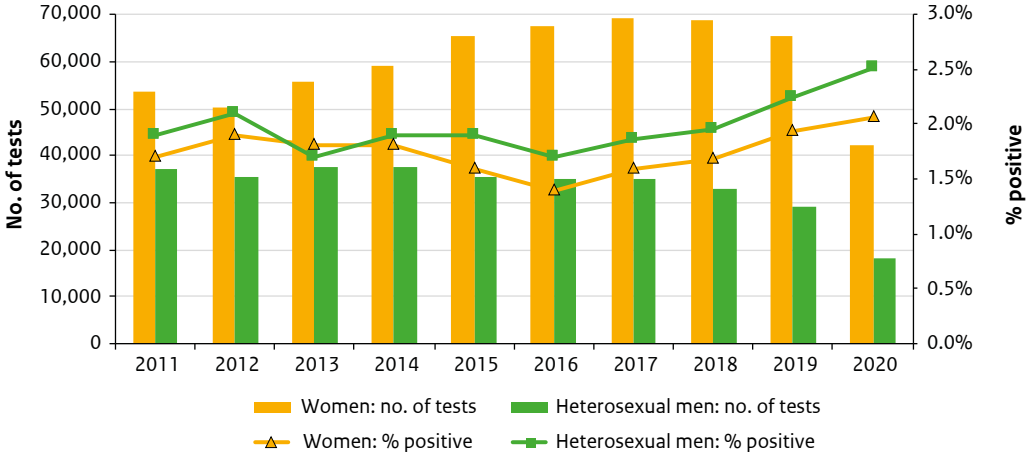


Figure 4.2a Total number of tests and positivity rate of gonorrhoea among MSM, 2011–2020



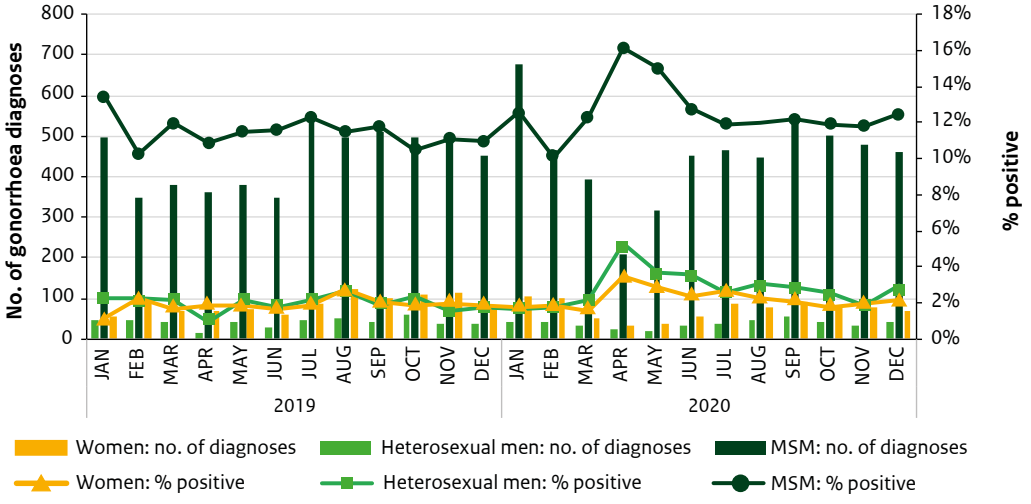
Footnote: Aggregated data of non-registered consultations included for 2018 and 2019.

Figure 4.2b Total number of tests and positivity rate of gonorrhoea among heterosexual men and women, 2011–2020



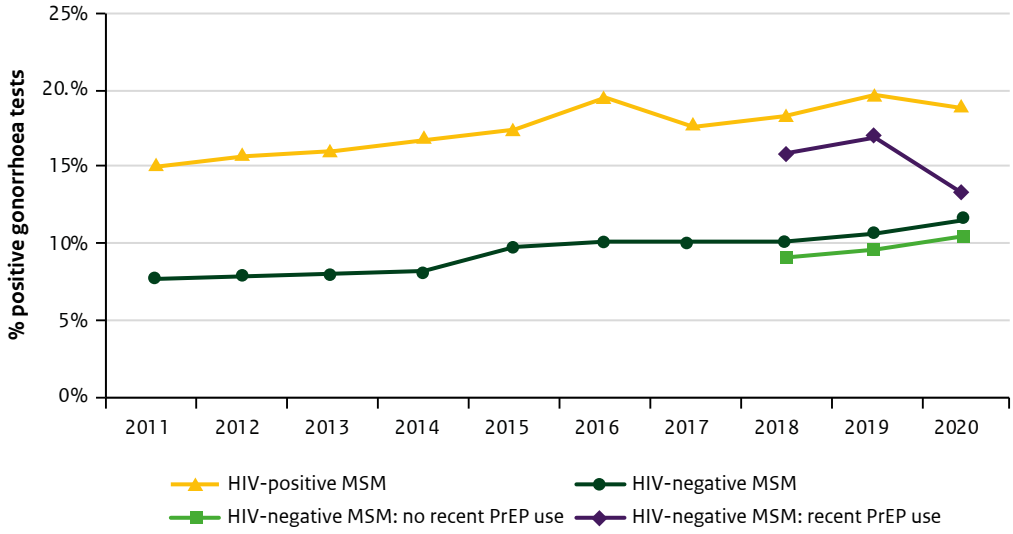
Footnote 1: Between 2012 and 2015, attendees below the age of 25 years with no further risk factors were only tested for chlamydia. Since 2015, attendees below the age of 25 years with no further risk factors were tested for chlamydia and gonorrhoea.
Footnote 2: Aggregated data of non-registered consultations included for 2018 and 2019.

Figure 4.3 Number of gonorrhoea diagnoses and positivity rate of gonorrhoea by gender, sexual contact and month in 2019 and 2020



Footnote: In 2019 there were 1,319 diagnoses not registered in SOAP, the majority of which were diagnosed between January and June. These diagnoses are not included in this figure.

Figure 4.4 Trends in positivity rate for gonorrhoea in MSM by HIV-status and PrEP use, 2011-2020

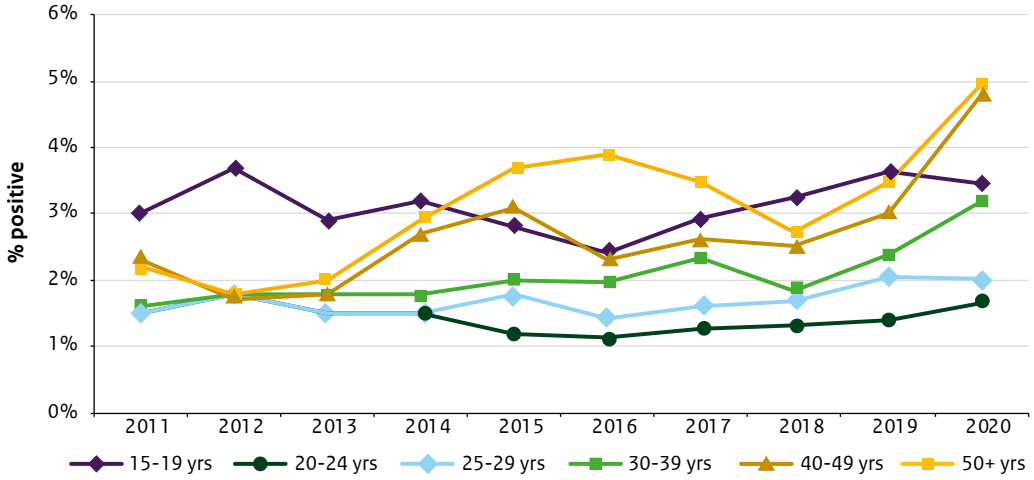


Footnote: Recent PrEP users includes PrEP users via the SHC pilot programme and via other health care providers. Information on PrEP use is collected since 2018. In 2018, recent PrEP use was defined as use in the past 6 months. Since 2019 recent PrEP use is defined as use in the past 3 months.

Table 4.1 Number of gonorrhoea diagnoses and persons tested for gonorrhoea by age, gender and type of sexual contact, 2020

Age (years)	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
≤ 19	217/6,013	3.6	55/1,749	3.1	98/702	14.0
20–24	381/25,829	1.5	222/10,282	2.2	764/5,215	14.7
25–29	102/5,913	1.7	88/3,452	2.5	1,191/8,460	14.1
30–34	46/1,769	2.6	41/1,270	3.2	992/7,394	13.4
35–39	40/887	4.5	16/552	2.9	662/5,146	12.9
40–44	27/557	4.8	11/258	4.3	548/4,596	11.9
45–49	24/446	5.4	6/155	3.9	380/3,728	10.2
50–54	20/381	5.2	8/115	7.0	357/3,560	10.0
≥ 55	15/332	4.5	5/139	3.6	406/5,347	7.6
Total	**872/42,127**	**2.1**	**452/17,972**	**2.5**	**5,398/44,148**	**12.2**

Figure 4.5a Trends in positivity rate for gonorrhoea in women and heterosexual men by age group, 2011-2020



Footnote: Between 2012 and 2015, attendees below the age of 25 years with no further risk factors were only tested for chlamydia. Since 2015, attendees below the age of 25 years with no further risk factors were tested for chlamydia and gonorrhoea.

Figure 4.5b Trends in positivity rate for gonorrhoea in MSM by age group, 2011-2020

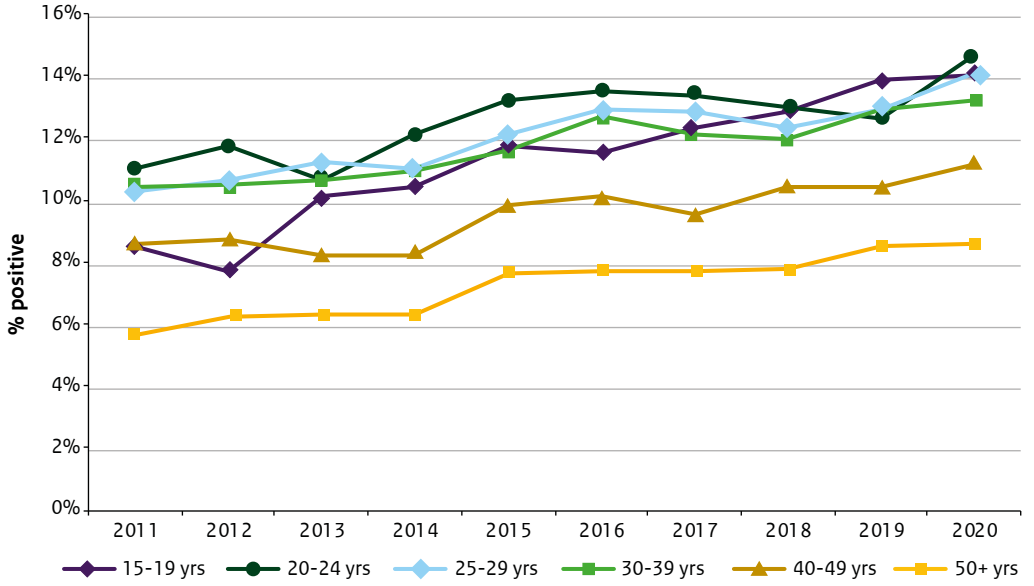


Table 4.2a Number of gonorrhoea diagnoses among persons tested for gonorrhoea by migration background, gender and type of sexual contact, 2020

Migration background	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Dutch	493/30,327	1.6	141/11,055	1.3	3,273/27,504	11.9
Other Western	91/4,470	2.0	21/1,576	1.3	915/7,311	12.5
First generation non-Western	67/2,256	3.0	102/1,685	6.1	899/6,479	13.9
Second generation non-Western	221/5,056	4.4	187/3,649	5.1	309/2,833	10.9
Non-Western, generation unknown	0/1	0.0	0/1	0.0	1/7	14.3
Unknown	0/17	0.0	1/6	16.7	1/14	7.1
Total	**872/42,127**	**2.1**	**452/17,972**	**2.5**	**5,398/44,148**	**12.2**

Table 4.2b Number of gonorrhoea diagnoses among persons tested for gonorrhoea among first and second generation migrants from an STI/HIV endemic area by region of origin, gender and type of sexual contact, 2020

Region of origin	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Turkey	23/528	4.4	25/478	5.2	99/739	13.4
North Africa/Morocco	33/705	4.7	41/907	4.5	121/832	14.5
Suriname	92/1,970	4.7	81/1,420	5.7	174/1,365	12.7
Netherlands Antilles/Aruba	38/942	4.0	60/718	8.4	124/1,013	12.2
Sub-Saharan Africa	34/947	3.6	47/811	5.8	66/596	11.1
Eastern Europe	41/1,478	2.8	3/353	0.8	262/1,731	15.1
Latin America	32/1,016	3.1	17/360	4.7	300/2,074	14.5
Asia	45/1,580	2.8	21/777	2.7	410/3,519	11.7
Total	**338/9,166**	**3.7**	**295/5,824**	**5.1**	**1,556/11,869**	**13.1**

Table 4.3a Number of gonorrhoea diagnoses among persons tested for gonorrhoea by triage indication, gender and type of sexual contact, 2020

	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Notified						
Not notified	545/33,868	1.6	310/11,716	2.6	3,418/34,330	10.0
Notified for gonorrhoea	191/618	30.9	82/413	19.9	1,424/4,563	31.2
Notified for other STI/HIV	92/6,334	1.5	46/5,123	0.9	454/4,527	10.0
Unknown	44/1,307	3.4	14/720	1.9	102/728	14.0
Symptoms						
No	467/26,099	1.8	100/11,131	0.9	3.416/36.261	9.4
Yes	401/15,857	2.5	352/6,793	5.2	1,971/7,809	25.2
Unknown	4/171	2.3	0/48	0.0	11/78	14.1
STI/HIV endemic area						
No	534/32,961	1.6	157/12,148	1.3	3,842/32,279	11.9
Yes	338/9,166	3.7	295/5,824	5.1	1,556/11,869	13.1
Age						
< 25 years	598/31,842	1.9	277/12,031	2.3	862/5,917	14.6
≥ 25 years	274/10,285	2.7	175/5,941	2.9	4,536/38,231	11.9
Partner in risk group*						
No	471/31,153	1.5	314/13,443	2.3	3,246/27,788	11.7
Yes	387/10,524	3.7	135/4,447	3.0	2,088/15,786	13.2
Unknown	14/450	3.1	3/82	3.7	64/574	11.1
Sex work						
No	729/39,015	1.9	448/17,819	2.5	5,176/42,880	12.1
Yes, in past 6 months	138/3,028	4.6	4/121	3.3	200/1,039	19.2
Unknown	5/84	6.0	0/32	0.0	22/229	9.6
Gonorrhoea/chlamydia/syphilis in past year						
Not tested	469/25,589	1.8	295/13,294	2.2	1,077/10,810	10.0
Tested, negative	225/10,609	2.1	71/2,751	2.6	1,596/17,113	9.3
Tested, positive	170/5,614	3.0	79/1,826	4.3	2,603/15,158	17.2
Tested, unknown	1/49	2.0	1/20	5.0	36/234	15.4
Unknown	7/266	2.6	6/81	7.4	86/833	10.3

*For heterosexual men and MSM: partner originating from a high STI/HIV endemic country. For women: partner originating from a high STI/HIV endemic country or a male partner who had sex with men.

Table 4.3b Number of gonorrhoea diagnoses among persons tested for gonorrhoea by demographics, (sexual) behavioural characteristics, gender and type of sexual contact, 2020

	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Educational level[1]						
High	259/24,192	1.1	91/9,376	1.0	3,198/28,163	11.4
Medium	392/12,700	3.1	232/6,150	3.8	1,336/9,500	14.1
Low	158/3,348	4.7	110/1,930	5.7	480/3,533	13.6
Unknown	63/1,887	3.3	19/516	3.7	384/2,952	13.0
Number of partners in past 6 months						
0 partners	8/377	2.1	2/170	1.2	40/572	7.0
1 partner	214/12,120	1.8	84/3,863	2.2	277/3,641	7.6
2 partners	197/11,377	1.7	118/4,081	2.9	440/4,873	9.0
3 or more partners	423/17,371	2.4	247/9,820	2.5	4,586/34,649	13.2
Unknown	30/882	3.4	1/38	2.6	55/413	13.3
Receptive anal sex, in past 6 months						
No receptive anal sex	620/33,091	1.9			798/9,740	8.2
Yes, always with a condom	38/1,001	3.8			425/5,277	8.1
Yes, not always with a condom	52/2,099	2.5			2,288/16,035	14.3
Yes, never with a condom	148/5,446	2.7			1,830/12,470	14.7
Unknown	14/490	2.9			57/626	9.1
Insertive anal sex, in past 6 months						
No insertive anal sex			374/14,867	2.5	595/7,395	8.0
Yes, always with a condom			3/342	0.9	481/5,792	8.3
Yes, not always with a condom			23/638	3.6	2,328/17,039	13.7
Yes, never with a condom			35/1,355	2.6	1,946/13,355	14.6
Unknown			17/770	2.2	48/567	8.5

Table 4.3b (continued) Number of gonorrhoea diagnoses among persons tested for gonorrhoea by demographics, (sexual) behavioural characteristics, gender and type of sexual contact, 2020

	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Vaginal sex, in past 6 months[2]						
No vaginal sex	6/365	1.6	5/155	3.2	92/748	12.3
Yes, always with a condom	60/2,713	2.2	13/1,036	1.3	76/685	11.1
Yes, not always with a condom	324/15,715	2.1	188/7,879	2.4	127/1,500	8.5
Yes, never with a condom	456/21,950	2.1	232/8,310	2.8	146/1,677	8.7
Unknown	26/1,384	1.9	14/592	2.4	58/675	8.6
Receptive oral sex, in past 6 months						
No receptive oral sex	75/4,951	1.5			143/1,743	8.2
Yes, always with a condom	22/800	2.8			39/314	12.4
Yes, not always with a condom	107/4,734	2.3			922/7,815	11.8
Yes, never with a condom	638/29,838	2.1			4,205/33,386	12.6
Unknown	30/1,804	1.7			89/890	10.0
Client of sex work						
No	624/28,975	2.2	424/17,073	2.5	5,224/42,637	12.3
Yes, in past 6 months	5/101	5.0	25/821	3.0	105/966	10.9
Unknown	243/13,051	1.9	3/78	3.8	69/545	12.7
Previous HIV test						
No	522/30,387	1.7	296/13,278	2.2	372/3,384	11.0
Yes, positive	0/12	0.0	2/13	15.4	715/3,849	18.6
Yes, negative	340/11,304	3.0	144/4,501	3.2	4,287/36,747	11.7
Yes, result unknown	0/60	0.0	2/25	8.0	8/75	10.7
Unknown	10/364	2.7	8/155	5.2	16/93	17.2
Drug use, in past 6 months[3, 4]						
No					2,830/29,028	9.7
Yes, in past 6 months					2,518/14,607	17.2
Unknown					50/513	9.7

Table 4.3b (continued) Number of gonorrhoea diagnoses among persons tested for gonorrhoea by demographics, (sexual) behavioural characteristics, gender and type of sexual contact, 2020

	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Group sex, in past 6 months[4]						
No					2,335/23,155	10.1
Yes, in past 6 months					2,401/13,850	17.3
Unknown					662/7,143	9.3
PrEP use, in past 3 months[4]						
No					2,432/23,381	10.4
Yes					2,251/16,918	13.3
Known HIV-infection, not eligible					715/3,849	18.6

1 Low level of education: no education, elementary school, lbo, mavo, vmbo, mbo-1; medium level of education: mbo2-4, havo, vwo; high level of education: university of applied sciences, university.
2 For MSM: numbers are reported for men who had sex with both men and women (N=5,285). Men who had sex with men only are excluded.
3 Included drugs are cocaine, XTC/MDMA/ Speed, Heroin, Crystal Meth, Mephedrone, 3-MMC, 4-MEC, 4-FA, GHB/ GBL and ketamine.
4 Data not obligatory to collect for heterosexual men and women; results are therefore not shown.

Table 4.4 Concurrent STI among persons diagnosed with gonorrhoea by gender and type of sexual contact, 2020

Concurrent infection	Women (N=872) n (%)	Heterosexual men (N=452) n (%)	MSM (N=5,398) n (%)
Chlamydia	370 (42.4)	209 (46.2)	1,173 (21.7)
Syphilis, infectious	1 (0.1)	1 (0.2)	227 (4.2)
HIV newly diagnosed	0 (0.0)	1 (0.2)	29 (0.5)
Genital herpes	4 (0.5)	2 (0.4)	22 (0.4)
Genital warts	9 (1.0)	16 (3.5)	19 (0.4)
Hepatitis B, infectious	0 (0.0)	0 (0.0)	4 (0.1)
Hepatitis C	0 (0.0)	0 (0.0)	8 (0.1)

Footnote: SHCs check for genital herpes and genital warts on indication only. In addition, clients are not routinely tested on hepatitis C.

Table 4.5 Number of persons tested, number of diagnoses and positivity rate for gonorrhoea by anatomical location, gender and type of sexual contact, 2013-2020

	2013	2014	2015	2016	2017	2018	2019	2020
Women								
Urogenital								
N tested	55,784	59,073	65,512	67,473	69,204	60,958	54,487	42,083
n diagnoses	759	807	816	711	873	791	802	671
% positive	1.4	1.4	1.2	1.1	1.3	1.3	1.5	1.6
Anorectal								
N tested	13,282	16,193	17,849	21,194	23,140	21,930	19,563	16,334
n diagnoses	162	246	276	246	306	322	327	300
% positive	1.2	1.5	1.5	1.2	1.3	1.5	1.7	1.8
Oral								
N tested	22,258	24,439	22,454	23,469	24,569	21,128	19,597	15,231
n diagnoses	317	348	335	297	342	299	350	298
% positive	1.4	1.4	1.5	1.3	1.4	1.4	1.8	2.0
Heterosexual men								
Urogenital								
N tested	37,730	37,704	35,514	34,999	35,185	29,412	24,753	17,968
n diagnoses	582	659	640	597	649	534	496	444
% positive	1.5	1.7	1.8	1.7	1.8	1.8	2.0	2.5
Anorectal								
N tested	794	878	491	233	280	228	207	146
n diagnoses	10	20	14	3	3	7	10	6
% positive	1.3	2.3	2.9	1.3	1.1	3.1	4.8	4.1
Oral								
N tested	1,737	1,975	1,019	384	353	274	249	187
n diagnoses	34	52	27	8	8	0	2	4
% positive	2.0	2.6	2.6	2.1	2.3	0.0	0.8	2.1
MSM								
Urogenital								
N tested	26,378	28,288	33,530	40,129	45,341	43,767	46,185	44,013
n diagnoses	694	792	967	1,178	1,265	1,176	1,214	1,264
% positive	2.6	2.8	2.9	2.9	2.8	2.7	2.6	2.9

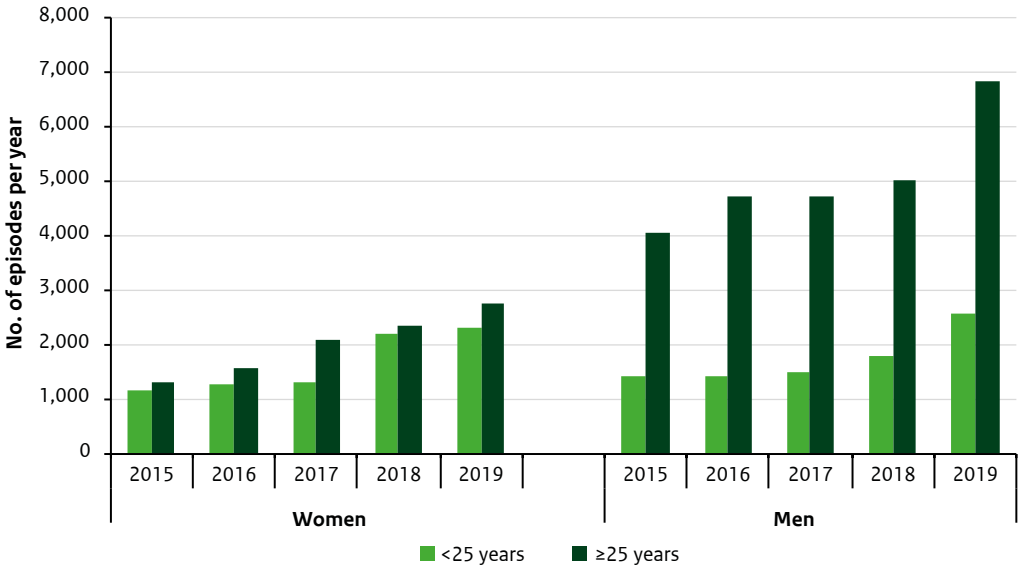
Table 4.5 (continued) Number of persons tested, number of diagnoses and positivity rate for gonorrhoea by anatomical location, gender and type of sexual contact, 2013-2020

	2013	2014	2015	2016	2017	2018	2019	2020
Anorectal								
N tested	23,948	26,353	31,985	38,511	43,873	42,458	45,259	43,482
n diagnoses	1,421	1,717	2,270	2,979	3,314	3,271	3,599	3,716
% positive	5.9	6.5	7.1	7.7	7.6	7.7	8.0	8.5
Oral								
N tested	25,324	27,488	32,932	39,416	44,754	43,262	45,756	43,751
n diagnoses	1,277	1,457	1,987	2,344	2,583	2,445	2,739	3,090
% positive	5.0	5.3	6.0	5.9	5.8	5.7	6.0	7.1

Footnote 1: Heterosexual men are usually only tested urogenital, while women are tested on indication for anorectal or oral gonorrhoea; indications vary by region. MSM are usually tested in all three locations.
Footnote 2: Please note that people can have positive tests at multiple locations.

4.3 General practice

Figure 4.6 Estimated annual number of recorded episodes of gonorrhoea in general practice by gender and age group, based on extrapolation from GP practices in Nivel-PCD, 2015-2019



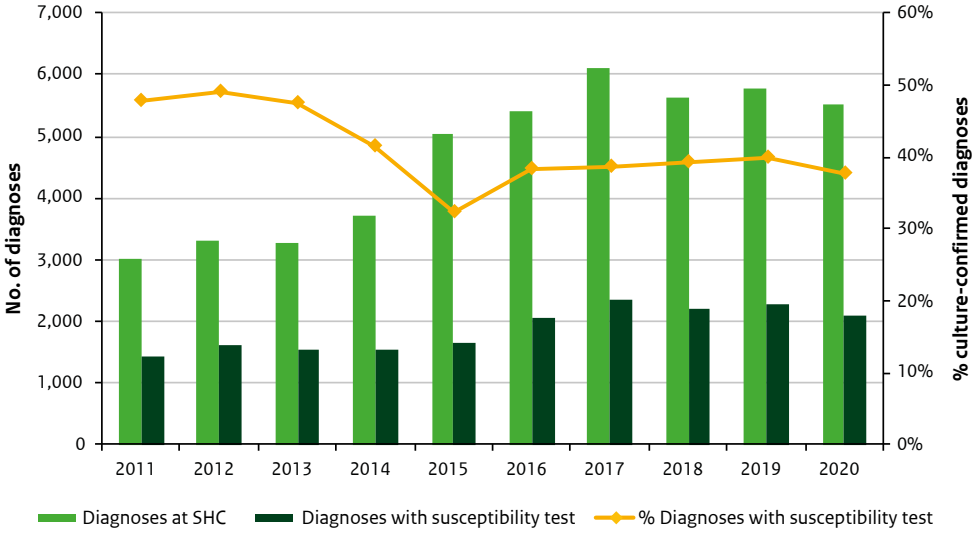
Footnote: About 70% of the total Dutch population consists of persons aged ≥25 years and about 30% consists of persons aged <25 years.

Table 4.6 Annual reporting rate (number of episodes per 1,000 population) of gonorrhoea in general practice in the Netherlands by gender and age group, based on GP practices in Nivel-PCD, 2015-2019

	Women n/1,000			Men n/1,000			Total n/1,000		
	All	**<25**	**≥25**	**All**	**<25**	**≥25**	**All**	**<25**	**≥25**
2015	**0.3**	0.5	0.2	**0.7**	0.6	0.7	**0.5**	0.5	0.4
2016	**0.3**	0.5	0.3	**0.7**	0.6	0.8	**0.5**	0.5	0.5
2017	**0.4**	0.5	0.3	**0.7**	0.6	0.8	**0.6**	0.6	0.6
2018	**0.5**	0.9	0.4	**0.8**	0.7	0.8	**0.7**	0.8	0.6
2019	**0.6**	1.0	0.4	**1.1**	1.0	1.1	**0.8**	1.0	0.8

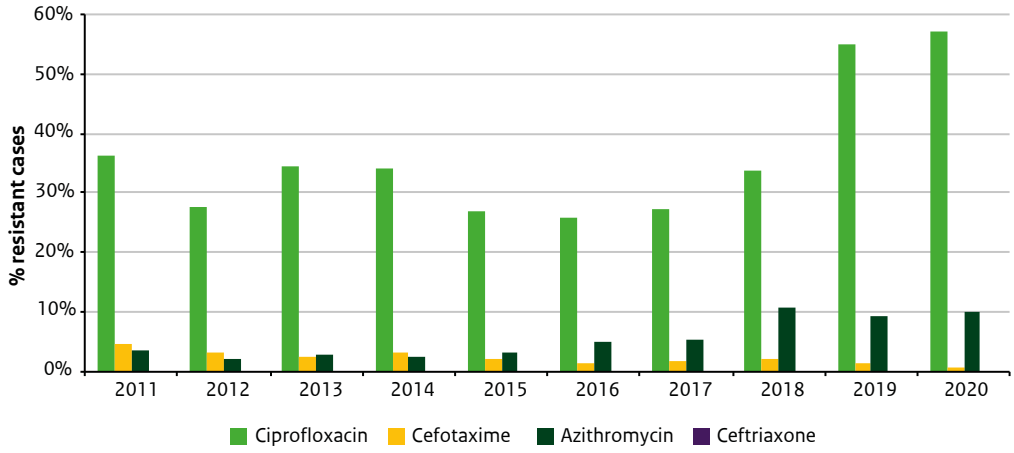
4.4 Antimicrobial resistance of gonococci in the Netherlands

Figure 4.7 Number of gonorrhoea diagnoses and number and percentage of diagnoses including an antimicrobial susceptibility test at SHCs participating in GRAS, 2011-2020



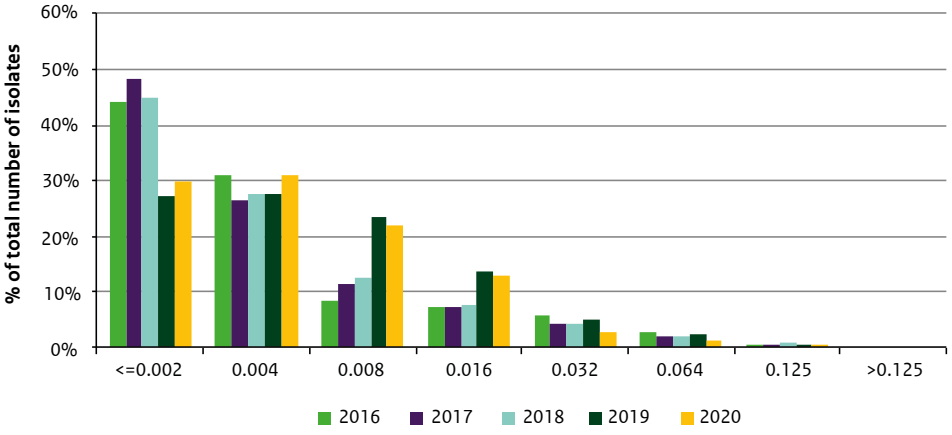
Footnote: In less than half of all gonorrhoea diagnoses at SHCs antimicrobial susceptibility was measured by culture. This can partially be explained by negative cultures, making measurement of resistance levels impossible. Furthermore, the STI register data show that gonorrhoea diagnoses are sometimes only confirmed by PCR, not by culture.

Figure 4.8 Gonococcal resistance (following EUCAST breakpoints) in the Netherlands, proportion of resistant cases, 2011–2020



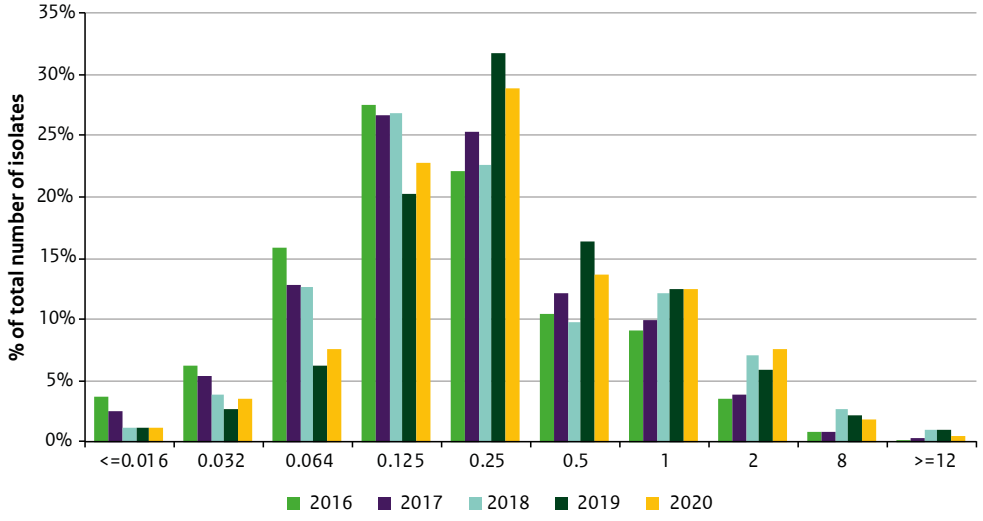
Footnote: No resistance to ceftriaxone has been reported yet.

Figure 4.9a MIC (= minimum inhibitory concentration) distribution for ceftriaxone, 2016-2020



Footnote: Following EUCAST criteria, an MIC of >0.125 mg/L is considered resistant.

Figure 4.9b MIC (= minimum inhibitory concentration) distribution for azithromycin, 2016-2020



Footnote: Following EUCAST breakpoints, no clinical breakpoint for azithromycin is available. An MIC of >1.0 mg/L is considered the epidemiological cut-off value for resistance.

5 Syphilis

5.1 Key points

- In 2020, 1,324 infectious syphilis infections were diagnosed at the SHCs (1.3% women, 2.6% heterosexual men, 96.1% MSM). This was a decrease of 7.4% compared with 2019 (1,430 diagnoses).
- The 1,324 infectious syphilis diagnoses were made among 1,288 individuals. 35 persons had more than 1 infectious syphilis diagnosis in 2020.
- Due to downscaled STI care related to the COVID-19 pandemic, the number of syphilis tests decreased in 2020 compared with 2019. The number of tests decreased by 38.1% among women (2020: 15,424; 2019: 24,903), by 43.1% among heterosexual men (2020: 7,749; 2019: 13,607), and by 19.3% among MSM (2020: 43,861 ; 2019: 54,346).
- Decreased testing and stricter triaging during the downscaled STI care resulted in increased positivity rates. Among MSM, the positivity greatly increased in April, after which the percentage decreased to a level comparable to 2019. Among women and heterosexual men the positivity rate fluctuated throughout 2020.
- The positivity rate for infectious syphilis among MSM decreased from 2.9% in 2016 to 2.4% in 2018, and increased to 2.9% in 2020.

- Among heterosexual men and women 25 years of age or older 79.1% received syphilis testing. This was 23.4% among those younger than 25 years of age. Accordingly, 78.9% (n=41/52) of heterosexual men and women with a diagnosis of infectious syphilis was 25 years of age or older.
- Subgroups with relatively high positivity rates among MSM included those notified for syphilis exposure (13.3%), known HIV-positive (8.1%), and those with STI-related symptoms (7.9%).
- Of the MSM diagnosed with infectious syphilis, 19.3% had a co-infection with chlamydia and 17.8% had a co-infection with gonorrhoea.
- The number of infections of congenital syphilis found in neonates has remained very low, at 0 to 3 per year since 2010 (0 in 2020).
- The syphilis incidence among regular donors varied between 1 per 100,000 to 2.3 per 100,000 blood donors in the period between 2010 and 2018. In 2019, the incidence increased to 3.6 per 100,000.

5.2 Sexual Health Centres: characteristics, risk groups and trends

Figure 5.1 Number of syphilis tests and percentage of syphilis positives by region, gender and type of sexual contact, 2020

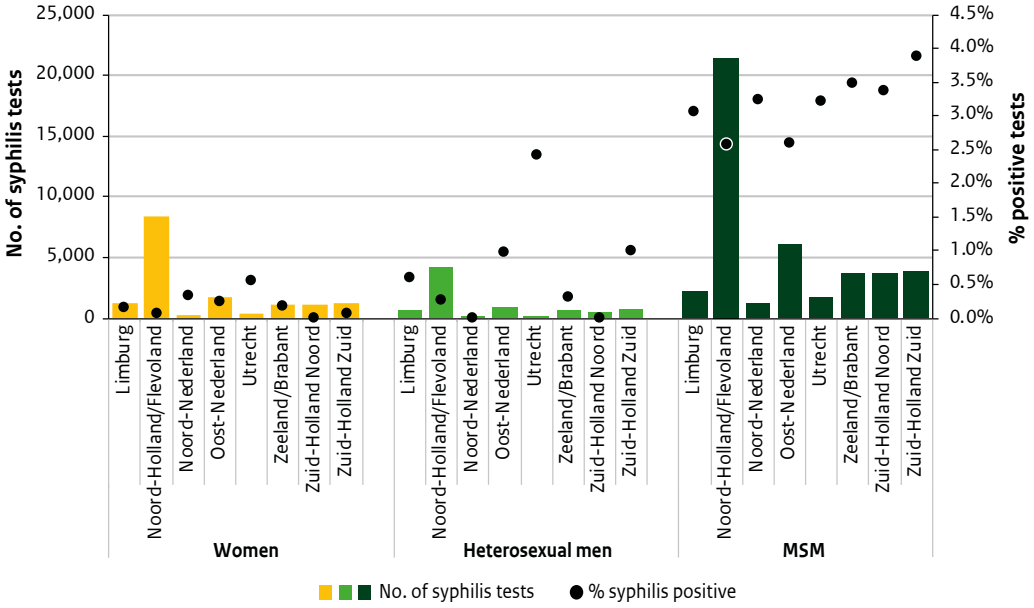
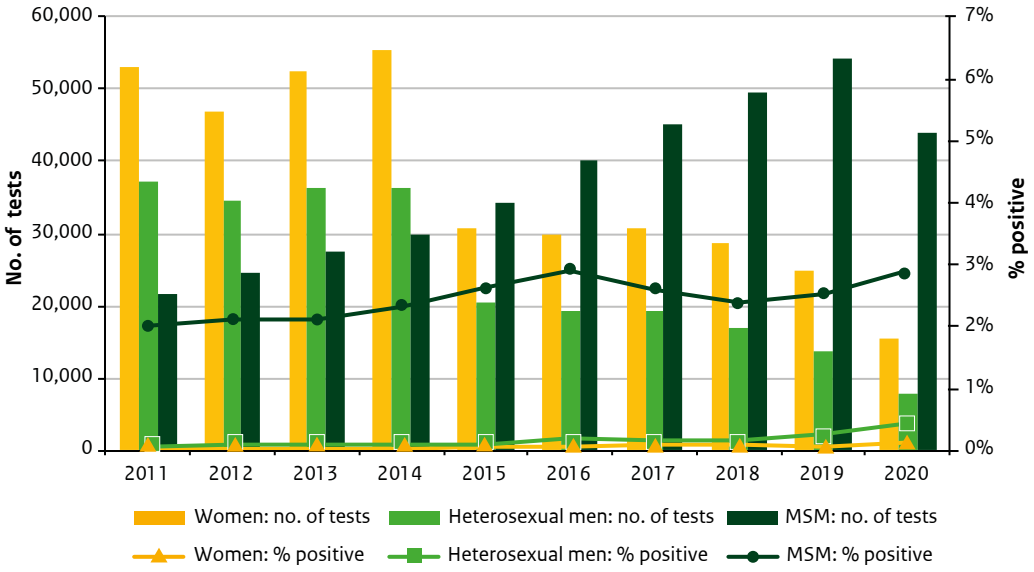
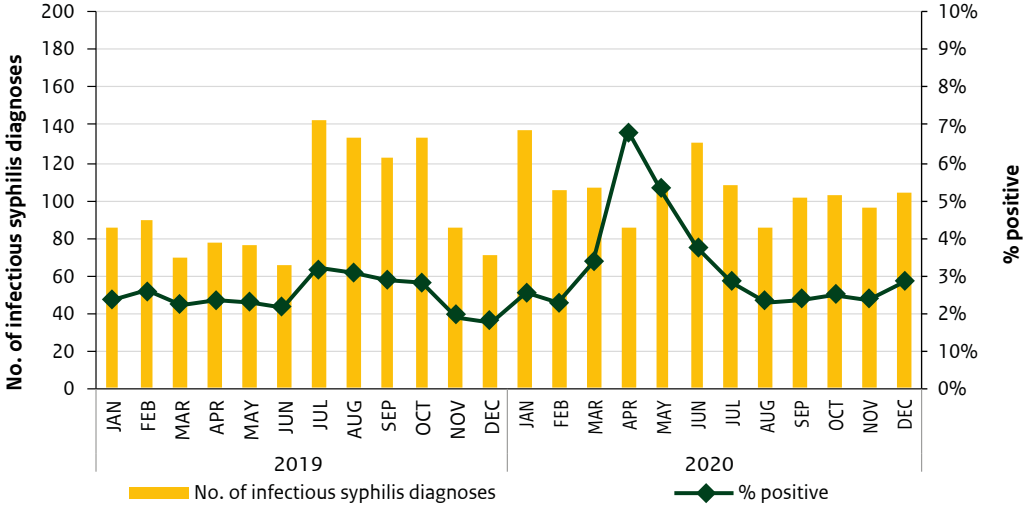


Figure 5.2 Total number of tests and positivity rate of infectious syphilis by gender and type of sexual contact, 2011–2020



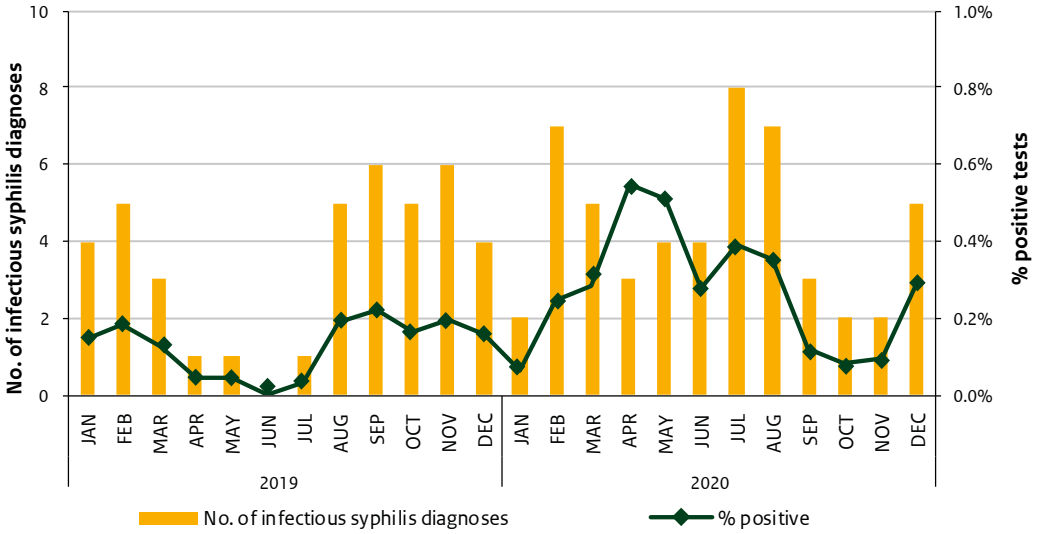
Footnote: Aggregated data of non-registered consultations included for 2018 and 2019.

Figure 5.3a Number and positivity rate of infectious syphilis among MSM by month in 2019 and 2020



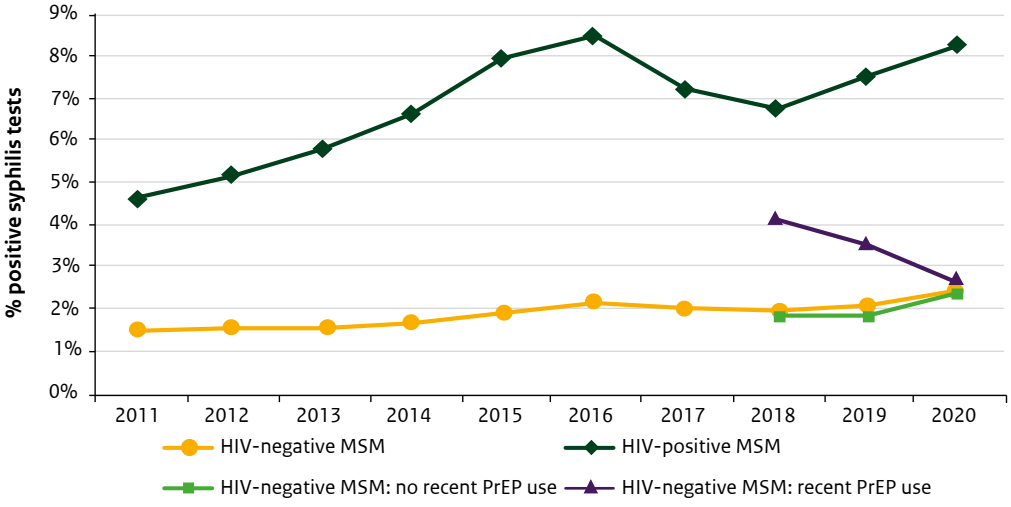
Footnote: In 2019 there were 239 diagnoses not registered in SOAP, the majority of which were diagnosed between January and June. These diagnoses are not included in this figure.

Figure 5.3b Number and positivity rate of infectious syphilis among heterosexual men and women by month in 2019 and 2020



Footnote: In 2019 there were 239 diagnoses not registered in SOAP, the majority of which were diagnosed between January and June. These diagnoses are not included in this figure.

Figure 5.4 Trends in positivity rate for infectious syphilis in MSM by HIV-status and PrEP use, 2011-2020



Footnote: Recent PrEP users includes PrEP users via the SHC pilot programme and via other health care providers. Information on PrEP use has been collected since 2018. In 2018, recent PrEP use was defined as use in the past 6 months. Since 2019, recent PrEP use has been defined as use in the past 3 months.

Table 5.1 Number of infectious syphilis diagnoses among MSM tested for syphilis by age, 2020

Age (years)	MSM	
	n positive/N	%
≤19	12/688	1.74
20–24	113/5,169	2.19
25–29	210/8,434	2.49
30–34	225/7,350	3.06
35–39	163/5,120	3.18
40–44	150/4,549	3.30
45–49	111/3,699	3.00
50–54	99/3,539	2.80
≥ 55	189/5,313	3.56
Total	**1,272/43,861**	**2.90**

Table 5.2a Number of infectious syphilis diagnoses among MSM tested for syphilis by migration background, 2020

Migration background	MSM	
	n positive/N	%
Dutch	745/27,214	2.74
Other Western	205/7,306	2.81
First generation non-Western	235/6,496	3.62
Second generation non-Western	86/2,825	3.04
Non-Western, generation unknown	0/7	0.00
Unknown	1/13	7.69
Total	**1,272/43,861**	**2.90**

Table 5.2b Number of infectious syphilis diagnoses among MSM tested for syphilis among first and second generation migrants from an STI/HIV endemic area by region of origin, 2020

Region of origin	MSM	
	n positive/N	%
Turkey	20/737	2.71
North Africa/Morocco	28/832	3.37
Suriname	60/1,365	4.40
Netherlands Antilles/Aruba	42/1,012	4.15
Eastern Europe	64/1,731	3.70
Sub-Saharan Africa	14/590	2.37
Latin America	87/2,080	4.18
Asia	90/3,520	2.56
Total	**405/11,867**	**3.41**

Table 5.3a Number of infectious syphilis diagnoses among MSM tested for syphilis by triage indication, 2020

	MSM	
	n positive/N	%
Notified		
Not notified	821/34,296	2.4
Notified for syphilis	270/2,033	13.3
Notified for other STI/HIV	162/6,817	2.4
Unknown	19/715	2.7
Symptoms		
No	671/36,187	1.9
Yes	599/7,598	7.9
Unknown	2/76	2.6
STI/HIV endemic area		
No	867/31,994	2.7
Yes	405/11,867	3.4
Age		
< 25 years	125/5,857	2.1
≥ 25 years	1,147/38,004	3.0

Table 5.3a (continued) Number of infectious syphilis diagnoses among MSM tested for syphilis by triage indication, 2020

	MSM	
	n positive/N	%
Partner in risk group*		
No	769/27,497	2.8
Yes	484/15,798	3.1
Unknown	19/566	3.4
Sex work		
No	1,236/42,582	9
Yes, in past 6 months	26/1,044	2.5
Unknown	10/235	3
Gonorrhoea/chlamydia/syphilis in past year		
Not tested	300/10,708	2.8
Tested, negative	396/17,038	2.3
Tested, positive	548/15,044	3.6
Tested, unknown	8/227	3.5
Unknown	20/844	2.4

*Partner originating from a high STI/HIV endemic country.

Table 5.3b Number of infectious syphilis diagnoses among MSM tested for syphilis by demographics and (sexual) behavioural characteristics, 2020

	MSM	
	n positive/N	%
Educational level[1]		
High	691/28,034	2.5
Medium	318/9,381	3.4
Low	142/3,517	4.0
Unknown	121/2,929	4.1
Number of partners in past 6 months		
0 partners	11/619	1.8
1 partner	91/3,621	2.5
2 partners	133/4,837	2.7
3 or more partners	1,017/34,414	3.0
Unknown	20/370	5.4

Table 5.3b (continued) Number of infectious syphilis diagnoses among MSM tested for syphilis by demographics and (sexual) behavioural characteristics, 2020

	MSM	
	n positive/N	%
Receptive anal sex, in past 6 months		
No receptive anal sex	193/9,665	2.0
Yes, consistently with a condom	79/5,250	1.5
Yes, not consistently with a condom	522/15,932	3.3
Yes, never with a condom	464/12,358	3.8
Unknown	14/656	2.1
Insertive anal sex, in past 6 months		
No insertive anal sex	177/7,355	2.4
Yes, consistently with a condom	87/5,757	1.5
Yes, not consistently with a condom	514/16,929	3.0
Yes, never with a condom	478/13,220	3.6
Unknown	16/600	2.7
Vaginal sex, in past 6 months[2]		
No vaginal sex	23/726	3.2
Yes, consistently with a condom	18/677	2.7
Yes, not consistently with a condom	28/1,478	1.9
Yes, never with a condom	39/1,649	2.4
Unknown	13/678	1.9
Receptive oral sex, in past 6 months		
No receptive oral sex	43/1,729	2.5
Yes, consistently with a condom	7/308	2.3
Yes, not consistently with a condom	199/7,707	2.6
Yes, never with a condom	999/33,205	3.0
Unknown	24/912	2.6
Client of sex work		
No	1,223/42,333	2.9
Yes, in past 6 months	25/967	2.6
Unknown	24/561	4.3
Previous HIV test		
No	82/3,336	2.5
Yes, positive	306/3,769	8.1
Yes, negative	880/36,589	2.4
Yes, result unknown	2/73	2.7
Unknown	2/94	2.1

Table 5.3b (continued) Number of infectious syphilis diagnoses among MSM tested for syphilis by demographics and (sexual) behavioural characteristics, 2020

	MSM	
	n positive/N	%
Drug use, in past 6 months[3]		
No	701/28,902	2.4
Yes, in past 6 months	555/14,465	3.8
Unknown	16/494	3.2
Group sex, in past 6 months		
No	645/22,935	2.8
Yes, in past 6 months	515/13,680	3.8
Unknown	112/7,246	1.5
Prep use, in past 3 months		
No	538/23,249	2.3
Yes	428/16,843	2.5
Known HIV-infection, not eligible	306/3,769	8.1

1 Low level of education: no education, elementary school, lbo, mavo, vmbo, mbo-1; medium level of education: mbo2-4, havo, vwo; high level of education: university of applied sciences, university.
2 Numbers are reported for men who had sex with both men and women (N=5,208). Men who had sex with men only are excluded.
3 Included drugs are cocaine, XTC/MDMA/Speed, Heroin, Crystal Meth, Mephedrone, 3-MMC, 4-MEC, 4-FA, GHB/GBL and ketamine.

Table 5.4 Concurrent STI among MSM diagnosed with infectious syphilis, 2020

Concurrent infection	MSM (N=515) n (%)
Chlamydia	246 (19.3)
Gonorrhoea	227 (17.8)
HIV newly diagnosed	13 (1.0)
Genital herpes	12 (0.9)
Genital warts	13 (1.0)
Hepatitis B, infectious	1 (0.1)
Hepatitis C	3 (0.2)

Footnote: SHCs check for genital herpes and genital warts on indication only. In addition, clients are not routinely tested on hepatitis C.

5.3 Antenatal screening

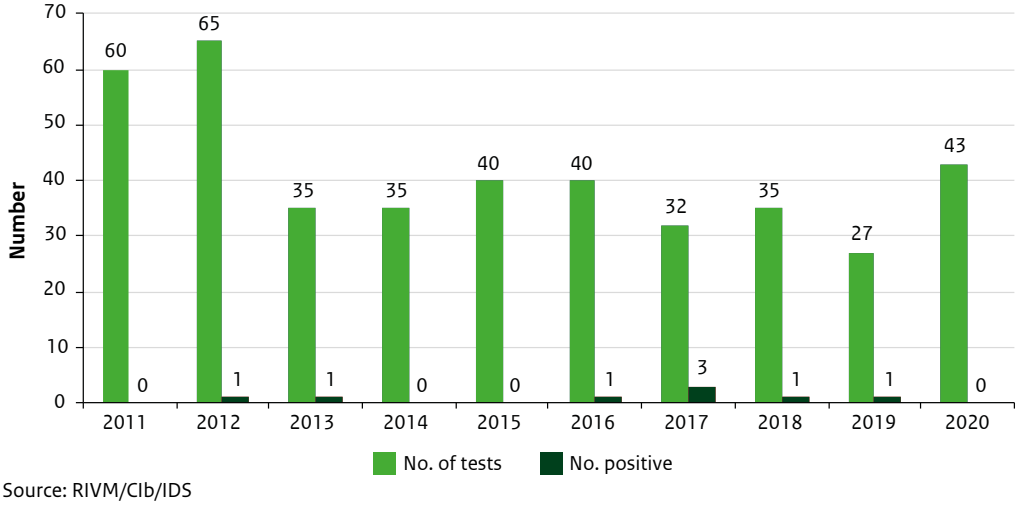
Table 5.5 Syphilis prevalence estimates in pregnant women, based on test results of antenatal screening, 2013-2019

Year	No. of women screened	Confirmed positive test results	Prevalence estimate
2013	176,070	135	0.08
2014	174,610	97	0.06
2015	176,219	98	0.06
2016	172,785	36	0.02
2017	170,453	25	0.01
2018	171,228	18	0.01
2019	171,480	12	0.01

Sources: C.P.B. van der Ploeg (TNO), P. Oomen (RIVM), M. van Lent (RIVM). Prenatale Screening Infectieziekten en Erytrocytenimmunisatie (PSIE). Procesmonitor 2019. TNO/RIVM 2021; and earlier monitors.
Footnote: Improvements in registration in 2016 and 2017 resulted in less confirmed positive test results as compared to previous years.

5.4 Congenital syphilis

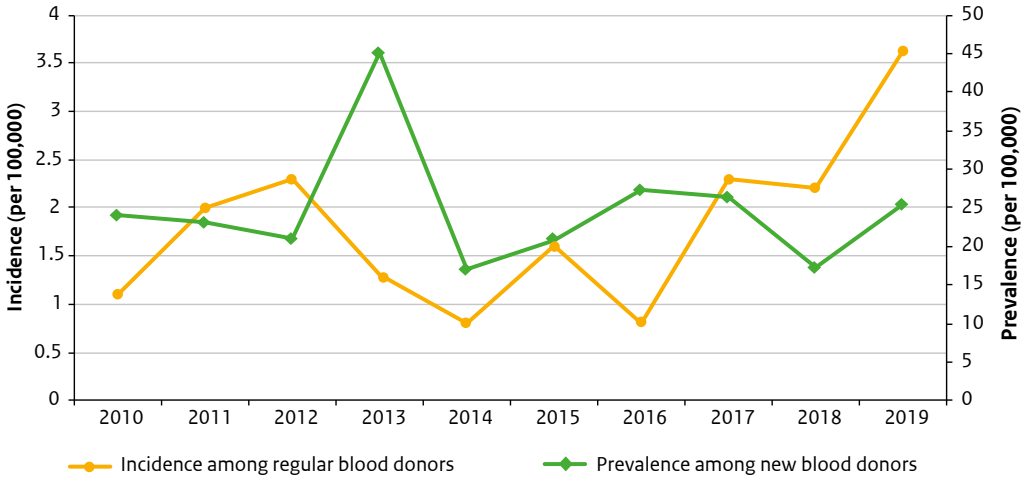
Figure 5.5 Number of tests among neonates and young infants (<1 year) suspected of being infected with congenital syphilis and the number of IgM positives, 2011–2020



Source: RIVM/CIb/IDS

5.5 Blood donors

Figure 5.6 Syphilis incidence among regular blood donors and prevalence among new blood donors (per 100,000) in the Netherlands, 2010-2019



Source: Sanquin

VIRAL STI

6 HIV and AIDS

6.1 Key points

6.1.1 Sexual Health Centres

- In 2020, 122 new HIV infections were diagnosed at the SHCs (4.1% women, 8.2% heterosexual men, 87.7% MSM). This was a decrease of 25.6% compared with 2019 (164 diagnoses).
- In addition, there were 13 new HIV infections diagnosed among transgender persons.
- Due to downscaled STI care related to the COVID-19 pandemic, the number of HIV tests decreased in 2020 compared with 2019. The number of tests decreased by 38.1% among women (2020: 15,387; 2019: 24,841), by 43.1% among heterosexual men (2020: 7,715; 2019: 13,568), and by 17.6% among MSM (2020: 40,105 ; 2019: 48,648).
- Decreased testing and stricter triaging during the downscaled STI care resulted in decreased numbers of diagnoses and increased positivity rates. Among MSM, the positivity rate fluctuated throughout 2020.
- The positivity rate among MSM has been decreasing for years and further decreased in 2020, from 2.0% in 2011 to 0.3% in 2020. The positivity rate was 0.13% among heterosexual men and 0.03% among women.

- There were 8 new HIV infections diagnosed among MSM who reported PrEP use in the past 3 months at the SHCs. Of those, 2 individuals received PrEP via the SHC pilot programme, 2 through a general practitioner, 2 through another physician and 2 through an informal route.
- The highest positivity rates were found among MSM notified for HIV (5.8%). In addition, higher rates were found among MSM who originated from Latin America (1.2%) and Eastern Europe (0.72%).

6.1.2 HIV treatment centres

- A total of 21,186 HIV-positive individuals were reported to be in clinical care as of December 2020.
- In 2020, 755 HIV-positive individuals were newly registered in care (972 in 2019). Of the newly registered HIV-positive individuals, 336 were diagnosed in 2020 (482 in 2019) (incomplete due to reporting delays and possibly also due to COVID-19 measures). The proportion of MSM (64%) was the same as it was in 2019 (64%). The proportion of heterosexuals (males and females) was 29% in 2020 (28% in 2019).
- Among HIV-positive MSM entering care and diagnosed in 2020, 39% were diagnosed at SHCs, 36% by GPs, and 19% in hospitals. Among heterosexual males, 37% were diagnosed in hospitals, 41% by GPs, and 18% at SHCs. Among women, 42% were diagnosed in hospitals, 36% by GPs, 13% through pregnancy screening, and 7% at SHCs.

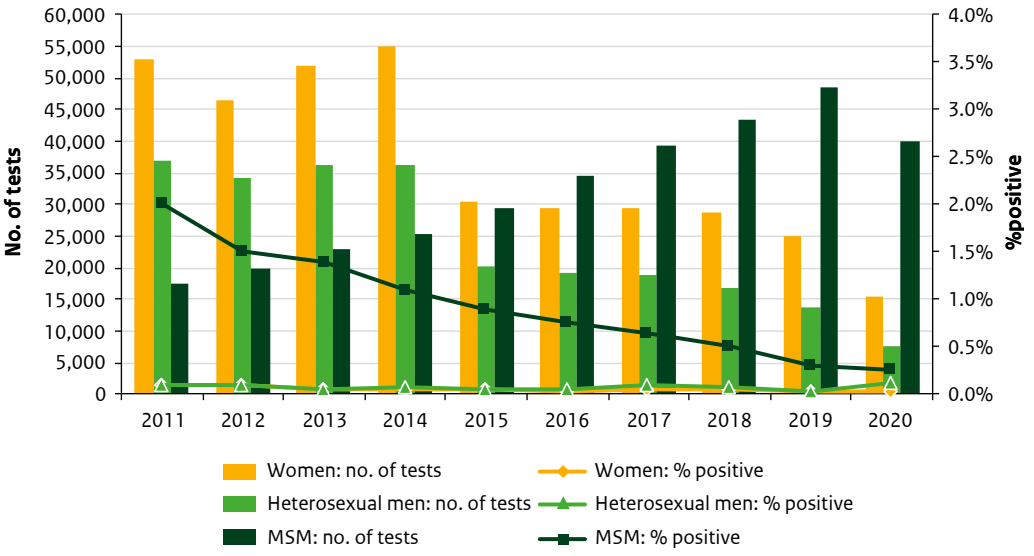
- Among HIV-positive individuals diagnosed in 2020, 23% had a newly acquired HIV infection (<6 months). This proportion was 27% for MSM and 8% for heterosexual men and women.
- Among HIV-positive individuals diagnosed in 2020, 49% presented late (CD4<350/mm3, or AIDS-defining event, regardless of CD4 count). This proportion was lower for MSM (39%) than it was for women (59%) and heterosexual men (65%).
- In 2019, approximately 93% of people living with HIV were estimated to have been diagnosed and linked to care. Of these people, 93% had started combination antiretroviral therapy (cART) and 96% had a suppressed viral load. Among MSM, these proportions were 95%, 95% and 97%, respectively.

6.1.3 General practice

- In general practice, an estimated number of 22,371 prevalent HIV cases were reported in 2019; a reporting rate of 1.3 per 1,000 population. Prevalence rates were higher for men than they were for women (2.1 versus 0.5/1,000).

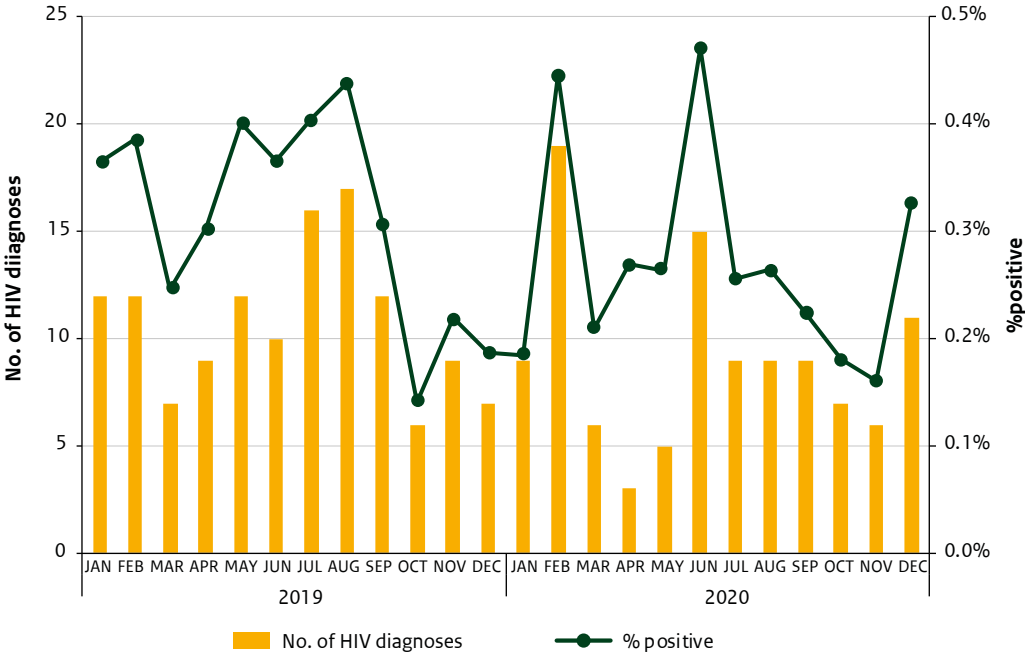
6.2 Sexual Health Centres: characteristics, risk groups and trends

Figure 6.1 Total number of tests and positivity rate of new HIV cases by gender and type of sexual contact, 2011-2020



Footnote: Aggregated data of non-registered consultations included for 2018 and 2019.

Figure 6.2 Number of HIV diagnoses and positivity rate of HIV among MSM by month in 2019 and 2020



Footnote: In 2019 there were 26 diagnoses not registered in SOAP, the majority of which were diagnosed between January and June. These diagnoses are not included in this figure.

Table 6.1 Number of HIV diagnoses among MSM tested for HIV by age, 2020

Age (years)	MSM	
	n positive/N	%
≤19	1/690	0.14
20-24	13/5,131	0.25
25-29	34/8,040	0.42
30-34	18/6,805	0.26
35-39	12/4,528	0.27
40-44	6/4,040	0.15
45-49	10/3,252	0.31
50-54	6/3,005	0.20
≥ 55	7/4,614	0.15
Total	**107/40,105**	**0.27**

Footnote: In addition, 5 women, 10 heterosexual men and 13 transgenders were newly diagnosed with HIV.

Table 6.2a Number of HIV diagnoses among MSM tested for HIV by migration background, 2020

Migration background	MSM	
	n positive/N	%
Dutch	47/25,177	0.19
Other Western	24/6,626	0.36
First generation non-Western	33/5,629	0.59
Second generation non-Western	2/2,653	0.08
Non-Western, generation unknown	0/7	0.00
Unknown	1/13	7.69
Total	**107/40,105**	**0.27**

Table 6.2b Number of HIV diagnoses and MSM tested for HIV among first and second generation migrants from an STI/HIV endemic area by region of origin, 2020

Region of origin	MSM	
	n positive/N	%
Turkey	0/696	0.00
North Africa/Morocco	2/770	0.26
Suriname	4/1,201	0.33
Netherlands Antilles/Aruba	1/883	0.11
Eastern Europe	11/1,530	0.72
Sub-Saharan Africa	0/545	0.00
Latin America	20/1,665	1.20
Asia	14/3,245	0.43
Total	**52/10,535**	**0.49**

Table 6.3a Number of HIV diagnoses among MSM tested for HIV by triage indication, 2020

	MSM	
	n positive/N	%
Notified		
Not notified	68/32,084	0.2
Notified for HIV	15/258	5.8
Notified for other STI/HIV	23/7,163	0.3
Unknown	1/600	0.2
Symptoms		
No	70/33,477	0.2
Yes	37/6,556	0.6
Unknown	0/72	0.0
STI/HIV endemic area		
No	55/29,570	0.2
Yes	52/10,535	0.5
Age		
< 25 years	14/5,821	0.2
≥ 25 years	93/34,284	0.3
Partner in risk group*		
No	64/25,225	0.3
Yes	41/14,332	0.3
Unknown	2/548	0.4
Sex work		
No	98/38,948	0.3
Yes, in past 6 months	9/928	1.0
Unknown	0/229	0.0
Gonorrhoea/chlamydia/syphilis in past year		
Not tested	57/10,068	0.6
Tested, negative	27/15,884	0.2
Tested, positive	19/13,156	0.1
Tested, unknown	1/202	0.5
Unknown	3/795	0.4

* Partner originating from a high STI/HIV endemic country.

Table 6.3b Number of HIV diagnoses among MSM tested for HIV by demographics and (sexual) behavioural characteristics, 2020

	MSM	
	n positive/N	%
Educational level[1]		
High	41/25,904	0.2
Medium	30/8,548	0.4
Low	14/3,055	0.5
Unknown	22/2,598	0.8
Number of partners in past 6 months		
0 partners	1/613	0.2
1 partner	22/3,374	0.7
2 partners	5/4,444	0.1
3 or more partners	78/31,366	0.2
Unknown	1/308	0.3
Receptive anal sex, in past 6 months		
No receptive anal sex	8/9,222	0.1
Yes, consistently with a condom	12/5,016	0.2
Yes, not consistently with a condom	47/14,214	0.3
Yes, never with a condom	39/11,026	0.4
Unknown	1/627	0.2
Insertive anal sex, in past 6 months		
No insertive anal sex	21/6,861	0.3
Yes, consistently with a condom	11/5,514	0.2
Yes, not consistently with a condom	42/15,272	0.3
Yes, never with a condom	32/11,874	0.3
Unknown	1/584	0.2
Vaginal sex, in past 6 months[2]		
No vaginal sex	4/703	0.6
Yes, consistently with a condom	3/641	0.5
Yes, not consistently with a condom	6/1,453	0.4
Yes, never with a condom	8/1,608	0.5
Unknown	2/634	0.3

Table 6.3b (continued) Number of HIV diagnoses among MSM tested for HIV by demographics and (sexual) behavioural characteristics, 2020

	MSM	
	n positive/N	%
Receptive oral sex, in past 6 months		
No receptive oral sex	3/1,629	0.2
Yes, consistently with a condom	1/275	0.4
Yes, not consistently with a condom	18/6,786	0.3
Yes, never with a condom	84/30,553	0.3
Unknown	1/862	0.1
Client of sex work		
No	102/38,687	0.3
Yes, in past 6 months	4/880	0.5
Unknown	1/538	0.2
Previous HIV test		
No	23/3,310	0.7
Yes, positive	NA	NA
Yes, negative	83/36,627	0.2
Yes, result unknown	0/68	0.0
Unknown	1/95	1.1
Drug use, in past 6 months[3]		
No	67/26,926	0.2
Yes, in past 6 months	39/12,728	0.3
Unknown	1/451	0.2
Group sex, in past 6 months		
No	65/21,120	0.3
Yes, in past 6 months	36/12,005	0.3
Unknown	6/6,980	0.1
PrEP use, in past 3 months		
No	99/23,246	0.4
Yes	8/16,854	0.0

Abbreviations: NA: not applicable

1 Low level of education: no education, elementary school, lbo, mavo, vmbo, mbo-1; medium level of education: mbo2-4, havo, vwo; high level of education: university of applied sciences, university.

2 Numbers are shown for men who had sex with both men and women (N=5039). Men who had sex with men only are excluded.

3 Included drugs are cocaine, XTC/MDMA/Speed, Heroin, Crystal Meth, Mephedrone, 3-MMC, 4-MEC, 4-FA, GHB/GBL and ketamine.

Table 6.4 Concurrent STI among MSM newly diagnosed with HIV, 2020

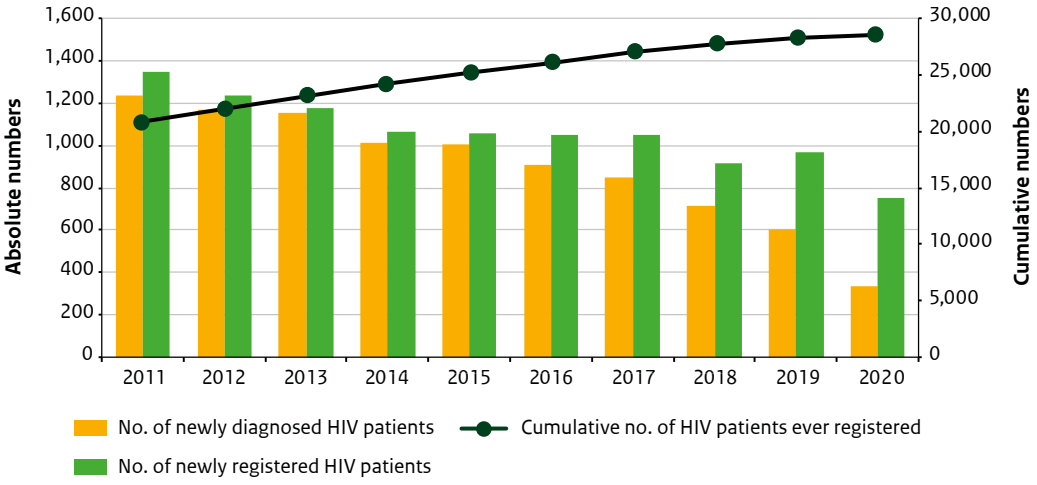
Concurrent infection	MSM (N=107) n (%)
Chlamydia	28 (26.2)
Gonorrhoea	29 (27.1)
Syphilis, infectious	13 (12.1)
Genital herpes	2 (1.9)
Genital warts	2 (1.9)
Hepatitis B, infectious	0 (0.0)
Hepatitis C	0 (0.0)

Footnote: SHCs check for genital herpes and genital warts on indication only. In addition, clients are not routinely tested on hepatitis C.

6.3 HIV treatment centres

6.3.1 Newly diagnosed HIV cases in care in 2020

Figure 6.3 Number of newly diagnosed HIV-positive individuals and newly registered HIV-positive individuals by year, 2011-2020



Source: Stichting HIV Monitoring, 2020 incomplete

Table 6.5a Number of HIV-positive individuals diagnosed in 2020 by age and main transmission category, as of December 31, 2020

Age (years)	Women (%)	Heterosexual men (%)	MSM (%)	Other/unknown* (%)
0–14	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
15–19	1 (2.2)	0 (0.0)	2 (0.9)	0 (0.0)
20–24	2 (4.4)	3 (5.9)	16 (7.4)	1 (4.0)
25–29	6 (13.3)	3 (5.9)	48 (22.3)	4 (16.0)
30–39	13 (28.9)	18 (35.3)	59 (27.4)	4 (16.0)
40–49	10 (22.2)	15 (29.4)	38 (17.7)	6 (24.0)
50–59	10 (22.2)	8 (15.7)	38 (17.7)	8 (32.0)
60–69	3 (6.7)	4 (7.8)	10 (4.7)	1 (4.0)
70–79	0 (0.0)	0 (0.0)	4 (1.9)	1 (4.0)
≥ 80	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total	**45**	**51**	**215**	**25**

* Injecting drug use, blood and blood contacts, mother-to-child transmission, other, unknown.

Table 6.5b Number of HIV-positive individuals in care, by age at diagnosis and main transmission category, as of December 31, 2020

Age (years)	Women (%)	Heterosexual men (%)	MSM (%)	Other/unknown* (%)
0–14	3 (0.1)	0 (0.0)	7 (0.1)	349 (19.5)
15–19	164 (4.8)	31 (1.2)	223 (1.7)	46 (2.6)
20–24	491 (14.2)	175 (6.8)	1,214 (9.1)	149 (8.3)
25–29	740 (21.4)	309 (12.1)	2,175 (16.2)	225 (12.6)
30–39	1,158 (33.5)	879 (34.3)	4,590 (34.3)	464 (26.0)
40–49	504 (14.6)	677 (26.4)	3,319 (24.8)	284 (15.9)
50–59	275 (8.0)	353 (13.8)	1,435 (10.7)	160 (9.0)
60–69	76 (2.2)	117 (4.6)	357 (2.7)	66 (3.7)
70–79	18 (0.5)	16 (0.6)	54 (0.4)	15 (0.8)
≥ 80	0 (0.0)	1 (0.0)	0 (0.0)	0 (0.0)
Unknown	23 (0.7)	3 (0.1)	13 (0.1)	28 (1.6)
Total	**3,452**	**2,561**	**13,387**	**1,786**

* Injecting drug use, blood and blood contacts, mother-to-child transmission, other, unknown.

Table 6.6 Number of HIV-positive individuals diagnosed in 2020 and number of HIV-positive individuals in care by gender and main reported transmission risk group, as of December 31, 2020

Transmission risk group	Women		Men		Total	
	2020 (%)	Total in care (%)	2020 (%)	Total in care (%)	2020 (%)	Total in care (%)
MSM	-	-	215 (76.0)	13,387 (77,7)	215 (64,0)	13,387 (63.2)
Heterosexual contact	45 (84.9)	3,452 (87.4)	51 (18.0)	2,561 (14.9)	96 (28.6)	6,013 (28.4)
Injecting drug use	0 (0.0)	79 (2.0)	0 (0.0)	193 (1.1)	0 (0.0)	272 (1.3)
Blood or blood products	4 (7.5)	101 (2.6)	4 (1.4)	171 (1.0)	8 (2.4)	272 (1.3)
Mother to child	0 (0.0)	168 (4.3)	0 (0.0)	157 (0.9)	0 (0.0)	325 (1.5)
Other/unknown	4 (7.5)	148 (3.7)	13 (4.6)	769 (4.5)	17 (5.1)	917 (4.3)
Total	**53**	**3,948**	**283**	**1,238**	**336**	**21,186**

Table 6.7a Number of HIV-positive individuals diagnosed in 2020 by region of origin and main transmission category, as of December 31, 2020

Region of origin	Women n (%)	Heterosexual men n (%)	MSM n (%)	Other/unknown* n (%)
The Netherlands	16 (35.6)	27 (52.9)	128 (59.5)	16 (64.0)
Europe, other	4 (8.9)	5 (9.8)	36 (16.7)	3 (12.0)
Caribbean & Latin America	3 (6.7)	5 (9.8)	36 (16.7)	2 (8.0)
Sub-Saharan Africa	20 (44.4)	10 (19.6)	2 (0.9)	2 (8.0)
Other	2 (4.4)	3 (5.9)	13 (6.0)	2 (8.0)
Unknown	0 (0.0)	1 (2.0)	0 (0.0)	0 (0.0)
Total	**45**	**51**	**215**	**25**

* Injecting drug use, blood and blood contacts, mother-to-child transmission, other, unknown.

Table 6.7b Number of HIV-positive individuals in care by region of origin and main transmission group, as of December 31, 2020

Region of origin	Women n (%)	Heterosexual men n (%)	MSM n (%)	Other/unknown* n (%)
The Netherlands	1,007 (29.2)	1,219 (47.6)	9,229 (68.9)	789 (44.2)
Europe, other	174 (5.0)	181 (7.1)	1,374 (10.3)	240 (13.4)
Caribbean & Latin America	529 (15.3)	359 (14.0)	1,565 (11.7)	155 (8.7)
Sub-Saharan Africa	1,427 (41.3)	655 (25.6)	199 (1.5)	421 (23.6)
Other	299 (8.7)	136 (5.3)	948 (7.1)	170 (9.5)
Unknown	16 (0.5)	11 (0.4)	72 (0.5)	11 (0.6)
Total	**3,452**	**2,561**	**13,387**	**1,786**

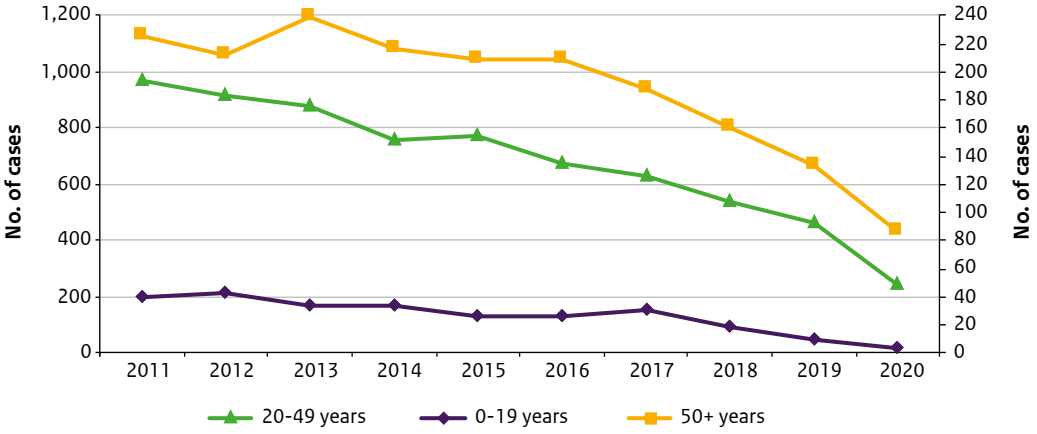
* Injecting drug use, blood and blood contacts, mother-to-child transmission, other, unknown.

Table 6.8 Number of HIV cases diagnosed in 2020 by test location and main transmission category, as of December 31, 2020

Test location	Women n (%)	Heterosexual men n (%)	MSM n (%)	Other/unknown* n (%)
PHS/SHC	3 (6.7)	9 (17.6)	85 (39.5)	1 (4.0)
Hospital	19 (42.2)	19 (37.3)	41 (19.1)	14 (56.0)
General practitioner	16 (35.6)	21 (41.2)	77 (35.8)	7 (28.0)
Pregnancy screening	6 (13.3)	0 (0.0)	0 (0.0)	1 (4.0)
Other/unknown	1 (2.2)	2 (3.9)	12 (5.6)	2 (8.0)
Total	**45**	**51**	**215**	**25**

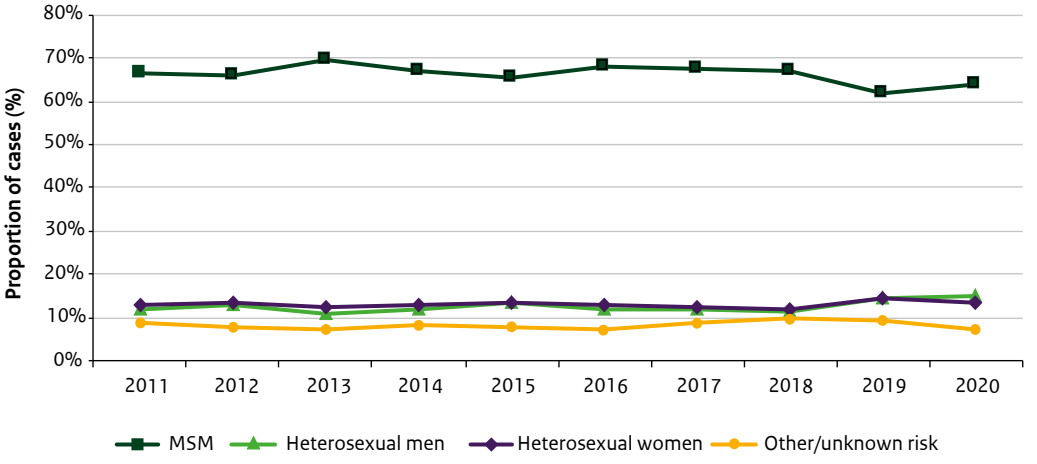
* Injecting drug use, blood and blood contacts, mother-to-child transmission, other, unknown.

Figure 6.4 Number of newly diagnosed HIV-positive individuals by age group (left axis: 20–49 years, right axis: 0–19 and 50+ years) and year of diagnosis, 2011-2020



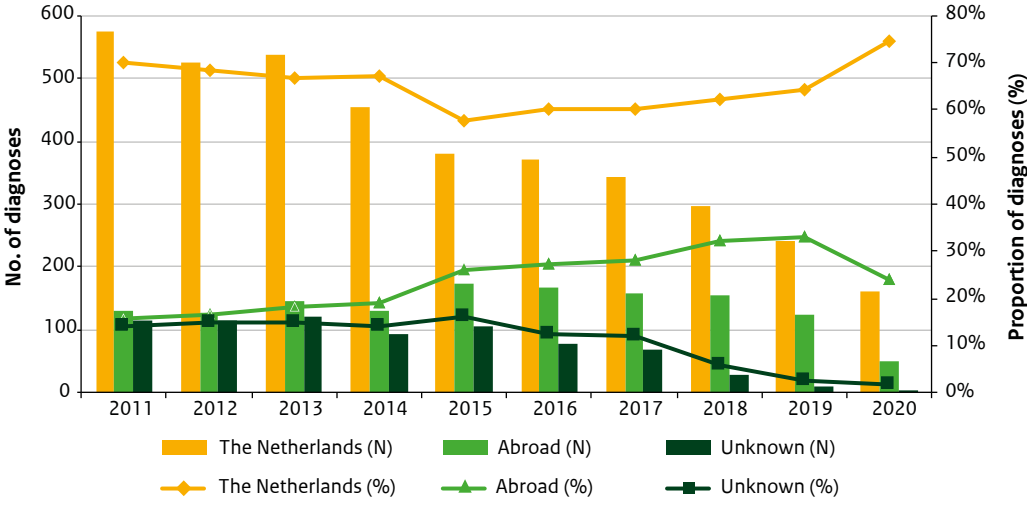
Source: Stichting HIV Monitoring, 2020 incomplete

Figure 6.5 Proportion of newly diagnosed HIV-positive individuals, by main transmission group and year of diagnosis, 2011-2020



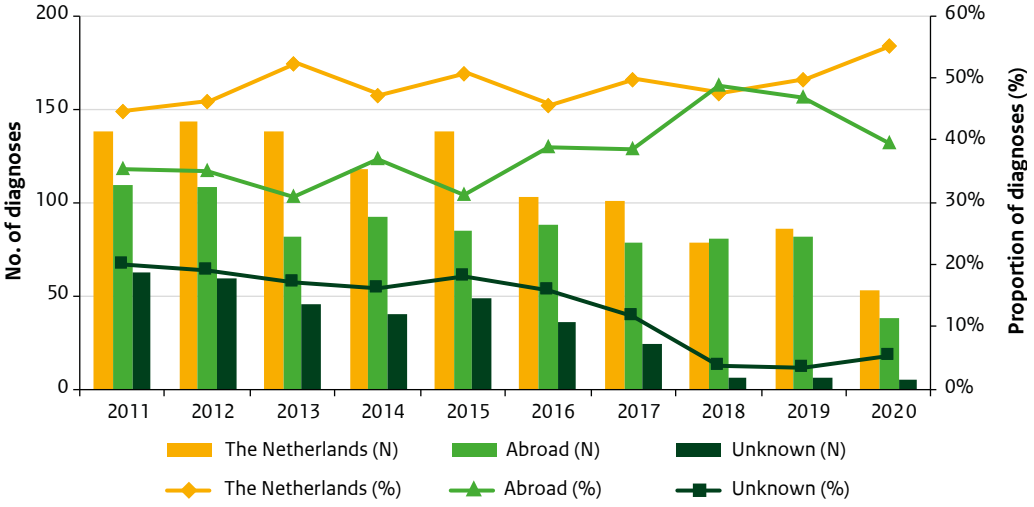
Source: Stichting HIV Monitoring, 2020 incomplete

Figure 6.6a Reported country of acquiring the HIV infection of newly diagnosed MSM by year of diagnosis, 2011-2020



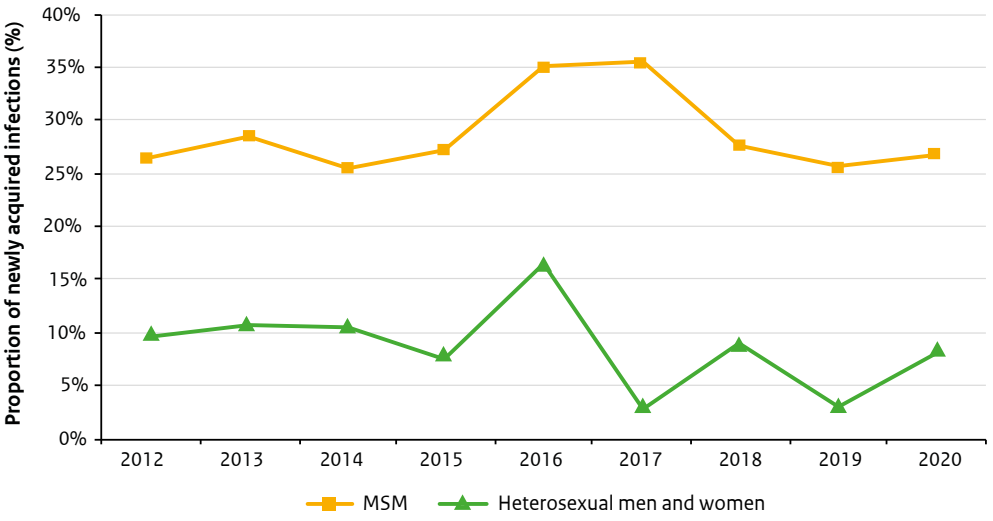
Source: Stichting HIV Monitoring, 2020 incomplete

Figure 6.6b Reported country of acquiring the HIV infection among newly diagnosed HIV-positive heterosexual men and women by year of diagnosis, 2011-2020



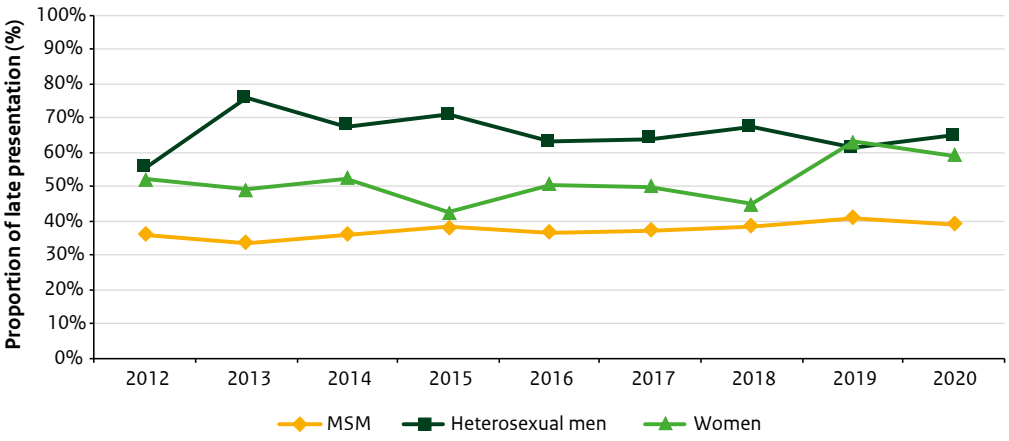
Source: Stichting HIV Monitoring, 2020 incomplete

Figure 6.7 Proportion of newly acquired HIV infections (< 6 months*) by transmission risk group, 2012-2020



Source: Stichting HIV Monitoring, 2020 incomplete
*Based on history of HIV-negative test result before HIV-diagnosis.

Figure 6.8 Proportion of late presentation (CD4 count <350/mm3 or AIDS at diagnosis) by transmission risk group, 2012-2020



Source: Stichting HIV Monitoring, 2020 incomplete

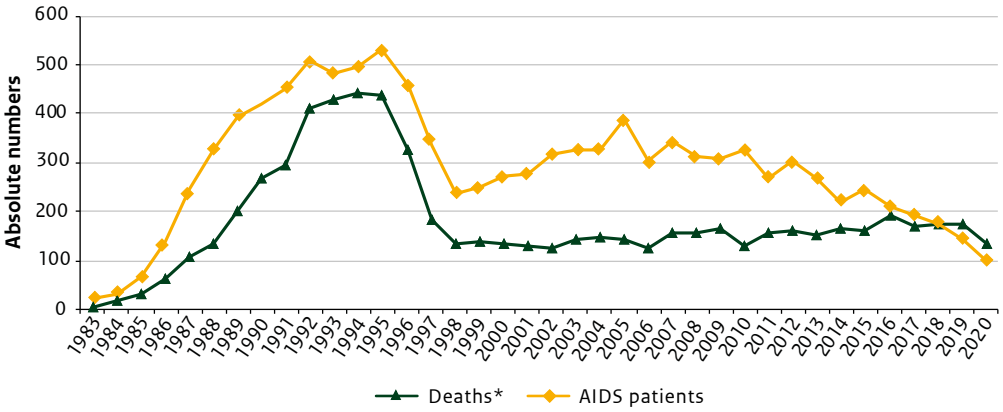
6.3.2 AIDS patients and deaths among HIV-positive individuals

Table 6.9 Number of AIDS patients by year of AIDS diagnosis and transmission risk group, 2011-2020

Year of diagnosis	Women n (%)	Heterosexual men n (%)	MSM n (%)	Other/unknown* n (%)
2011	48 (17.8)	41 (15.2)	131 (48.7)	49 (18.2)
2012	53 (17.4)	58 (19.0)	152 (49.8)	42 (13.8)
2013	40 (14.9)	51 (19.0)	141 (52.6)	36 (13.4)
2014	30 (13.7)	51 (23.3)	106 (48.4)	32 (14.6)
2015	33 (13.4)	51 (20.6)	123 (49.8)	40 (16.2)
2016	37 (17.5)	43 (20.3)	99 (46.7)	33 (15.6)
2017	33 (17.0)	40 (20.6)	89 (45.9)	32 (16.5)
2018	23 (13.4)	31 (18.0)	85 (49.4)	33 (19.2)
2019	20 (13.8)	26 (17.9)	71 (49.0)	28 (19.3)
2020	14 (14.6)	16 (16.7)	47 (49.0)	19 (19.8)

Source: Stichting HIV Monitoring, 2020 incomplete
* Injecting drug use, blood and blood contacts, mother-to-child transmission, other, unknown.

Figure 6.9 Number of AIDS patients and deaths among HIV-positive individuals, 1983–2020



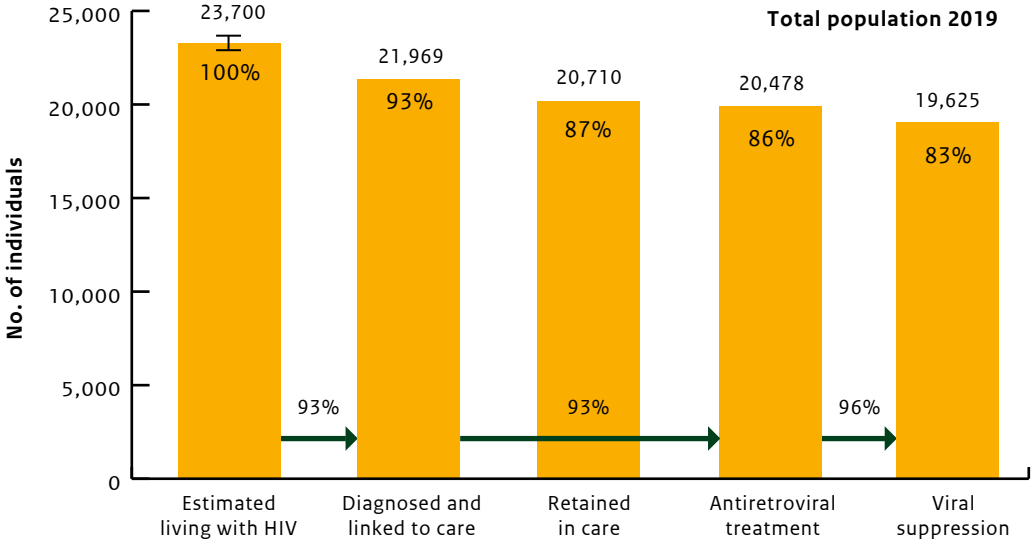
Sources: AIDS patients < 1999: AIDS registration Health Inspectorate, ≥ 1999: Stichting HIV Monitoring. Deaths < 2002: CBS, ≥ 2002: Stichting HIV Monitoring, 2020 incomplete.
* Total deaths among HIV-positive individuals, not only caused by HIV/AIDS.

Table 6.10 Number of deaths among people with HIV/AIDS by year of death and transmission risk group, 2011-2020

Year of death	Women n (%)	Heterosexual men n (%)	MSM n (%)	Other/unknown* n (%)
2011	13 (8.4)	32 (20.8)	76 (49.4)	33 (21.4)
2012	10 (6.3)	27 (17.0)	88 (55.3)	34 (21.4)
2013	12 (8.0)	31 (20.7)	80 (53.3)	27 (18.0)
2014	19 (11.5)	26 (15.8)	88 (53.3)	32 (19.4)
2015	20 (12.4)	38 (23.6)	76 (47.2)	27 (16.8)
2016	20 (10.5)	35 (18.3)	96 (50.3)	40 (20.9)
2017	9 (5.4)	33 (19.6)	91 (54.2)	35 (20.8)
2018	13 (7.4)	23 (13.1)	106 (60.6)	33 (18.9)
2019	18 (10.4)	26 (15.0)	100 (57.8)	29 (16.8)
2020	18 (13.6)	25 (18.9)	76 (57.6)	13 (9.8)

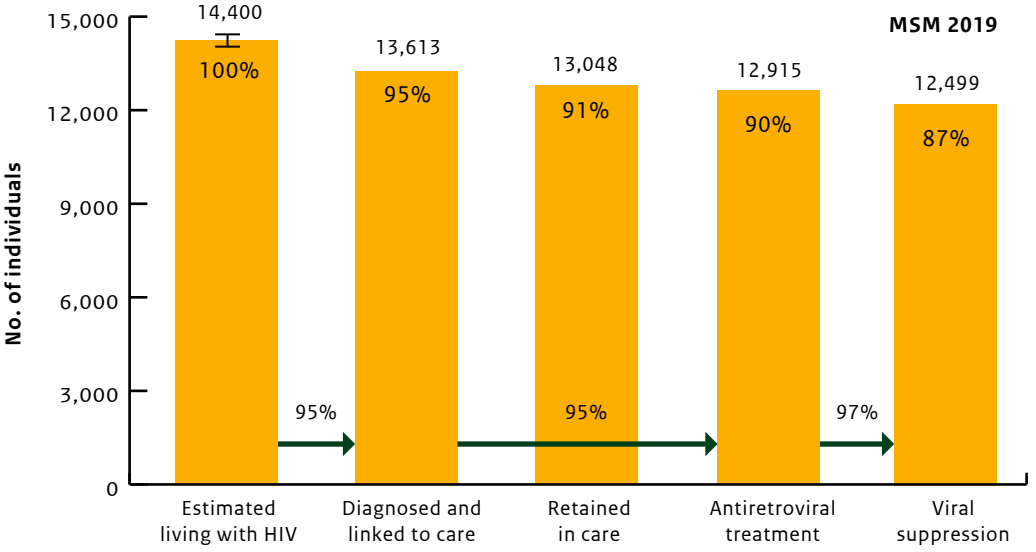
Source: Stichting HIV Monitoring, 2020 incomplete
*Injecting drug use, blood and blood contacts, mother-to-child transmission, other, unknown.
Footnote: Deaths, not only caused by HIV/AIDS.

Figure 6.10a Continuum of care for HIV in 2019, total population, Stichting HIV Monitoring



Source: Stichting HIV Monitoring, Monitoring Report 2020 SHM: Monitoring of Human Immunodeficiency Virus (HIV) Infection in the Netherlands. See for details: *www.hiv-monitoring.nl*

Figure 6.10b Continuum of care for HIV in 2019, MSM, Stichting HIV Monitoring



Source: Stichting HIV Monitoring, Monitoring Report 2020 SHM: Monitoring of Human Immunodeficiency Virus (HIV) Infection in the Netherlands. See for details: *www.hiv-monitoring.nl*

6.4 Other sources

6.4.1 Antenatal screening

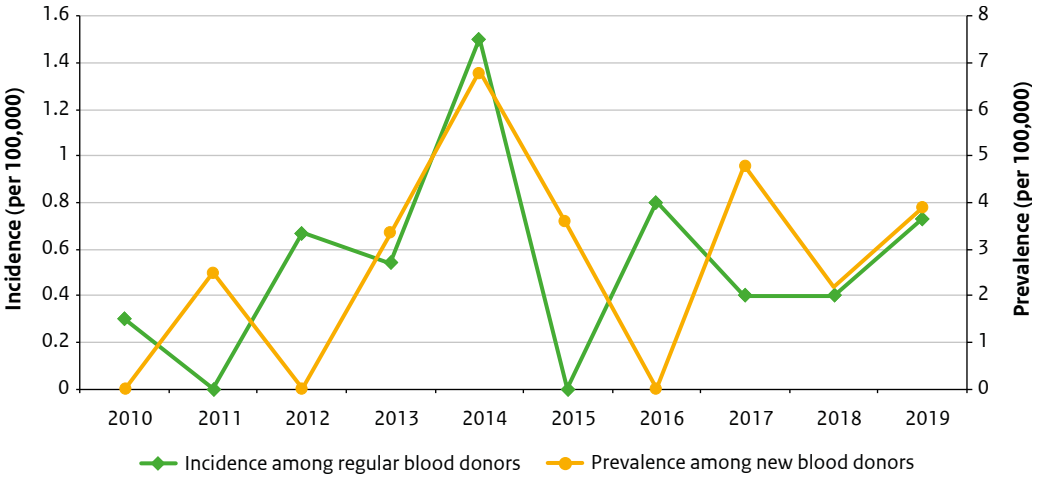
Table 6.11 HIV prevalence estimates in pregnant women, based on test results of antenatal screening, 2013–2019

Year	No. of women screened	Confirmed positive test results	Prevalence estimate
2013	176,008	99	0.06
2014	174,566	100	0.06
2015	176,103	105	0.06
2016	172,694	88	0.05
2017	170,390	112	0.07
2018	171,149	91	0.05
2019	171,480	96	0.06

Sources: C.P.B. van der Ploeg (TNO), P. Oomen (RIVM), M. van Lent (RIVM). Prenatale Screening Infectieziekten en Erytrocytenimmunisatie (PSIE). Procesmonitor 2019. TNO/RIVM 2021; and earlier monitors.

6.4.2 Blood donors

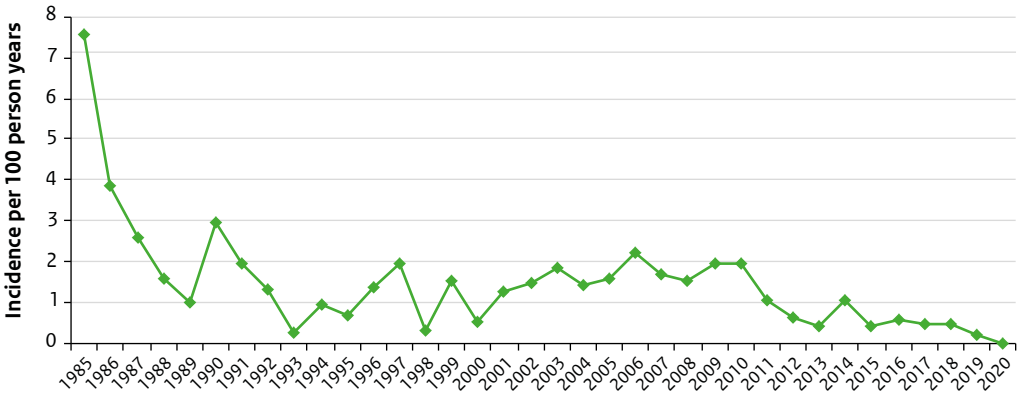
Figure 6.11 HIV incidence among regular blood donors and prevalence among new blood donors (per 100,000 donor years and per 100,000 donors) in the Netherlands, 2010-2019



Source: Sanquin

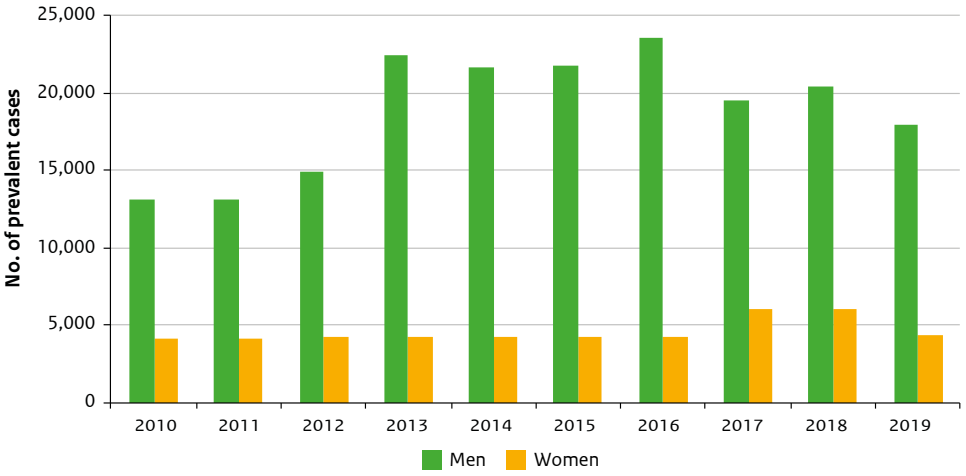
6.4.3 Amsterdam Cohort Studies

Figure 6.12 Yearly HIV incidence among MSM in Amsterdam Cohort Studies, 1985–2020



6.5 General practice

Figure 6.13 Estimated number of prevalent HIV-cases in general practice by gender, based on extrapolation from GP practices in Nivel-PCD, 2010-2019



Footnote: HIV prevalence estimates from 2011 to 2019 have been standardised for urbanisation in this report.

Table 6.12 Estimated prevalence of HIV (rate per 1,000 population) in general practice in the Netherlands by gender, based on GP practices in Nivel-PCD, 2010-2019

	Women n/1,000	Men n/1,000	Total n/1,000
2010	0.5	1.6	1.0
2011	0.5	1.6	1.1
2012	0.5	1.8	1.2
2013	0.5	2.7	1.6
2014	0.5	2.6	1.6
2015	0.5	2.6	1.5
2016	0.5	2.8	1.7
2017	0.7	2.3	1.5
2018	0.7	2.4	1.5
2019	0.5	2.1	1.3

Footnote: HIV prevalence estimates from 2011 to 2019 have been standardised for urbanisation in this report.

7 Genital warts

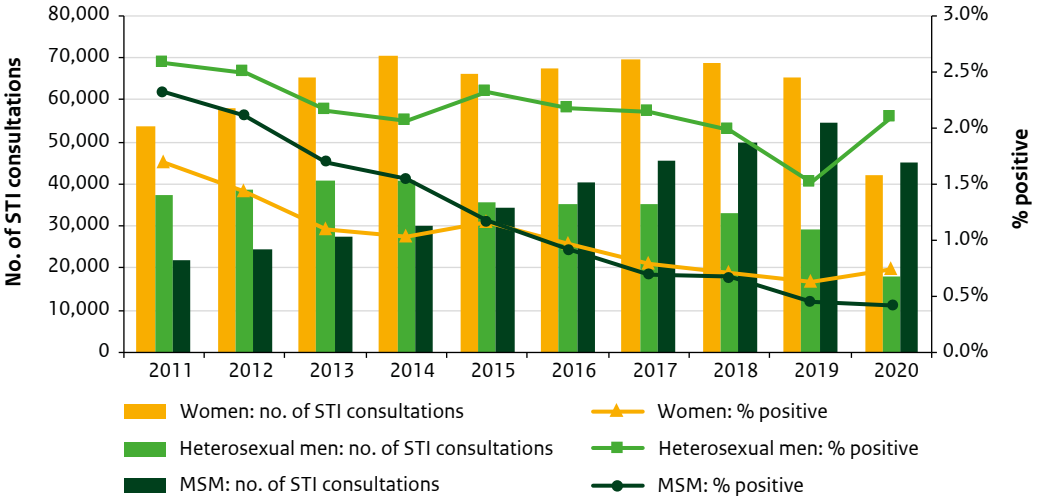
7.1 Key points

- In 2020, the number of genital warts diagnoses at the SHCs in the Netherlands was 882, of which 35.6% were in women, 42.9% in heterosexual men, and 21.5% in MSM.
- The positivity rate was highest among heterosexual men (2.1%) compared with women (0.7%) and MSM (0.4%) in 2020.
- Among heterosexual men, the positivity rate has increased the most, from 1.5% to 2.1%, while the number of STI consultations decreased by 38.5% in 2020.
- For women, an increase in positivity rate was seen, from 0.6% to 0.7%, with an decrease in STI consultations of 35.4%.
- For MSM, the positivity rate decreased from 0.5% to 0.4%, with a decrease in STI consultations of 21.5%.

- At general practices, the number of genital warts episodes, estimated with the use of Nivel-PCD data, was 46,871 in 2019 (44,715 in 2018).
- The reporting rate for genital warts at general practices was 2.7 episodes per 1,000 population. This was 2.3 per 1,000 population for women and 3.1 per 1,000 for men.
- The reporting rate was higher in the population of men 25 years old and older, than it was for men under 25. For women, the rate was comparable for both age categories.

7.2 Sexual Health Centres: Characteristics, risk groups and trends

Figure 7.1 Total number of STI consultations and positivity rate of genital warts by gender and type of sexual contact, 2011-2020



Footnote: SHCs check for genital warts on indication only. Number of consultations based on registered consultations, in 2018 and 2019 based on registered consultations and aggregated data of non-registered consultations. Positivity rate was estimated by dividing the number of genital warts diagnoses by the total number of registered consultations.

Table 7.1 Number of people diagnosed with genital warts and number of STI consultations by age, gender and type of sexual contact, 2020

Age (years)	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
≤24	252/31,943	0.8	228/12,052	1.9	53/6,038	0.9
≥ 25	62/10,321	0.6	150/5,967	2.5	137/38,893	0.4
Total	**314/42,265**	**0.7**	**378/18,019**	**2.1**	**190/44,931**	**0.4**

Footnote: SHCs check for genital warts on indication only. Positivity rate was estimated by dividing the number of genital warts diagnoses by the total number of registered consultations.

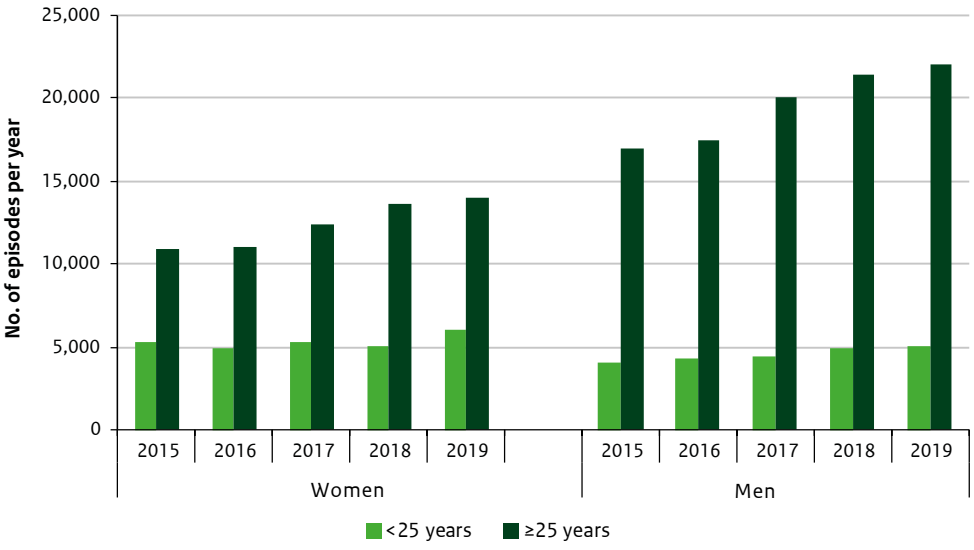
Table 7.2 Number of people diagnosed with genital warts and number of STI consultations by migration background, gender and type of sexual contact, 2020

Migration background	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Dutch	229/30,425	0.8	231/11,080	2.1	112/27,964	0.4
Other Western	30/4,485	0.7	37/1,579	2.3	31/7,431	0.4
First generation non-Western	20/2,268	0.9	32/1,697	1.9	23/6,626	0.3
Second generation non-Western	35/5,068	0.7	78/3,656	2.1	24/2,888	0.8
Total	**314/42,265**	**0.7**	**378/18,019**	**2.1**	**190/44,931**	**0.4**

Footnote: SHCs check for genital warts on indication only. Positivity rate was estimated by dividing the number of genital warts diagnoses by the total number of registered consultations.

7.3 General practice

Figure 7.2 Estimated annual number of episodes of genital warts in general practice by gender and age group, based on extrapolation from GP practices in Nivel-PCD, 2015-2019



Footnote: About 70% of the total Dutch population consists of persons aged ≥25 years and about 30% consists of persons aged <25 years.

Table 7.3 Annual reporting rate (number of episodes per 1,000 population) of genital warts in general practice in the Netherlands by gender and age group, based on GP practices in Nivel-PCD, 2015-2019

	Women n/1,000			Men n/1,000			Total n/1,000		
	All	**<25**	**≥25**	**All**	**<25**	**≥25**	**All**	**<25**	**≥25**
2015	**1.9**	2.2	1.8	**2.5**	1.6	2.9	**2.2**	1.9	2.3
2016	**1.9**	2.1	1.8	**2.6**	1.7	2.9	**2.3**	1.9	2.4
2017	**2.0**	2.2	2.0	**2.9**	1.8	3.3	**2.5**	2.0	2.7
2018	**2.1**	2.1	2.2	**3.1**	1.9	3.5	**2.6**	2.0	2.8
2019	**2.3**	2.5	2.2	**3.1**	2.0	3.6	**2.7**	2.3	2.9

8 Genital herpes

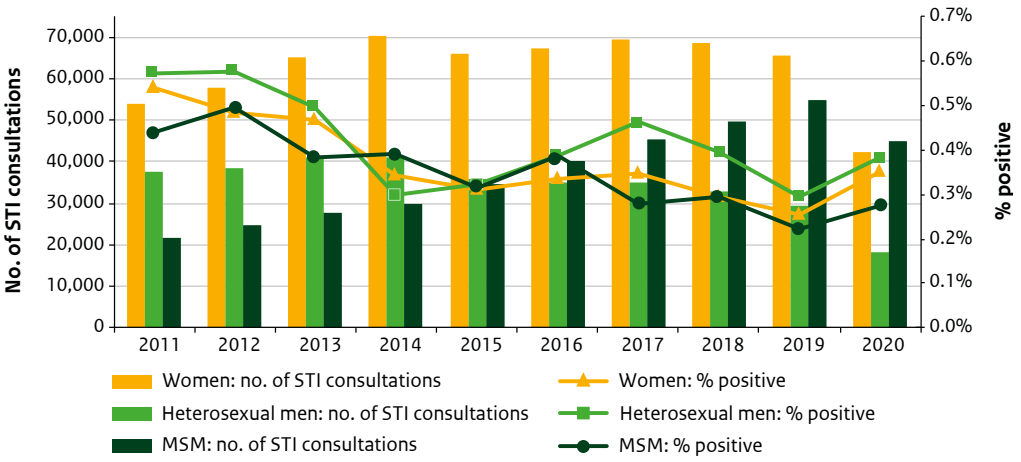
8.1 Key points

- In 2020, a total of 340 diagnoses of genital herpes were established at the SHCs, 43.5% of which were among women, 20.3% among heterosexual men, and 36.2% among MSM.
- There were 340 diagnoses made in 105,215 sexual health consultations.
- Compared with previous years, in 2020 positivity rates increased among women, heterosexual men and MSM. While, for all groups, the total number of STI consultations conducted at the SHCs decreased in 2020, compared with previous years.
- The positivity rate of genital herpes in 2020 was 0.35% among women, 0.38% among heterosexual men and 0.27% among MSM.
- Among heterosexual men and MSM, Herpes Simplex Virus 2 (HSV2) primary infection was more common than HSV1 primary infection. Among women, HSV1 was more common.

- At general practices, the number of genital herpes episodes, estimated from data from Nivel-PCD, was 28,842 in 2019, compared with 27,947 in 2018.
- In 2019, there was a reporting rate of 1.7 per 1,000 population for genital herpes diagnoses at general practices. This was 2.4 per 1,000 for women and 0.9 per 1,000 for men.
- The reporting rate was higher for people 25 years old and older, than it was for the group under 25. For men, this difference was the largest.

8.2 Sexual Health Centres: characteristics, risk groups and trends

Figure 8.1 Total number of STI consultations and positivity rate of genital herpes by gender and type of sexual contact, 2011-2020



Footnote 1: SHCs test for genital herpes on indication only. Number of consultations based on registered consultations, in 2018 and 2019 based on registered consultations and aggregated data of non-registered consultations. Positivity rate was estimated by dividing the number of genital herpes diagnoses by the total number of registered consultations.
Footnote 2: All genital herpes diagnoses at the SHCs are included, both lab confirmed and not lab confirmed.

Table 8.1 Number of people diagnosed with genital herpes and number of STI consultations by age, gender and type of sexual contact, 2020

Age (years)	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
≤24	93/31,943	0.3	36/12,052	0.3	19/6,038	0.3
≥ 25	55/10,321	0.5	33/5,967	0.6	104/38,893	0.3
Total	**148/42,265**	**0.4**	**69/18,019**	**0.4**	**123/44,931**	**0.3**

Footnote 1: SHCs test for genital herpes on indication only. Positivity rate was estimated by dividing the number of genital herpes diagnoses by the total number of registered consultations.Footnote 2: All genital herpes diagnoses at the SHCs are included, both lab confirmed and not lab confirmed.

Table 8.2 Number of people diagnosed with genital herpes and number of STI consultations by migration background, gender and type of sexual contact, 2020

Migration background	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Dutch	86/30,425	0.3	31/11,080	0.3	64/27,964	0.2
Other Western	20/4,485	0.4	14/1,579	0.9	22/7,431	0.3
First generation non-Western	10/2,268	0.4	9/1,697	0.5	27/6,626	0.4
Second generation non-Western	32/5,068	0.6	15/3,656	0.4	10/2,888	0.3
Total	**148/42,265**	**0.4**	**69/18,019**	**0.4**	**123/44,931**	**0.3**

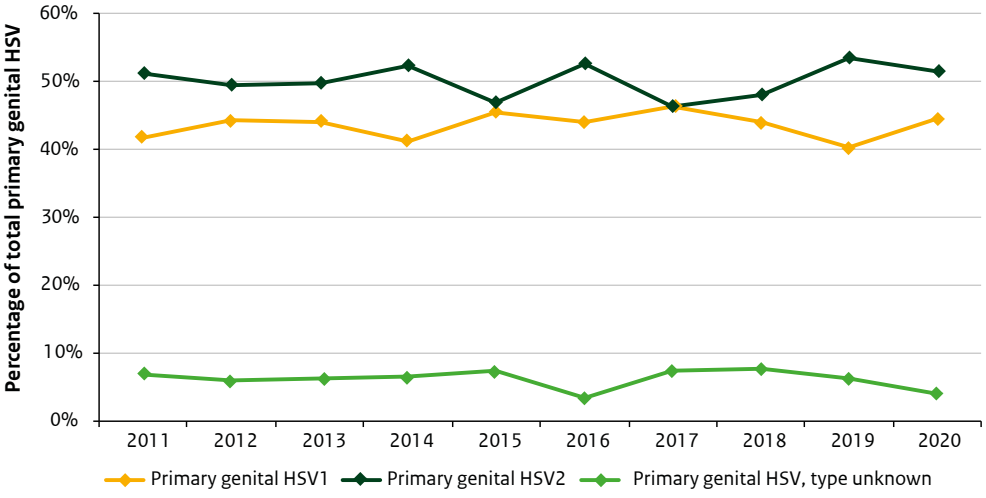
Footnote 1: SHCs test for genital herpes on indication only. Positivity rate was estimated by dividing the number of genital herpes diagnoses by the total number of registered consultations.
Footnote 2: All genital herpes diagnoses at the SHCs are included, both lab confirmed and not lab confirmed.

Table 8.3 Number and percentage of genital herpes types by gender and type of sexual contact, 2020

	Women		Heterosexual men		MSM	
	N	%	N	%	N	%
Primary HSV1	78	52.0	29	42.0	42	33.6
Primary HSV2	57	38.0	36	52.2	78	62.4
Primary HSV, type unknown*	10	6.7	2	2.9	1	0.8
Recurrent HSV	5	3.3	2	2.9	4	3.2
Total HSV	**150**		**69**		**125**	

*HSV type is unknown in the absence of a herpes test, or in case of a negative herpes test but with clinical symptoms strongly suggestive of herpes.
Footnote: People can be diagnosed with both HSV1 and HSV2.

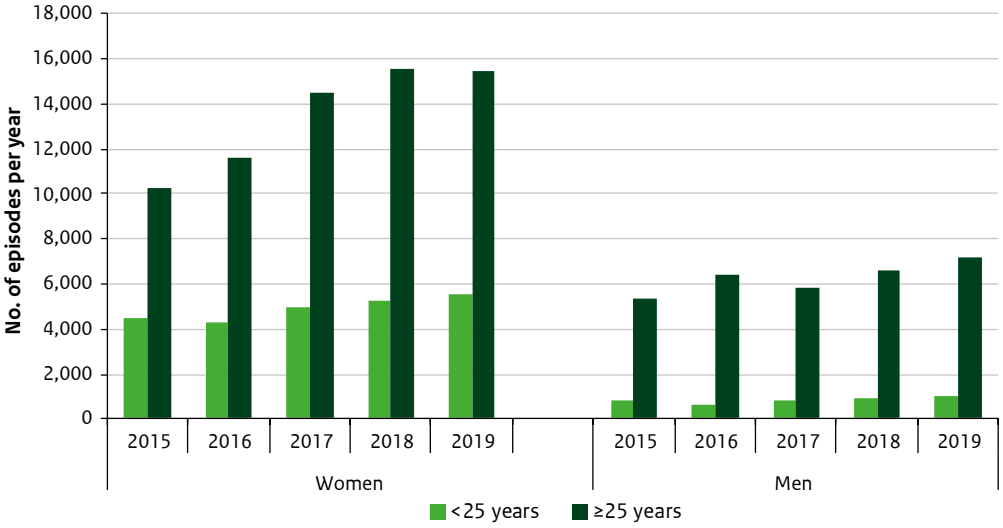
Figure 8.2 Percentage of HSV1, HSV2 and HSV type unknown of all primary genital herpes diagnoses, 2011-2020



Footnote: HSV type is unknown in the absence of a herpes test, or in case of a negative herpes test but with clinical symptoms strongly suggestive of herpes.

8.3 General practice

Figure 8.3 Estimated annual number of episodes of genital herpes in general practice by gender and age group, based on extrapolation from GP practices in Nivel-PCD, 2015-2019



Footnote: About 70% of the total Dutch population consists of persons aged ≥25 years and about 30% consists of persons aged <25 years

Table 8.4 Annual reporting rate (number of episodes per 1,000 population) of genital herpes in general practice in the Netherlands by gender and age group, based on GP practices in Nivel-PCD, 2015-2019

	Women n/1,000			Men n/1,000			Total n/1,000		
	All	**<25**	**≥25**	**All**	**<25**	**≥25**	**All**	**<25**	**≥25**
2015	**1.7**	1.8	1.7	**0.7**	0.3	0.9	**1.2**	1.1	1.3
2016	**1.8**	1.8	1.9	**0.8**	0.2	1.1	**1.3**	1.0	1.5
2017	**2.2**	2.1	2.3	**0.8**	0.3	1.0	**1.5**	1.2	1.6
2018	**2.4**	2.2	2.5	**0.9**	0.4	1.1	**1.6**	1.3	1.8
2019	**2.4**	2.3	2.4	**0.9**	0.4	1.2	**1.7**	1.3	1.8

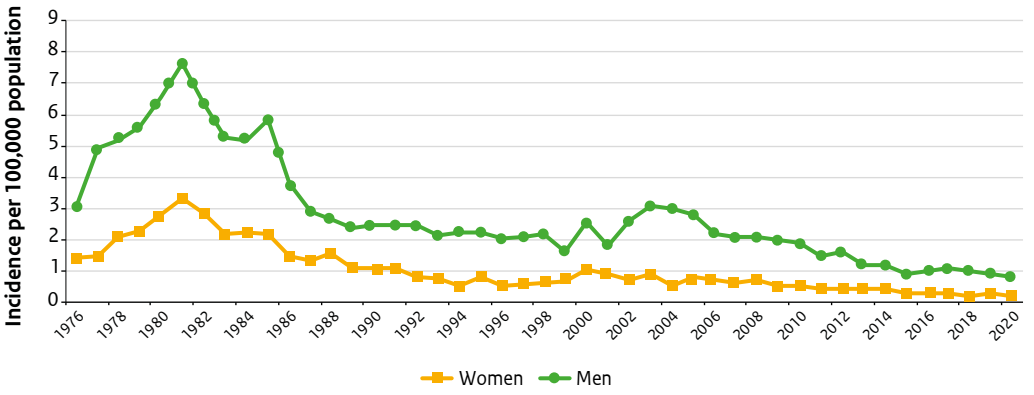
9 Hepatitis B

9.1 Key points

- In 2020, there were 86 notified cases of acute hepatitis B, a lower number compared with 2019 (108 cases).
- The incidence of acute hepatitis B in 2020 was 0.5 cases per 100,000 inhabitants. It was higher in men (0.8 per 100,000) than it was in women (0.2 per 100,000).
- Among the notified cases, sexual contact remained the most common transmission route for acute hepatitis B (58.1%). In 32.6% of cases, the route of transmission was unknown.
- At the SHCs, there were 34 cases of infectious hepatitis B (both acute and chronic) in 2020, a lower number compared with 2019, when there were 67 cases.
- At the SHCs, 23.5% of cases were heterosexual men, 58.8% were MSM and 17.6% were women. Most heterosexual men with HBV infection were first generation non-Western migrants (62.5%). Among MSM, most cases were also non-Western first generation migrants (60.0%) and among women, most were other Western (66.7%).
- In 2019, 437 (0.26%) women tested positive for hepatitis B in the antenatal screening programme.
- In 2020, 2,329 MSM and 427 persons that reported performing sex work (SW) entered the hepatitis B vaccination programme for risk groups. These numbers are lower than the numbers in 2019 (MSM n= 4,262, sex work n=808), due to COVID-19 measures. In 2019, 62% of MSM and 47% of persons that reported SW entering the programme were fully vaccinated with 3 doses.

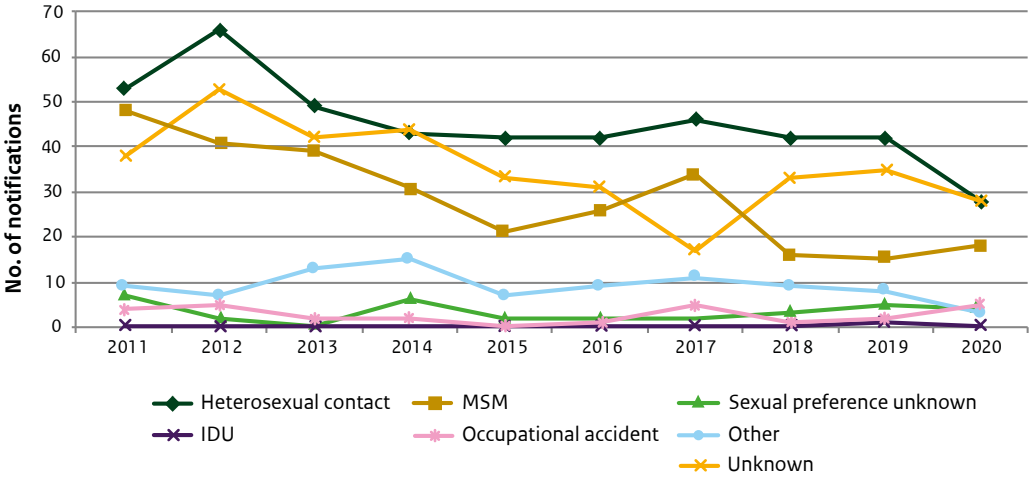
9.2 Notification data: characteristics, risk groups and trends

Figure 9.1 Incidence of acute hepatitis B per 100,000 population by gender, 1976–2020



Source: RIVM-OSIRIS, notification data
Footnote: Data from 2020 might be incomplete because of reporting delays (data were collected on 23 March 2021, or due to COVID-19 measures.

Figure 9.2 Number of acute hepatitis B infections by route of transmission, 2011–2020



Source: RIVM-OSIRIS, notification data
Footnote: Data from 2020 might be incomplete because of reporting delays (data were collected on 23 March 2021), or due to COVID-19 measures.

Table 9.1 Proportion of acute hepatitis B cases by most common route of transmission, the Netherlands, 2020

	Heterosexual contact (N=32) n (%)*	MSM (N=18) n (%)*	Other (N=36) n (%)*
Infected abroad	6 (18.8)	2 (11.1)	17 (47.2)
Born abroad	10 (31.3)	5 (27.8)	12 (33.3)
Infected by casual partner	18 (56.3)	14 (77.8)	
Median age (range)	39 (20-57)	50 (26-76)	41 (19-73)

Source: RIVM-OSIRIS, notification data
Footnote: Data of 2020 might be incomplete, because of reporting delays (data were collected on 23 March 2021).
*Proportions per category can overlap, so percentages do not add up to 100%.

9.3 Infectious hepatitis B diagnoses at the SHCs

Table 9.2 Number of hepatitis B diagnoses among persons tested for hepatitis B by age, gender and type of sexual contact, 2020

Age (years)	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
≤19	0/525	0.0	0/104	0.0	1/383	0.3
20–24	1/1,607	0.1	2/782	0.3	3/1,761	0.2
25–29	0/931	0.0	3/528	0.6	3/2,120	0.1
30–34	2/446	0.4	0/350	0.0	3/1,503	0.2
35–39	1/257	0.4	0/168	0.0	4/903	0.4
40–44	1/150	0.7	2/75	2.7	1/641	0.2
45–49	1/106	0.9	1/50	2.0	1/449	0.2
50–54	0/56	0.0	0/44	0.0	3/409	0.7
≥ 55	0/58	0.0	0/43	0.0	1/579	0.2
Total	**6/4,136**	**0.1**	**8/2,144**	**0.4**	**20/8,748**	**0.2**

Footnote: Hepatitis B includes both acute and chronic cases.

Table 9.3 Number of hepatitis B diagnoses among persons tested for hepatitis B by migration background, gender and type of sexual contact, 2020

Migration background	Women		Heterosexual men		MSM	
	n positive/N	%	n positive/N	%	n positive/N	%
Dutch	0/1,479	0.0	0/523	0.0	4/4,302	0.1
Other Western	4/821	0.5	2/267	0.7	4/2,116	0.2
First generation non-Western	2/1,317	0.2	5/1,075	0.5	12/1,686	0.7
Second generation non-Western	0/508	0.0	1/277	0.4	0/636	0.0
Non-Western, unknown generation	0/12	0.0	0/2	0.0	0/8	0.0
Total	**6/4,137**	**0.1**	**8/2,144**	**0.4**	**20/8,748**	**0.2**

Footnote: Hepatitis B includes both acute and chronic cases.

Table 9.4 Concurrent STI by gender and type of sexual contact among persons diagnosed with hepatitis B, 2020

Concurrent infection	Women (N=13) n (%)	Heterosexual men (N=22) n (%)	MSM (N=32) n (%)
Chlamydia	0 (0.0)	3 (37.5)	2 (10.0)
Gonorrhoea	0 (0.0)	0 (0.0)	4 (20.0)
Syphilis, infectious	0 (0.0)	0 (0.0)	1 (5.0)
HIV newly diagnosed	0 (0.0)	0 (0.0)	0 (0.0)
Genital herpes	0 (0.0)	0 (0.0)	0 (0.0)
Genital warts	0 (0.0)	0 (0.0)	0 (0.0)
Hepatitis C	0 (0.0)	0 (0.0)	0 (0.0)

Footnote 1: Hepatitis B includes both acute and chronic cases.
Footnote 2: SHCs check for genital herpes and genital warts on indication only. In addition, clients are not routinely tested on hepatitis C.

9.4 Antenatal screening

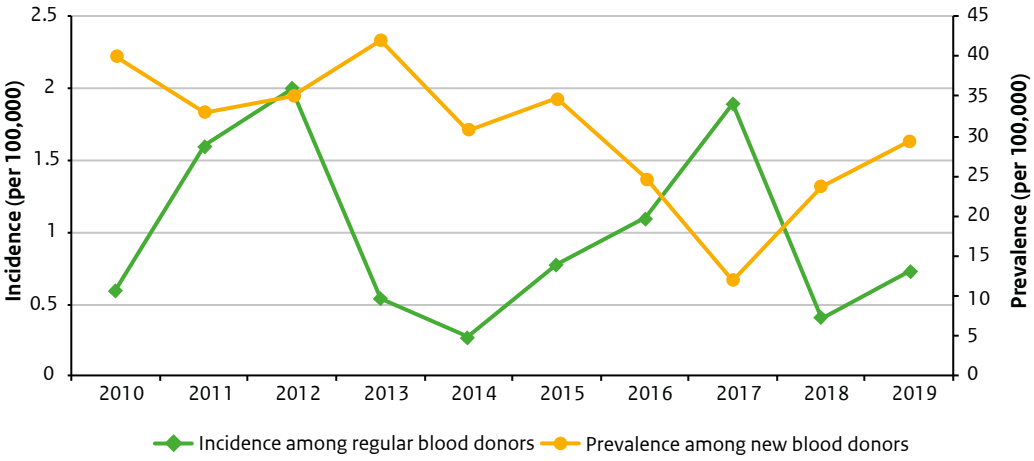
Table 9.5 Hepatitis B prevalence estimates in pregnant women, based on test results of antenatal screening, 2013-2019

Period	No. of women screened	Confirmed positive test results	Prevalence estimate
2013	176,086	529	0.30
2014	174,646	559	0.32
2015	176,238	506	0.29
2016	172,799	507	0.29
2017	170,461	480	0.28
2018	171,242	453	0.26
2019	171,609	437	0.26

Sources: C.P.B. van der Ploeg (TNO), P. Oomen (RIVM), M van Lent (RIVM). Prenatale Screening Infectieziekten en Erytrocytenimmunisatie (PSIE). Procesmonitor 2019. TNO/RIVM 2021; and earlier monitors.

9.5 Blood donors

Figure 9.3 Hepatitis B incidence among regular blood donors and prevalence among new blood donors (per 100,000) in the Netherlands, 2010-2019



Source: Sanquin

9.6 Hepatitis B vaccination programme for risk groups

Figure 9.4 Number of persons entering the hepatitis B vaccination programme, 2002-2020

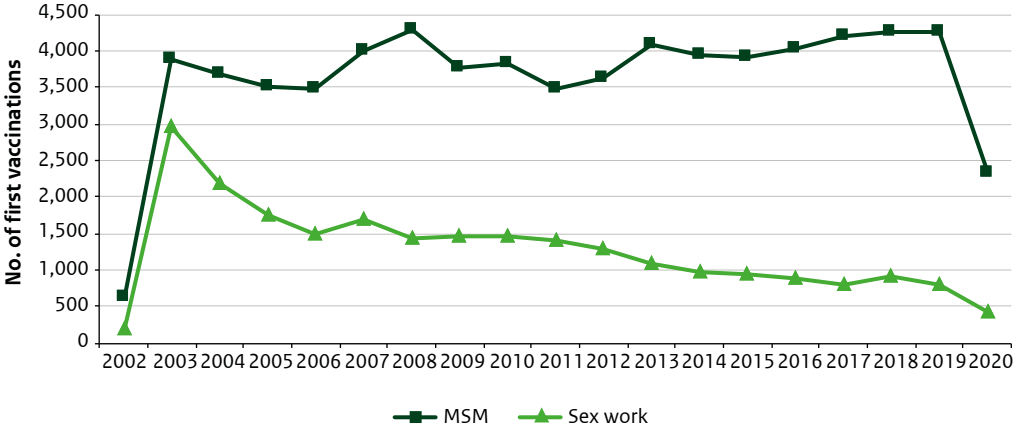


Figure 9.5 Percentage of second and third time vaccinated participants in the hepatitis B vaccination programme, 2010-2020

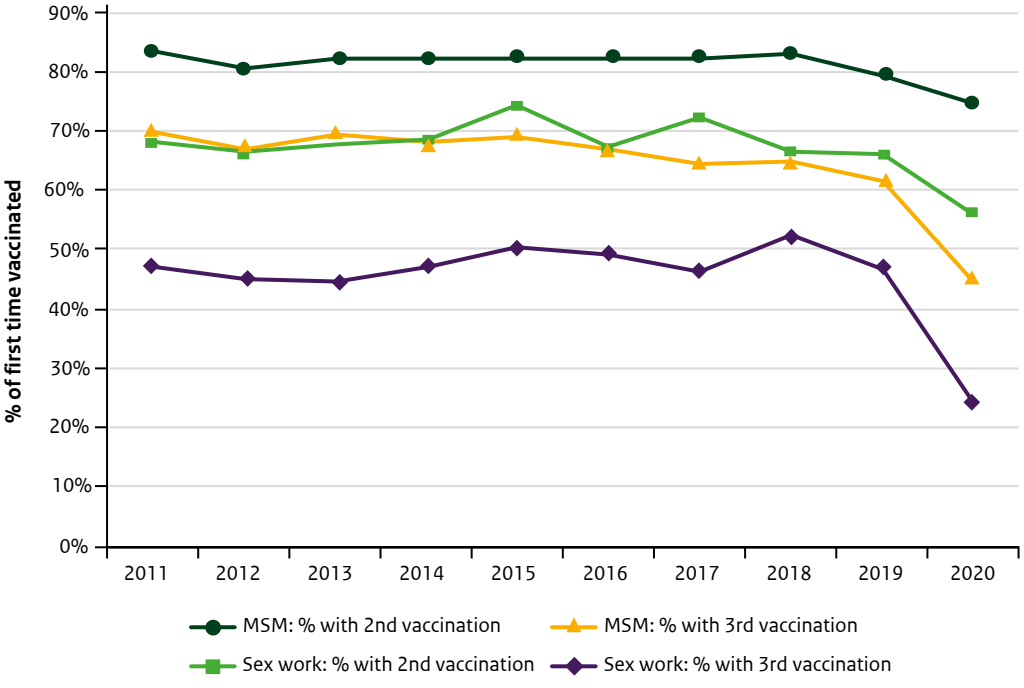


Figure 9.6 Percentage of hepatitis B chronically infected and immune participants of the hepatitis B vaccination programme, 2011-2020

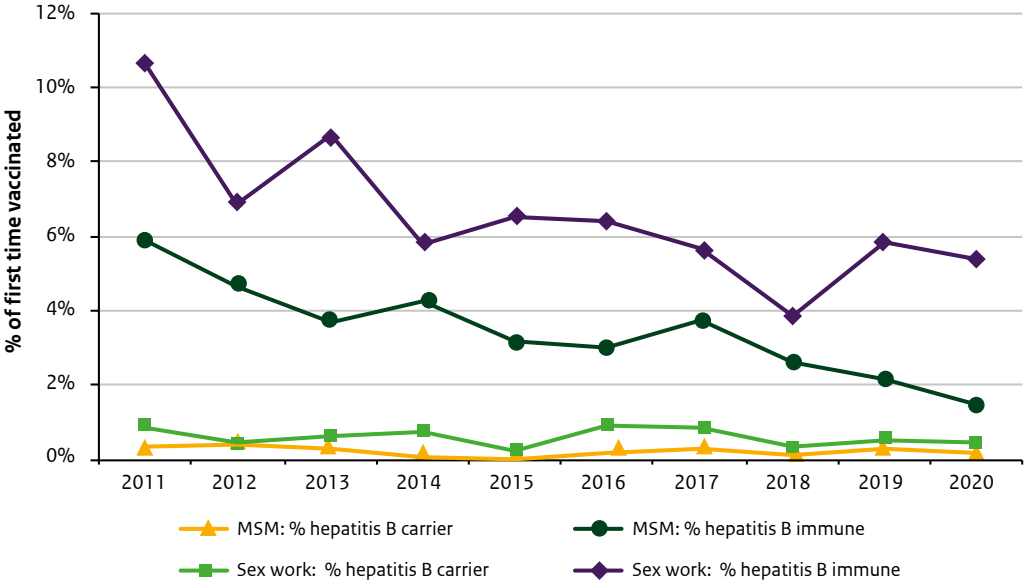
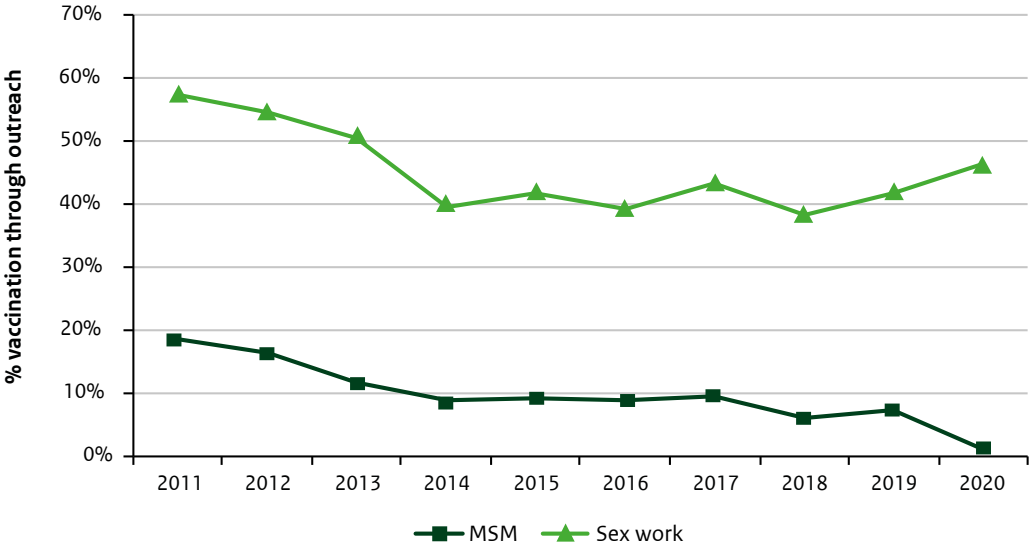


Figure 9.7 Percentage of first hepatitis B vaccinations given at outreach locations* by risk group, 2010-2020



*Outreach locations include penitentiary institutes, MSM locations, drug locations or sex work locations. Non-outreach locations are SHCs and PHS locations.

10 Hepatitis C

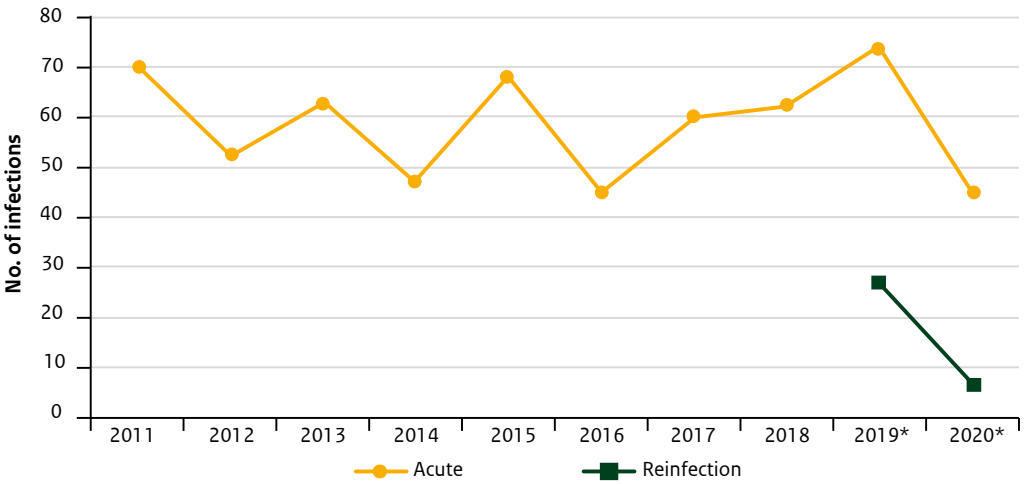
10.1 Key points

- Of all notified hepatitis C infections in 2020 (424), 379 (89%) were chronic/unknown infections and 45 (11%) were acute infections. Of the acute infections, 7 (16%) were re-infections. The numbers of both chronic/unknown infections and acute infections were lower in 2020 than they were in 2019 (664 chronic/unknown; 74 acute, of which 27 were re-infections).
- Unprotected sexual contact between men remained the most commonly reported transmission route for acute hepatitis C (71%) in 2020.
- Of all acute hepatitis C infections among MSM in 2020 (32), 24 were among HIV-infected MSM (75%).
- Of the 424 chronic/unknown infections, 131 (32%) were identified among injecting drug users (IDUs), 44 (10%) among MSM, 10 (2%) among heterosexuals, 4 (0.9%) among people with unknown sexual risk, 19 (4%) cases of vertical transmission, 5 (1%) cases of occupational accident, and 211 (50%) involved other/unknown risks.

- At the SHCs, 14,266 hepatitis C tests were conducted, 14,170 (99.3%) of which were among MSM.
- Among MSM tested for hepatitis C, 936 (6.6%) were known or new HIV-positive and 13,234 (93.4%) were HIV-negative.
- Of the consultations conducted among HIV-negative MSM tested for HCV, 11,363 were PrEP start or follow-up consultations, 1,242 were regular or test-lab consultations among MSM who had not used PrEP in the past 3 months, and 629 were regular or test-lab consultations with MSM who had used PrEP in the past 3 months.
- 36 positive hepatitis C tests were registered at the SHCs; 35 were test results for MSM (23 for HIV-negative MSM, 16 of which were for MSM who had used PrEP in the past 3 months) and 12 were for known or new HIV-positive MSM.
- Of the 35 positive tests for MSM, 14 were determined to be infectious and 2 were non-infectious. For the remaining 19 positive results, current versus cleared/treated infection was not determined by testing.

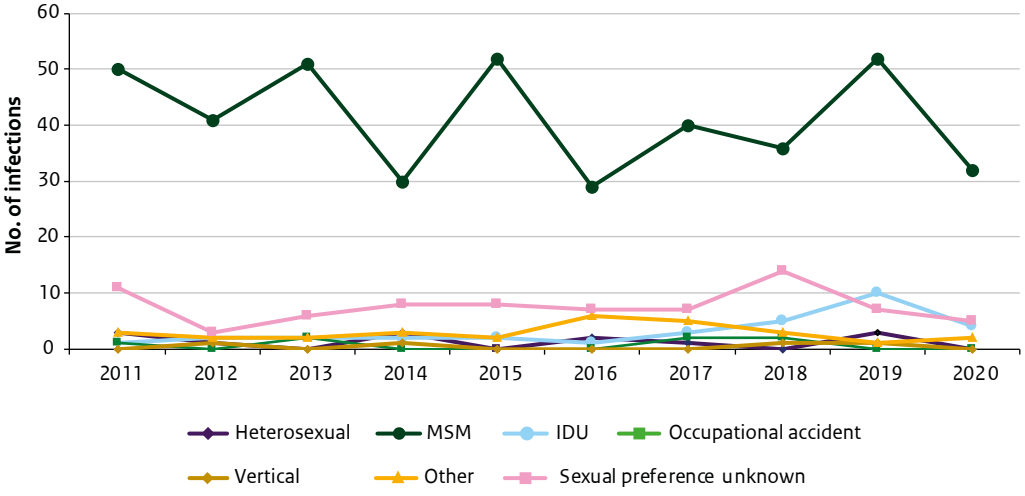
10.2 Notification data: characteristics, risk groups and trends

Figure 10.1 Number of acute hepatitis C infections, 2011–2020



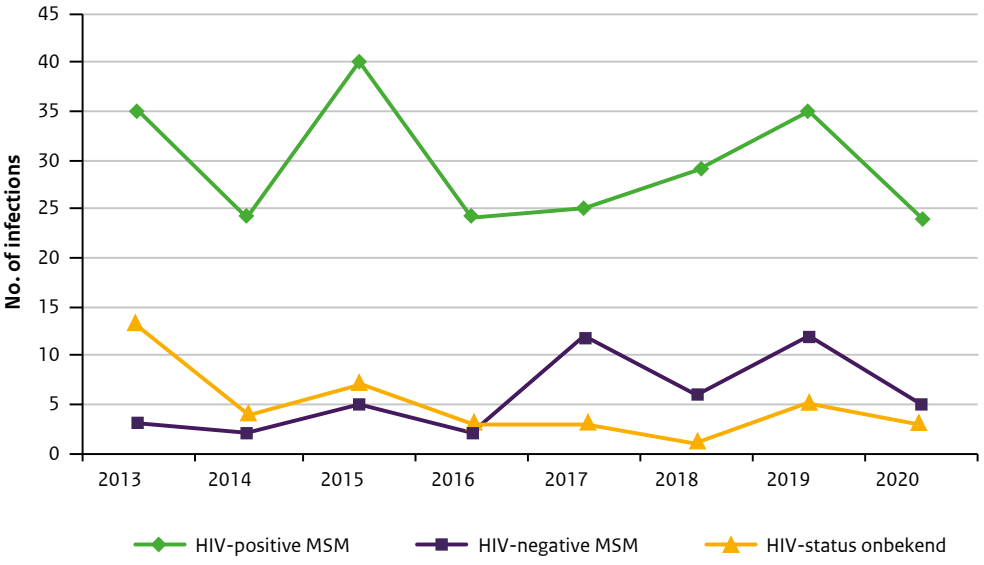
Source: RIVM-OSIRIS, notification data
Footnote: Data from 2020 might be incomplete due to reporting delays and/or COVID-19 measures (data collected on 24 March 2021).
*Acute includes cases reported as 'acute' or as 'reinfection'

Figure 10.2 Number of acute hepatitis C infections by route of transmission, 2011–2020



Source: RIVM-OSIRIS, notification data
Footnote: Data from 2020 might be incomplete due to reporting delays and/or COVID-19 measures (data collected on 24 March 2021).

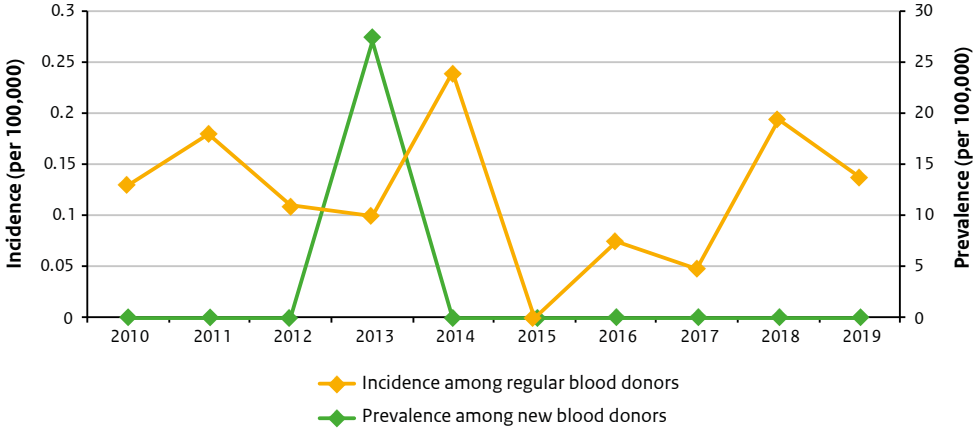
Figure 10.3 Number of acute hepatitis C infections in MSM by HIV status, 2013–2020



Source: RIVM-OSIRIS, notification data
Footnote: Data from 2020 might be incomplete due to reporting delays and/or COVID-19 measures (data collected on 24 March 2021).

10.3 Blood donors

Figure 10.4 Hepatitis C incidence among regular blood donors and prevalence among new blood donors (per 100,000) in the Netherlands, 2010-2019



Source: Sanquin

11 Conclusions and recommendations

In 2020, the centres for sexual health had to downscale STI testing and care due to the COVID-19 pandemic. STI testing and care was limited to essential care, which included consultations for clients with STI/HIV related symptoms, clients who received a partner notification for syphilis, HIV, hepatitis or gonorrhoea, clients who needed treatment and victims of sexual violence. As a result, the total number of consultations (105,936) at SHCs was 30% lower compared with 2019 (150,782 consultations). The number of consultations decreased by 18% among MSM, by 39% among heterosexual men and by 35% among women. In addition, the absolute number of persons with at least one STI decreased in 2020 (22,126) compared with 2019 (24,122), but the percentage of people with a positive STI test further increased from 19.0% in 2019 to 20.9% in 2020.

As data on general practice consultations are only available until 2019, the impact of the COVID-19 pandemic on the number of STI-related episodes recorded at general practices is not yet known. The total estimated number of STI-related episodes recorded at general practices was estimated to be 364,500 episodes in 2019, an increase compared with 2018 (334,700 episodes). This increase was observed among all age groups and among both men and women. Pre-COVID-19 pandemic data from the Health Survey showed that in 2019, 14% of women in the 16-29 age group, 10% of heterosexual men in the 16-29 age group, and 22% of MSM in the 16-44 age group reported STI testing in the past year, an increase for women and heterosexual men, but a decrease for MSM, compared with earlier estimates of the Health Survey. There are no data sources available for an estimation of the number of tests purchased online with corresponding numbers of STI diagnoses. Laboratory surveillance could provide insight into the total number of STI tests and the relative contribution of different testing facilities, but complete coverage is not possible to achieve.[16]

Overall, owing to the downscaling of the STI and sexual health care at SHCs due to the COVID-19 pandemic, key characteristics related to sexual behaviour, health seeking behaviour as well as the accessibility of health services and e-health changed during the different periods of social distancing measures. There has been a shift towards consultations among clients with STI/HIV-related symptoms and/or STI notification and among MSM using PrEP during the first COVID-19 wave and the second half of 2020, compared with 2019. Groups that were at high risk of STI remained comparable to those in earlier years and were those who reported being notified for an STI, those having STI-related symptoms, MSM who were previously diagnosed with HIV or people with a reported history of STI in the past year. Risk behaviour among MSM that corresponded with high STI positivity rates were group sex and drug use in relation to

[16] Slurink I, van Dam A, Heijne J, van Bergen J, van Benthem B. Laboratoriumsurveillance van soa: van toegevoegde waarde? Infectieziekten Bulletin 2020; 31(1).

sex.[17] Consultation rates and STI positivity rates varied across the PHS regions in the Netherlands, which can (at least partially) be explained by differences in SHC attendee characteristics, including educational level, age and the percentage of attendees who were notified about STI exposure or had STI symptoms.

Since July 2019, a national PrEP pilot programme has been implemented in the Netherlands at the SHCs aimed at providing service for 6,500 persons. By 31 December 2020, 6,332 individuals (98% MSM) had had at least one PrEP consultation in the PrEP pilot programme. A total of 335 persons stopped using PrEP and the main reason for discontinuation was reduced risk (69%). Almost 800 persons did not have a PrEP consultation within seven months after the last PrEP consultation and were considered as lost to follow-up. To increase access to PrEP care, the Ministry of Public Health, Welfare and Sport increased the number of persons that are allowed to enter the pilot programme to 8,500 as of January 2021. At follow-up consultations, the majority (59%) reported daily PrEP use in the past 3 months, 37% reported event-driven PrEP use and 3% reported a combination of both. MSM who have used PrEP in the 3 months prior to consultation more frequently reported a high number of partners, inconsistent condom use for receptive anal sex, group sex and drug use in the context of sex than did HIV-negative MSM who reported no PrEP use. STI positivity rates in HIV-negative MSM were comparable between those MSM who used PrEP and MSM who did not use PrEP but who did visit the SHC in 2020. This was in contrast to 2019, when STI positivity rates were higher in HIV-negative MSM who used PrEP. Possible explanations for the converging trends are that the small group of PrEP users was tested more often than the large group of MSM that did not use PrEP, who could only be tested on indication, which influenced the positivity rates. Monitoring the effects of PrEP use on the incidence of HIV, STI and changes in sexual behaviour is important, but combined with the COVID-19 pandemic in 2020, these effects are difficult to disentangle. On the one hand, STI care and, to a lesser extent, PrEP care were downscaled, resulting in reduced testing and treatment options and potentially leading to more STI transmission. On the other hand, due to social distancing measures related to the COVID-19 pandemic, sexual behaviour might have changed, leading to reduced STI transmission. Several surveys targeted at youngsters, MSM and the general population showed that, during the first COVID-19 peak in spring 2020, the number of casual sex partners decreased for the majority of the respondents.[18,19,20] Combining these two aspects (i.e. downscaled STI care and changes in sexual behaviour due to social distancing measures related to COVID-19) in a mathematical model on chlamydia and gonorrhoea transmission showed that the disruption in STI care due

[17] Slurink IAL, van Benthem BHB, van Rooijen MS, Achterbergh RCA, van Aar F. Latent classes of sexual risk and corresponding STI and HIV positivity among MSM attending centres for sexual health in the Netherlands. Sex Transm Infect 2020; 96(1):33-9. Doi: 10.1136/sextrans-2019-053977

[18] E Marra, S Meijer, J Polet, H de Graaf. 2020. Seksuele gezondheid van jongeren in Nederland tijdens de coronacrisis. *https://www.rutgers.nl/sites/rutgersnl/files/PDF/Rapportage%20COSEKS-J_DEF.pdf*

[19] Adam PCG, Op de Coul ELM, Zuilhof W, Zantkuijl P, den Daas C, de Wit JBF. Changes in MSM's sexual activity, PrEP use, and access to HIV/STI testing during and after the first Dutch COVID-19 lockdown. Abstract ISSTDR 2021, Amsterdam, the Netherlands.

[20] van Bilsen WPH, Zimmermann HML, Boyd A, et al. Sexual Behavior and Its Determinants During COVID-19 Restrictions Among Men Who Have Sex With Men in Amsterdam. Journal of acquired immune deficiency syndromes (1999) 2021;86(3):288-96. doi: 10.1097/QAI.0000000000002581

to COVID-19 might have resulted in a small increase in chlamydia prevalence, but a decrease in gonorrhoea prevalence in MSM. Scaling up STI care to pre-COVID-19 levels as soon as possible is imperative to prevent increases in STI transmission.[21]

Due to the downscaled STI care related to the COVID-19 pandemic, the number of chlamydia tests decreased in 2020 compared with 2019, as did the number of diagnosed chlamydia infections. Decreased testing and triaging according to symptoms and being notified resulted in increased positivity rates with a peak in April 2020. This is in contrast with stable positivity rate of chlamydia from 2016 to 2019 in women, heterosexual men and MSM. At general practices, the estimated number of chlamydia episodes increased in 2019 compared with the previous years. Despite all prevention efforts, chlamydia remains the most commonly diagnosed STI and it might now be time to reconsider chlamydia control. Future strategies should shift their focus from infection control and promoting widespread testing towards disease management, limiting targeted testing, aiming at harm reduction and primary prevention. In the Netherlands chlamydia cohort study that investigates long-term complications, overall pregnancy rates were not lower in chlamydia-positive women compared with chlamydia-negative women, but among women with a pregnancy intention, time to pregnancy was longer and pregnancy rates were lower in chlamydia-positive women.[22] The prevention of chlamydia remains important and including multiple psychological and behavioural characteristics of individuals in tailored interventions may be more successful in achieving risk-reducing behaviour.[23] Furthermore, new developments in testing options will become available in the future, such as bacterial load and viability assays and biomarker assays.

Lymphogranuloma venereum (LGV, the L2 strain of chlamydia which can lead to serious symptoms and complications) among MSM remains uncommon. The number of cases decreased from 420 in 2019 to 258 in 2020 and the percentage of asymptomatic rectal LGV decreased after years of increase. These decreases are probably also the result of limited testing and prioritizing those with severe STI related complaints. In 2020, one local alert on increased LGV among MSM was reported in the weekly infectious disease signal report. National real-time data from SHCs, in addition to local alerts, can provide early warning of STI outbreaks in certain high-risk groups or regions.

Comparable with chlamydia, the number of gonorrhoea tests as well as the number of diagnosed gonorrhoea infections decreased in 2020 compared with 2019 due to the downscaled STI care related to the COVID-19 pandemic. Positivity rates increased, peaked in

[21] Xiridou M, Heijne1 J, Adam P, Op de Coul E, Matser A, de Wit J, Wallinga J, van Benthem B. How disruptions in STI care due to the COVID-19 pandemic could lead to increases in STI transmission among men who have sex with men: a mathematical modelling study. Abstract ISSTDR 2021, Amsterdam, the Netherlands.

[22] Hoenderboom BM, van Bergen JEAM, Dukers-Muijrers NHTM, Götz HM, Hoebe CJPA, de Vries HJC, van den Broek IVF, de Vries F, Land JA, van der Sande MAB, Morré SA, van Benthem BHB. Pregnancies and Time to Pregnancy in Women With and Without a Previous *Chlamydia trachomatis* Infection. Sex Transm Dis. 2020 Nov;47(11):739-747. doi: 10.1097/OLQ.0000000000001247.

[23] van Wees DA, den Daas C, Kretzschmar MEE, Heijne JCM. Modelling the impact of tailored behavioural interventions on chlamydia transmission. Sci Rep. 2021 Jan 25;11(1):2148. doi: 10.1038/s41598-021-81675-w.

April, after which they decreased but remained slightly higher than the levels of 2019 and early 2020. The incidence rate of gonorrhoea among men and women in the GP surveillance increased in 2019 compared with previous years, especially among men, which might be explained by an increasing trend in gonorrhoea among heterosexuals. Close surveillance of gonorrhoea resistance trends is of particular importance, as treatment failures with the only available treatment option (third-generation cephalosporins) have been reported in European patients. So far, resistance to ceftriaxone, a third-generation cephalosporin that has been the first-choice medication in the Netherlands since 2006, has not been found at SHCs in the Netherlands. The MIC shift towards decreased susceptibility observed in 2019 did not continue in 2020. Resistance to azithromycin increased in the past years, but has remained stable since 2018 at around 10%. However, resistant strains could evolve rapidly and regional differences exist, underscoring the importance of resistance surveillance. The Ministry of Public Health, Welfare and Sports asked for an investigation to add resistant gonorrhoea and syphilis to the list of notifiable diseases.

The number of diagnoses of infectious syphilis has decreased in SHC clients compared with 2019. Positivity rates have increased among MSM. In line with goals of the national action plan for syphilis, partner notification will be strengthened. Positivity rates among heterosexuals remain low. The low rates of syphilis infections among women are encouraging, considering the potentially devastating consequences of syphilis in pregnancy. It is therefore important to carefully monitor syphilis cases in heterosexuals and to rigorously/actively assist in partner notification, while at the same time ensuring that a syphilis screening programme for pregnant women is implemented effectively, as is the case in the Netherlands. In 2020, no cases of congenital syphilis were reported.

Two thirds of all new HIV diagnoses in the Netherlands are diagnosed among MSM. The HIV positivity rate among MSM tested at SHCs has been declining for years and continued to decline in 2020 despite the decrease in HIV testing, although triaging on notification for HIV or symptoms of HIV did take place. At SHCs, the highest positivity rate was found among MSM who were notified for HIV, with 45% being persons younger than 30 years, whereas the median age of persons on PrEP was 36 years underscoring the need to give attention to PrEP use in young MSM. Data from SHM showed that more than 50 percent of heterosexuals are diagnosed late (CD4<350/mm3 or AIDS), especially those diagnosed at GP practices or in hospitals. Among MSM, 39% were diagnosed late. However, the trend in the proportion of late diagnosis should be interpreted with caution and in the context of the trend in HIV incidence. A decreasing HIV incidence could lead to a higher proportion of late diagnoses. The 90-90-90 goals as set by UNAIDS for 2020 (90% diagnosed, 90% of whom received antiretroviral therapy, 90% of whom have an undetectable viral load) are met. For the Netherlands as a whole in 2019, these figures are 93-93-96 and 95-95-97 for MSM. Multiple efforts are needed to reach the undiagnosed population.

The numbers of acute hepatitis B and C notifications were lower in 2020 compared with 2019 and sexual contact was the most reported transmission route. Similar to HIV, the WHO goals for HBV and HCV state that by 2030, 90% of all HBV- and HCV-infected people should be

diagnosed, 90% of those who are eligible should be treated, 90% of whom should then have an undetectable viral load. Currently, there are no estimates available to present the continuum of care for hepatitis B and C in the Netherlands. For this reason, SHM is piloting the registration of hepatitis C infections in several hospitals.

In 2020, a midterm review of the national Action Plan on STIs, HIV, and Sexual Health for 2017-2022 was carried out. It was concluded that a link between prevention and care, the implementation of preventive interventions and the affordability of care remain the most challenging issues that require extra attention in the coming years. Goals related to STI and HIV surveillance and monitoring are on track. The goals for STIs and HIV focus on reducing the burden of disease from chlamydia, halving the numbers of diagnoses of syphilis, gonorrhoea and HIV (compared with 2016), and reducing the number of acute HBV and HCV infections to zero. The goal for HIV is that by 2022, 95% of people with HIV will know their HIV status, 95% of them will be receiving treatment, and 95% of them will have an undetectable viral load, with zero deaths in the Netherlands from AIDS. Based on the data presented in this annual report, the goals for HIV are on track in contrast to goals concerning the other STI. The goals for a decline in syphilis and gonorrhoea diagnoses are highly dependent on testing strategies, as was shown by the 2020 data of the SHCs on infectiousness and re-infections, and are less suitable as indicators for improvements in STI control. They will not be met. Therefore, we recommend the following:

- Whilst writing the STI year report, the COVID-19 pandemic is still ongoing. Continue to investigate the impact of the COVID-19 pandemic and social distancing measures on STI care, sexual behaviour, STI testing and treatment seeking behaviour, the occurrence of STI and the uptake of PrEP.
- Maintain a strong, multi-sectoral basis for STI control to facilitate 1) easy access to care and testing, 2) rapid and reliable results, and 3) effective treatment and prevention.
- Evaluate the occurrence of HIV, STI and changes in sexual behaviour among PrEP users and the accessibility coverage of PrEP among general practitioners.
- Maintain integrated surveillance of STIs and STI risks among high-risk groups and keep track of the general population by regular population surveys.
- Set up a monitoring system for the surveillance of long-term complications of chlamydia in order to gain insight into trends and the effects of changes in chlamydia testing policies.

APPENDICES

Appendix A List of abbreviations

ACS	Amsterdam Cohort Studies
AIDS	Acquired Immune Deficiency Syndrome
ATHENA	AIDS Therapy Evaluation in the Netherlands
AVG	Algemene Verordening Gegevensbescherming
CBS	Centraal Bureau voor de Statistiek, Statistics Netherlands
CIb	Centrum Infectieziektebestrijding, Centre for Infectious Disease Control
COVID-19	Coronavirus disease 2019
CSG	Centrum Seksuele Gezondheid
CvB	Centrum voor Bevolkingsonderzoek, Centre for Population Screening
CVPZ	Centrum Voeding, Preventie en Zorg, Centre for Nutrition, Prevention and Health Services
EUCAST	European Committee on Antimicrobial Susceptibility Testing
ECDC	European Centre for Disease Prevention and Control
GDPR	General Data Protection Regulation
GP	General Practitioner
GRAS	Gonococcal Resistance to Antimicrobials Surveillance programme
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HSV	Herpes Simplex Virus
ICPC	International Classification of Primary Care
IDU	Injecting Drug User
IgM	Immunoglobulin M
IDS	Laboratory for Infectious Disease and Screening
LCI	Landelijke Coördinatie Infectieziektebestrijding, National Coordination Centre for Communicable Disease Control
LGV	*Lymfogranuloma venereum, Lymphogranuloma venereum*
LSM	Leefstijl Monitor, Lifestyle Monitor
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
Nivel-PCD	Nivel Primary Care Database
PCR	Polymerase Chain Reaction
PHS	Public Health Service
PID	Pelvic Inflammatory Disease
PrEP	Pre-Expositie Profylaxe, Pre-Exposure Prophylaxis
RIVM	Rijksinstituut voor Volksgezondheid en Milieu, National Institute for Public Health and the Environment
SANL	Soa Aids Nederland, STI AIDS Netherlands
SHC	Sexual Health Centre
SHM	Stichting HIV Monitoring, HIV Monitoring Foundation

soa	Seksueel Overdraagbare Aandoeningen
SOAP	Online STI registration system
STI	Sexually Transmitted Infection
SW	Sex Work
TNO	Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek
UNAIDS	Joint United Nations Programme on HIV/AIDS
WHO	World Health Organisation

Appendix B STI case-definitions of Sexual Health Centres

Chlamydia trachomatis (Ct)
Chlamydia diagnosis is based on positive nucleic acid amplification test (NAAT) on genital (vagina/urine) material or on indication extragenital (anus, oropharynx) material collected either by a professional or self-collected by patients. Chlamydia diagnosis in a person is defined by a combination of genital and extragenital testing.

Lymphogranuloma venereum
LGV is diagnosed based on a positive PCR for *Chlamydia trachomatis* species, followed by genotyping assessing Ct serotype L1, L2 or L3.

Gonorrhoea
Gonorrhoea diagnosis is based on positive nucleic acid amplification test (NAAT) on genital (vagina/urine) material or on indication extragenital (anus, oropharynx) material collected either by a professional or self-collected by patients. Gonorrhoea diagnosis in a person is defined by a combination of genital and extragenital testing.

Syphilis
Syphilis diagnosis is based on a serological screening by Treponemal tests (Treponemal tests: TPHA/TPPA or EIA) followed by IgG or IgM-westernblot. Activity of the infection is assessed by non treponemal tests like RPR/VDRL. NAAT is indicated in primary infection.
The stage of syphilis is defined by clinicians according to symptoms: Lues stage I, II, latens recens (infection acquired in the last 12 months). These three stages are defined as infectious syphilis. Lues stage unknown or lues latens tarda are non-infectious stages of syphilis diagnosis.

HIV
HIV is diagnosed based on a positive 4th generation HIV combotest (anti-HIV and p24 Antigen), followed by an immunoblot on the same sample to confirm presence of antibodies and to distinguish between HIV-1 and HIV-2. On indication, HIV PCR is performed to confirm an infection.

Genital warts
Genital warts is a clinical diagnosis based on symptoms.

Genital herpes
Genital herpes diagnostic is primarily based on clinical symptoms, and confirmed by herpes NAAT from lesions to confirm the diagnosis and differentiate Herpes Simplex Virus 1 (HSV1) and HSV2.

Hepatitis B
Hepatitis B screening is performed by detection of Anti-HBcore antibodies. In case of positive screening-test, HBs-antigen is tested to diagnose infectious hepatitis B.

Hepatitis C

Hepatitis C is diagnosed based on several steps of a combination of serological and molecular methods, depending on possible/suspected time-point of exposure. If exposure is more than 3 months before consultation, diagnosis is based on an anti-HCV-test, and confirmed with HCV-immunoblot or HCV-RNA. If exposure is less than 3 months before consultation or when the patient immunity is suppressed, diagnosis is based on HCV-RNA.

Appendix C National surveillance of Sexual Health Centres

Coordinating SHCs

GGD Amsterdam	E. Hoornenborg
GGD Haaglanden	M. Keizer
GGD Groningen	F. de Groot
GGD Hart voor Brabant	S. Van Bergen
GGD Gelderland-Zuid	M. Hoff
GGD Rotterdam-Rijnmond	A. Wielemaker
GGD Regio Utrecht	L. van Neer
GGD Zuid Limburg	C.J.P.A. Hoebe
	M. Steenbakkers

Regional SHCs

GGD Brabant-Zuidoost
GGD Drenthe
GGD Flevoland
GGD Fryslan
GGD Noord- en Oost-Gelderland
GGD Gelderland-Midden
GGD Hollands-Midden
GGD Hollands Noorden
GGD Kennemerland
GGD Twente
GGD West-Brabant
GGD IJsselland
GGD Zaanstreek-Waterland
GGD Zeeland
GGD Zuid-Holland Zuid
GGD Zuid Limburg
Veiligheidsregio Limburg Noord

Laboratories

Albert Schweitzer Ziekenhuis Dordrecht
Centraal Bacteriologisch en Serologisch laboratorium Hilversum
CERTE Medische Diagnostiek & Advies Groningen
Deventer ziekenhuis
Diagnostiek voor U Eindhoven
Erasmus MC Rotterdam
Gelre Ziekenhuizen Apeldoorn
Groene Hart Ziekenhuis Gouda
Haaglanden Medisch Centrum
Isala klinieken Zwolle
Izore, Centrum Infectieziekten Friesland
Jeroen Bosch Ziekenhuis 's-Hertogenbosch
Laboratoria Pathologische Anatomie en Medische Microbiologie Veldhoven
Laboratorium Microbiologie Twente Achterhoek
Laboratorium voor Infectieziekten Groningen
Laboratorium voor Medische Microbiologie en Immunologie Tilburg, Elisabeth-TweeSteden Ziekenhuis
Leiden Universitair Medisch Centrum
Maastricht Universitair Medisch Centrum (MUMC+)
Meander Medisch Centrum Amersfoort
Medisch Centrum Alkmaar
Microvida, Tilburg
Reinier Haga Medisch Diagnostisch Centrum
Star-SHL Etten-Leur/Rotterdam (GGD Zeeland en West-Brabant)
Streeklaboratorium voor de Volksgezondheid Amsterdam
Streeklaboratorium voor de Volksgezondheid Deventer
Streeklaboratorium voor de Volksgezondheid Haarlem
Radboud Universitair Medisch Centrum
Rijnstate Microbiologisch en Immunologisch Laboratorium (MIL)
Zaans Medisch Centrum Zaandam
Ziekenhuis Gelderse Vallei Ede
Ziekenhuis Rivierenland

Appendix D Stichting HIV Monitoring

Clinical centres

** denotes site coordinating physician*

Amsterdam UMC, locatie AMC, Amsterdam:
HIV treating physicians: M. van der Valk*, S.E. Geerlings, A. Goorhuis, J.W. Hovius, B. Lempkes, F.J.B. Nellen, T. van der Poll, J.M. Prins, P. Reiss, V. Spoorenberg, M. van Vugt, W.J. Wiersinga, F.W.M.N. Wit. *HIV nurse consultants:* M. van Duinen, J. van Eden, A.M.H. van Hes, F.J.J. Pijnappel, S.Y. Smalhout, A.M. Weijsenfeld. *HIV clinical virologists/chemists:* S. Jurriaans, N.K.T. Back, H.L. Zaaijer, B. Berkhout, M.T.E. Cornelissen, C.J. Schinkel, K.C. Wolthers.

Amsterdam UMC, locatie VUmc , Amsterdam:
HIV treating physicians: E.J.G. Peters*, M.A. van Agtmael, R.S. Autar, M. Bomers, K.C.E. Sigaloff. *HIV nurse consultants:* M. Heitmuller, L.M. Laan. *HIV clinical virologists/chemists:* R. van Houdt, M. Jonges.

Emma Kinderziekenhuis (Amsterdam UMC, locatie AMC):
HIV treating physicians: M. van der Kuip, D. Pajkrt. *HIV nurse consultants:* C. de Boer, A.M. Weijsenfeld.

Admiraal De Ruyter Ziekenhuis, Goes:
HIV treating physicians: M. van den Berge*, A. Stegeman. *HIV nurse consultants:* S. Baas, L. Hage de Looff. *HIV clinical virologists/chemists:* A. Reuwer, J. Veenemans, B. Wintermans.

Catharina Ziekenhuis, Eindhoven:
HIV treating physicians: M.J.H. Pronk*, H.S.M. Ammerlaan. *HIV nurse consultants:* D.N.J. van den Bersselaar, E.S. de Munnik. *HIV clinical virologists/chemists:* B. Deiman, A.R. Jansz, V. Scharnhorst, J. Tjhie, M.C.A. Wegdam.

DC Klinieken Lairesse - Hiv Focus Centrum:
*HIV treating physicians: : M. van der Valk *,* A. van Eeden, E. Hoorenborg, J. Nellen, . *HIV nurse consultants:* W. Brokking, L.J.M. Elsenburg, H. Nobel. *HIV clinical virologists/chemists:* C.J. Schinkel.

ETZ (Elisabeth-TweeSteden Ziekenhuis), Tilburg:
HIV treating physicians: M.E.E. van Kasteren*, M.A.H. Berrevoets, A.E. Brouwer. *HIV nurse consultants:* A. Adams, R. van Erve, B.A.F.M. de Kruijf-van de Wiel, S. Keelan-Phaf, B. van de Ven. *HIV data collection:* B.A.F.M. de Kruijf-van de Wiel, *HIV clinical virologists/chemists:* A.G.M. Buiting, J.L. Murck.

Erasmus MC, Rotterdam:
HIV treating physicians: T.E.M.S. de Vries-Sluijs*, H.I. Bax, E.C.M. van Gorp, M. de Mendonça Melo, E. van Nood, J.L. Nouwen, B.J.A. Rijnders, C. Rokx, C.A.M. Schurink, L. Slobbe, A. Verbon. *HIV nurse consultants:* N. Bassant, J.E.A. van Beek, M. Vriesde, L.M. van Zonneveld. *HIV data collection:* J. de Groot. *HIV clinical virologists/chemists:* C.A.B. Boucher, M.P.G Koopmans, J.J.A van Kampen.

Erasmus MC–Sophia, Rotterdam:
HIV treating physicians: P.L.A. Fraaij, A.M.C. van Rossum, C.L. Vermont. *HIV nurse consultants:* L.C. van der Knaap, E. Visser.

Flevoziekenhuis, Almere:
HIV treating physicians: J. Branger*, R.A. Douma. *HIV nurse consultant:* A.S. Cents-Bosma, C.J.H.M. Duijf-van de Ven.

HagaZiekenhuis, Den Haag:
HIV treating physicians: E.F. Schippers*, C. van Nieuwkoop. *HIV nurse consultants:* J. Geilings, S. van Winden. *HIV data collection:* G. van der Hut. *Klinische viroloog/chemicus:* N.D. van Burgel.

HMC (Haaglanden Medisch Centrum), Den Haag:
HIV treating physicians: E.M.S. Leyten*, L.B.S. Gelinck, F. Mollema. *HIV nurse consultants:* S. Davids-Veldhuis, C. Tearno, G.S. Wildenbeest. *HIV clinical virologists/chemists:* E. Heikens.

Isala, Zwolle:
HIV treating physicians: P.H.P. Groeneveld*, J.W. Bouwhuis, A.J.J. Lammers. *HIV nurse consultants:* S. Kraan, A.G.W. van Hulzen, M.S.M. Kruiper. *HIV data collection:* G.L. van der Bliek, P.C.J. Bor. *HIV clinical virologists/chemists:* S.B. Debast, G.H.J. Wagenvoort.

Leids Universitair Medisch Centrum, Leiden:
HIV treating physicians: A.H.E. Roukens *, M.G.J. de Boer, H. Jolink, M.M.C. Lambregts, A.H.E. Roukens, H. Scheper. *HIV nurse consultants:* W. Dorama, N. van Holten. *HIV clinical virologists/chemists:* E.C.J. Claas, E. Wessels.

Maasstad Ziekenhuis, Rotterdam:
HIV treating physicians: J.G. den Hollander*, R. El Moussaoui, K. Pogany. *HIV nurse consultants:* C.J. Brouwer, J.V. Smit, D. Struik-Kalkman. *HIV data collection:* T. van Niekerk. *HIV clinical virologists/chemists:* O. Pontesilli, C. van Tienen.

Maastricht UMC+, Maastricht:
HIV treating physicians: S.H. Lowe*, A.M.L. Oude Lashof, D. Posthouwer, M.E. van Wolfswinkel. *HIV nurse consultants:* R.P. Ackens, K. Burgers, J. Schippers. *HIV data collection:* B. Weijenberg-Maes. *HIV clinical virologists/chemists:* J.J.M. Coremans, I.H.M. van Loo.

Medisch Centrum Leeuwarden, Leeuwarden:
HIV treating physicians: M.G.A.van Vonderen*, L.M. Kampschreur. *HIV nurse consultants:* S. Faber, R. Steeman-Bouma. *HIV clinical virologists/chemists:* A. Al Moujahid.

Medisch Spectrum Twente, Enschede:
HIV treating physicians: G.J. Kootstra*, C.E. Delsing. *HIV nurse consultants:* M. van der Burg-van de Plas, L. Scheiberlich.

Noordwest Ziekenhuisgroep, Alkmaar:
HIV treating physicians: W. Kortmann*, G. van Twillert*, R. Renckens, J. Wagenaar. *HIV nurse consultants: & HIV data collection:* D. Ruiter-Pronk, F.A. van Truijen-Oud. *HIV clinical virologists/ chemists:* J.W.T. Cohen Stuart, ER. Jansen, M. Hoogewerf, W. Rozemeijer, W. A. van der Reijden, J.C. Sinnige.

OLVG, Amsterdam:
HIV treating physicians: K. Brinkman*, G.E.L. van den Berk, W.L. Blok, K.D. Lettinga, M. de Regt, W.E.M. Schouten, J.E. Stalenhoef, J. Veenstra, S.M.E. Vrouenraets. *HIV nurse consultants:* H. Blaauw, G.F. Geerders, M.J. Kleene, M. Kok, M. Knapen, I.B. van der Meché, E. Mulder-Seeleman, A.J.M. Toonen, S. Wijnands, E. Wttewaal. *HIV clinical virologists:* T.J.W. van de Laar, D. Kwa.

Radboudumc, Nijmegen:
HIV treating physicians: R. van Crevel*, K. van Aerde, A.S.M. Dofferhoff, S.S.V. Henriet, H.J.M. ter Hofstede, J. Hoogerwerf, M. Keuter, O. Richel. *HIV nurse consultants:* M. Albers, K.J.T. Grintjes-Huisman, M. de Haan, M. Marneef. *HIV clinical virologists/chemists:* J. Rahamat-Langendoen, F.F. Stelma. *Klinisch farmacoloog:* D. Burger.

Rijnstate, Arnhem:
HIV treating physicians: E.H. Gisolf*, R.J. Hassing, M. Claassen. *HIV nurse consultants:* G. ter Beest, P.H.M. van Bentum, N. Langebeek. *HIV clinical virologists/chemists:* C.M.A. Swanink, R. Tiemessen.

Spaarne Gasthuis, Haarlem:
HIV treating physicians: S.F.L. van Lelyveld*, R. Soetekouw. *HIV nurse consultants:* L.M.M. van der Prijt, J. van der Swaluw. *HIV clinical virologists/chemists:* W.A. van der Reijden, R. Jansen, B.L. Herpers, D.Veenendaal.

Medisch Centrum Jan van Goyen, Amsterdam: *HIV treating physicians* D.W.M. Verhagen, F.N. Lauw. *HIV nurse consultants:* M.C. van Broekhuizen.

Universitair Medisch Centrum Groningen, Groningen:
HIV treating physicians: W.F.W. Bierman*, M. Bakker, J. Kleinnijenhuis, E. Kloeze, A. Middel, D.F. Postma, E.H. Schölvinck, Y. Stienstra, A.R. Verhage, M. Wouthuyzen-Bakker. *HIV nurse consultants:* A. Boonstra, H. de Groot-de Jonge, M.M.M. Maerman, P.A. van der Meulen, D.A. de Weerd. *HIV clinical virologists/chemists:* H.G.M. Niesters, C.C. van Leer-Buter, M. Knoester.

Universitair Medisch Centrum Groningen/Beatrix Kinderziekenhuis, Groningen:
HIV treating physicians: E.H. Schölvinck, A.R. Verhage. *HIV nurse consultants:* H. de Groot-de Jonge. *HIV clinical virologists/chemists:* H.G.M. Niesters, C.C. van Leer-Buter, M. Knoester.

Universitair Medisch Centrum Utrecht, Utrecht:
HIV treating physicians: A.I.M. Hoepelman*, R.E. Barth, A.H.W. Bruns, P.M. Ellerbroek, T. Mudrikova, J.J. Oosterheert, E.M. Schadd, B.J. van Welzen. *HIV nurse consultants:* K. Aarsman, B.M.G. Griffioen-van Santen, I. de Kroon. *HIV data collection:* M. van Berkel, C.S.A.M. van Rooijen. *HIV clinical virologists/chemists:* L.M. Hofstra, R. Schuurman, A.M.J. Wensing.

Wilhelmina Kinderziekenhuis, UMC Utrecht, Utrecht:
HIV treating physicians: L.J. Bont, S.P.M. Geelen, Y.G.T. Loeffen, T.F.W. Wolfs. *HIV nurse consultants:* N. Nauta.

Sint Elisabeth Hospitaal, Willemstad, Curaçao:
HIV treating physicians: E.O.W. Rooijakkers, D. van de Wetering. *HIV nurse consultants:* A. Alberto. *Data collection:* I. van der Meer. *HIV clinical virologists/ chemists:* A. Rosingh, T. Halaby

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Deputy-director: S. Zaheri
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HIV data monitoring: D. Bergsma, L. van de Sande, S. van der Vliet, A. Scheijgrond, K.J. Lelivelt
HIV data collection: L.G.M. de Groot-Berndsen, M. van den Akker, Y. Bakker, A. El Berkaoui, M. Bezemer, N.M. Brétin, E.A. Djoechro, M. Groters, C.R.E. Lodewijk, E.G.A. Lucas, L. Munjishvili, F. Paling, B.M. Peeck, C.M.J. Ree, R. Regtop, YM.C. Ruijs-Tiggelman, M.J.C. Schoorl, P.P. Schnörr, , E.M Tuijn, D.P.. Veenenberg, K.M. Visser, E.C.M Witte, R.J. Loenen. Patiëntregistratie: Y.M.C. Ruijs-Tiggelman, D. Bergsma.

Appendix E Nivel Primary Care Database (Nivel-PCD)

Data collection and processing
Rodrigo Davids
Tom Urbanus

Researchers
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Dr. Janneke Hendriksen
Dr. Tessa Jansen

Project management
Dr. Mark Nielen
Dr. Janneke Hendriksen
Dr. Joke Korevaar
Dr. Jeroen Hasselaar

Appendix F STI publications (co-)authored by RIVM employees 2020

A serological divide: men who have sex with men's attitudes on HIV risk reduction strategies. den Daas, C. ; Adam, P.C.G. ; Zuilhof, W. ; de Wit, J.B.F. AIDS Care 2020; 32(sup2):170-6. doi: 10.1080/09540121.2020.1739213.

Acute hepatitis C infection among adults with HIV in the Netherlands between 2003 and 2016: a capture-recapture analysis for the 2013 to 2016 period. Boender, T.S. ; Op de Coul, E. ; Arends, J. ; Prins, M. ; van der Valk, M. ; van der Meer, J.T.M. ; van Benthem, B. ; Reiss, P. ; Smit, C. Euro Surveill 2020; 25(7):pii.1900450. doi: 10.2807/1560-7917.ES.2020.25.7.1900450.

Bivalent vaccine effectiveness against anal human papillomavirus positivity among female sexually transmitted infection clinic visitors in the Netherlands. Woestenberg, P.J. ; King, A.J. ; van Benthem, B.H.B. ; Leussink, S. ; van der Sande, M.A.B. ; Hoebe, C.J.P.A. ; Bogaards, J.A. J Infect Dis 2020; 221(8):1280-5. doi: 10.1093/infdis/jiz187.

Contribution of general practitioners and sexual health centres to sexually transmitted infection consultations in five Dutch regions using laboratory data of Chlamydia trachomatis testing. Slurink, I. ; Groen, K. ; Gotz, H.M. ; Meima, A. ; Kroone, M.M. ; Hogewoning, A.A. ; Ott, A. ; Niessen, W. ; Dukers-Muijrers, N. ; van Bergen, J. ; et.al. Int J STD AIDS 2020; 31(6):517-25. doi: 10.1177/0956462420905275.

Estimating the 'PrEP Gap': how implementation and access to PrEP differ between countries in Europe and Central Asia in 2019. Hayes, R. ; Schmidt, A.J. ; Pharris, A. ; Azad, Y. ; Brown, A.E. ; Weatherbum, P. ; Hickson, F. ; Delpech, V. ; Op de Coul, E. ; et.al. Euro Surveill 2019; 24(41):pii.1900598. doi: 10.2807/1560-917.ES.2019.24.41.1900598.

Evidence for missing HPV-45 and -59 positives with the SPF 10-DEIA-LiPA 25 (version 1) platform compared to the type-specific qPCR assays and the impact on vaccine effectiveness estimates. van Eer, K. ; Leussink, S. ; Severs, T.T. ; van Marm-Wattimena, N. ; Woestenberg, P.J. ; Bogaards, J.A. ; King, A.J. J Clin Microbiol 2020; 58(11):e01626-20. doi: 10.1128/JCM.01626-20.

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