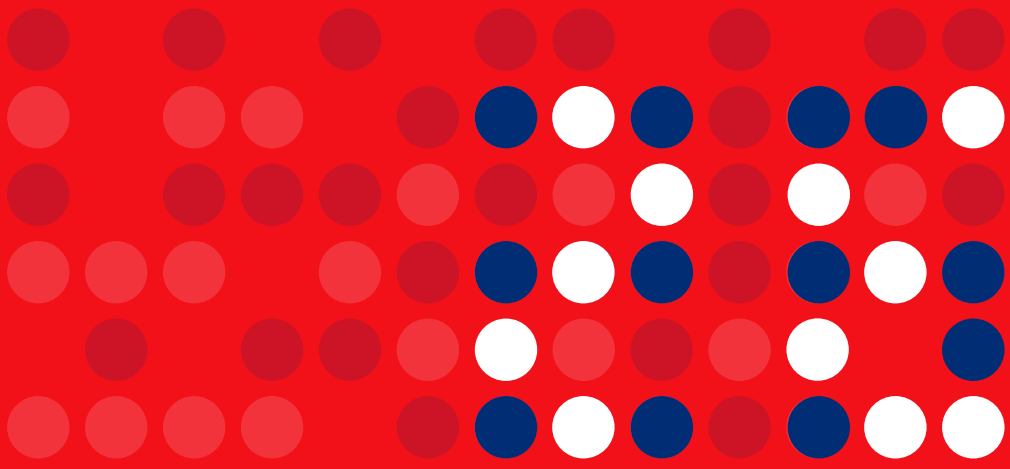
Human Immunodeficiency Virus (HIV)
Infection in the Netherlands

hiv Monitoring

HIV Monitoring Report 2026

Chapter 7: HIV and sexually transmitted infections



7. HIV and sexually transmitted infections

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Key findings

Chlamydia and gonorrhoea

- Between 2010 and 2024, 95,262 *Chlamydia trachomatis* (CT) assays and 93,345 *Neisseria gonorrhoea* (GO) assays were performed within Dutch HIV treatment centres in 11,046 and 11,317 individuals, respectively.
- Between 2010 and 2024, the number of tests performed annually per 1000 participants in care increased from 270 to 448 for CT and from 259 to 448 for GO, while the proportion of participants undergoing testing remained unchanged. This pattern was driven by an increase in sampling at multiple anatomical sites per testing episode, primarily in men who have sex with men (MSM).
- The proportion of participants with CT detected at any anatomical site per testing episodes was 12.3% and was highest in MSM (13.1%) and transgender women (13.8%). CT detection rates decreased by 1.5% per year in MSM; no significant temporal changes were observed in other transmission groups.
- The proportion of participants with GO detected at any anatomical site per testing episode was 13.1% and was highest in MSM (14.3%) and transgender women (9.9%). GO detection rates increased by 1.0% per year in MSM; no significant temporal changes were observed in other transmission groups.
- For both CT and GO, test positivity rates were highest in anorectal specimens, at 12.8% and 12%, respectively.

Syphilis

- Between 2010 and 2024, 93.7% of individuals with newly diagnosed HIV in the Netherlands were tested for syphilis at entry to HIV care. Rates of syphilis testing at entry to HIV care were similar in all HIV transmission groups.
- Between 2010 and 2024, syphilis seroprevalence at care entry increased from 22.4% to 32.3%. The increase in seroprevalence at HIV care entry was observed in MSM, men who have sex with women (MSW) and transgender women but not in cisgender women who have sex with men (WSM).

Doxycycline pre- and post-exposure prophylaxis (doxyPEP)

- Data collection on doxyPEP use began in January 2025. Of 16,319 charts reviewed to date, 156 (1.0%) had documented use of doxyPEP, 165 (1.0%) were documented to have not used doxyPEP and data was missing in 98%.
- Of the 156 participants in which doxyPEP use was recorded, 152 (97.4%) were MSM. Most participants reported obtaining doxyPEP from their HIV provider (75.6%), either exclusively or via additional formal and informal sources.

Introduction

People with HIV are at increased risk of sexually transmitted infections (STIs)[1-5]. In the Netherlands, most STIs – including those occurring in people with HIV – are diagnosed and treated at the general practitioner's (GP) office or at public Sexual Health Centres (SHCs). STI screening and testing is also performed within the 23 national HIV treatment centres. In this setting, screening for syphilis is recommended in all participants entering HIV care[6]. Gonorrhoea (GO) and chlamydia (CT) screening within the HIV treatment centres is performed at the provider's discretion and no standard screening protocol exists. Testing for CT, GO, and syphilis in symptomatic participants may be performed as indicated.

National STI surveillance statistics are based on diagnoses made at SHCs, GPs and through the pregnancy screening program. In people with HIV, national estimates may thus exclude cases diagnosed at one of the HIV treatment centres.

In this new chapter of the HIV Monitoring Report, we present data on the testing and diagnosis of CT, GO and syphilis among ATHENA participants. Preliminary data on doxycycline post-exposure prophylaxis (doxyPEP) for STI prevention is also presented. This chapter focuses on bacterial STIs. Viral hepatitis is discussed in Chapter 9 of this report. Information on syphilis during pregnancy and congenital syphilis among pregnant people with HIV can be found in the RIVM Sexually Transmitted infections in the Netherlands annual report[1].

Methods

We used data from ATHENA participants who were registered in the Netherlands, were 15 years of age or older at HIV diagnosis, had at least one HIV care visit between January 1, 2010, and December 31, 2024, and belonged to the principle HIV transmission group in the cohort: cis-gender men who have sex with men and men who have sex with men and women (MSM), cis-gender men who have sex with women (WSM), cis-gender women who have sex with men (WSM) and transgender women (TGW).

Demographic, clinical, and laboratory data were extracted from the ATHENA database. Data on sexual behaviour was limited; information on condom use, serosorting, and number of sexual partners was not available. Collection of doxyPEP use data began in January 2025. These data are extracted manually from clinical charts and are collected both retrospectively and prospectively.

Collection of CT, GO, and syphilis test results began in 2010. We included only laboratory assays performed within the 23 HIV treatment centers. Laboratory data from 20 HIV treatment centres is linked to the ATHENA database via direct electronic exchange, while data from the remaining three centres is extracted manually. Laboratory results for tests performed within the HIV treatment centres are therefore near-complete in the ATHENA database.

Notable shifts in national STI screening guidelines in the Netherlands occurred during the observation period, with a general trend towards less CT and GO screening in asymptomatic individuals[7]. In the first section of this chapter, we report test positivity rates for CT and GO within the national HIV treatment centres. These data should be interpreted with caution. Information on the indication for testing and clinical symptomatology was not available. If screening of asymptomatic participants decreased during the observation period, test positivity may rise as result, despite stable incidence, and vice versa.

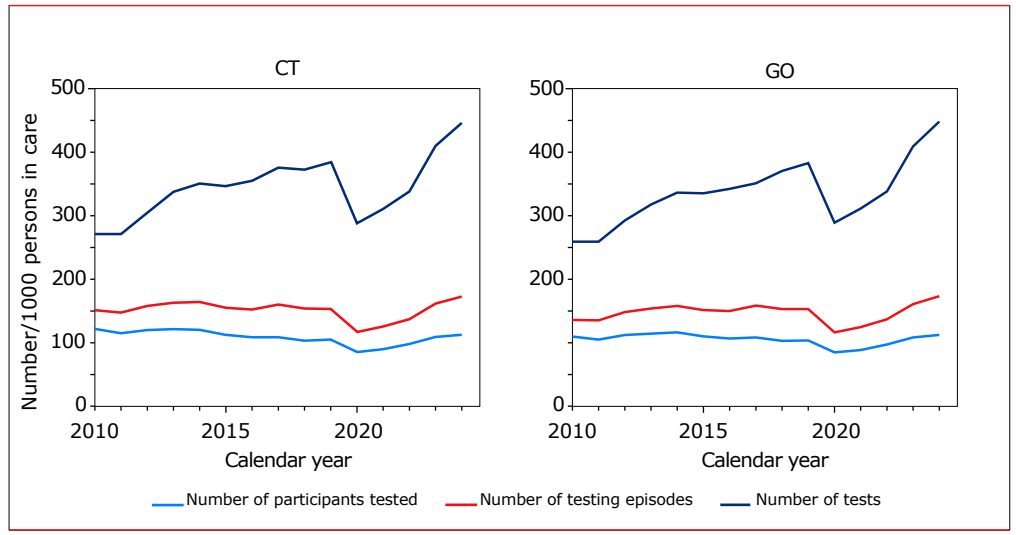
Chlamydia and gonorrhoea

Testing frequency

We determined the total number of CT and GO assays performed during the observation period, the number of infections detected per testing episode, the proportion of testing episodes with three site screening, and test positivity rates by anatomical site sampled. For each organism, the testing episode was defined as sampling at any anatomical location within a period of ≤ 21 days for each participant. Three site testing was defined as sampling from urogenital, anorectal and pharyngeal sites during a testing episode, per organism.

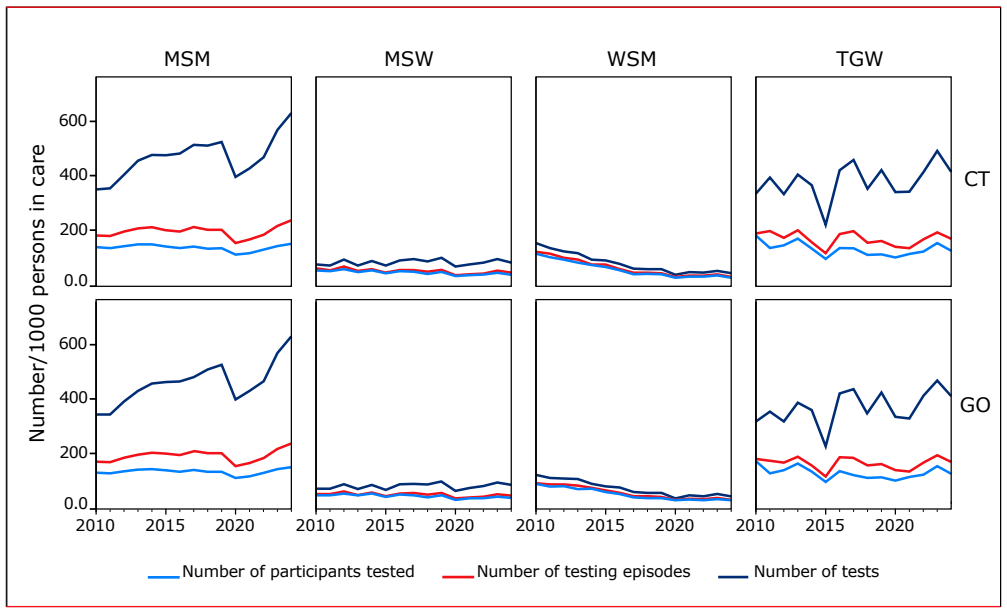
Between 2010 and 2024, 95,262 CT and 93,345 GO specimens were obtained in 11,317 and 11,046 individuals, respectively. Ninety-two percent of CT and GO tests were performed in MSM. Overall, the number of CT and GO tests per 1000 participants in care annually increased from 270 and 259, respectively in 2010, to 446 and 448, respectively in 2024. A marked decline was observed during the COVID-19 pandemic. The number of testing episodes per 1000 participants in care increased slightly over the observation period while the proportion of participants tested annually remained unchanged (*Figure 7.1A*).

Figure 7.1A: *CT and GO testing frequencies per 1000 participants in HIV care annually, 2010–2024.*



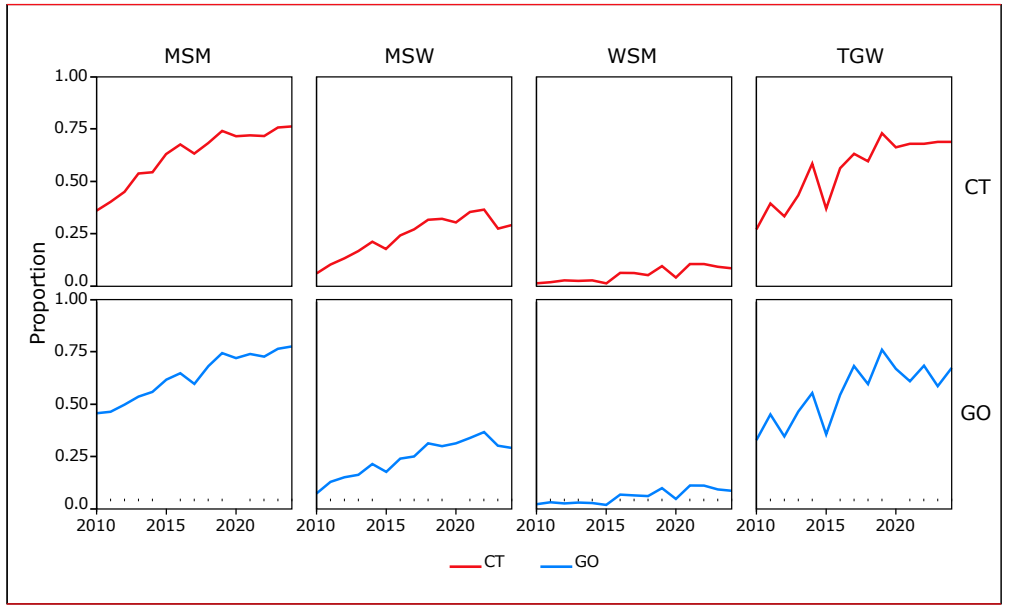
The number of CT and GO tests per 1000 participants per year increased in MSM and TGW, remained stable in MSW, and decreased in WSM (*Figure 7.1B*).

Figure 7.1B: *CT and GO testing frequencies per 1000 participants in HIV care annually, by HIV transmission group, 2010–2024.*



The most frequent anatomical site tested was genitourinary (n=71,275, 37.8%), followed by anorectal (n=58,544, 31.0%), and pharyngeal (n=54,492, 28.9%). Over time, the proportion of participants undergoing three site testing increased, from 30% to 72.6% for CT and from 37.5% to 73.6% for GO, with marked differences by transmission group (Figure 7.2). By 2024, three site testing occurred in more than 75% of testing episodes in MSM, for both CT and GO.

Figure 7.2: *Proportion of testing episodes with three-site testing performed, by transmission group, 2010–2024.*



Disease burden

A total of 41,355 CT and 40,346 GO testing episodes occurred, of which 86.9% and 87.5% were in MSM, respectively. The overall detection rate per testing episode for CT was 12.3% and for GO 13.1%. Detection rates per testing episode were notably lower in WSM compared to other transmission groups (*Table 1*).

Table 7.1: CT and GO detection rates per testing episode, by transmission group (%, (n/N)).

	MSM	MSW	WSM	TGW
CT	13.1% (4724/35935)	8.7% (162/1859)	4.4% (131/2983)	13.8% (80/578)
GO	14.3% (5033/35299)	7.0% (126/1797)	1.6% (42/2682)	9.9% (56/568)

Figures 7.3A and 7.3B show trends in CT and GO detection per testing episode over time, overall and by transmission group, respectively. Overall, CT detection did not change significantly over time while GO detection increased. CT detection rates decreased by 1.5% per year in MSM ($p < 0.0001$); no significant temporal changes were observed in other transmission groups. GO detection increased by 1.0% per year in MSM ($p = 0.01$); no significant temporal changes were observed in other transmission groups.

Figure 7.3A: CT and GO detection rate per testing episode, 2010–2024.

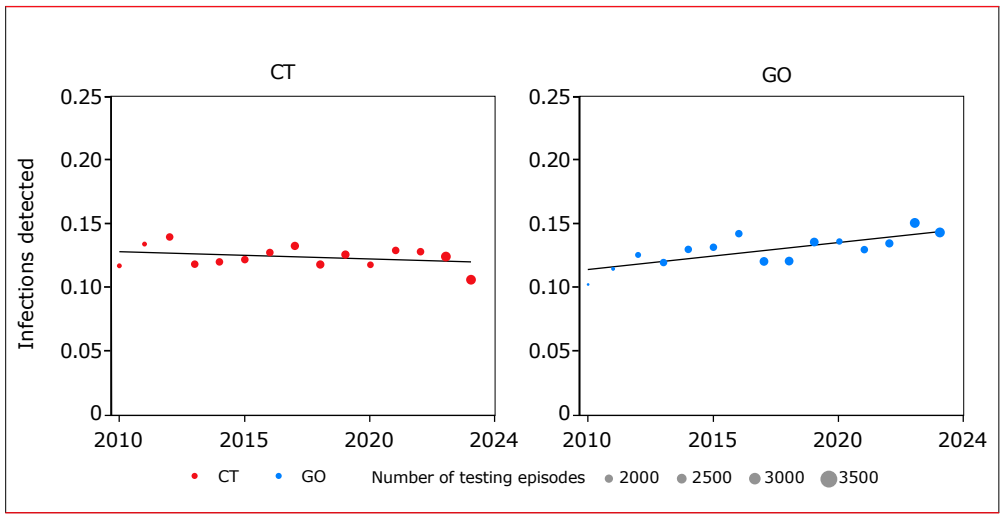
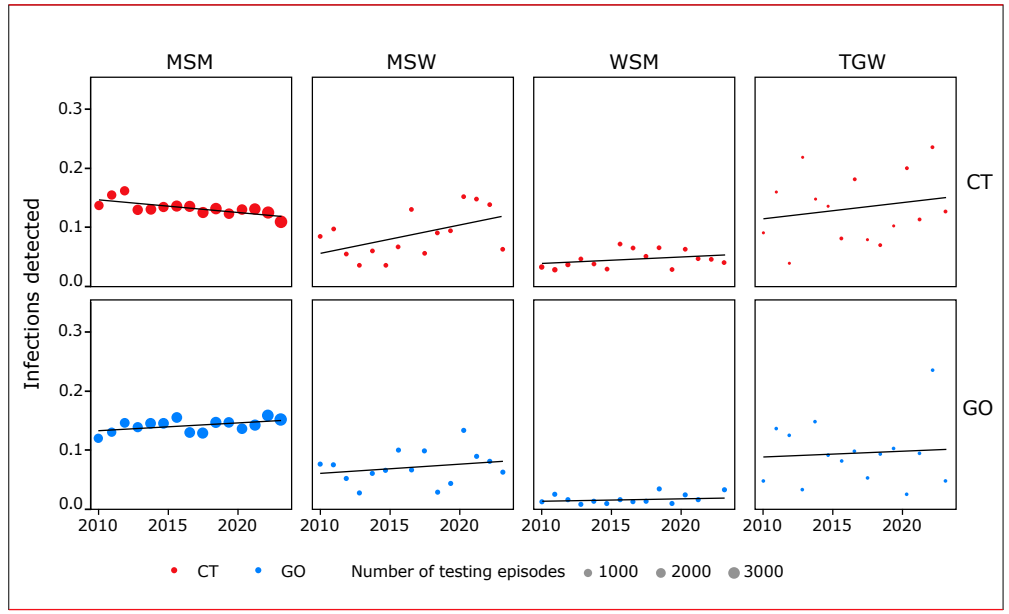


Figure 7.3B: CT and GO detection rate per testing episode, 2010–2024.



Test positivity rates by anatomical site

Between 2010 and 2024, CT was detected in 5,588 specimens performed in 2,959 participants and GO was detected in 6,780 specimens performed in 2,673 participants. For both CT and GO, test positivity rates were highest in anorectal specimens (12.8% and 12.0%) respectively. Tables 7.2A and 7.2B show test positivity rates for CT and GO, respectively, by transmission group and anatomical site.

Table 7.2A: Test positivity rates for Chlamydia trachomatis (CT), by transmission group and anatomical site, 2010–2024.

Transmission group	Genitourinary	Anorectal	Pharyngeal	Vaginocervical
MSM	3.7% (1226/32895)	12.8% (3654/28466)	1.2% (299/25749)	9.1% (2/22)*
MSW	5.2% (90/1738)	12.1% (76/630)	1.5% (10/681)	NA
WSM	4.2% (42/999)	5.2% (11/212)	0.3% (1/292)	4.2% (93/2229)
TGW	2.1% (10/482)	14.9% (66/443)	1.7% (7/403)	4.8% (1/21)

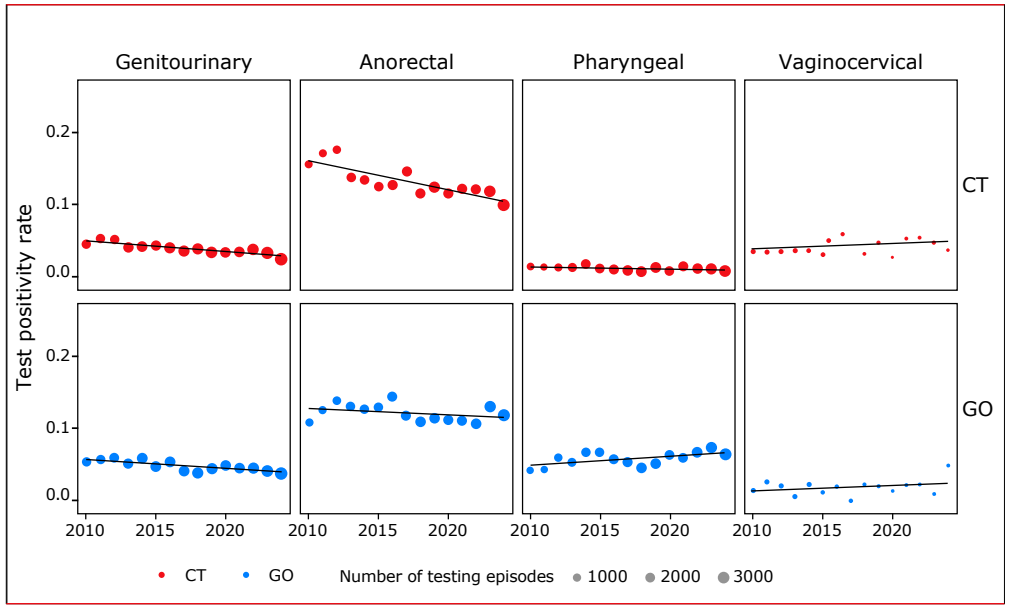
Table 7.2B: Test positivity rates for Neisseria gonorrhoea (GO), by transmission group and anatomical site, 2010–2024.

Transmission group	Genitourinary	Anorectal	Pharyngeal	Vaginocervical
MSM	4.8% (1553/32061)	12.2% (3375/27572)	6.1% (1587/25979)	4.8% (1/21)*
MSW	3.9% (66/1680)	10.1% (60/596)	2.8% (19/685)	NA
WSM	1.1% (10/945)	1% (2/200)	0.7% (2/305)	1.7% (34/1982)
TGW	2.5% (12/475)	8.2% (35/425)	5.8% (23/398)	4.8% (1/21)

**A small number of participants categorized as MSM had vaginocervical CT/GO specimens reported.*

Figures 7.4 shows changes in CT and GO test positivity over time by transmission group and anatomical site.

Figure 7.4: CT and GO test positivity rates, by anatomical site, 2010–2024.



Lymphogranuloma venereum (LGV)

LGV testing is recommended in MSM and transgender women with rectal chlamydia. We determined the proportion of LGV positive assays in this group. We considered LGV tests performed within 21 days following positive anorectal CT testing to be related to the same infectious episode.

Out of 3,720 episodes of anorectal CT among MSM and transgender women, LGV testing was performed in 2,390 (64.2%). LGV serovars were detected during 656 episodes, namely in 17.6% (656/3,720) of all anorectal CT episodes and in 27.5% (656/2,390) of those with LGV testing. No statistically significant temporal change in LGV test positivity was noted during the observation period.

The test positivity rate for LGV observed in our cohort is significantly higher than reported by the sexual health centres (1) but consistent with other reports[8]. These discrepancies are likely due differing indications for CT and LGV testing in differing contexts.

Syphilis

Syphilis testing at entry to HIV care

In the Netherlands, syphilis screening is generally performed using treponemal assays (e.g. TPCLIA, TPPA). Reactive samples are subsequently tested using non-treponemal assays (RPR and VDRL) for disease staging and/or treatment monitoring. Screening for syphilis is recommended in all individuals at entry to HIV care. We determined the proportion of participants entering care in whom syphilis screening was performed.

We included participants who were diagnosed with HIV in the Netherlands between 2010 and 2024 (n = 10,278). We considered syphilis tests performed within 60 days before or after the first HIV care visit (testing window) to represent syphilis testing at entry to care.

Between 2010 and 2024, a total of 20,281 syphilis assays in 9,641 participants were performed within the 60-day testing window; 15,526 (76.7%) were treponemal assays and 4,755 (23.3%) were non-treponemal assays. In many participants, multiple tests were performed within the testing window.

Overall, 93.8% of people entering HIV care were tested for syphilis at care entry. Testing coverage was high throughout the observation period and increased over time. In 2010, 88.0% of people entering care had treponemal testing and 92.0% had any syphilis testing performed at entry to care; in 2024, those proportions were 92.6% and 95.6%, respectively. Rates of syphilis testing at entry to HIV care were similar in all HIV transmission group.

Syphilis seroprevalence at entry to HIV care

Syphilis serology was reactive in 2,718 (28.2%) participants. Seroreactivity at entry to care was highest among transgender women (48.0%, 85/177), followed by MSM (34.6%, 2,324/6,708), MSW (16.4%, 225/1,369) and was lowest among and WSM (6.1%, 84/1,387). *Table 7.3* shows baseline syphilis seroprevalence by demographic characteristics.

Table 7.3: *Syphilis seroprevalence at HIV care entry among participants newly diagnosed with HIV in the Netherlands, by demographic characteristic, 2010–2024 (n = 9,641)*

	Reactive n/N (%)
Transmission group	
MSM	2324/6708 (34.6%)
WSM	84/1387 (6.1%)
MSW	225/1369 (16.4%)
TGW	85/177 (48.0%)
Age at HIV diagnosis (years)	
15–24	202/996 (20.3%)
25–34	812/2843 (28.6%)
35–44	698/2476 (28.2%)
45–54	598/1980 (30.2%)
55+	408/1346 (30.3%)
Birth region	
Netherlands	1627/5837 (27.9%)
Latin America and Caribbean	441/1175 (37.5%)
Sub-Saharan Africa	90/873 (10.3%)
Central and Eastern Europe	225/627 (35.9%)
W Europe, N America, Australia	141/447 (31.5%)
South and East Asia	109/408 (26.7%)
N Africa and Middle East	63/213 (29.6%)
Unknown	22/61 (36.1%)

Overall, syphilis seroprevalence at entry to HIV care increased from 24.5% in 2010 to 33.0% in 2024 ($p < 0.0001$) (*Figure 7.5A*). Seroprevalence at care entry increased in MSM, MSW, and transgender women but not in WSM (*Figure 7.5B*). Syphilis seroprevalence increased most rapidly over time in participants under 35 years of age (*Figure 7.5C*).

Figure 7.5A: *Proportion of newly diagnosed participants entering HIV care in the Netherlands with reactive syphilis serology, by calendar year, 2010–2024.*

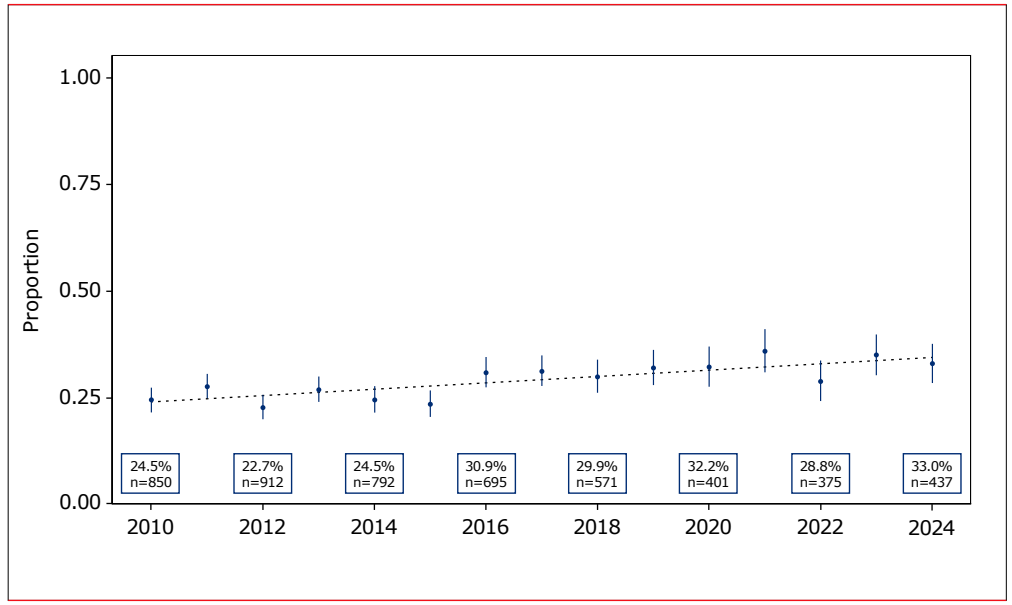


Figure 7.5B: *Proportion of newly diagnosed participants entering HIV care in the Netherlands with reactive syphilis serology, by calendar year and HIV transmission group, 2010-2024.*

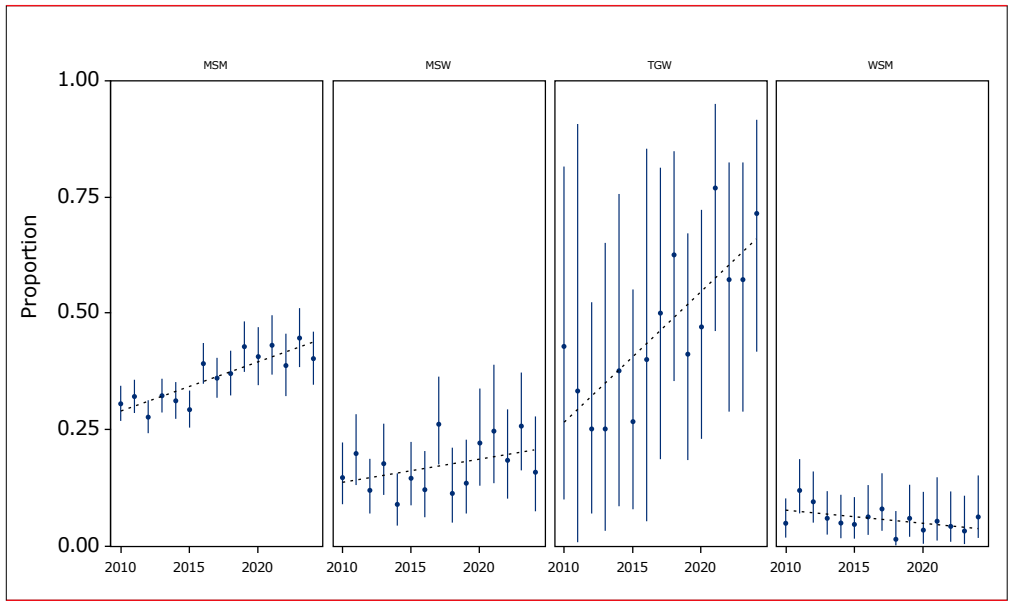
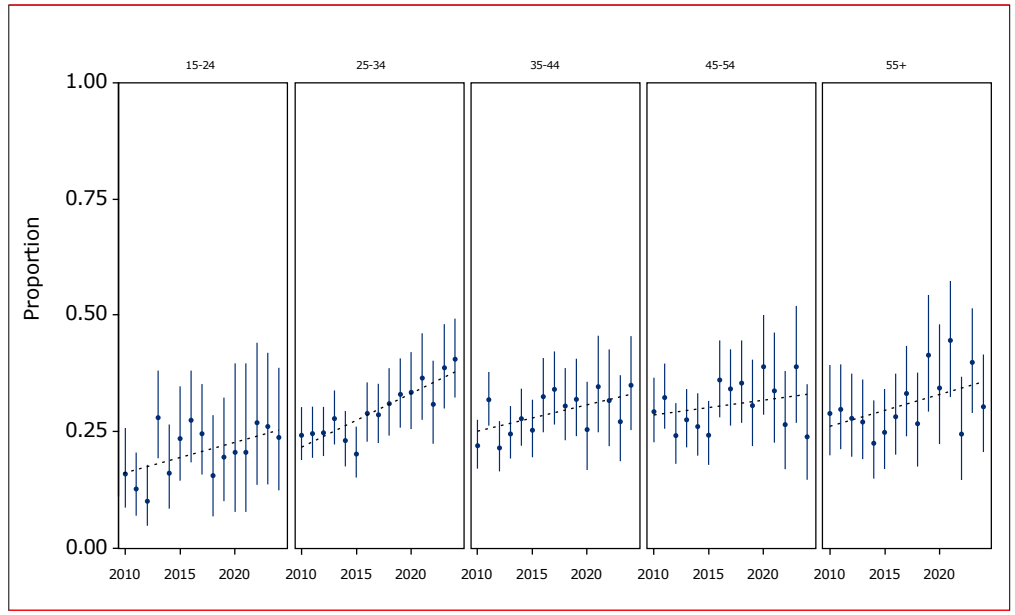


Figure 7.5C: *Proportion of newly diagnosed participants entering HIV care in the Netherlands with reactive syphilis serology, by calendar year and age group, 2010-2024*



Circles represent mean observed syphilis seroprevalence; vertical bars represent 95% binomial confidence intervals; the dashed line represents unadjusted linear regression for the time trend for each level of each covariate.

Doxycycline for STI prevention

Since January 2025, medical records of ATHENA participants have been reviewed for information on doxyPEP use. In this section, we present preliminary descriptive statistics on doxyPEP use among adult participants who had at least one HIV care visit between January 2020 and December 2025. We defined formal doxyPEP use as prescribed by a medical provider, either in the Netherlands or abroad. All other means of obtaining doxyPEP were considered informal.

Of 26,280 participants in care over the past five years, records of 16,319 (62.1%) were reviewed for doxyPEP use. Data on doxyPEP use were not reported in 15,998 (98.0%); 165 (1.0%) participants were documented to have not used doxyPEP and 156 (1.0%) to have ever used doxyPEP.

Among the 156 participants reporting doxyPEP use, 152 (97.4%) were men who have sex with men (MSM), 77 (49.4%) were born in the Netherlands, and 106 (67.9%) received care in the Amsterdam region (*Table 7.4*). Mean age at doxyPEP initiation was 47.0 years (range, 26.6–74.5). The earliest recorded use was in December 2022. DoxyPEP was obtained exclusively from formal sources in 122 (78.2%) participants, exclusively from informal sources in 14 (9.0%), and from a combination of formal and informal sources in 7 (4.5%); in the remaining 13 (8.3%) medication source was unknown.

Most participants obtained doxyPEP from their HIV care provider (n=118, 75.6%; 108 exclusively from the HIV provider and 10 from additional sources), followed by unknown source (n=13, 8.3%) and general practitioner or other medical provider (n=11, 7.1%). Informal sources included friends or partners, purchase online, and purchase abroad. DoxyPEP was used on demand by 107 participants (68.6%) and daily by 9 (5.8%); in the remaining 40 participants, the dosing schedule was unknown or included both on demand or daily use (n=2). Of the 11 participants reporting ever using daily doxyPEP, 4 reported obtaining doxyPEP via formal means, with the remaining recorded as either informal or unknown.

Table 7.4: Characteristics of ATHENA participants reporting doxyPEP use (n = 156).

Age at first doxyPEP use	
Mean (range)	47.0 (26.6 – 74.5)
Transmission group	
MSM	152 (97.4%)
Other	4 (2.5%)
Birth region	
Netherlands	77 (49.4%)
W Europe, N America, Australia	28 (17.9%)
Latin America and Caribbean	24 (15.4%)
Central and Eastern Europe	13 (8.3%)
N Africa and Middle East	7 (4.5%)
Other	7 (4.5%)
Care region	
Noord-Holland and Flevoland	106 (67.9%)
Other	23 (14.7%)
Zuidelijk Zuid-Holland	17 (10.9%)
Utrecht	10 (6.4%)
Medication source, type	
Formal	122 (78.2%)
Informal	14 (9.0%)
Unknown	13 (8.3%)
Formal and informal	7 (4.5%)
Medication source, detailed	
HIV provider (+/- other source)	118 (75.6%)
Unknown	13 (8.3%)
GP or other medical provider	11 (7.1%)
Purchased on internet	5 (3.2%)
Purchased, other/not specified	5 (3.2%)
Partner/friend	4 (2.6%)
Schedule	
On demand	107 (68.6%)
Unknown/either	40 (25.7%)
Daily	9 (5.8%)

DoxyPEP, doxycycline post-exposure prophylaxis; MSM, men who have sex with men; GP, general practitioner.

Conclusions

We report data from bacterial STI testing performed within the 23 Dutch national HIV treatment centers over the past 25 years.

Testing frequency was high. Nearly 95% participants with newly diagnosed HIV in the Netherlands underwent syphilis screening at care entry. The number of CT and GO tests and increased over time as did the number of tests per 1000 participants in care, while the number of testing episodes and number of participants tested per year remained largely unchanged. This pattern was driven by increased testing at multiple anatomical sites per testing episodes, particularly in MSM. MSM and TGW had the highest burden of STIs, consistent with national data[1].

Preliminary data on doxyPEP use among people with HIV shows both formal and informal utilization, with most participants obtaining doxyPEP from their HIV care provider.

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