

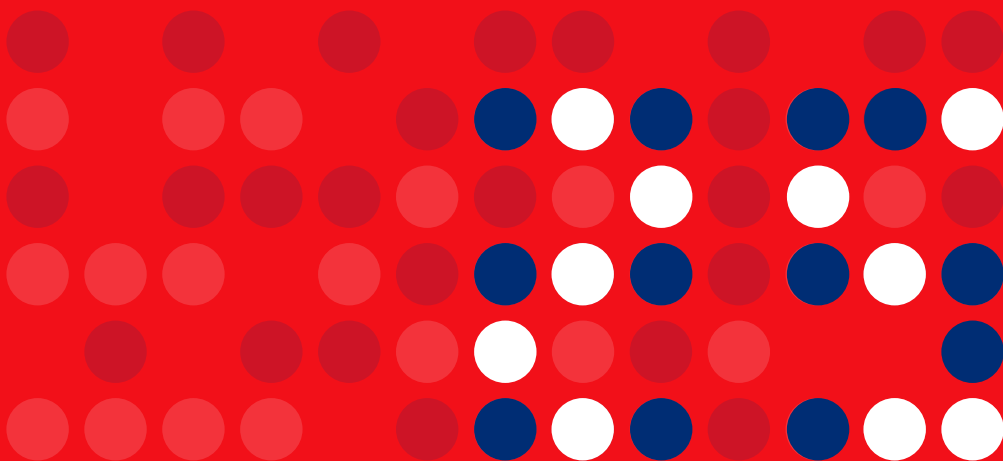
Human Immunodeficiency Virus (HIV)
Infection in the Netherlands



HIV Monitoring Report

2025

Chapter 3: Social inequalities in people
with a new HIV diagnosis compared to
the general population



3. Social inequalities in people with a new HIV diagnosis compared to the general population

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Summary

To further reduce new HIV diagnoses in the Netherlands, individual and structural barriers hindering prevention must be addressed. We aimed to estimate the disproportional burden of new HIV diagnoses and explore how intersecting socio-demographic, socio-economic, and health-related factors jointly influence the risk of a new HIV diagnosis.

We combined all data from individuals with HIV registered by SHM and data from CBS within a secure SHM-CBS environment. The data were combined using date of birth, gender and the four numbers of an individual's postcode. We selected individuals with a new HIV diagnosis in the Netherlands between 1 January 2012 and 31 December 2023 and matched them to individuals from the general population. The results from this chapter are based on calculations by SHM using non-public microdata from Statistics Netherlands (CBS). CBS is an independent organisation that collects, processes and publishes reliable statistical data on residents of the Netherlands. Since no data on sexual preference is available in CBS we report results by gender at birth and not by presumed HIV transmission route.

6,055 men and 1,020 women were newly diagnosed with HIV. Having a first or second generation migration background and a low-middle income or income below the poverty line was associated with a higher risk of a new HIV diagnosis for both men and women. Use of mental health care or antidepressants prior to the diagnosis also increased the risk among men; while receiving social welfare and use of antipsychotic medication increased the risk among women. Men with a first-generation migration background, income below the poverty line, and who used antidepressants had the highest predicted probability of an HIV diagnosis (0.036%). Women with a first-generation background, income below the poverty line, who received social welfare, and who used antipsychotic medication had the highest predicted risk (0.019%).



Aim

In the Netherlands, the HIV care continuum has almost reached the 95-95-95 UNAIDS targets in recent years; however, these targets have not yet been met for women and cisgender heterosexual men (see Chapter 1). Dutch health care services are universally accessible, STI and HIV testing is free for specific populations [including men who have sex with men (MSM) and transgender persons], and HIV prevention services, namely PrEP, are available, although PrEP prescriptions have to be paid individually (€ 15-65 per month for daily PrEP depending on pricing by pharmacy) . Both HIV care and STI and HIV prevention services are accessible for both documented and undocumented migrants. Despite these services, there is no longer a decline in the number of new HIV diagnoses (see [Chapter 1](#)). This stagnation likely reflects individual, interpersonal, and structural barriers that hinder prevention.

We estimated the disproportional burden of new HIV diagnoses and explored how intersecting socio-demographic, socio-economic, and health-related factors jointly influence the risk of a new HIV diagnosis using data from the ATHENA national HIV cohort and registry data from Statistics Netherlands.

Methods

The results from this chapter are based on calculations done by SHM using non-public microdata from Statistics Netherlands (CBS) and Vektis C.V.. CBS is an independent organization that collects, processes and publishes reliable statistical data on residents in the Netherlands. We combined all data from individuals with HIV registered by SHM and data from CBS within a secure SHM-CBS environment. The data were combined using date of birth, gender and the four numbers of an individual's postcode. Combining of the data is done by CBS and researchers have no access to postal codes. As data registration at CBS takes longer to complete than at SHM, we used data for all individuals who were diagnosed with HIV up until 31 December 2023 (i.e. the most recent data available at CBS).

The following variables from the CBS database were included:

Box 3.1: Description of variables included from Statistics Netherlands.

Variable	Description
Education level	Classified as: 1. Primary: defined as completed pre-vocational secondary education ('VMBO) and/or first three years of senior general secondary education ('HAVO') or pre-university level ('VWO') 2. Secondary: Completed secondary vocational education (MBO), senior general secondary education ('HAVO') or pre-university level ('VWO') 3. College/University: completed higher vocational education (HBO) or university
Migration background	Based on the country of birth of the parents and the individual. Migration background was categorized as follows: • Dutch: the individual and both parents were born in the Netherlands or both parents were born in the Netherlands, but the individual was not. • First generation migration background: The individual and at least one parent was born abroad. • Second generation migration background: An individual born in the Netherlands who has at least one parent born abroad.
Employment status	Defined as the primary source of income within households: wages, business income, social welfare, retirement or benefits (including disability and unemployment)
Gender	Defined as the gender registered in the administration of the local municipality.



Household composition	Categorized as: single person household, living together with or without children, other (i.e., institutionalized, other multi-person households)
Household income	Defined as income according to the social minimum (the minimal amount of financial resources required to achieve a minimally acceptable lifestyle). The social minimum is determined and adjusted bi-annually by the Ministry of Social Affairs and Employment (https://www.uwv.nl/nl/toeslag/sociaal-minimum).
Long term care act (WLZ)	Defined as declared costs (>0 euro) as part of the long term care act. This entails care with stay and care at home, elderly care, psychiatric care, care during chronic illness, and care for individuals with a disability.
Mental health care (basic)	Defined as declared costs (>0 euro) for basic mental health care
Mental health care (specialized)	Defined as declared cost (>0 euro) for specialized mental health care
Social welfare	Defined as receiving social welfare within a year
Use of antipsychotics	Use of medication for psychosis (ATC code No5A)
Use of anti-depressants	Use of medication for depression (ATC code No6A)

We selected all individuals in the ATHENA cohort who were 18 years or older and newly diagnosed with HIV in the Netherlands between 1 January 2012 and 31 December 2023. Individuals who migrated to the Netherlands with a known pre-migration HIV diagnosis were excluded. We also excluded individuals identifying as transgender as few were included in the ATHENA cohort and the risk of identification was deemed non-negligible. We selected all individuals from the non-public microdata made available by Statistics Netherlands who were aged 18 years and older. We matched each individual newly diagnosed with HIV to all individuals from the general population with the same year of birth, gender, and calendar year of HIV diagnosis. Since no data on sexual preference is available in CBS matching by HIV transmission mode was not possible.

To minimise the risk of personal data inadvertently leading to the identification of an individual, data involving fewer than ten people were not reported.

Description of the population sample

Between 1 January 2012 and 31 December 2023, 6,055 men and 1,020 women were newly diagnosed with HIV, and combined with data from Statistics Netherlands. 2,437 (40%) men and 551 (54%) women were diagnosed with late or advanced stage HIV. These individuals were matched to 75,774,149 men and 66,819,245 women from the general population. 2,466 men and 659 women with HIV had a first or second migration background and 1,388 men and 455 women with HIV had an income below the poverty line.



Social inequalities in new HIV diagnoses in the Netherlands

Compared to the male general population, men with a new HIV diagnosis (Table 2):

- More often had a first or second generation migration background;
- More often had a low-middle income or an income below the poverty line;
- More often used mental health care prior to HIV diagnosis;
- More often used antidepressants before HIV diagnosis;
- Less often used antipsychotic medication before HIV diagnosis.

Women with a new HIV diagnosis:

- More often had a first or second generation migration background;
- More often had a low-middle income or an income below the poverty line;
- More often received social welfare;
- More often used antipsychotic medication.

Table 3.1: Determinants of an HIV diagnosis. Results from multivariable logistic regression.

	Men		Women	
	Adjusted odds ratio	95% Confidence interval	Adjusted odds ratio	95% Confidence interval
Migration background				
None	Reference		Reference	
First generation	2.21	2.08–2.35	4.48	3.87–5.19
Second generation	1.33	1.22–1.44	1.65	1.31–2.07
Income				
High	Reference		Reference	
Middle-low	1.24	1.17–1.31	2.49	2.05–3.01
Below the poverty line ¹	1.75	1.62–1.89	4.71	3.80–5.83
Received social welfare				
No			Reference	
Yes			1.39	1.15–1.67
Used mental health care²				
No	Reference			
Yes	1.14	1.01–1.27		
Used antidepressants³				
No	Reference		Reference	
Yes	1.66	1.50–1.84	1.23	0.99–1.52
Used anti-psychotic medication³				
No	Reference		Reference	
Yes	0.79	0.66–0.94	1.66	1.21–2.28

¹ Income below the poverty line is defined as a household income <120% of the social minimum (the minimal amount of financial resources required to achieve a minimally acceptable lifestyle). The social minimum is determined and adjusted bi-annually by the Ministry of Social Affairs and Employment (<https://www.uwv.nl/nl/toeslag/sociaal-minimum>).

² Defined as declared cost (>0 euro) for mental health care.

³ Use of medication for depression (ATC code N06A) or psychosis (ATC code N05A).



The influence of intersecting factors on the risk of HIV

We generated intersectional strata for men and women combining the socio-demographic and socio-economic variables mentioned above, whereby a stratum corresponded to a unique combination of these variables. For men, we combined categories of migration background (none, first generation, second generation), income (high, middle-low, below poverty line), mental health care use (yes/no), antidepressant use (yes/no), and antipsychotic medication use (yes/no). For women, strata were combined based on migration background, income, receiving social welfare (yes/no), use of antidepressants, and use of antipsychotic medication. This approach yielded 72 strata for both men and women. As age is known to influence HIV risk, we additionally included age in these strata, resulting in a total of 216 potential combinations.

The predicted risk of HIV was small overall, but differed between strata. Men aged between 25-49 years old, with a first generation migration background, an income below the poverty line, and who used antidepressants had the highest risk of newly diagnosed HIV (0.036% predicted risk, 95%CI=0.025-0.052), while men aged ≥ 50 years with no migration background and a high income had the lowest risk (0.003% predicted risk, 95%CI=0.003-0.004, Figure 1, Table 1). Women aged 25-49 years, with a first generation migration background, an income below the poverty line, who received social welfare, and who used antipsychotic medication had the highest predicted risk of newly diagnosed HIV (0.019%, 95%CI=0.011-0.035, Figure 2.2, Table 2).

Figure 3.1: Predicted risk of a new HIV diagnosis for each stratum among men. (A) Predicted probabilities, B) Characteristics associated with each stratum. In (B) Color coding indicates categories for each variable. Age: dark blue = ≥50 years, medium blue = 25-49 years, light blue <25 years. Migration background: light red = no migration background, medium red = first generation migration background, dark red = second generation migration background. Income: dark green = below poverty line, medium green = low-middle income, light green = high income. For the other variables (mental health care, antidepressant use, antipsychotic use): darker shades = used, lighter shades = not used.

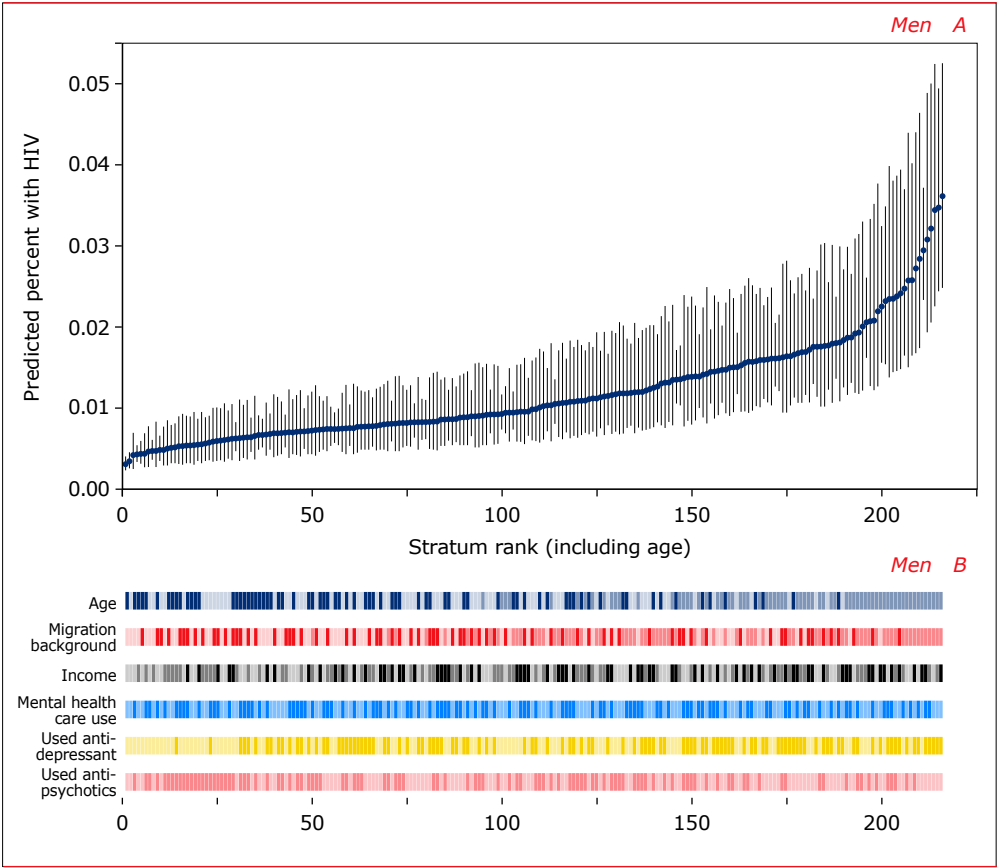




Figure 3.2: Predicted risk of a new HIV diagnosis for each stratum among women. (A) Predicted probabilities, (B) Characteristics associated with each stratum. In (B) Color coding indicates categories for each variable. Age: dark blue = ≥ 50 years, medium blue = 25–49 years, light blue <25 years. Migration background: light red = no migration background, medium red = first generation migration background, dark red = second generation migration background. Income: dark green = below poverty line, medium green = low-middle income, light green = high income. For the other variables (received social welfare, antidepressant use, antipsychotic use): darker shades = received/used, lighter shades = not received/used.

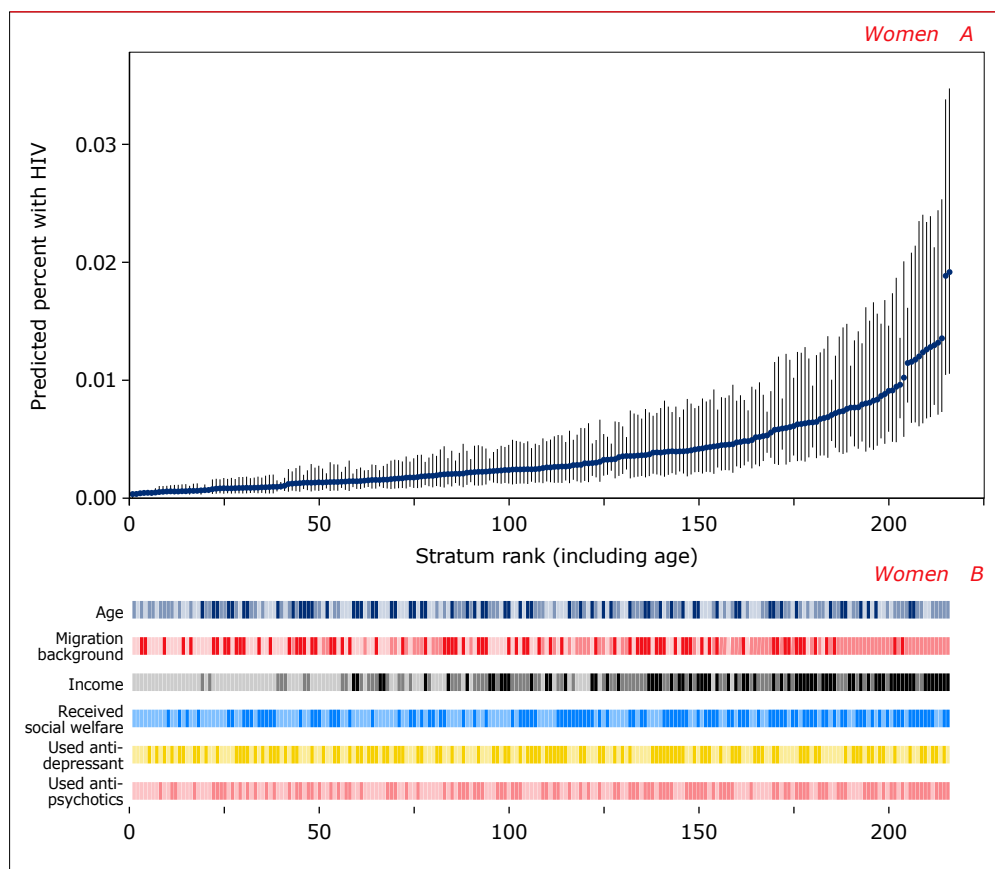


Table 3.2: Strata with the highest and lowest risk of a new HIV diagnoses for men.

Age	Migration background	Income'	Mental health care use
Highest risk			
25-49 years	1st generation	Below the poverty line	No
25-49 years	1st generation	Low-middle	No
25-49 years	1st generation	High	No
25-49 years	1st generation	Low-middle	Yes
25-49 years	1st generation	Below the poverty line	Yes
Lowest risk			
≥50 years	2nd generation	High	No
≥50 years	No migration background	Low-middle	No
≥50 years	No migration background	High	Yes
<25 years	No migration background	High	No
≥50 years	No migration background	High	No

Table 3.3: Strata with the highest and lowest risk of a new HIV diagnoses for women.

Age	Migration background	Income'	Received social welfare
Highest risk			
25-49 years	1st generation	Below the poverty line	Yes
25-49 years	1st generation	Below the poverty line	Yes
25-49 years	1st generation	Below the poverty line	No
25-49 years	1st generation	Below the poverty line	No
25-49 years	1st generation	Below the poverty line	Yes
Lowest risk			
≥50 years	No migration background	High	No
<25 years	2nd generation	High	No
≥50 years	2nd generation	High	No
<25 years	No migration background	High	No
≥50 years	No migration background	High	No



	Use of anti-depressants	Use of anti-psychotic medication	Sample size	Predicted risk	95%CI
	Yes	No	48,704	0.036	0.025–0.052
	Yes	No	64,767	0.035	0.024–0.049
	Yes	No	29,357	0.034	0.023–0.052
	Yes	No	24,122	0.032	0.021–0.050
	Yes	No	21,442	0.031	0.019–0.049
	No	No	776,745	0.004	0.003–0.006
	No	No	11,717,392	0.004	0.003–0.005
	No	Yes	18,464	0.004	0.002–0.007
	No	No	3,542,066	0.003	0.003–0.004
	No	No	12,134,635	0.003	0.002–0.004

	Use of anti-depressants	Use of anti-psychotic medication	Sample size	Predicted risk	95%CI
	No	Yes	14,577	0.019	0.011–0.035
	Yes	Yes	19,408	0.019	0.011–0.034
	No	Yes	11,525	0.014	0.007–0.025
	Yes	Yes	13,451	0.013	0.007–0.024
	Yes	No	74,389	0.013	0.008–0.021
	Yes	No	850,512	0.0004	0.0002–0.0006
	No	No	381,206	0.0005	0.0002–0.0005
	No	No	576,867	0.0003	0.0002–0.0006
	No	No	2,846,477	0.0003	0.0002–0.0004
	No	No	8,778,458	0.0002	0.0002–0.0004

Conclusions

HIV burden was higher among men and women with a migration background, those with a low-middle income or an income below the poverty line, and those who used mental health related care or medication. We also found that these factors jointly influence the risk of newly diagnosed HIV. These findings allow for more concrete understanding of which subgroups could benefit from improved HIV prevention and testing.

Box 3.2: Identifying socio-demographic and socio-economic gaps in HIV care in the Netherlands.

To assess whether inequalities remain after HIV diagnosis, more detailed information is needed about which individuals might not successfully transition through the steps of the HIV care continuum. To this end, we used data from 21,788 individuals with HIV diagnosed before 31 December 2023 and combined these with registry data from Statistics Netherlands. We modelled socio-demographic, - economic, and health-related determinants of not achieving two milestones in the HIV care continuum, i.e., suppressed viral load and engagement in care. In men who have sex with men (MSM), cisgender heterosexual men and women, having a household income below the poverty line or a low to middle household income was associated with having a detectable viral load. Having a second-generation migration background (i.e., an individual born in the Netherlands who has at least one parent born abroad) or living in a single parent, institutionalized or other type of household was associated with a higher probability of a detectable viral load in only MSM. Younger age was associated with a higher probability of having a detectable viral load in cisgender heterosexual men and women only. Having an household income below the poverty line was also associated with disengagement from care in MSM and cisgender heterosexual men. Efforts to optimize HIV care through specialized interventions should consider individual economic vulnerability.

