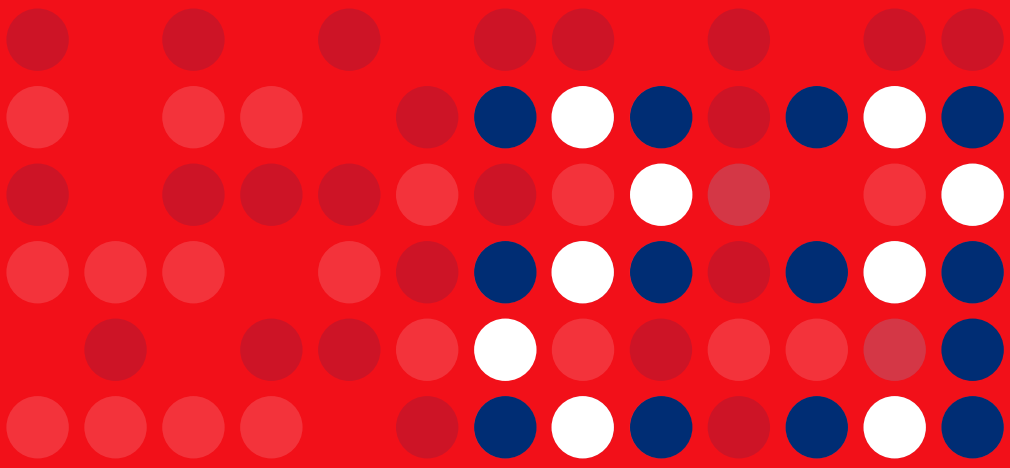
Human Immunodeficiency Virus (HIV)
Infection in the Netherlands

HIV Monitoring

HIV Monitoring Report 2023

Special report 1.2: Identifying gaps in HIV care in the Netherlands using data from Statistics Netherlands



1.2 Identifying gaps in HIV care in the Netherlands using data from Statistics Netherlands

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Summary

To continue the path towards zero new HIV infections we need more focused insight into the circumstances of people who do not progress through the HIV care continuum and who, as a result, retain a detectable HIV-1 viral load. The results from this chapter are based on analyses made by SHM using non-public data from Statistics Netherlands (CBS). CBS is an independent organisation that collects, processes and publishes reliable statistical data on Dutch residents.

We combined all data from individuals with HIV registered by SHM with 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 postal code. We used all data up to and including 2021.

We were able to successfully combine the data of 20,996 individuals with data from CBS. That figure amounts to 94% of the 22,362 individuals ever linked to care and registered in the SHM database in 2021. Compared to the general Dutch population, individuals ever linked to HIV care were:

- younger (44% under 40 years of age vs. 34%);
- more often male (85% vs. 49%);
- more often living in a single-person household (52% vs. 29%);
- more often living in highly urban areas (49% vs. 25%); and
- more often in the lowest income level (16% vs. 9%) and receiving social welfare (13% vs. 4%)

Viral suppression among women and other men was below 95% regardless of socio-demographic characteristics and socio-economic status. Among MSM viral suppression was below 95% among those with an income of less than 120% of the social minimum, and among MSM with primary and secondary education. Further analyses will need be conducted to pinpoint the socio-demographic and socio-economic factors that affect optimal progression through the HIV care continuum.

Box 1: Definitions used in this chapter.

Term	Definition
Advanced HIV disease	Defined as a CD4 count below 200 cells/mm^3 or an AIDS-defining event, and no evidence of having acquired HIV in the 12 months before diagnosis.
Disengage-ment from care	Individuals ever linked to care who did not attend an HIV clinical visit in 2021 (but did attend visits prior to 2021).
Late-stage HIV diagnosis	Defined as a CD4 count between 200-350 cells/mm^3 or an AIDS-defining event regardless of CD4 count at the moment of diagnosis, and no evidence of having acquired HIV in the 12 months before diagnosis.*
Linked to care	All individuals with at least one HIV clinical visit in 2011-2021 and who did not pass away or move abroad.
On ART	All individuals who started ART before or in 2021.
Other/chronic HIV	Defined as a CD4 count above 350 cells/mm^3 at the moment of diagnosis.
Recent HIV infection	Defined as evidence of having acquired HIV in the 12 months before diagnosis, based on a negative or indeterminate Western blot at the time of diagnosis, or a reported last negative HIV test at most 12 months before diagnosis.
Retention in care	All individuals with a clinical visit or a CD4/viral load measurement in 2021.
Viral suppression	Defined as an HIV-1 RNA <200 copies/mL.

**Of note, this definition differs from the definition used in Chapter 1 to assure late-stage and advanced diagnoses are mutually exclusive and could be assessed separately.*

Aim

The Netherlands is on track to achieve the UNAIDS 95-95-95 targets before 2025 (see Chapter 1). In 2022, an estimated 24,400 individuals (95% CI 24,220-24,720) were living with HIV. Of these, 21,094 individuals (86%) had an undetectable viral load. While this proportion is high, it nonetheless means that approximately 3,311 individuals with HIV in the Netherlands (including individuals unaware of their HIV infection) are likely to have a detectable HIV-1 viral load. To continue on the path towards zero new HIV infections, we need more focused insight into the circumstances of people whose progression through the HIV care continuum is suboptimal.

Data from SHM provide information relating to socio-demographic factors of the population with HIV, such as date of birth and gender at birth. However, SHM lacks information on other societal factors that could indicate delayed progression through the HIV care continuum, such as an individual's socio-economic status or level of education. Moreover, SHM cannot provide information on the socio-demographic characteristics of people who disengage from HIV care in the Netherlands. Yet if these data are combined with external data from Statistics Netherlands (CBS), the resulting information could provide a basis for further improvements in specific gaps in care.

Method

The results in this chapter are based on analyses made by SHM using non-public data from CBS. CBS is an independent organisation that collects, processes and publishes reliable statistical data on Dutch residents. We combined all data from individuals with HIV registered by SHM with 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 postal code. As there is a delay in data registration at CBS, we used data for all individuals who were diagnosed with HIV up until 31 December 2021 (i.e. the most recent data available at CBS).

The following variables from the CBS database were included:

Box 2:. Description of variables included from Statistics Netherlands.

Variable	Description
Debt restructuring	Indicates whether an individual used the Debt Rescheduling Natural Persons Act (Wet Schuldsanering Natuurlijke Personen, WSNP).
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'). 1. Secondary: Completed secondary vocational education ('MBO'), senior general secondary education ('HAVO') or pre-university level ('VWO'). 1. College/University: completed higher vocational education (HBO) or university.
Migration background	Based on the country of birth of the parents and the individual. An individual was categorised as Dutch if the individual and both parents were born in the Netherlands or if both parents were born in the Netherlands, but the individual was not. If the individual and at least one parent were born outside of the Netherlands, migration background was determined by the country of birth of the mother. If in this case the country of birth of the mother was the Netherlands, migration background was determined based on the country of birth of the father.
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	Categorised as: single person household, living together with or without children, other (i.e. institutionalised, 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 annually by the Ministry of Social Affairs and Employment.
Mental health care (basic)	Defined as declared costs (more than 0 euro) for basic mental health care.
Mental health care (specialised)	Defined as declared costs (more than 0 euro) for specialised mental health care.
Social welfare	Defined as receiving social welfare within a given year.
Use of antipsychotics	Use of medication for psychosis.
Use of anti-depressants	Use of medication for depression.
Urbanisation	Based on the density of households per km^2 within a municipality. Classified as: very urban (≥2500 addresses per km^2), urban (1500-2499 addresses per km^2), not urban and not rural (1000-1500 addresses per km^2), and rural (<1000 addresses per km^2).

We used annual data concerning socio-demographic and socio-economic information for our analyses. Information from a given year (e.g. 2021) was based on data registered at the end of the previous calendar year (e.g. registered by 31 December 2020). Individuals who had migrated or passed away were excluded from the study population in the calendar year following migration or death.

To minimise the risk of personal data inadvertently leading to the identification of an individual, data involving fewer than ten people were not reported. When the number of individuals between steps in the HIV care continuum

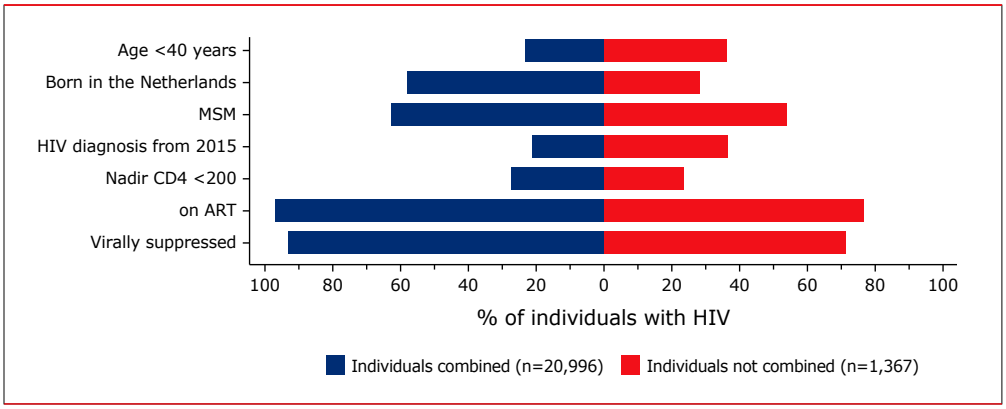
(e.g. between retention in care and using ART) amounted to fewer than five people, a range of values that included the minimum and maximum number of possible people was reported instead.

Description of the population sample

In 2021, there were 22,672 individuals ever registered in the SHM database. 310 (1%) individuals had migrated or died by 2021, according to CBS, and were subsequently excluded from the dataset. We were able to successfully combine the data of 20,996 individuals with data from CBS. That figure amounts to 94% of the 22,362 individuals registered in the SHM database in 2021 who were still living in the Netherlands.

SHM data show that individuals whose data could not be combined were younger, less often born in the Netherlands, less often MSM, and more often diagnosed with HIV after 2015 (Figure 1). Moreover, participants whose data could not be combined used ART less often and were subsequently less often virally suppressed.

Figure 1: *Socio-demographic and HIV-related characteristics of individuals whose data from SHM could be combined with Statistics Netherlands databases and those whose data could not.*



Note: *The percentage of virally suppressed people is calculated as the percentage of people prescribed ART with an HIV-1 RNA < 200 c/ml (individuals with combined SHM and CBS data, n=20,316; individuals without combined data, n=1,044).*

Abbreviations: *ART, antiretroviral therapy; HIV, human immunodeficiency virus; MSM, men who have sex with men.*

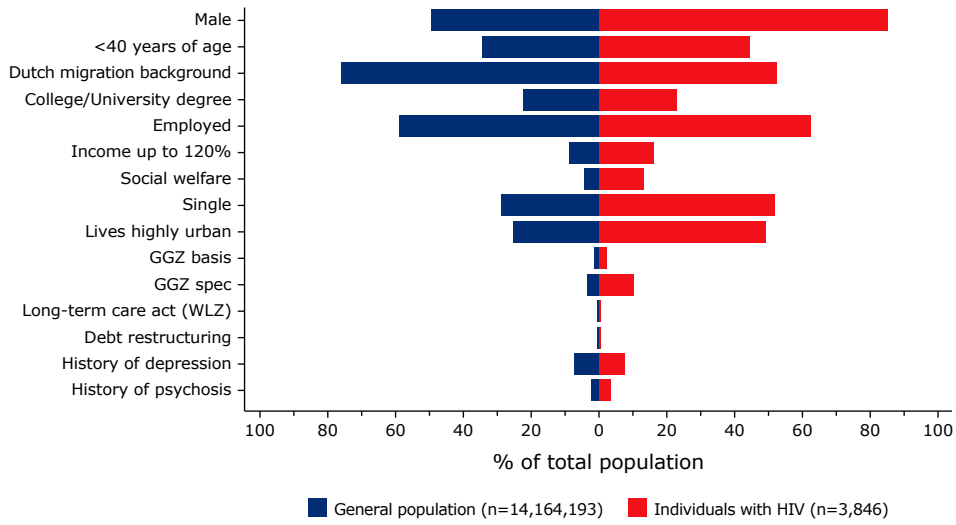
All individuals for whom demographic information was available and who were diagnosed with HIV from 2015 onwards (n = 3,846; 92% able to be combined with the CBS database) were compared (Figure 2a).

Compared to the general Dutch population, individuals ever linked to HIV care were:

- younger (44% under 40 years of age vs. 34%);
- more often male (85% vs. 49%);
- more often living in a single-person household (52% vs. 29%);
- more often living in highly urban areas (49% vs. 25%); and
- more often in the lowest income level (16% vs. 9%) and receiving social welfare (13% vs. 4%)

Moreover, people linked to HIV care also received specialist mental health care more often than the general Dutch population (10% vs. 4%).

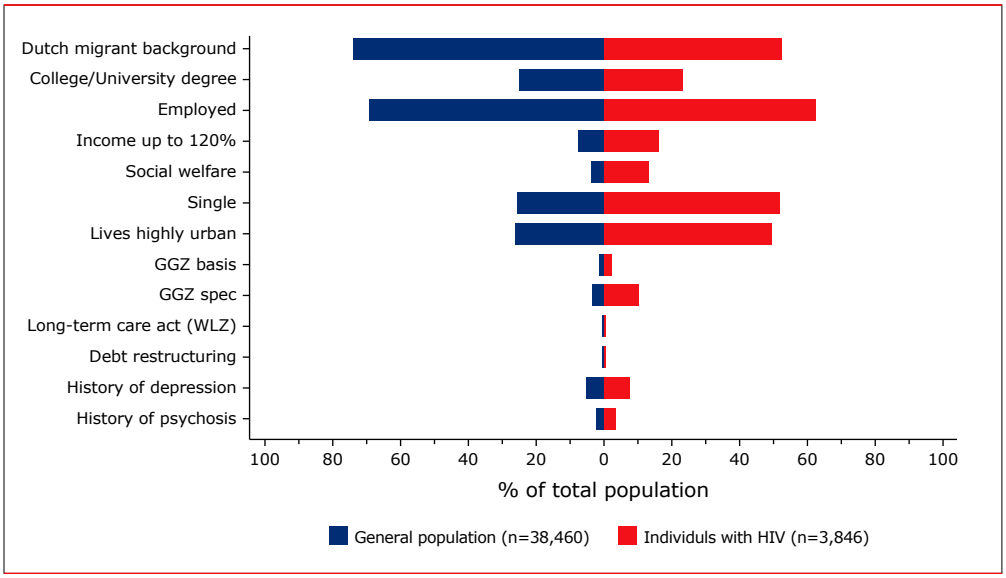
Figure 2a: *Socio-demographic and socio-economical description of the general Dutch population and individuals with HIV in care in the Netherlands.*



Abbreviations: *GGZ, geestelijke gezondheidszorg (i.e., mental health care); WLZ, wet langdurige zorg. The GGZ offers basic or specialized mental health care to people living in the Netherlands, which is covered by the mandatory Dutch insurance scheme.*

To minimize the effect of age and gender differences, we also matched each individual in the SHM database to 10 individuals in the CBS database based on age-groups and gender categories. We then compared individuals from SHM and CBS in these matched groups (Figure 2b). Results when populations were matched according to age and gender were similar to those including all individuals (Figure 2b).

Figure 2b: *Socio-demographic and socio-economical description of the general Dutch population and individuals with HIV in care in the Netherlands, matched according to age and gender.*



Note: *Populations matched on gender and age.*

Abbreviations: *GGZ, geestelijke gezondheidszorg (i.e., mental health care); WLZ, wet langdurige zorg. The GGZ offers basic or specialized mental health care to people living in the Netherlands which is covered by the mandatory Dutch insurance scheme.*

Men who have sex with men

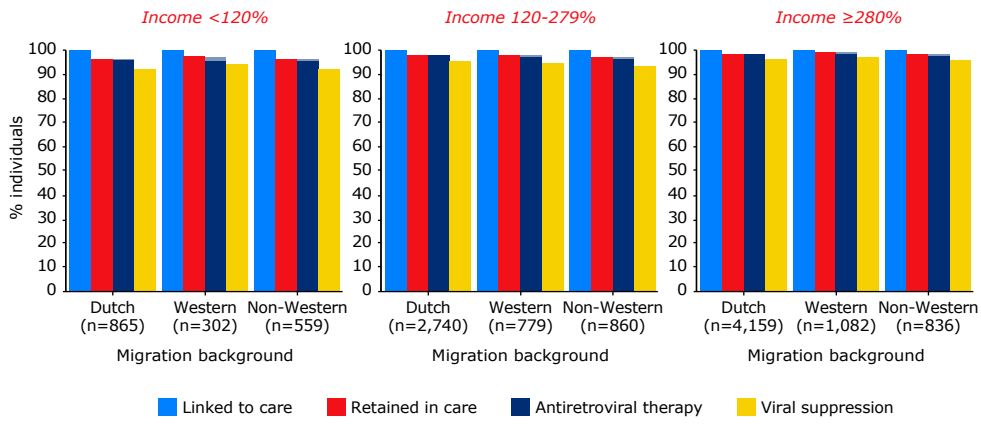
HIV care continuum by income and migration background, level of education, and level of urbanisation

Figure 3 shows the HIV care continua among MSM, stratified by income and migration background, level of education, and level of urbanisation. Viral suppression was less than 95% among MSM with a Dutch (92%) and other Western (94%) migration background who had an income lower than 120% of the social minimum (91%).

Among MSM with a non-Western migration background, viral suppression was less than 95% for those with an income lower than 120% (92%) of the social minimum and for those with an income of 120-280% (94%) of the social minimum. Moreover, viral suppression was less than 95% among MSM with primary (92%) and secondary education (94%).

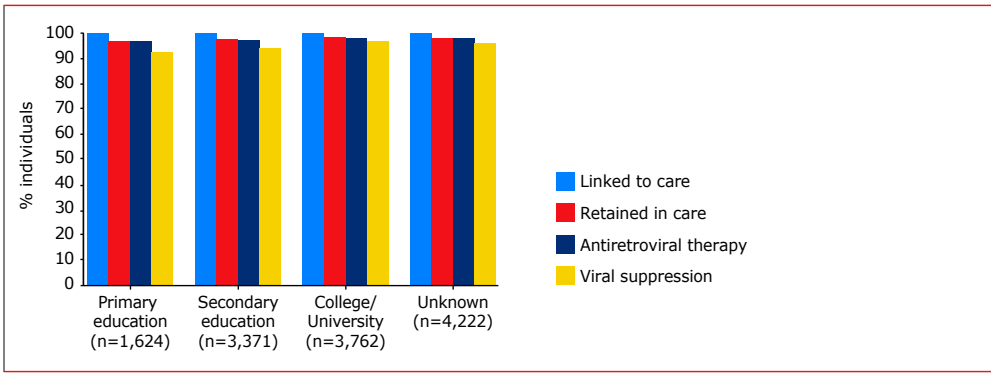
Figure 3: HIV care continuum in 2021 among men who have sex with men.

A: By migration background and income.

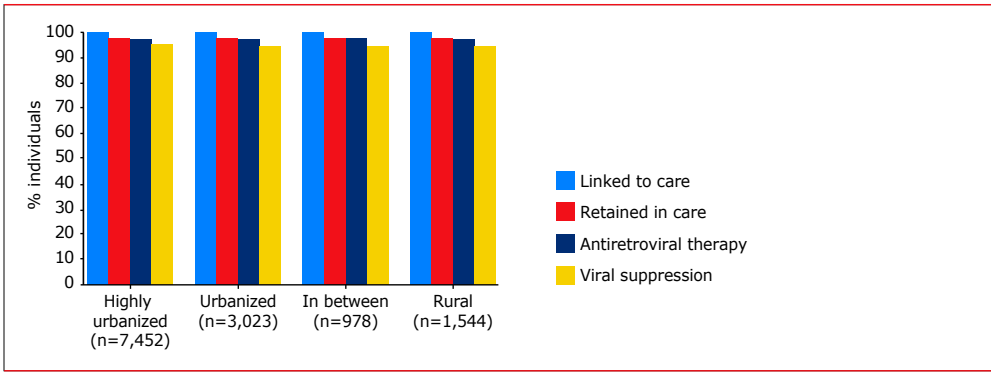


Light bars represent the possible range of values. Actual values could not be given due to less than 5 individuals lost from the previous step of care.

B: By education.



C: By level of urbanisation.

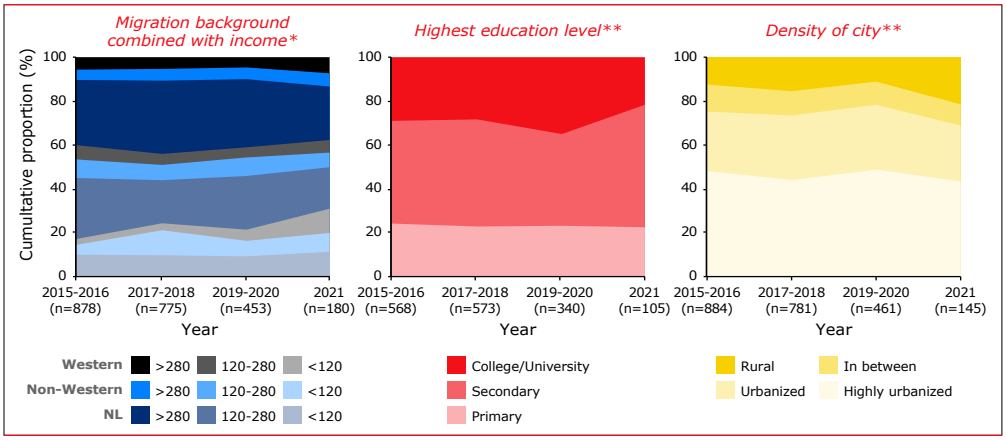


New diagnoses and late presentation from 2015 onwards

Between 2015 and 2021, 2,902 MSM with a new HIV diagnosis were registered with SHM. In recent years there was a slight decrease in the distribution of MSM with a new HIV diagnosis and a college/university education, and MSM newly diagnosed with HIV from 2015 onwards living in highly urbanised areas, between 2019 and 2021 (Figure 4a). No changes were observed in the distribution of migration background and income among MSM newly diagnosed with HIV (Figure 4a and 4b, respectively).

Figure 4: *Distribution of socio-demographic and socio-economical characteristics of MSM with a new HIV diagnosis between 2015-2021.*

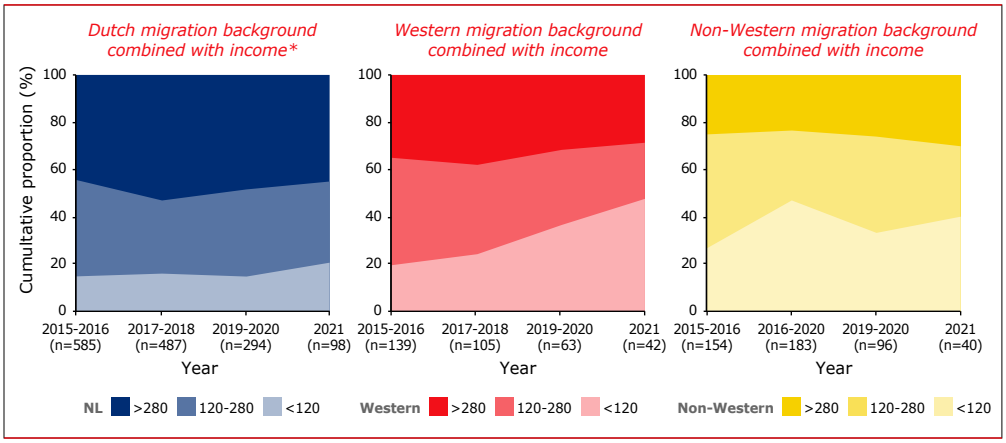
A: *Migration background combined with income, education level and level of urbanisation.*



* *Sum of new diagnoses do not add up to the total new HIV diagnoses among MSM. To provide an approximation of the percentage, data involving fewer than ten people were kept at ten people.*

** *Sum of new diagnoses do not add up to the total new HIV diagnoses among MSM due to missing data.*

B: *Income stratified by migration background.*



* *Sum of new diagnoses do not add up to the total new HIV diagnoses among MSM. To provide an approximation of the percentage, data involving fewer than ten people were kept at ten people.*

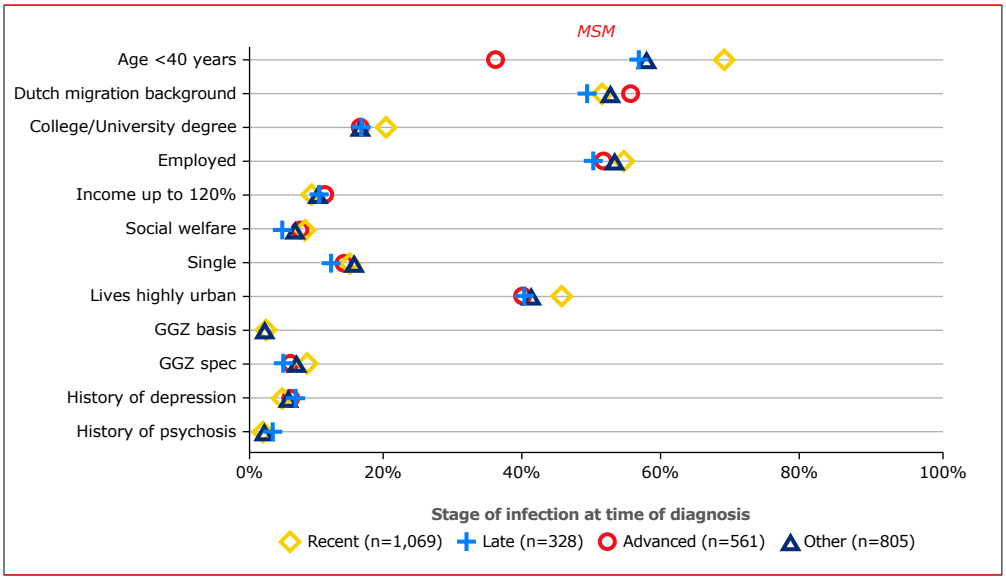
Of the 2,902 MSM newly registered with an HIV diagnosis between 2015-2021:

- 1,069 (37%) were diagnosed with a recent HIV infection;
- 328 (11%) were diagnosed with late-stage HIV infection;
- 561 (19%) were diagnosed with advanced HIV disease;
- 805 (28%) were diagnosed with other/chronic HIV; and
- 139 (5%) were diagnosed with an unclassified HIV stage.

MSM with an advanced diagnosis were less often under 40 years of age, while MSM with a recent infection were aged 40 years or younger in more than 60% of diagnoses (Figure 5).

MSM with a university education or living in highly-urbanised regions were diagnosed more often with a recent HIV infection compared to MSM diagnosed with an other/chronic-, late- or advanced HIV disease.

Figure 5: *Distribution of socio-demographic and socio-economical characteristics of MSM registered with a recent, late, advanced or other/chronic HIV diagnosis between 2015-2021.*



Abbreviations: *GGZ, geestelijke gezondheidszorg (i.e., menthal health care).*
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Women and other men

HIV care continuum by income and migration background, education level, and level of urbanisation

Figure 6 shows the HIV care continua among women and other men, stratified by income and migration background, level of education, and level of urbanisation. Viral suppression was 90%, 92%, and 90% for women of Dutch, other Western, and non-Western descent, respectively, who had an income lower than 120% of the social minimum (Figure 6a).

Among women with an income of between 120-279% of the social minimum, 91% and 92% of women of non-Western and other Western descent, respectively, were virally suppressed. Similarly, among women with an income equal to or more than 280% of the social minimum, viral suppression was 94% and 93% for women of Dutch and non-Western descent, respectively. For women of other-Western descent in this category, viral suppression was between 84-100%.

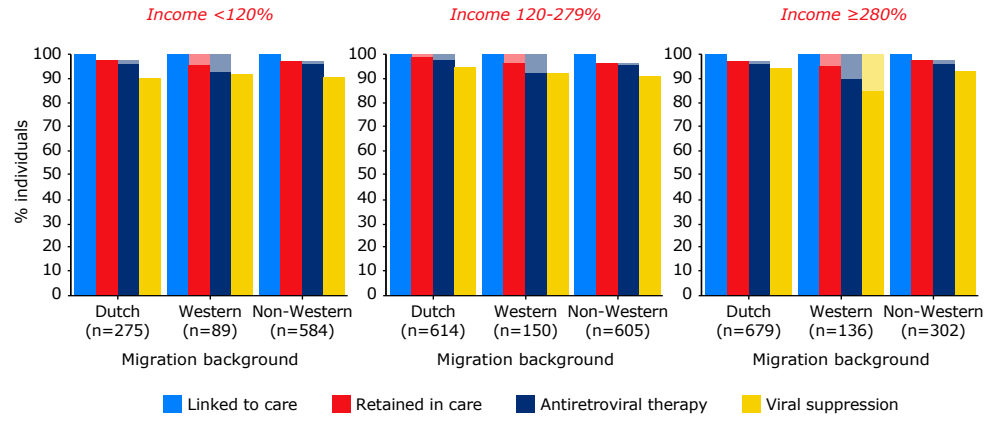
Among other men with an income lower than 120% of the social minimum, viral suppression was 90% for men of Dutch and non-Western descent, and 81% for men of other-Western descent (Figure 6b). Viral suppression was between 90%-93% for men with an income between 120-279% of the social minimum. Among men with an income equal to or greater than 280% of the social minimum, viral suppression was 89% for men who have sex with women (MSW) of other Western descent, 93% for MSW of non-Western descent and 95% for MSW of Dutch descent.

Viral suppression was below 95% for all women and other men, regardless of education level (Figure 6c). For other men with the highest level of education being primary education, only 88% were virally suppressed.

Among women, viral suppression was below 95% in rural (94%) and highly urban areas (90%, Figure 6d). For other men, viral suppression was below 95% in all areas, regardless of degree of urbanisation.

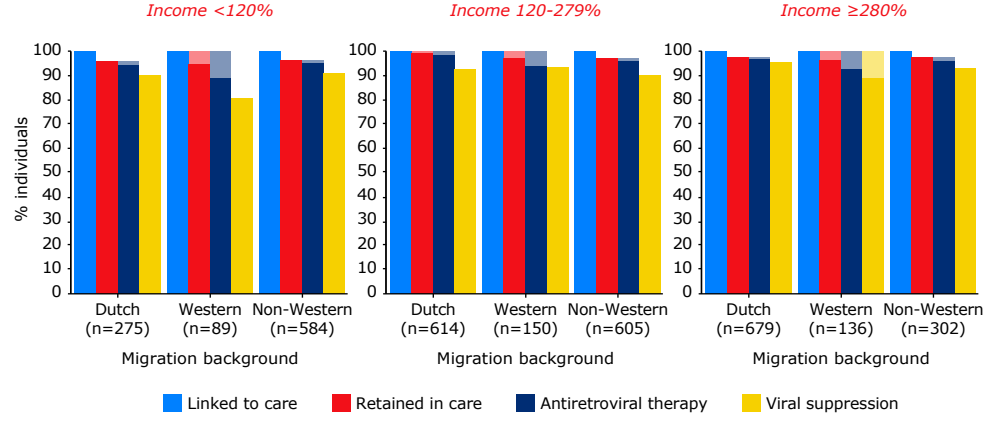
Figure 6: HIV care continuum in 2021 among women and other men.

A: Women by migration background and income.



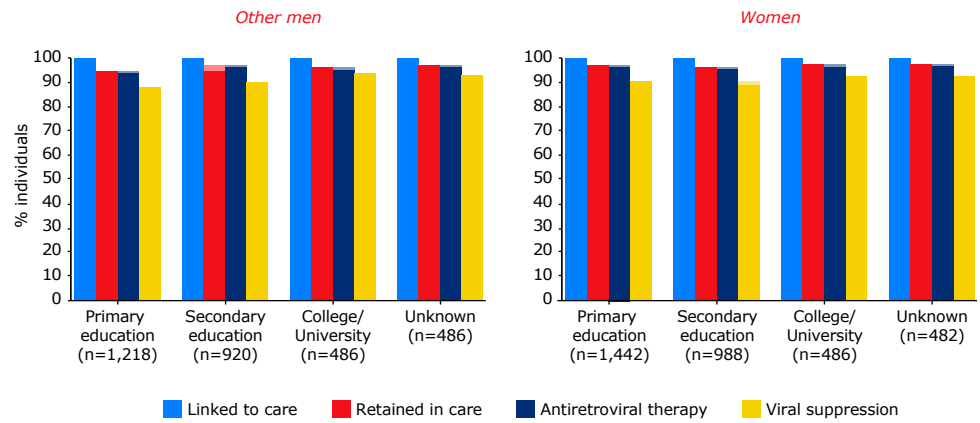
Light bars represent the possible range of values. Actual values could not be given due to less than 5 individuals lost from the previous step of care.

B: Other men by migration background and income.



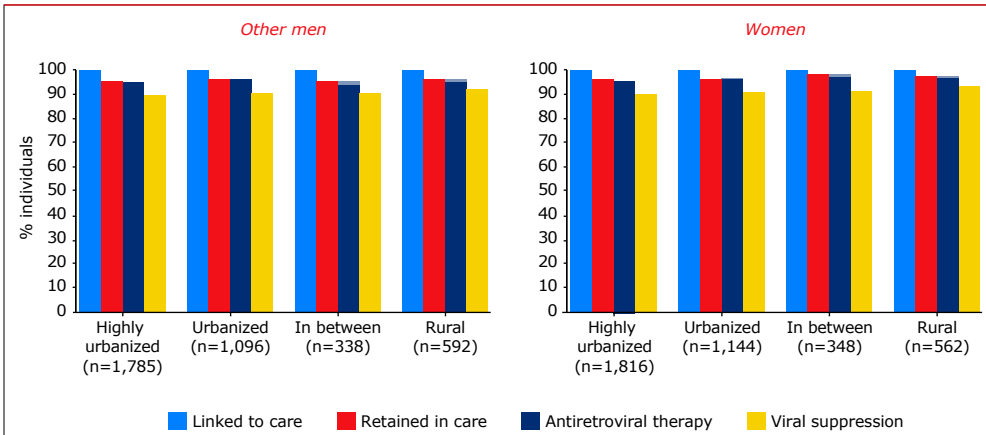
Light bars represent the possible range of values. Actual values could not be given due to less than 5 individuals lost from the previous step of care.

C: By education.



Light bars represent the possible range of values. Actual values could not be given due to less than 5 individuals lost from the previous step of care.

D: By level of urbanisation.



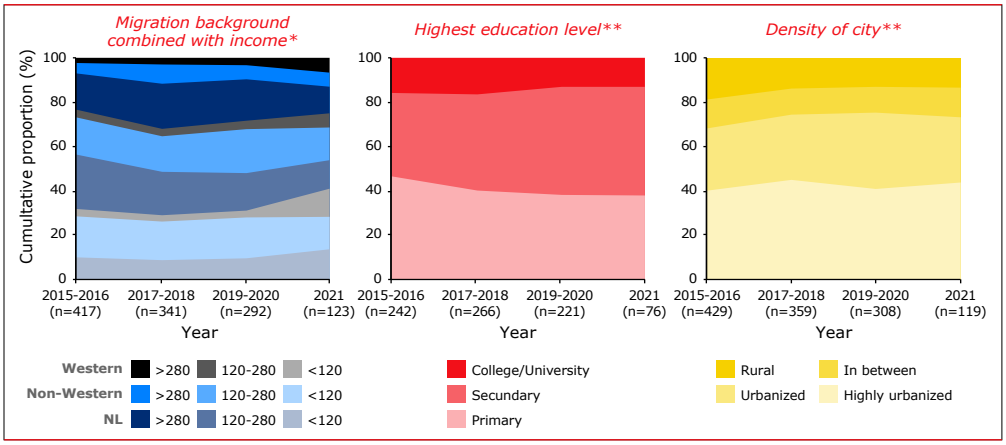
Light bars represent the possible range of values. Actual values could not be given due to less than 5 individuals lost from the previous step of care.

New diagnoses and late presentation from 2015 onwards

Between 2015 and 2021, 675 women and 991 other men were diagnosed with HIV. Only slight fluctuations in the distribution of socio-demographic characteristics over time were evident (Figure 7a and b).

Figure 7: *Distribution of socio-demographic and socio-economical characteristics of women and men who have sex with women newly diagnosed with HIV between 2015-2021.*

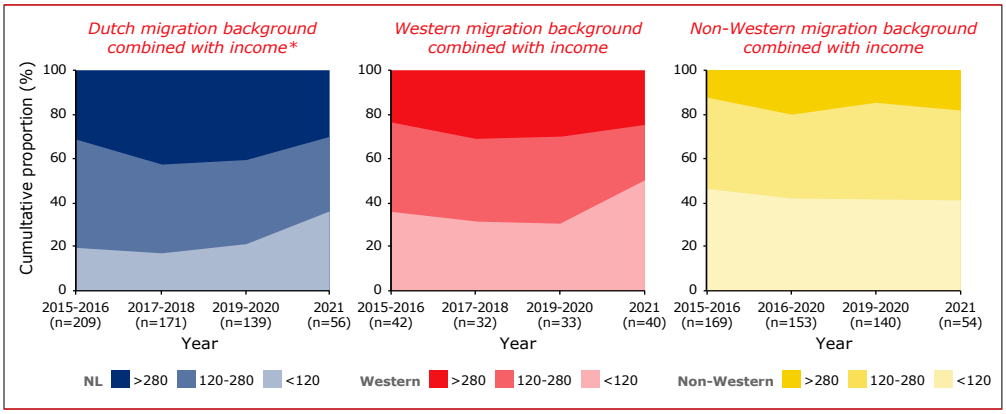
A: *Migration background combined with income, education level and level of urbanisation.*



* *Sum of new diagnoses do not add up to the total new HIV diagnoses among women and other men. To provide an approximation of the percentage, data involving fewer than ten people were kept at ten people.*

***Sum of new diagnoses do not add up to the total new HIV diagnoses among women and other men due to missing data.*

B: *Income stratified by migration background.*



* *Sum of new diagnoses do not add up to the total new HIV diagnoses among women and other men. To provide an approximation of the percentage, data involving fewer than ten people were kept at ten people.*

Of the 675 women newly diagnosed with HIV between 2015-2021:

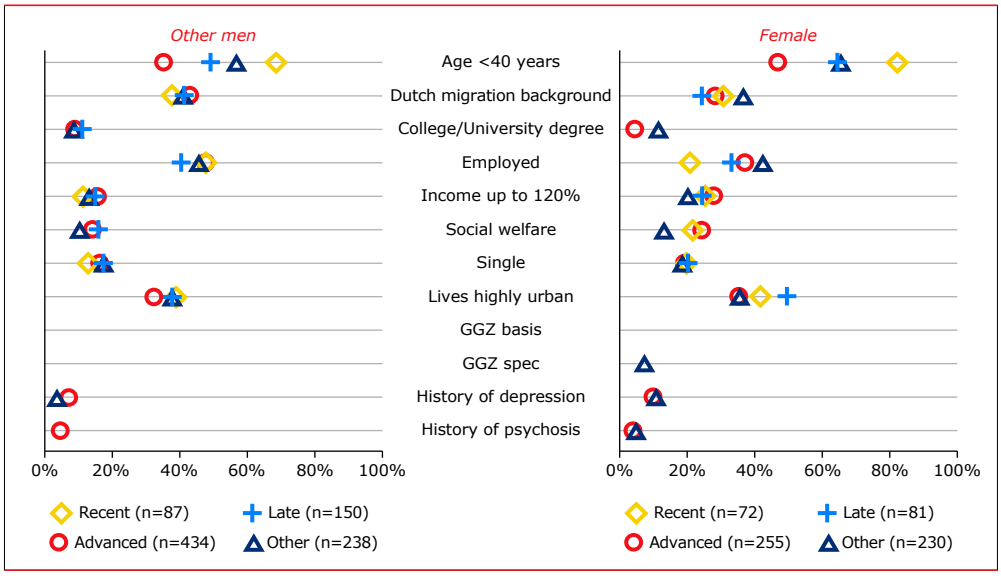
- 72 (11%) were diagnosed with a recent infection;
- 250 (34%) with other/chronic HIV; and
- 89 (12%) with late-stage HIV infection;
- 281 (38%) with advanced HIV disease;
- 37 (5%) with an unclassified HIV stage.

Of the 991 other men newly registered with an HIV diagnosis:

- 87 (9%) were diagnosed with a recent infection;
- 258 (24%) with other/chronic HIV; and
- 171 (16%) with late-stage HIV infection;
- 479 (44%) with advanced HIV disease;
- 85 (8%) with an unclassified HIV stage.

Women and other men with an advanced HIV diagnosis were older than those with a recent HIV diagnosis (Figure 8).

Figure 8: *Distribution of socio-demographic and socio-economical characteristics of other men and women registered with a recent, late, advanced or other/chronic HIV diagnosis between 2015-2021.*



Abbreviations: *GGZ, geestelijke gezondheidszorg (i.e., menthal health care).*
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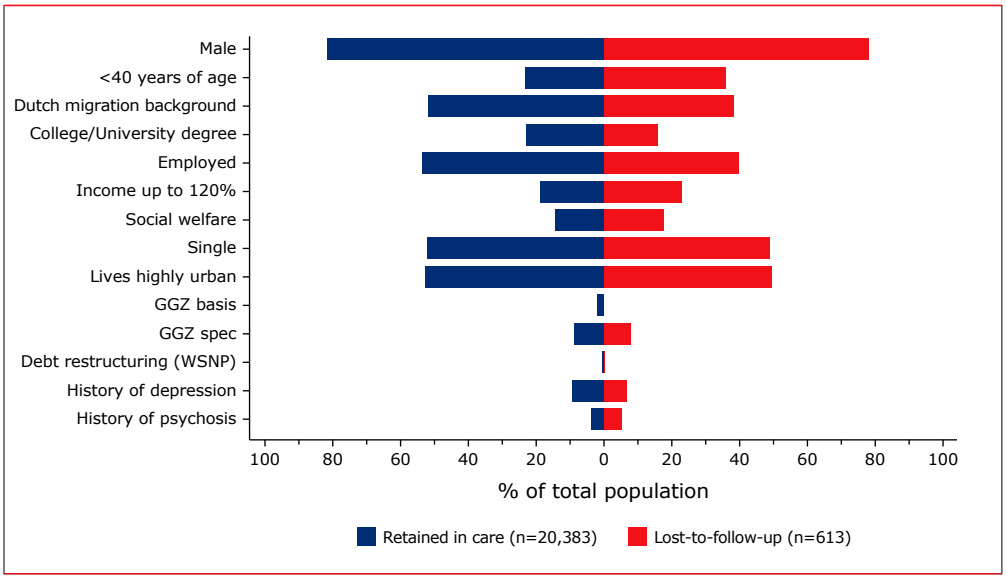
Disengagement from care

In total, 613 individuals disengaged from care before 2021 (Figure 9). Individuals who disengaged from care were less often male (78% vs. 81%), less often of a Dutch migration background (38% vs. 52%) and less often had a college or university degree (15% vs. 23%) compared to those who remained in care. They were also younger (36% vs. 23% younger than 40 years of age) and more often used debt restructuring (1% vs. 0.3%).

Figure 9: Socio-demographic and socio-economical characteristics of individuals who disengaged from care before 2021.



Abbreviations: *GGZ, geestelijke gezondheidszorg (i.e., mental health care).*
The GGZ offers basic or specialized mental health care to people living in the Netherlands which is covered by the mandatory Dutch insurance scheme.

Conclusions

Compared to the general Dutch population, individuals in HIV care were less often of a Dutch migration background and less often had a college/university degree. Moreover, individuals in HIV care more often lived in a single person household, had a lower household income and more often received social welfare and mental health care.

While the overall HIV care continuum mentioned in Chapter 1 almost reaches the 95-95-95 UNAIDS targets, the HIV care continuum among women and MSW was still suboptimal regardless of socio-demographics and socio-economic status. Among MSM, viral suppression was below 95% for MSM with an income lower than 120% of the social minimum and among MSM with primary and secondary education. Further analyses will need to be conducted to determine which socio-demographic and socio-economic factors, individually or in combination, contribute to suboptimal progression in the HIV care continuum.