



From HIV infection to HIV suppression: improvements in the time to reach successive stages in the HIV care continuum in the Netherlands

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The ATHENA database is maintained by Stichting HIV Monitoring and supported by a grant from the Dutch Ministry of Health, Welfare and Sport through the Centre for Infectious Disease Control of the National Institute for Public Health and the Environment.

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Background

- The HIV care continuum summarises engagement in various stages of HIV care but does not provide information on the time to reach these stages (Figure 1).
- We aimed to estimate changes in the time to reach successive stages of the HIV care continuum in the Netherlands since 2000.

Methods

Patient population

- All 23,376 HIV-1-positive individuals in the ATHENA national observational HIV cohort aged ≥ 18 years at the time of diagnosis.

Time to diagnosis

- ECDC HIV Modelling Tool used to estimate time between HIV infection and diagnosis.

- Estimation mainly based on changes over calendar time in the distribution of CD4 counts at diagnosis.

Time to reach other stages

- Survival methods were used to estimate time between successive stages from HIV diagnosis onwards.
- Patients who did not start combination antiretroviral treatment (cART) or reach viral suppression were censored at their last follow-up visit.
- No censoring for reaching HIV care because the ATHENA cohort only includes individuals ever enrolled in care.

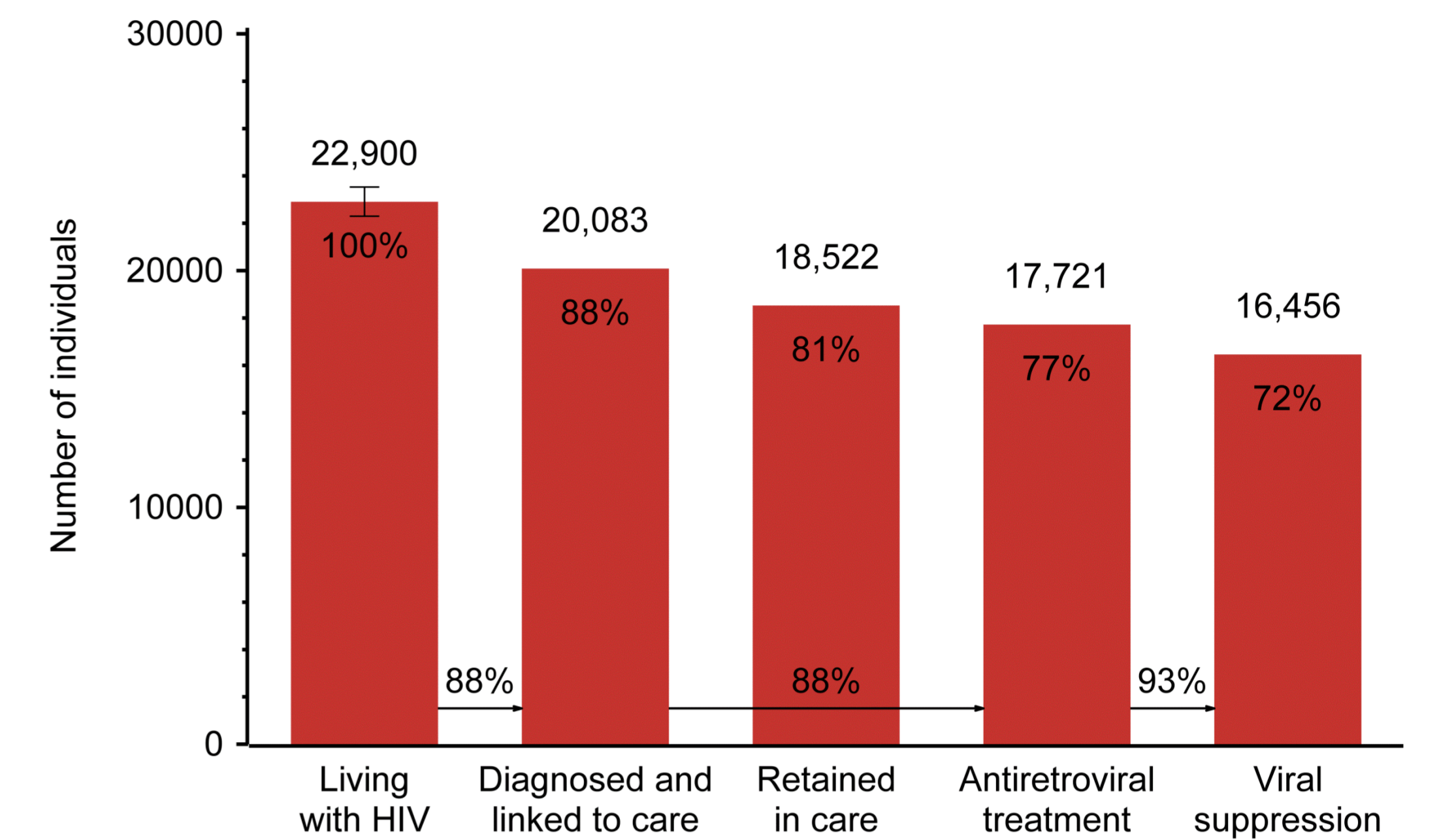
Conclusions

- Time from acquiring HIV to reaching viral suppression has declined, but continues to be dominated by the duration of undiagnosed HIV infection.
- To further improve access to care and treatment, ensuring earlier diagnosis by expanding testing for HIV will be key.

Figure 2: Estimated median time to reach key stages in the HIV care continuum for HIV-1-positive patients, including time from infection to diagnosis, from diagnosis to care, from entry into care to starting combination antiretroviral treatment (cART), from starting cART to reaching viral suppression, and from diagnosis to viral suppression.

- HIV infection \rightarrow diagnosis
 - Diagnosis \rightarrow care
 - Care \rightarrow cART
 - cART \rightarrow viral suppression
- Diagnosis \rightarrow viral suppression

Figure 1: Continuum of HIV care for the total HIV-positive population living in the Netherlands by the end of 2015. Percentages at the top of the bars are calculated relative to the estimated number living with HIV, while percentages at the bottom correspond to UNAIDS' 90-90-90 targets.



Results

- 17,053 (73%) individuals were diagnosed in 2000 or later.
- CD4 counts at the time of diagnosis increased from 260 (interquartile range, 78-460) cells/mm³ in 2000 to 370 (150-560) cells/mm³ in 2015.
- Estimated time from infection to diagnosis decreased from 4.7 years in 2000 to 2.8 years in 2015 (Table 1; Figure 2).
- Changes in time between HIV diagnosis and viral suppression mainly reflected changes in time to start cART.

Table 1: Estimated median time and interquartile range between key stages in the HIV care continuum; viral suppression: first HIV RNA measurement <100 copies/ml.

From	to	2000	2015
Infection	Diagnosis	4.7 2.3-8.4	2.8 1.3-5.1
Diagnosis	Care	0.07 0.02-0.24	0.02 0.01-0.04
Care	cART	0.27 0.09-2.45	0.07 0.04-0.13
cART	Viral suppression	0.28 0.18-0.57	0.18 0.08-0.32
Diagnosis	Viral suppression	0.85 0.41-3.66	0.37 0.25-0.60

