Description of the undiagnosed HIV infection in 2020 in Belgium by key populations and urbanization level

Serrien B.[1] • Montourcy M.[1] • De Rouck M.[1] • Delforge ML.[2] • Kabamba B.[3] • Stoffels K.[4] • Hayette MP.[5] • Pierard D.[6] • Van den Bossche D.[7] • Van Laethem K.[8] • Verhofstede C.[9] • Deblonde J.[1] • Van Beckhoven D.[1]

1. Sciensano, Brussels, Belgium • 2. Université Libre de Bruxelles, Brussels, Belgium • 3. Université Catholique de Louvain, Louvain, Belgium • 4. CHU Saint-Pierre, Brussels, Belgium • 5. CHU de Liège, Liège, Belgium • 6. Vrije Universiteit Brussel, Brussels, Belgium • 7. Institute of Tropical Medicine, Antwerpen, Belgium • 8. University Hospital Leuven, Leuven, Belgium • 9. Ghent University, Gent, Belgium

Early diagnosis and initiation of treatment for people living with HIV (PLWH) are key to control their viral load and hence inhibit disease progression and onward HIV transmission. The objective of this study is to provide a description of the undiagnosed population in Belgium by the end of 2020 in terms of key subpopulations and urbanization level.

Methods

- CD4-based back-calculation (ECDC HIV modelling tool v1.3) applied to Belgian HIV surveillance data (1980 – 2020)
- Estimate size of undiagnosed population by:
    - National, regional and provincial levels
    - Key subpopulations: heterosexual men and women, men having sex with men (MSM), nationality (Belgian, European, Sub-Saharan African; SSA), persons who inject drugs (PWID)
    - Urbanization level (Eurostat categorization)
- 10-fold multiple imputation to deal with missing variables (mice package in R)
- 95% CI obtained using parametric bootstrapping (100 iterations)
- Prevalence estimates per 10.000 in the 18-64 year old subpopulation

Results

In 2020, an estimated 1518 (95% CI [1113 - 2184]) persons were living with an undiagnosed HIV infection in Belgium, representing a prevalence of 2.2 [1.6 - 3.1] HIV-undiagnosed people per 10.000 population. Considerable variation is observed between provinces and urbanization levels (Figure). The highest prevalence is observed in the completely urbanized Brussels Capital Region. The overall prevalence was 1.9 [1.4 - 2.7] in Flanders and 1.5 [1.0 - 2.6] in Wallonia. In both regions, the prevalence decreases with lower urbanization levels.

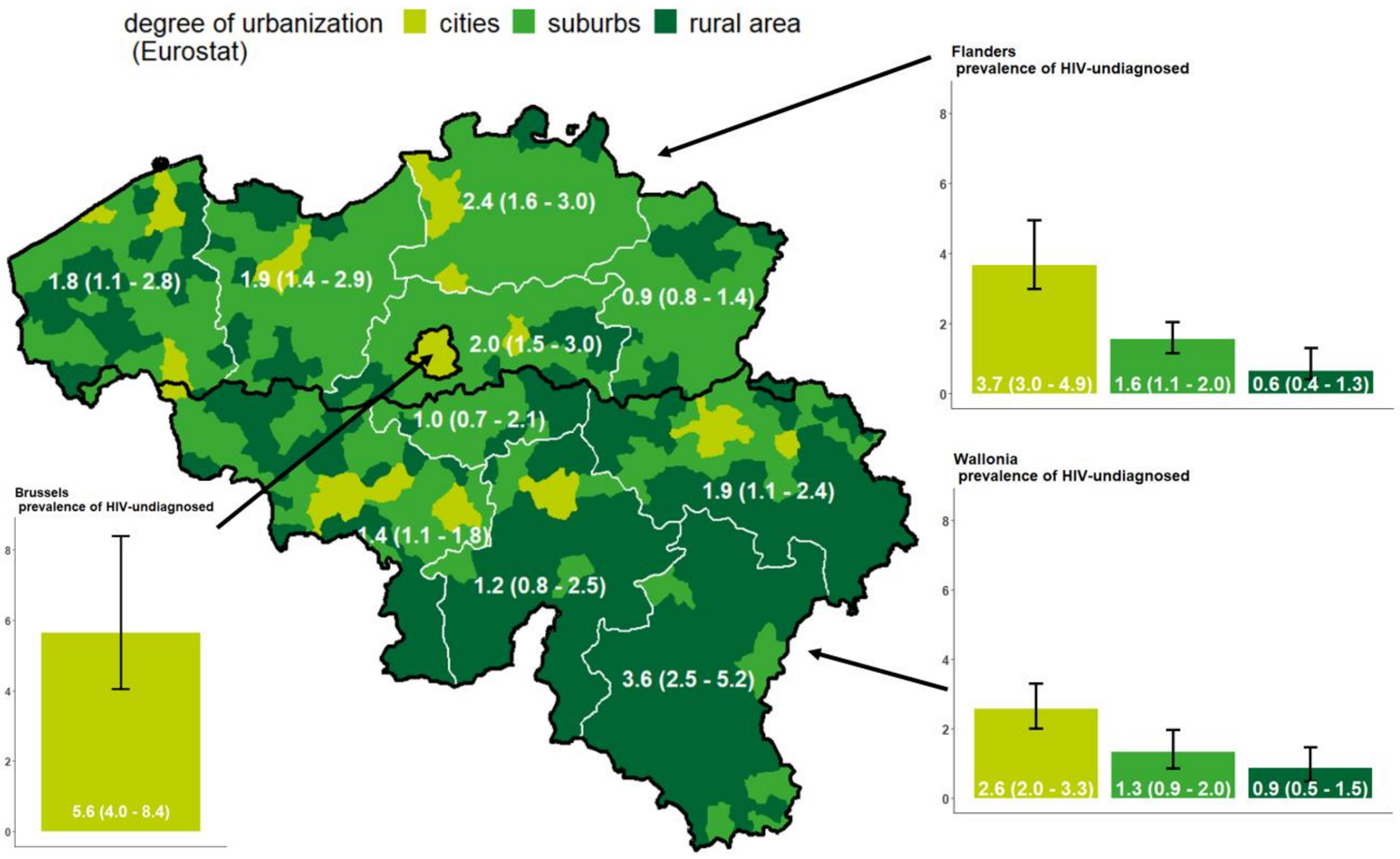

Figure. Prevalence of HIV-undiagnosed patients per 10.000 18-64 year old residents in Belgium, 2020. The map shows estimates (95% CI) by province and the bar charts show estimates by urbanization category for each region. Black borders indicate regions and white borders indicate provinces.

In each region, the prevalence of undiagnosed people is the highest among MSM of non-European nationality (national estimates in Table). MSM of Belgian and European nationalities also contribute significantly to the undiagnosed HIV population but the prevalence of undiagnosed infection is lower in these subpopulations. Among heterosexuals of Belgian nationality, the HIV-undiagnosed prevalence is very low, particularly among women compared to men (no sex difference in Brussels). Among heterosexuals of Sub-Saharan African nationality, the national prevalence of undiagnosed people is much higher among women compared to men (no sex difference in Flanders).

Table. Estimates of the number of HIV-undiagnosed and prevalence per 10.000 in different key populations at national level (regional estimates not shown).

Population	Nr. undiagnosed (95% CI)	Prevalence (95% CI)
Heterosexual (total)	1005 [746 – 1529]	1.5 [1.1 – 2.2]
Heterosexual men (Belgian)	196 [153 – 248]	0.7 [0.5 – 0.9]
Heterosexual female (Belgian)	75 [45 – 121]	0.3 [0.2 – 0.4]
Heterosexual men (SSA)	167 [134 – 277]	51.3 [41.2 – 85.1]
Heterosexual female (SSA)	290 [250 – 392]	81.3 [70.1 – 109.9]
MSM (total)	497 [361 – 658]	340.4 [247 – 450]
MSM (Belgian)	211 [180 – 356]	16.9 [14.4 – 28.6]
MSM (European.)	76 [57 – 98]	49.9 [37.4 – 64.4]
MSM (non-European)	290 [226 – 374]	434.2 [338 – 560]
PWID (total)	42 [19 – 102]	61.6 [27.9 – 149.6]

Conclusion

Undiagnosed HIV infection remains a substantial public health problem in certain key populations in Belgium in 2020: MSM (especially MSM of non-European nationality), heterosexuals of Sub-Saharan African nationality and PWID. Prevalence of undiagnosed HIV people is higher in cities compared to towns/suburbs and rural areas. This is probably related to larger MSM and migrant communities in large cities and particularly in Brussels. As the COVID-19 pandemic and related social restrictions have strongly impacted HIV testing activities and HIV transmission in 2020, the impact of COVID-19 on the evolution of the (undiagnosed) HIV epidemic will need to be followed carefully in the next years.

ACKNOWLEDGEMENTS

This study was conducted as part of the Belgian national HIV surveillance funded by RIZIV/INAMI.

Sciensano • Ben Serrien • T + 32 2 642 55 62 • ben.serrien@sciensano.be • **www.sciensano.be**