Impact of a revised late HIV diagnosis definition on late HIV estimates in Europe

A multi-country study coordinated under the EuroTEST Initiative

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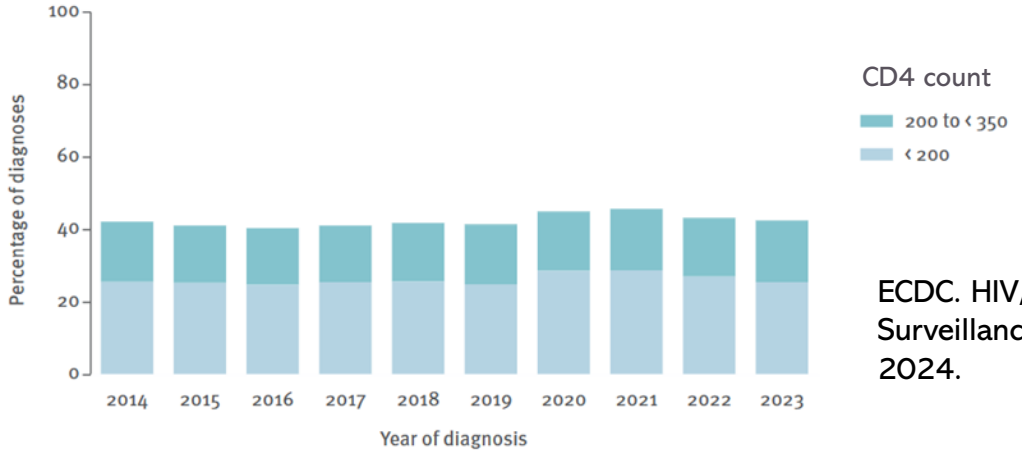
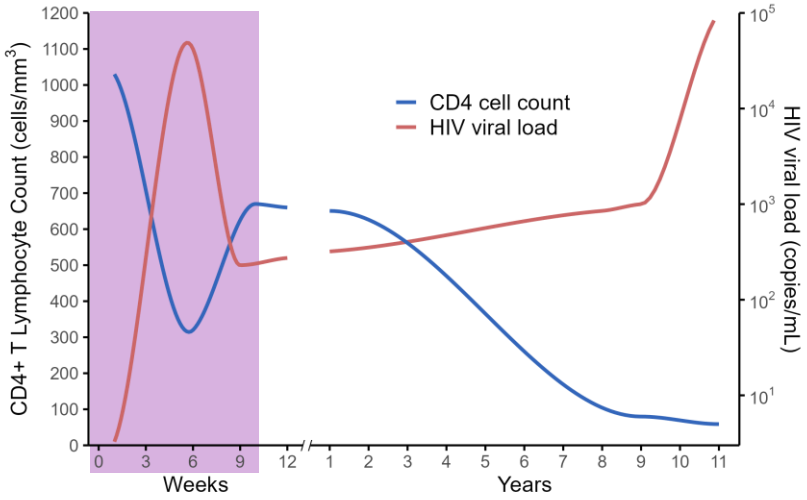
Background

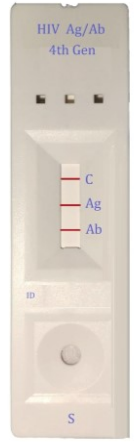
- In Europe, the proportion of people diagnosed late (CD4 count <350) remains stubbornly high.
- Improvements in HIV tests and testing frequency mean more people in Europe are diagnosed during the acute/seroconversion phase.

Aim: pilot a revised definition of late HIV diagnosis which corrects for misclassification.



ECDC. HIV/AIDS Surveillance in Europe 2024.





Revised late HIV diagnosis definition

Late HIV diagnosis is defined as:

- CD4 count at diagnosis <350 cells/μL or;
- AIDS-defining event, regardless of the CD4 cell count.

People previously diagnosed are excluded from the calculation.

People with evidence of recent infection (i.e. being diagnosed during seroconversion) should be reclassified as 'not late'.

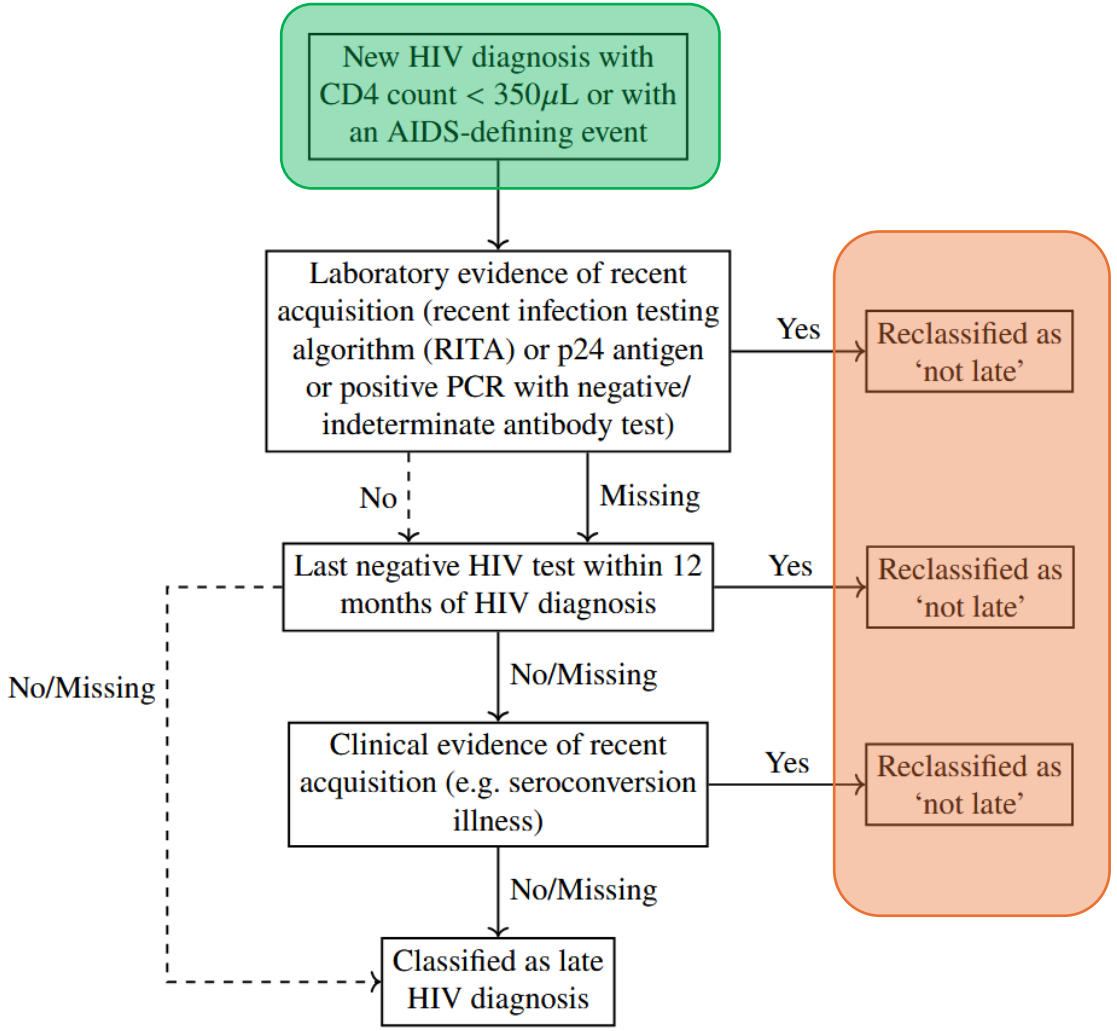
Evidence of recent infection (considered hierarchically):

(i) laboratory evidence of recent acquisition;

(ii) recent negative HIV test (past 12 months);

(iii) clinical evidence of recent acquisition.

$$\text{Correction factor} = \frac{\text{Number reclassified}}{\text{Number with CD4<350 or AIDS event}}$$



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Croxford et al. **Late diagnosis of HIV: An updated consensus definition**. *HIV Medicine*. 2022 Dec;23(11):1202–8.

Participating countries

Pseudo-anonymised HIV diagnosis records for 2022-2023 were collected from nine countries:

- Belgium
- Czechia
- Denmark
- Germany
- Greece
- Italy
- Netherlands
- Portugal
- Sweden

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Availability of key variables

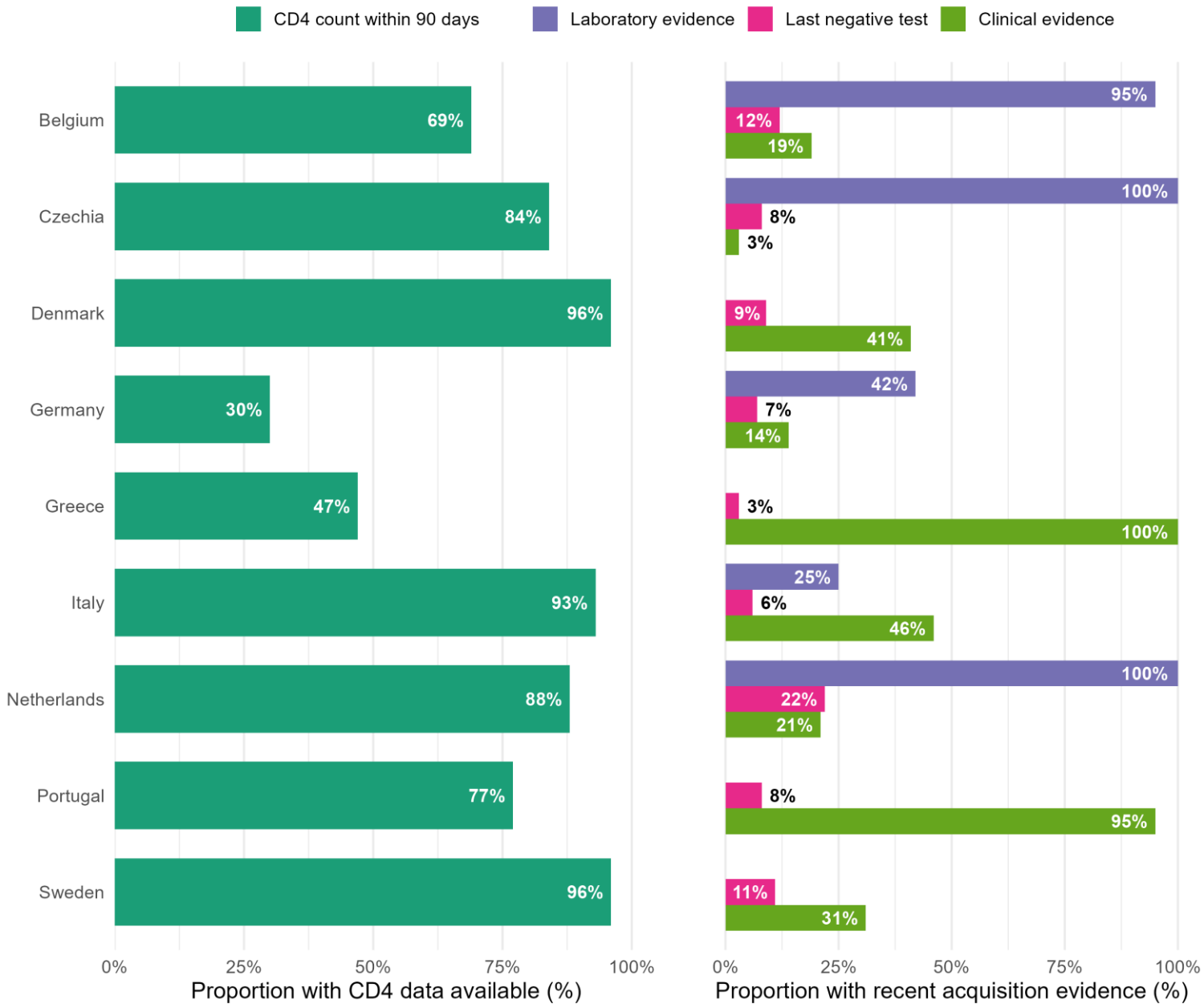

Figure: Availability of CD4 counts and recent acquisition evidence by country and individual marker.

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Impact of reclassification

Late diagnosis rate

Before reclassification	After reclassification
56% (5,696/10,241)	**51%** (5,215/10,241)

Among those diagnosed late:

- 168 had laboratory evidence;
- 238 testing history evidence;
- 260 had clinical evidence.

Overall correction factor: 8% (481/5,696)

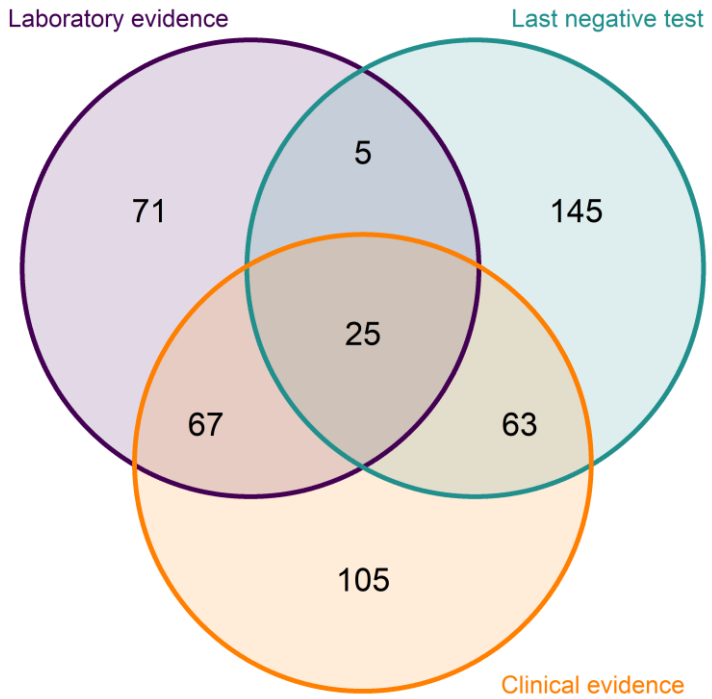

Figure: Combinations of evidence, and number of diagnoses reclassified in each category, all countries combined.

Impact of reclassification by country

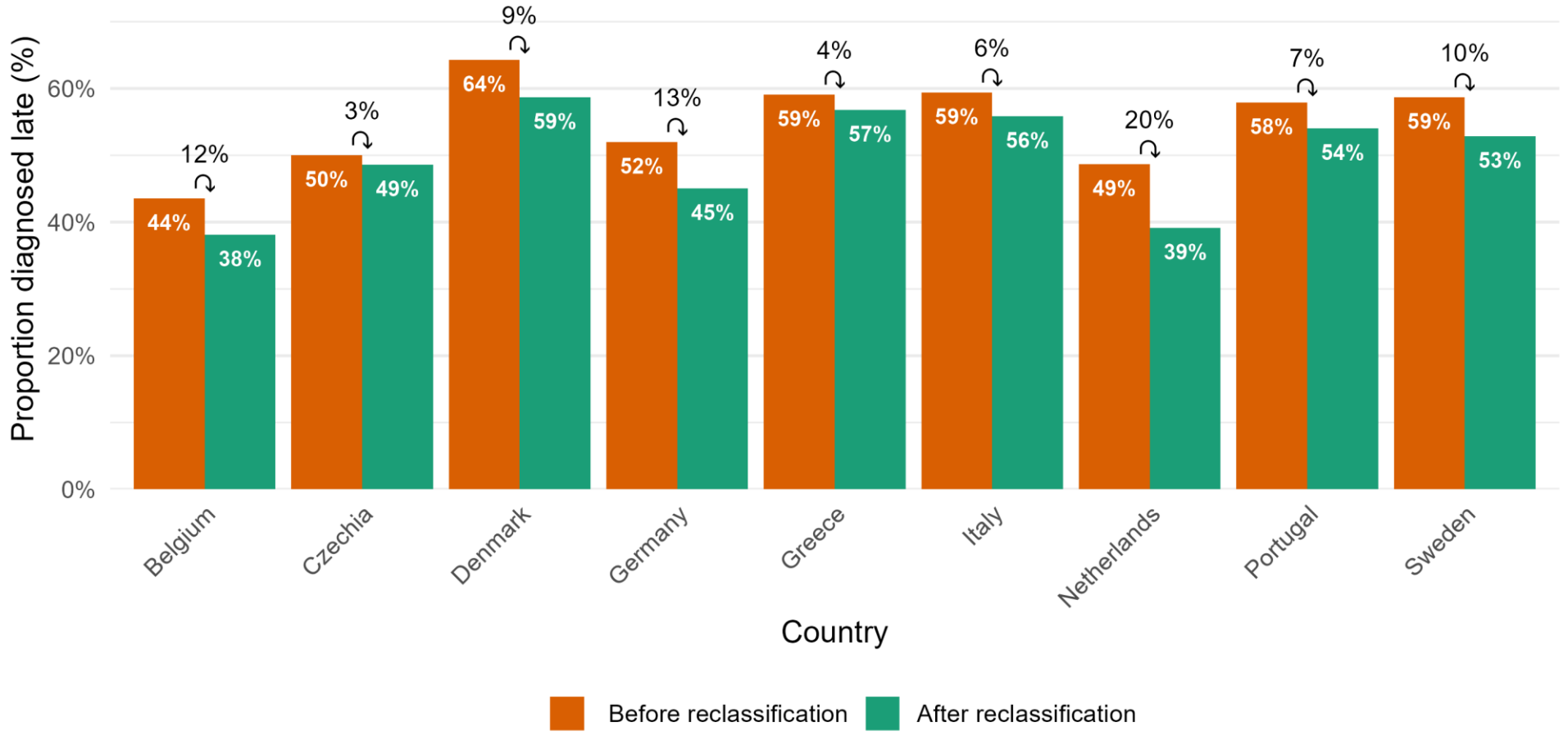

Figure: Late diagnosis rate before and after reclassification and correction factor by country.

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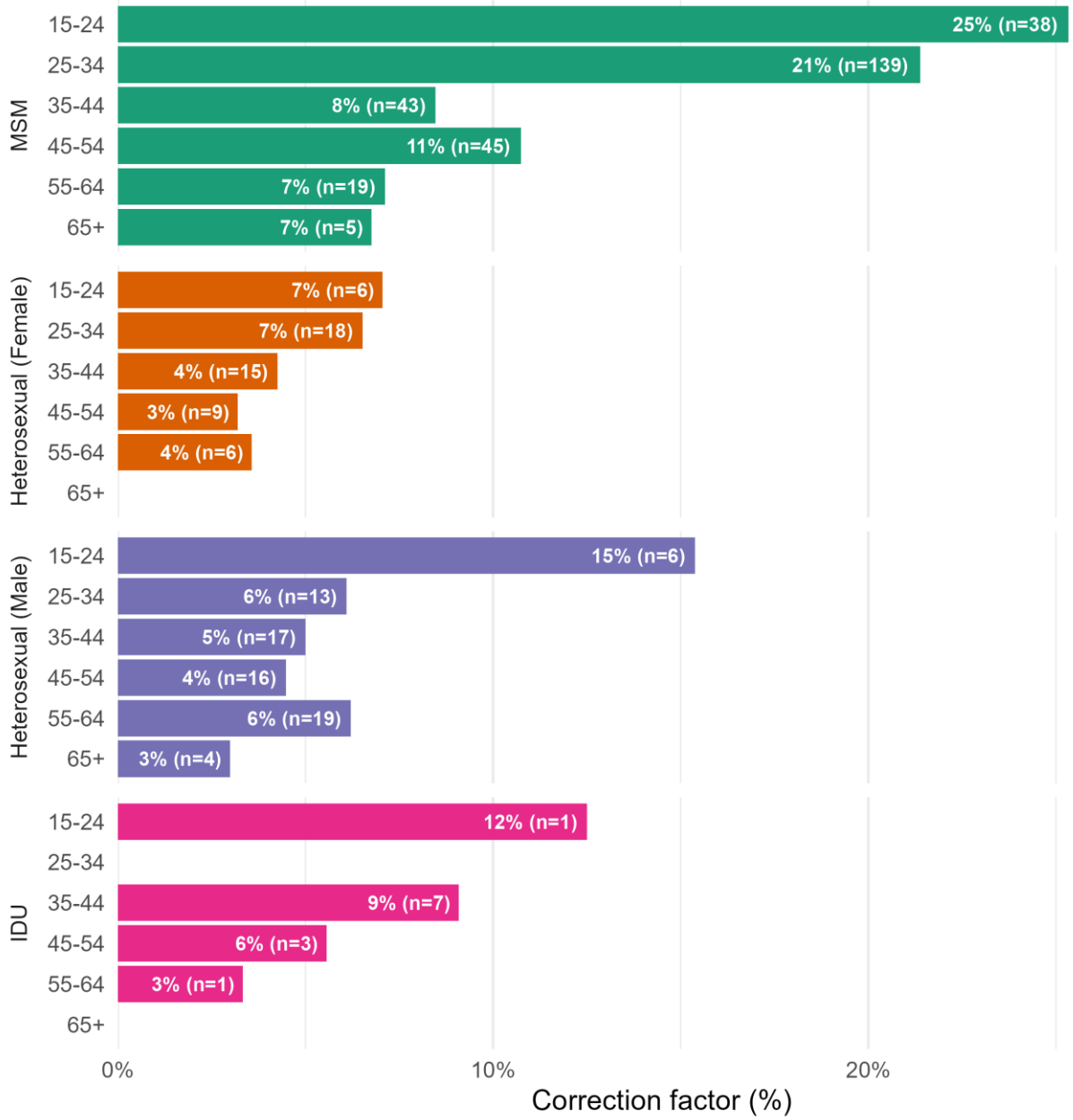
Impact of reclassification by exposure group

Figure: Correction factor by route of HIV transmission and age group, all countries combined.

Data labels are the correction factor (%) and number of diagnoses (n).



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Methodological comparison

We compared three methods for estimating correction factors:

- ■ All data reported
- ▲ Only data with lab evidence (upper bound);
- — Multiple imputation of late diagnosis status using demographic information.

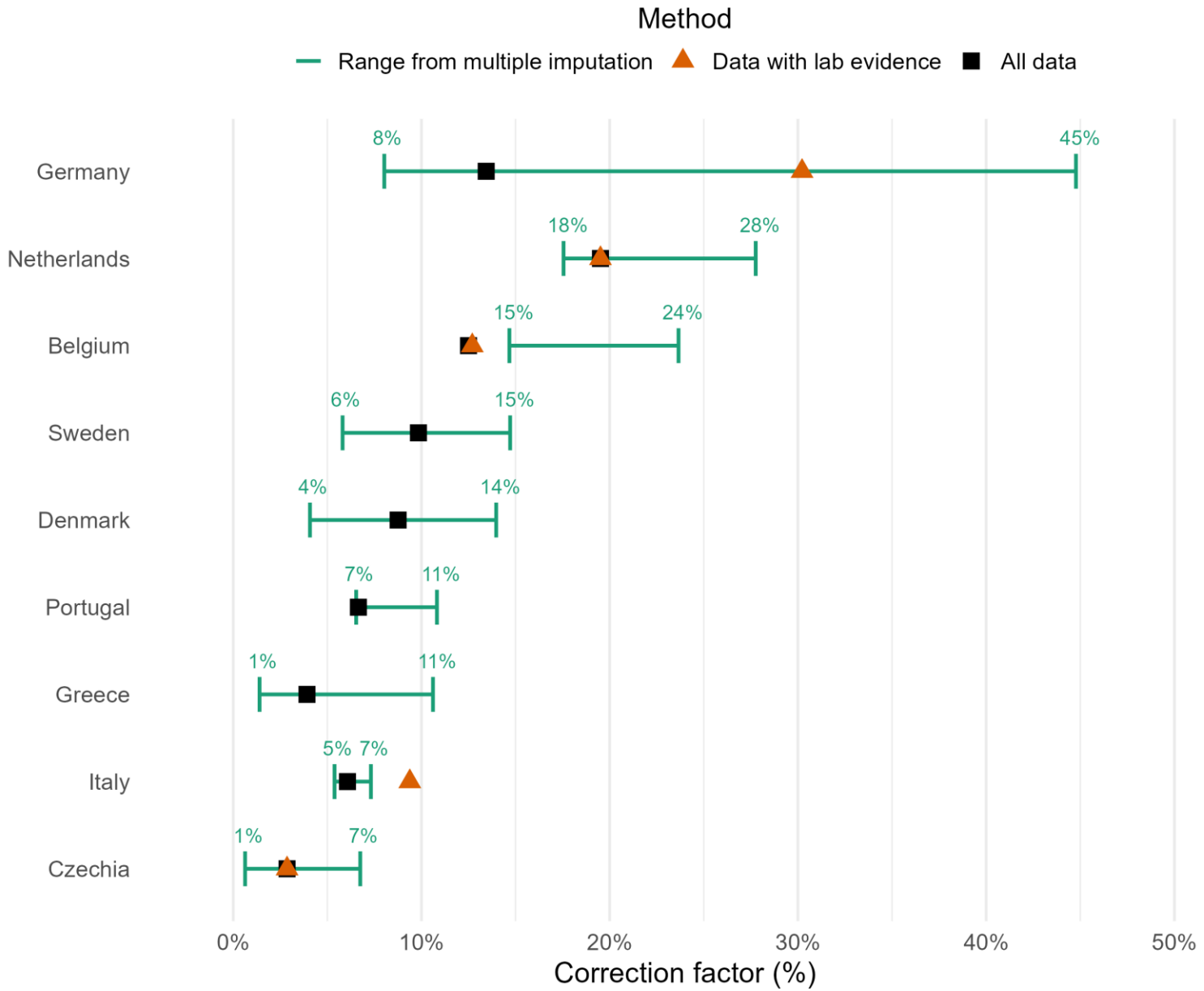

Figure: Correction factor as estimated using three methods.

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Conclusions

- Late HIV diagnosis rates are overestimated in all countries, exposure groups, and age groups when using the previous definition.

- The correction we have piloted addresses a lack of progress in reducing the percentage of people diagnosed late and helps to pinpoint the groups at greatest risk.

- For countries to undertake this correction, improved collection of recent acquisition markers at clinic and national levels is needed.

Acknowledgements

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