Epidemiology and Public Health Sciences - Poster Abstracts / Épidémiologie et sciences de la santé publique - Abrégés affiches

Abstract #121

Use of a clinical HIV cohort to validate population-based health administrative data for monitoring trends in HIV care engagement: Findings from Ontario, Canada

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Background
HIV-1 RNA viral load (VL) and CD4, CD8, and CD3 lymphocyte measures are established surrogate markers for assessing treatment effectiveness and immune function among people living with HIV (PLWH). They can potentially support monitoring of HIV care engagement trends in population-level administrative data. We validated and examined temporal trends in these measures among Ontario residents living with HIV.

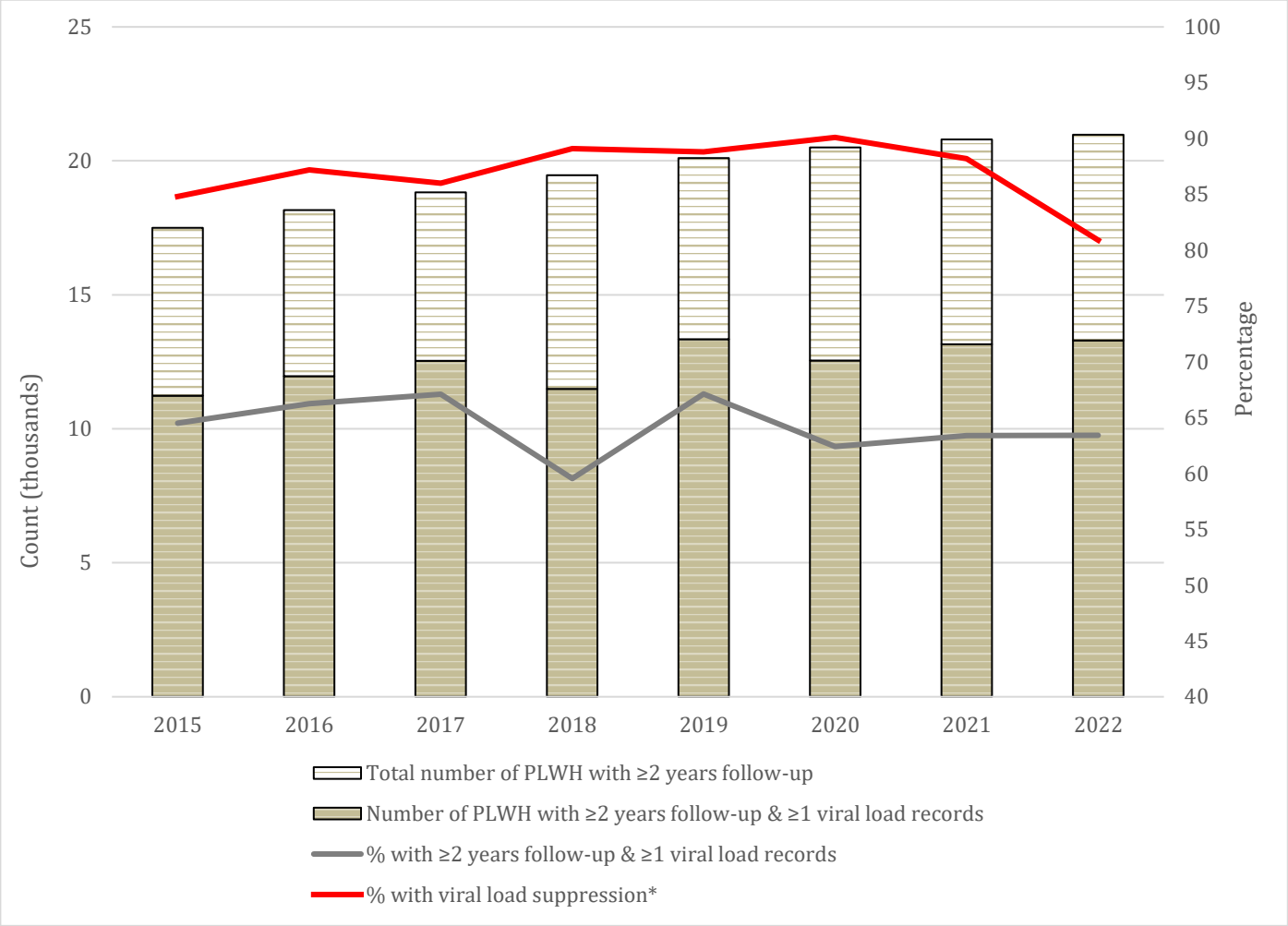
Methods
We conducted a population-based, retrospective longitudinal study using health administrative data at ICES (2015–2022). We extracted and cleaned available VL and lymphocyte records in the Ontario Laboratories Information System (OLIS) linked to PLWH. Our validation data source was the Ontario HIV Treatment Network (OHTN) Cohort Study. We defined percent agreement as the proportion of OHTN participants with an OLIS record matched within ±15 days (high ≥90%, moderate 80–89%, low <80%).

Results
Among more than 17,000 PLWH with ≥2 years of follow-up, the proportions with ≥1 VL record declined from 65–67% (2015–2019) to 62–63% (2020–2022) and with ≥1 lymphocyte records declined from 54-57% (2015–2019) to 49-50% (2020–2022) (Figure). The mean number of VL records per person decreased from 2.4 (2015) to 1.9 (2022), and CD4 records decreased from 2.3 (2015) to 1.7 (2022). Among those tested, VL suppression fell from 89% (2019) to 81% (2022), whereas the proportion with CD4 ≥200 cells/μL remained 93–95%. Percent agreement increased for VL from 90.6% to 96.6% (2015-2018), and for lymphocyte records from 65% to 76% (2015-2017), with site-level lymphocyte agreement dropping below 10% at two sites.

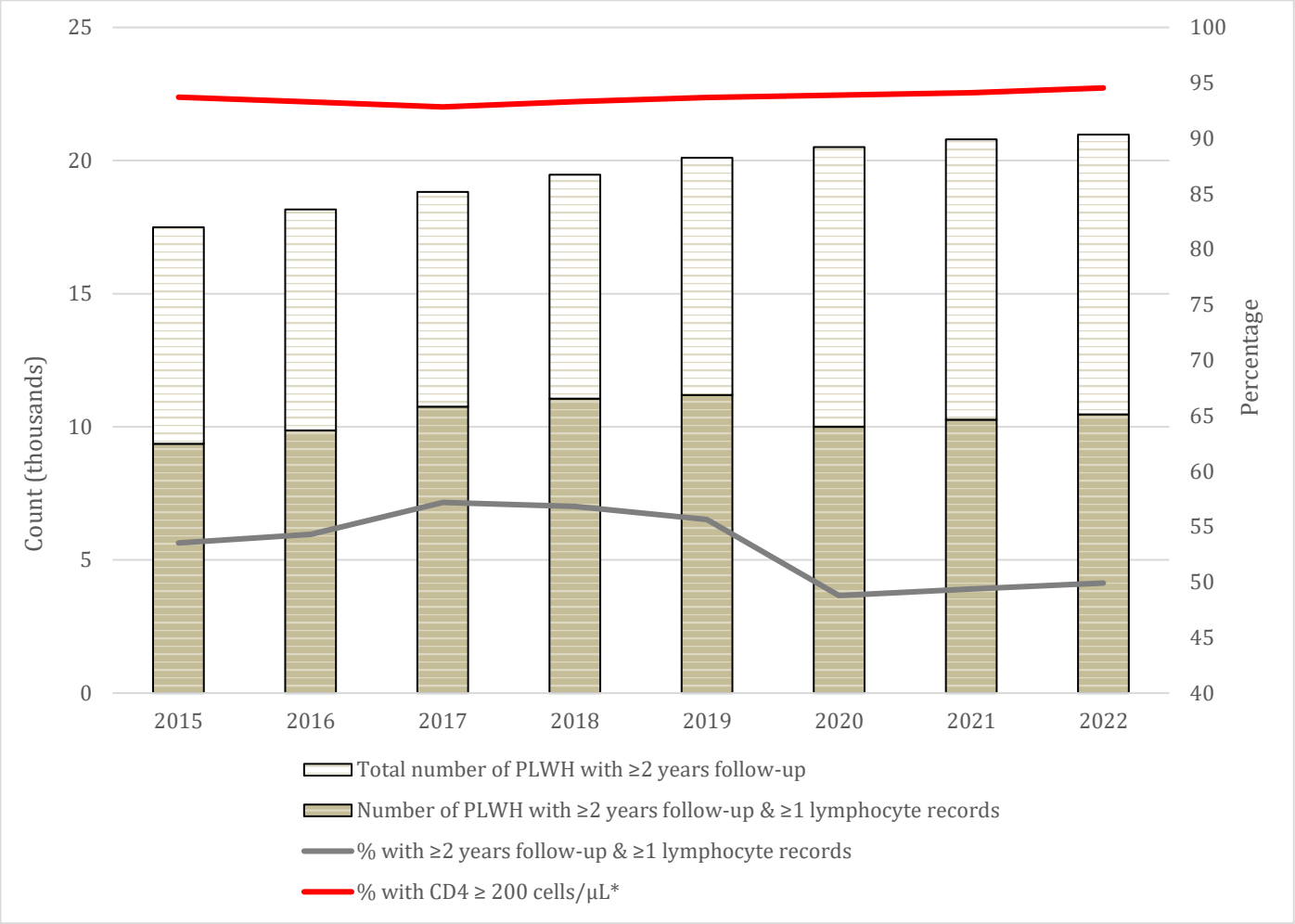
Conclusions
High agreement for VL records supports the use of OLIS for population-based research in Ontario. Lower agreement for lymphocyte records likely reflects data-flow artifacts and non-uniform reporting requiring further investigation. These findings underscore the need for periodic external validation of HIV laboratory measures in administrative data and routine reporting of data completeness as a standard practice.

Supporting Document

Figure. Longitudinal trends in viral load and CD4, CD8, and CD3 lymphocyte monitoring and suppression among Ontario residents living with HIV with ≥2 years of follow-up, from 2015 to 2022



*Denominator is PLWH with ≥2 years follow-up & ≥1 viral load records in year *t*



*Denominator is PLWH with ≥2 years follow-up & ≥1 CD4 records in year *t*