Validating the use of viral load results to identify individuals with previous evidence of HIV, Ontario, 2018

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Ontario HIV Epidemiology and Surveillance Initiative

Background and Objectives

- HIV surveillance in Ontario describes trends in cases diagnosed each year, and informs a number of stakeholders with different information needs:
    - It is important to report on all **new HIV diagnoses** in Ontario, including those acquired outside of the province, to plan services that meet the needs of all people living with HIV in Ontario.
    - To better target prevention and testing programs, it is also important to understand trends in **first-time** HIV diagnoses resulting from local transmission.

- Understanding the number of **first-time** HIV diagnoses is challenging for several reasons, and may contribute to an overestimate of the number of first-time cases of HIV:
    - incomplete information on previous diagnostic or testing history in case report forms completed by the diagnosing health-care provider
    - inability to link individuals with a previous anonymous test to a subsequent nominal test.

Noting an increase in newly diagnosed HIV cases in Ontario, our objective was to develop and validate a new algorithm to identify first-time HIV cases, excluding cases with previous evidence of HIV based on viral load (VL) information.

Methods

- Linked diagnostic and VL data for all HIV positive diagnoses in Ontario from 1996 to 2018 were extracted from Public Health Ontario Laboratories HIV Datamart.
- Cases known to be previous positive in Ontario (by patient linkage or health provider indication of previous positive diagnosis in Ontario) were excluded.

- The new algorithm excluded the following (Figure 1):
    - persons with health-care provider indication of a previous HIV diagnosis outside of Ontario
    - persons with a history of VL testing ≥30 days before diagnostic testing (evidence of previous awareness of HIV)
    - persons with evidence of viral suppression within 30 days of diagnosis (defined as a VL of <200 copies/mL, evidence of likely being on treatment).

- To assess the algorithm, we reviewed VL patterns and results for excluded cases and assessed diagnostic history information from the integrated Public Health Information System (iPHIS) for a random selection of cases from 2018 (N=30).

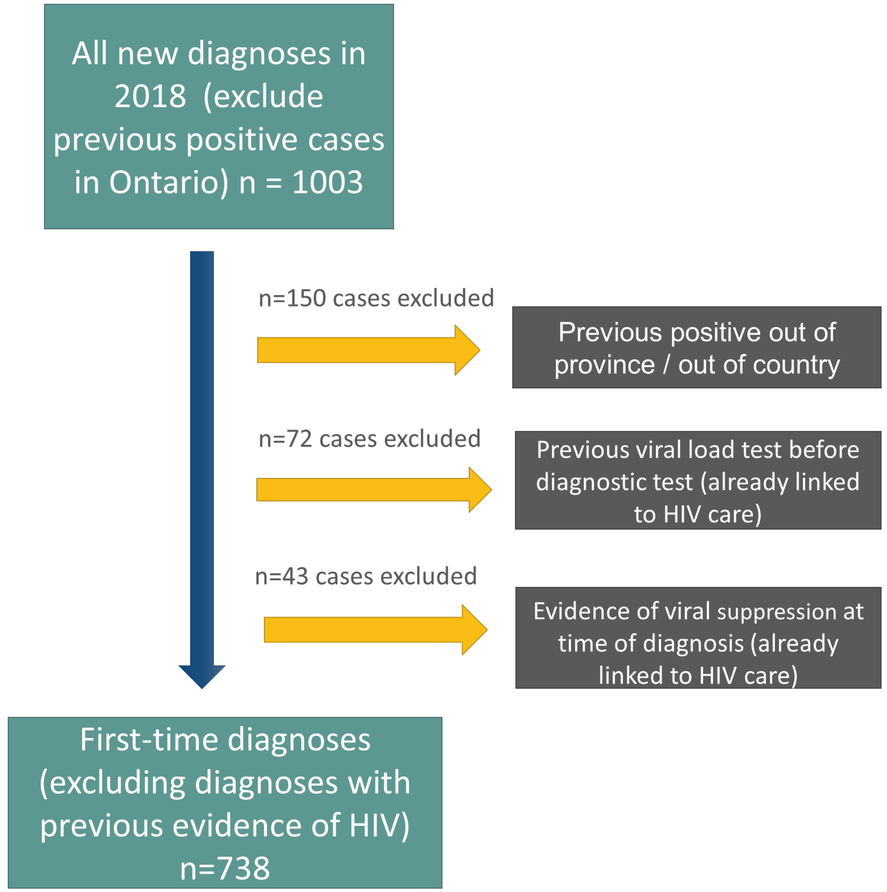

Figure 1. Algorithm used to exclude new diagnoses with previous evidence of HIV

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Results

- There were 1003 new HIV diagnoses in Ontario in 2018, an increase of 9.5% from 2017.
- After exclusion of cases based on the new algorithm, there were 738 first-time diagnoses in Ontario in 2018, an increase of 6.2% from 2017 (Figure 2)

- A total of 28 out of 30 cases selected for linkage could be linked with iPHIS data. Case notes indicated that:
    - 46% (13 /28) were correctly classified as having previous evidence of HIV
    - one case was incorrectly retained despite indication of a previous diagnosis
    - insufficient evidence existed for the remaining 14 cases to determine previous HIV diagnosis status.

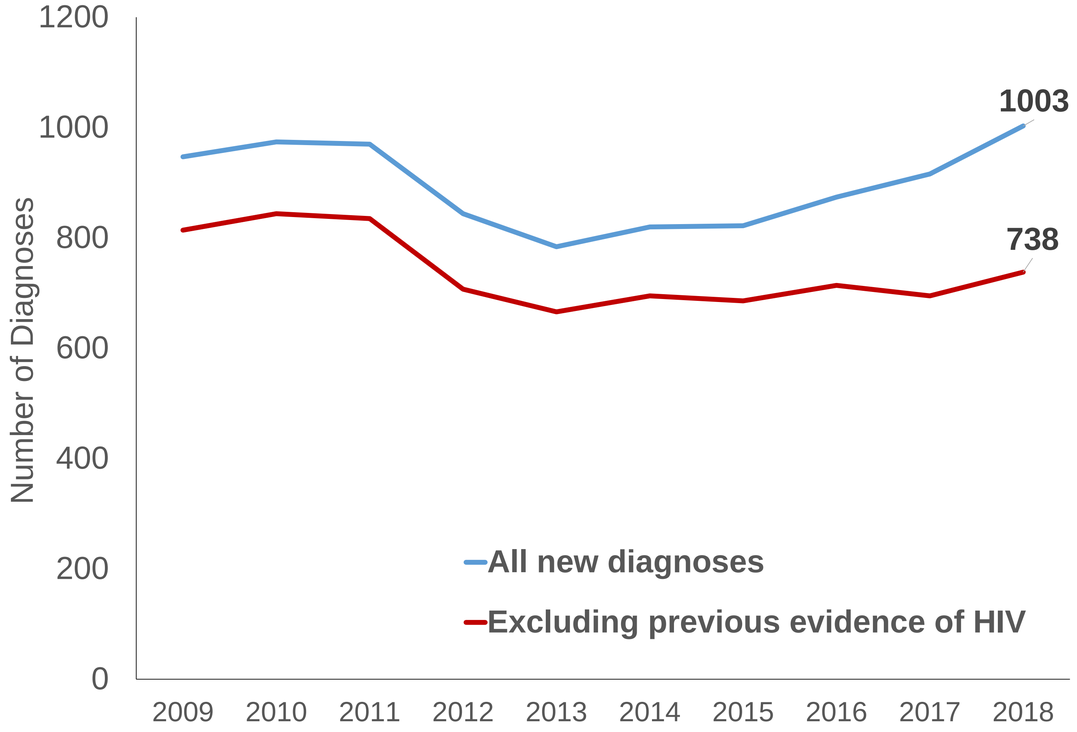

Figure 2. HIV diagnoses in Ontario, 2009-2018

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Conclusion

- Application of the algorithm found a substantial proportion of new HIV diagnoses had previous evidence of HIV. iPHIS data was not available for the majority of cases, but where available, concurred with exclusions applied by the algorithm.

- Utilization of VL results supported better understanding of trends in new HIV diagnoses likely related to local transmission. This information will support provincial, local and national stakeholders in HIV prevention and testing efforts.

Acknowledgements

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