

Estimation of the number of gay, bisexual, and other men who have sex with men in Ontario to enable more precise population-specific metrics of the HIV epidemic and targeted interventions

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CAHR 2021; May 5-7, 2021

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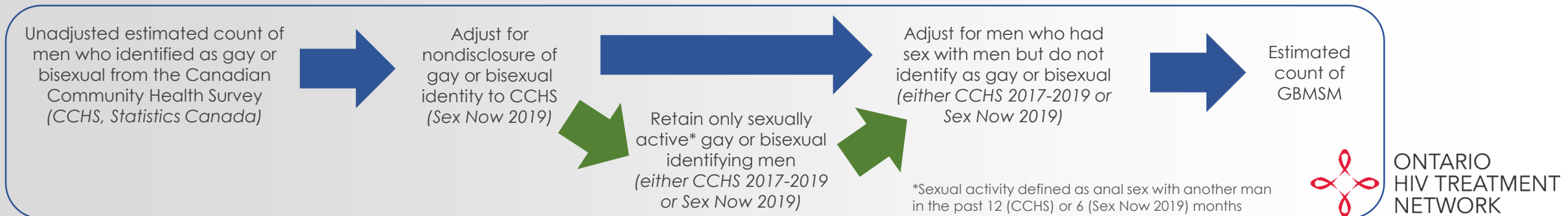
Introduction & Methods

Introduction

- Gay, bisexual, and other men who have sex with men (gbMSM) continue to comprise the largest proportion of the HIV epidemic in Canada, accounting for 61.0% of HIV cases among males with known exposure category in 2019¹
- An estimate of the size of the GBMSM population serves to produce population-specific metrics (ex. HIV prevalence, incidence, diagnosis and testing rates) that better describe the HIV epidemic within this population and improve our understanding of the size of the target population for HIV prevention activities
- Our objective was to estimate the number of gay, bisexual, and other men who have sex with men (GBMSM) in Ontario and within sub-provincial regions. These estimates are used to calculate estimates of prevalence of diagnosed HIV and HIV diagnosis rates among GBMSM (both for 2018).

Methods

- Two estimates of the number of GBMSM in Ontario were produced, based on two definitions:
 1. **Identity based:** Gay- and bisexual-identifying men and other men who have sex with men (**blue** arrows only below)
 2. **Behaviour based:** Gay- and bisexual-identifying sexually active men and other men who have sex with men (additionally includes **green** arrows below)
- Where the two data sources both provided an adjustment indicator, two respective estimates were produced and then averaged
- Estimation process (*data source[s] for adjustment indicators italicized in brackets*):



Methods: Data sources

Canadian Community Health Survey (CCHS), Statistics Canada

- Data collected using computer assisted personal and telephone interview software
- Pooled across 2017 to 2019 surveys, each participant weighted to account for participation bias in the survey
- Participants aged 15 years or older
- Questionnaire items used:
 - 2017, 2018: Do you consider yourself to be...?
 - Heterosexual (sexual relations with people of the opposite sex)
 - Homosexual, that is lesbian or gay (sexual relations with people of your own sex)
 - Bisexual (sexual relations with people of both sexes)
 - 2019: What is your sexual orientation....?
 - Heterosexual / Homosexual / Bisexual / Or, please specify
 - CCHS redistributed "please specify" to the first three response options where appropriate
 - Have you ever had sex? Please include vaginal and anal sex.
 - Yes / No / Refused / Don't Know
 - In the past 12 months, have you had sex with a male?
 - Yes / No / Refused / Don't Know

Sex Now 2019 Survey (SN19), Community Based Research Centre (CBRC)

- Online survey of gay, bisexual, transgender, Two-Spirit, and queer (GBT2Q) men's health
- Data collection Fall 2019, Canada-wide, Ontario-specific data used here
- Inclusion criteria: man aged 15 years or older living in Canada (cis or trans), non-straight sexual identity or straight and reported sex with another man in past five years,
- Questionnaire items used:
 - Would you reveal your sexual orientation if asked in a Statistics Canada survey?
 - Very likely / Likely / Somewhat unlikely / Totally unlikely
 - Likely items collapsed to give proportion likely to disclose
 - In the PAST 6 MONTHS how many men have you had sex with?
 - Numeric response
 - Of those, how many did you have anal sex with?
 - Numeric response (>0 considered sexually active)



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Results:

~217,885 GBMSM in Ontario; ~5.0% diagnosed with HIV

ESTIMATED NUMBER OF GBMSM

Definition of GBMSM	Estimated number of GBMSM in Ontario	Proportion of Ontario adult ^a male population
1. Gay- and bisexual-identifying men and other MSM	217,885 (Toronto: 72,539 Ottawa: 18,467)	4.1% (Toronto: 6.6% Ottawa: 4.8%)
2. Gay- and bisexual-identifying <u>sexually active</u> ^b men and other MSM	150,298	2.8%

HIV PREVALENCE ESTIMATE

Prevalence of diagnosed HIV among gay- and bisexual-identifying men and other MSM (definition #1), Ontario, 2018:

Unpublished work from the OHTN estimates the number of GBMSM diagnosed with HIV in Ontario up to and including 2018 to be:

10,909

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Estimated number of gay- and bisexual-identifying men and other MSM (definition #1 above):

217,885

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Prevalence of diagnosed HIV in this population:

5.0%

HIV DIAGNOSIS RATE ESTIMATE

First-time HIV diagnosis rate among gay- and bisexual-identifying sexually active men and other MSM (definition #2), Ontario, 2018:

Unpublished work from the OHTN estimates the number of first-time HIV diagnoses^c among GBMSM in 2018 in Ontario to be:

410

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Estimated number of gay- and bisexual-identifying sexually active^b men and other MSM (definition #2 above):

150,298

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First-time HIV diagnosis rate in this population:

2.7 per 1,000



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Conclusions: GBMSM-specific metrics are needed

- Our GBMSM population estimates are very similar to other recent research in Canada.
 - Rich et al (2018)² reported men who have sex with men (MSM) to comprise 2.9% of adult male population in Metro Vancouver (median of several estimation methods), comparable to our estimated 2.8% (behaviour-based estimate).
- The two estimates of the number of GBMSM in Ontario are used to estimate different metrics as indicated, speaking either to the broader GBMSM population or limited to sexually active GBMSM.
- Our estimated HIV prevalence among GBMSM (5.0%) is considerably lower than 2005-2008 M-Track estimates in Toronto (23%) and Ottawa (11%)³.
 - This may be due to M-Track employing convenience sample data collection at venues with elevated HIV risk (i.e. bathhouses).
- Our estimated HIV diagnosis rate of 2.7 per 1,000 sexually active GBMSM is considerably higher than the HIV diagnosis rate of 0.1 per 1,000 men among the greater adult (≥ 15 years) male population in Ontario (unpublished OHTN data).
 - This reiterates the substantially greater HIV risk among GBMSM than among men overall.
 - The HIV diagnosis rate differs from an incidence rate in that its calculation does not exclude GBMSM previously diagnosed with HIV from the denominator.
- Metrics specifically among GBMSM provide an improved understanding of the HIV epidemic within this high-risk population but are currently lacking in the literature. We reason that this approach represents a systematic and reliable methodology of estimating the number of GBMSM in Ontario, which can be used to produce estimates of these metrics.
 - Moving forward, we plan to produce estimates of HIV prevalence and HIV diagnosis rates in sub-provincial regions, namely Toronto and Ottawa, as well as to work toward estimates of HIV incidence and HIV testing rates.
 - This population estimate may also be used to estimate the number of GBMSM eligible for HIV pre-exposure prophylaxis (PrEP) in Ontario.
 - As both CCHS and SN19 are national surveys, we endeavor to use these methods to produce these estimates nationally for Canada and within sub-national regions and/or other provinces.

References

1. Haddad, Nisrine, et al. "HIV Surveillance Report 2019." CCDR 47.1 (2021).
2. Rich, Ashleigh J., et al. "Estimating the size of the MSM population in Metro Vancouver, Canada, using multiple methods and diverse data sources." *Journal of Urban Health* 95.2 (2018): 188-195.
3. Public Health Agency of Canada. M-Track: Enhanced surveillance of HIV, sexually transmitted and blood-borne infections and associated risk behaviours among men who have sex with men in Canada. Phase 1 report. Centre for Communicable Diseases and Infection Control, Infectious Disease Prevention and Control Branch, Public Health Agency of Canada. Available at: <http://library.catie.ca/pdf/ATI20000s/26403.pdf>