Prevalence and correlates of *Mycoplasma genitalium* infection among gay, bisexual and other men who have sex with men (GBM) in greater Montréal, Canada - Results from the Engage Study

Why did we research this topic?

- *Mycoplasma genitalium* (MG) infection causes persistent/recurrent urethritis and may contribute to HIV transmissibility
- Test availability is limited, screening in Canada is not routine
- Population-based prevalence data are lacking

Therefore, we estimated *M. genitalium* prevalence and examined related correlates among GBM

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How did we research this?

▶ The Engage Cohort Study examines sexually transmitted and blood-borne infections (STBBIs) and various aspects of sexual health among gay, bisexual and other men who have sex with men (GBM) in Montréal, Toronto, and Vancouver.

  ▶ Starting in 2017, Engage recruited GBM who were ≥16 years of age and sexually active through **Respondent-Driven Sampling (RDS)**
  ▶ Engage combines observations collected through a **questionnaire and biological samples**
  ▶ Pharyngeal samples are collected by research nurses, urine and rectal samples by participants

▶ This analysis uses specimens collected from the **Montréal cohort study visits between 11/2018 - 11/2019.**

▶ These specimens were analyzed for *M. genitalium* using **Allplex™ CT/NG/MG/TV Assay,** Seegene Inc.

▶ Correlates of *M. genitalium* were identified using logistic regression with multiple characteristics/behaviors adjusted for the RDS recruitment. Model selection was based on statistical significance, substantive knowledge and AIC (Akaike information criterion).

▶ All estimates are **adjusted with RDS-II weights**, a measure taking participants' current social network size into account.
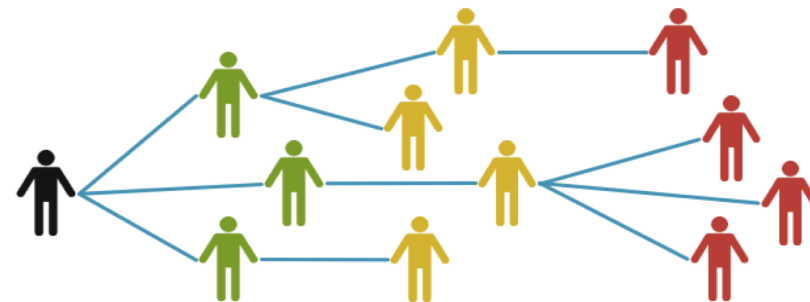
What did we learn? RDS-adjusted prevalence estimates of *M. genitalium*

RDS-adjusted prevalence estimates of *M. genitalium* and of other STI's detected with Allplex™ CT/NG/MG/TV	(N = 717) RDS %	95% CI
Mycoplasma genitalium at least one site	**4.7**	**(2.9– 6.6)**
pharyngeal	**0.5**	**(0.2 – 0.9)**
urethral	**1.9**	**(0.7 – 3.1)**
rectal	**3.0**	**(1.5 – 4.5)**
Chlamydia trachomatis at least one site	2.4	(0.6 – 4.2)
Neisseria gonorrhoeae at least one site	5.2	(3.3 – 7.2)
Trichomonas vaginalis at least one site	0.5	(0.1 – 0.8)

*Numbers of missing data (no sample provided, rejected sample or invalid result) were pharyngeal = 30, rectal = 30, urine = 29

What did we learn? Correlates of *M. genitalium* infection

Characteristics and behaviors	Univariable regressions*				Multivariable regression				
	n	OR	95% CI		RAIC	n	aOR	95% CI		RAIC
Age under 30 years	717	3.3	1.7	6.6	3.3	709	**2.8**	**1.4**	**5.8**	8.3
Number of sex partners P6M**: (2 to 5) ***	717	2.1	0.6	739	5.6	709	1.6	0.4	5.6	8.3
(6 to 10)	717	5.1	1.4	18.1	5.6	709	3.0	0.8	11.7	8.3
(> 10)	717	9.5	2.9	31.3	5.6	709	**6.4**	**1.9**	**21.9**	8.3
New sex partner P6M	717	3.4	1.3	8.9	2.3	-	-	-	-	-
≥ 1-time condomless anal sex P6M	717	2.6	1.2	6.0	1.5	-	-	-	-	-
Chlamydia diagnosis P6M	709	4.6	2.1	10.4	3.3	709	**2.5**	**1.0**	**6.0**	8.3
Gonorrhea diagnosis P6M	709	2.5	1.0	6.0	0.6	-	-	-	-	-
Self-reported HIV status: (negative on PrEP)****	717	2.8	1.2	6.4	0.7	-	-	-	-	-
(positive)	717	1.6	0.6	4.1	0.7	-	-	-	-	-
≥ 1-time participation in group sex P6M	711	2.5	1.1	5.4	0.9	-	-	-	-	-
≥ 1-time taken money or drugs for sex P6M	703	3.8	1.2	11.8	0.7	-	-	-	-	-
≥ 1-time amyl nitrite (poppers) use P6M	701	2.7	1.4	5.3	2.1					
≥ 1-time suicidal thoughts P6M	669	2.3	1.1	4.7	1.2					
Perceived mental health P6M: Poor	704	3.0	1.0	8.7	0.4	-	-	-	-	-

*Factors included in analysis but not found to be associated: education, ethnocultural identity, race, born in Canada, sexual orientation, annual income, having a family doctor, having a main sexual partner, attending a bathhouse (P6M), syphilis diagnosis (P6M), perceived anxiety and depression (P6M) according to the Hospital Anxiety and Depression Scale (HADS), cocaine use (P6M), cannabis use (P6M), 'chemsex' substance use (P6M), being at moderate or high risk of developing dependence or problems related to alcohol or drug use based on the ASSIST scale.

P6M: in the past 6 months ; * Reference = 1 sex partner ; **** Reference = HIV status negative, not on PrEP

What are the implications of these findings?

▶ Engage is the first study to produce GBM population-based *M. genitalium* prevalence estimates in Montréal.

▶ Prevalence of *M. genitalium* (at least one site) was twice the level of *C. trachomatis* infection and comparable to the level of *N. gonorrhoeae* infection.

▶ This finding and the information on various correlates (younger age, a greater number of sexual partners and recent *C. trachomatis* infection but not HIV status or PrEP use), may be useful for the development of *M. genitalium* screening guidelines.

Limitations
▶ Representativity of a sample obtained through RDS. RDS is used to approximate a reference population for which a sampling frame is not available (hard-to-reach populations). While our results may not fully reflect the experiences of GBM, possible biases related to RDS were attenuated by adhering closely to recommended procedures for recruitment, obtaining a large sample size with long recruitment chains, and using statistical adjustments.
▶ Capacity to appreciate causality through cross sectional study design
▶ Social desirability bias while responding to the questionnaire

Work underway
Detection of resistance mutations to inform on useful antibiotics for treatment of symptomatic individuals and their contacts