A Person-Centred Approach to Exploring Human Papillomavirus (HPV) Vaccination Among Gay, Bisexual, and Other Men Who Have Sex With Men (GBM): A Canadian Immunization Research Network Study

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ESTIMATE

engage
Advancing gay and bisexual men's sexual health

Background and Methods

Background:

- GBM and people living with HIV are at increased risk for HPV-associated disease.[1,2]
- Starting in 2015/16, some provinces/territories began offering publicly-funded HPV vaccine to GBM and people living with HIV 9-26 years old.
- Men ≥15 years old are recommended to get three doses of the vaccine for full protection.[3]

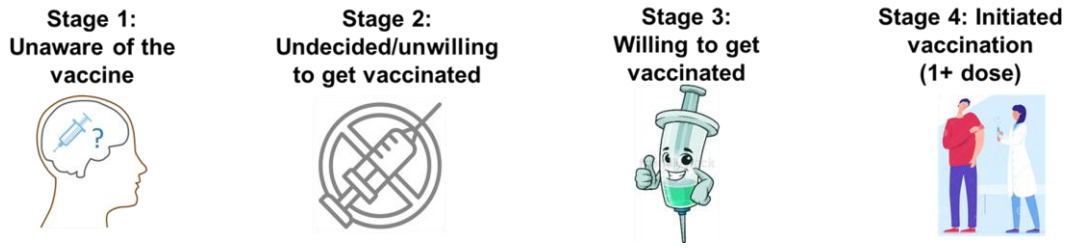
Objective: We identified subgroups of GBM experiencing similar social and programmatic barriers and facilitators to vaccination and investigated the association between subgroups and different stages of HPV vaccine uptake.

Data source: The Engage Study, a sexual health study of GBM aged 16+ in Vancouver, Toronto, and Montreal.

- Sexually active GBM were recruited via respondent-driven sampling between February 2017 to August 2019.
- Self-completed a questionnaire that included questions on HPV vaccination.

Statistical analysis: By city and restricted to men ≤26 years old,

- Step 1: Used latent class analysis to create subgroups of men using indicators on immigration, financial strain, ethnicity/race, sexual orientation non-disclosure, education, hepatitis A/B vaccination, and healthcare provider access. Labels for each subgroup were created based on the barriers with the highest probabilities.
- Step 2: Used the Bolck, Croon, Hagenaar[4,5] approach to a) predict the probability of being in stages of HPV vaccine uptake by subgroup, and b) determine if there was a statistical association between subgroup membership and stages using the chi-squared test.



Stages of HPV Vaccine Uptake

1. Silverberg MJ, Lau B, Justice AC, et al. *Clin Infect Dis*. 2012;54(7):1026-1034. doi:10.1186/1750-9378-5-S1-A70; 2. Palefsky JM. Dis Markers. 2007;23(4):261-272.; 3. NACI. An Advisory Committee Statement (ACS) National Advisory Committee on Immunization (NACI): Update on Human Papillomavirus (HPV) Vaccines. Government of Canada; 2012.; 4. Dziak JJ, Bray BC, Zhang J, et al. Methodol Eur J Res Methods Behav Soc Sci. 2016;12(4):107-116.; 5. Bolck A, Croon M, Hagenaars J. *Polit Anal*. 2004;12(1):3-27.

Results

Table. Characteristics of the sample of men ≤26 years old, by city.

	Vancouver (n=178)	Toronto (n=123)	Montreal (n=249)
Ethnicity/race			
White	56.7%	61.0%	75.5%
East-Southeast Asian	20.2%	8.9%	3.6%
Latin American	8.4%	8.9%	4.8%
African/Caribbean/ Black	1.1%	4.1%	2.0%
Indigenous	1.7%	0.8%	1.6%
South Asian	6.7%	3.3%	2.4%
West Asian/North African	1.1%	5.7%	5.2%
Other	0.6%	0.8%	0.8%
Mixed	3.4%	6.5%	4.0%
Identify as gay	78.7%	74.8%	73.9%
Living with HIV	1.1%	7.3%	2.4%
Post-secondary education	76.8%	79.7%	73.5%

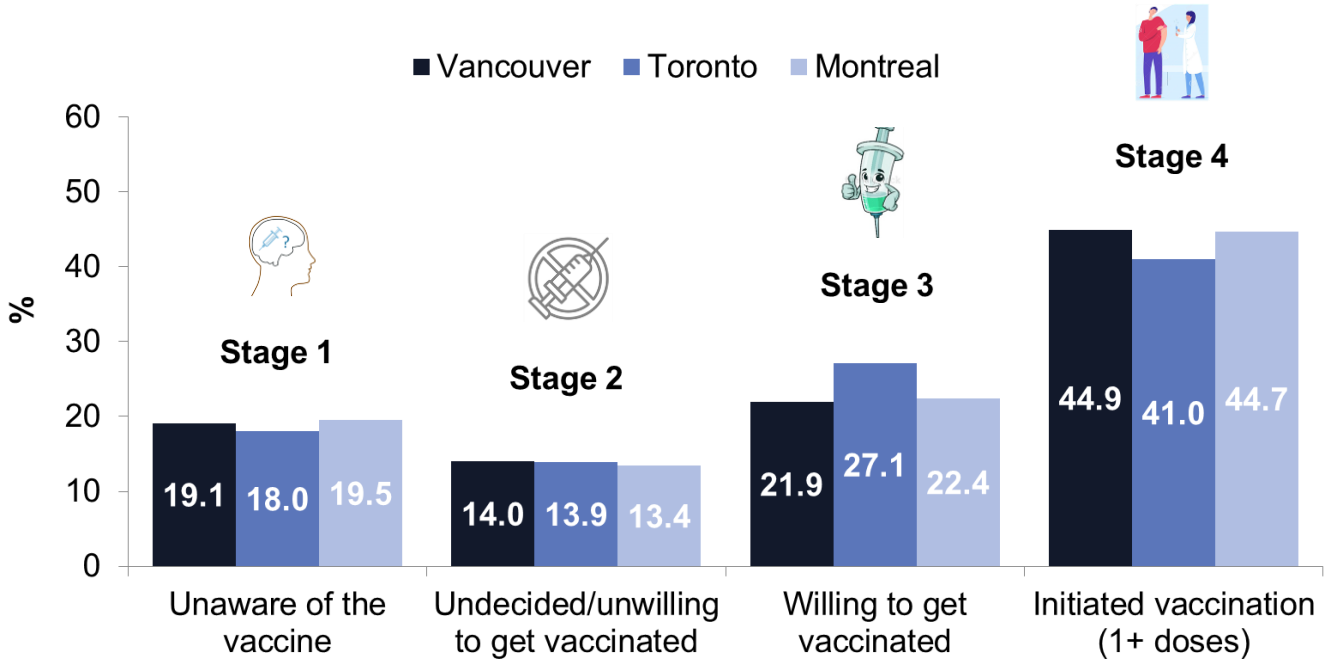


Figure 1. Proportion of men in sample ≤26 years old in different stages of HPV vaccine uptake.

Results

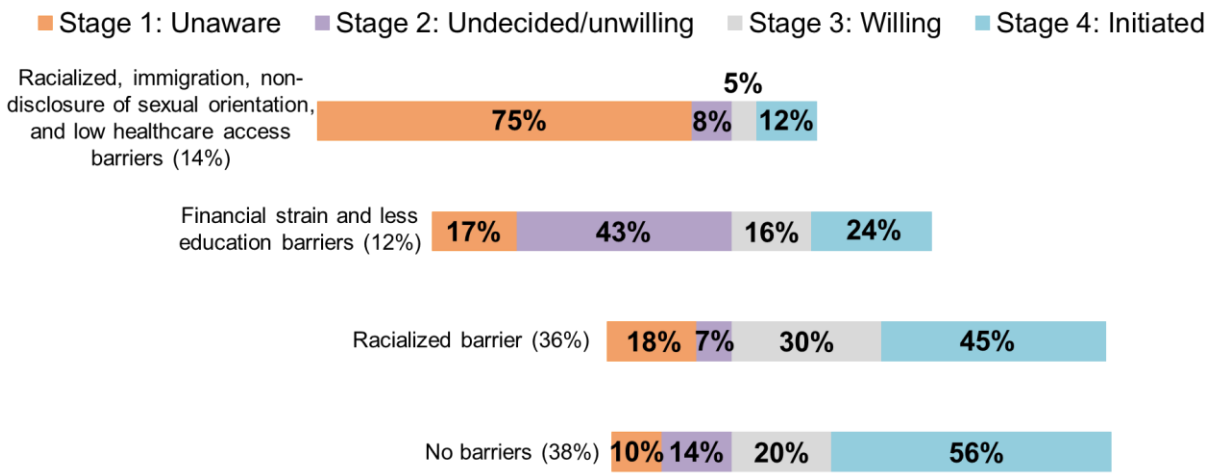


Figure 2. Probability of being in each stage of HPV vaccine uptake by group membership among men in Vancouver. p=0.003.

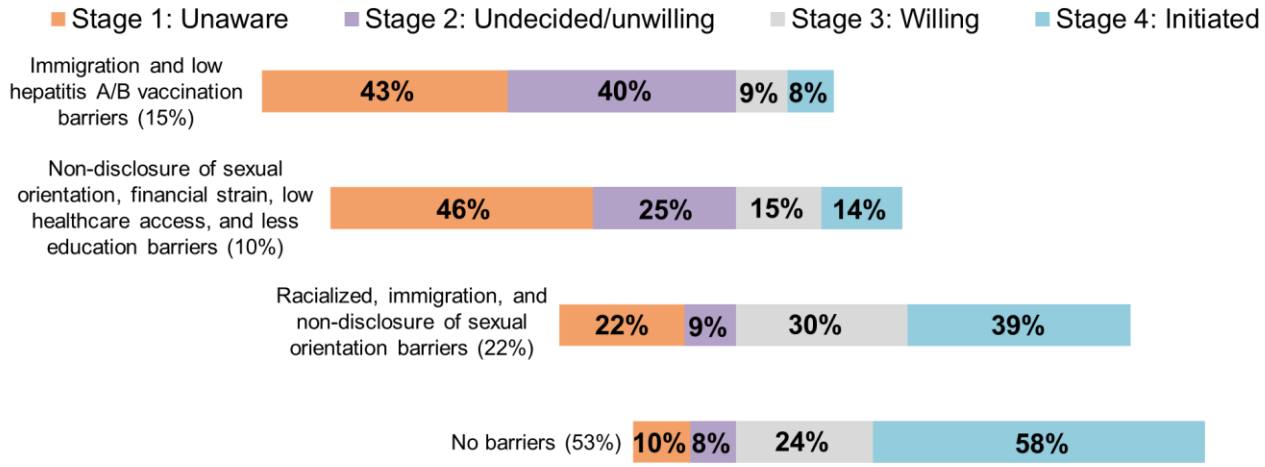


Figure 3. Probability of being in each stage of HPV vaccine uptake by group membership among men in Montreal. p=0.048.

- Some patterns in clustering of indicators were observed across cities, such as clustering of racialized, immigration, and non-disclosure of sexual orientation barriers.
- Despite these patterns, distinct subgroups of men across and within cities were formed.
- In Vancouver and Montreal, the fewer barriers men faced, the higher their chances of having received at least one dose of the HPV vaccine ('no barriers' group; 38% of men in Vancouver and 53% in Montreal were in this subgroup [Figure 2, Figure 3]). Subgroup membership had a significant influence on which stage of HPV vaccine uptake men were in.
- There was no statistically significant association between subgroup membership and stages of HPV vaccine uptake in Toronto (p=0.642, data not shown). This may be due to the smaller sample size recruited in this city or the possibility that indicators selected for this analysis do not cluster well in Toronto.

Limitations

- Vaccination status was self-report, leading to potential misclassification.
- Participants volunteered for the study, possibly inflating vaccine uptake.

Conclusions

- Differences observed across cities and subgroups suggest that there is no **'one size fits all'** approach to addressing low vaccine uptake in this population.
- **Tailored** interventions by locale and subgroups are needed.
- Person-centred analysis approaches may provide a deeper understanding of vaccine hesitancy across different populations and help determine **who to target** for interventions and help **guide intervention development**.

Acknowledgements

We would like to thank the Engage cohort study participants, clinical and research staff, and community engagement committee members.

Baseline funding for Engage-HPV was provided by the Canadian Immunization Research Network and a Canadian Institutes of Health Research Foundation Award to ANB. RG was a recipient of a Canadian Immunization Research Network Trainee Scholarship. ANB is a Canada Research Chair in Sexually Transmitted Infection Prevention and a recipient of a University of Toronto Department of Family and Community Medicine non-clinician scientist award.