**Supplementary material**

Supplementary Table 1. Social and programmatic barriers and facilitators from engage questionnaire used for latent class analysis and alignment of measures with the Determinants of vaccine hesitancy matrix [1].

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| --- | --- | --- |
| Determinant of vaccine hesitancy including sub-categories | Social and programmatic barriers and facilitators (LCA indicators) | Categories |
| Contextual influences: socio-cultural and socio-economic factors and communication and media environment | Education | High school or less; any post-secondary/graduate education |
| Financial straina | Score of 5–9 = experiencing (or experiencing little) financial strain;  score of 10–15 =experiencing financial strain |
| Sexual orientation | Gay; Other (bisexual, queer, straight, questioning, asexual, pansexual, two-spirit and other) |
| Country of birth | Born in Canada; immigrated to Canada |
| Ethnicity/race | Racialized menb; white men |
| Received information about sexual health in past six months (from the community, health professionals, community-based organizations or social and other media sources) | Yes; no |
| Vaccination program specific issues: design of vaccination program/mode of delivery | Any healthcare access (currently has primary care provider or sexual health care provider (provider specific for sexual health care needs and/or HIV care specialist)) | Yes; no |
| Included within contextual and vaccination program specific issues | Comfort around disclosing same-sex romantic relationships to others “I prefer to keep my same-sex romantic relationships rather private” | Disagree; Agree or prefer not to answer |
| Individual influences: experience with past vaccination | Past hepatitis A or B vaccination | Yes; no/don’t know |

aBased on the validated Financial Strain Index. [2] Responses to five questions on financial strain with response options of “a little true” (score of 1) to “very true” (score of 3) were summed to produce a total score between 5–15; the higher the score, the greater financial strain the individual was experiencing. Men with scores of 5–9 were considered not to be experiencing financial strain and a score of 10 or more were experiencing financial strain.

bBased on the definition used by the Ontario Human Rights Commission; [3] men were considered from racialized groups if they identified as East Asian/Southeast Asian, African/Caribbean/Black, Indigenous, South Asian, West Asian/North African or mixed ethnicity/race. Men who reported “other” as their ethnicity/race were coded as missing (n = 4).

Supplementary Table 2. Unweighted latent class prevalence by city and age group.

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| Vancouver | No barriers | Racialized, GBM privacy, immigration and healthcare access barriers | Education barriers | Racialized barriers |
| 46.6 | 7.3 | 10.1 | 36.0 |
| Toronto | No barriers | GBM privacy and immigration barriers |  |  |
| 59.4 | 40.6 | - | - |
| Montreal | No barriers | Immigration and past vaccine barriers | Racialized, GBM privacy and immigration barriers | Socio-economic, GBM privacy, and healthcare access barriers |
| 65.1 | 10.0 | 17.7 | 7.2 |

References

[1] SAGE Working Group. Report of the SAGE Working Group on Vaccine Hesitancy. Geneva; 12 November. 2014.

[2] Hamby S, Turner H, Finkelhor D. Financial Strain Index. Crimes Against Children Research Center: Durham. 2011.

[3] Ontario Human Rights Commission. Policy and Guidelines on Racism and Discrimination. Government of Ontario: Ontario. 2005.