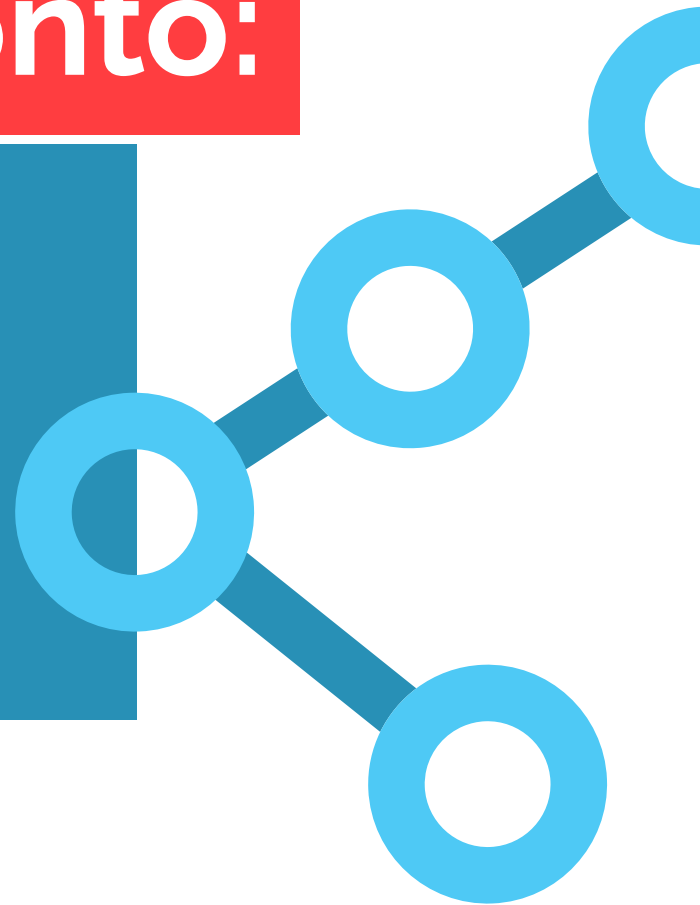


# Engage Toronto:

Portrait of the health & wellbeing of gay, bisexual & other men who have sex with men in the Greater Toronto Area.



**Baseline Sample  
(2017-2019)  
Highlights**

# Acknowledgments

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**For more information:** [www.engage-men.ca](http://www.engage-men.ca)

# Executive Summary<sup>1</sup>

**Objectives:** Despite important advances in antiretroviral therapy (ART) resulting in the reduction of morbidity and mortality rates for people living with HIV, gay, bisexual and other men who have sex with men (GBM) remain disproportionately affected by HIV in Canada (1). Similarly, the rates of bacterial sexually transmitted infections (STIs) and blood borne infections are disproportionately high in this population, with these pathogens also playing a role as co-factors in HIV transmission (2). The objective of the Engage Study is to provide an up-to-date portrait of various aspects related to the sexual and mental health of GBM.

**Methods:** Engage is a community-based longitudinal cohort study of GBM that collects detailed sociodemographic, behavioural, attitudinal, and biological information related to sexual health, HIV, Hepatitis C, and other STIs, substance use, and psychosocial health. We used respondent driven sampling (RDS) to recruit participants into our study. RDS is a modified form of chain-referral sampling designed to approximate probabilistic samples by adjusting for selection bias (4). Engage is a three-site collaboration in Vancouver, Toronto, and Montreal.

This report describes the Toronto sample at the baseline time point of the Engage Study. Recruitment for Engage in Toronto started in May 2017 and ended in August 2019. To increase the representativeness of our estimates using Engage Study data, we applied RDS weighting adjustment methods during data analysis. This method allows us to account for the fact that individuals with larger social networks are more likely to be recruited into the sample.

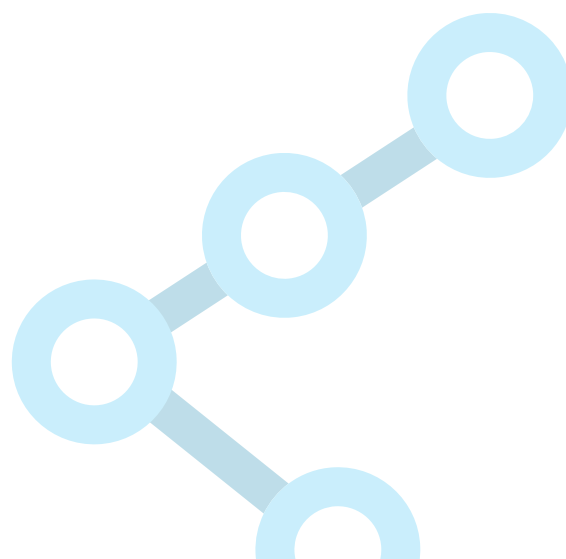
**Results:** The final sample of 517 men (cisgender and transgender) in Toronto was recruited in about 27 months. Our sample was comprised of 79% self-reported HIV-negative GBM and 21% GBM self-reported living with HIV. About half (51%) were 30 years old or younger. Almost half (43%) were born outside of Canada, and almost half (40%) identified as members of a racialized group. Most (80%) reported having at least a high school education. Regarding sexual orientation, most (72%) identified as gay, and most participants reported experiencing some form of past homophobic discrimination. For example, 75% reported that in the past year, they had heard anti-gay/bisexual remarks from family members.

<sup>1</sup> All percentages are RDS-adjusted

Regarding sexual activities in the past 6 months, 88% reported having anal sex with a male partner, and 54% reported anal sex without a condom. Alcohol was the most common substance used, which was reported by 94% of respondents in the past 6 months. However, relatively few participants (8%) reported problematic levels (e.g., having 6 or more drinks in one sitting 4 or more times a week) of alcohol use. Around 7% GBM reported crystal methamphetamine use, and 4 % reported using a non-medicinal drug by injection in the past 6 months.

Regarding healthcare access and use, HIV-negative GBM were less likely to report having a primary care provider (67%) than men living with HIV (99.9%). Among HIV-negative GBM, 73% reported having been tested for HIV in the past 12 months. Relatively fewer men reported having been tested for a sexually transmitted infection other than HIV (64% of HIV-negative GBM and 37% of GBM living with HIV). A minority (11%) of HIV-negative GBM reported having taken Pre-Exposure Prophylaxis (PrEP) in the past 6 months. Among GBM living with HIV, 97% were aware of their health status. Of those, 85% were on antiretroviral treatment, and among those on treatment, 98.0% reported an undetectable viral load (<50 copies/ml). Regarding mental health across all participants, regardless of HIV status, 59% reported at least some form of (mild/moderate/severe) anxiety, and 25% reported symptoms of depression.

**Conclusions:** The Engage Toronto site recruited a diverse sample of 517 sexually active GBM from the Greater Toronto Area. This report suggests the ongoing need for sexual health and HIV prevention services for Toronto GBM, including increasing access and use of PrEP among HIV-negative GBM and further increasing access and use of antiretroviral treatment for GBM living with HIV. There is also a need to increase access and use of a primary care provider among HIV-negative GBM living in Toronto. Although most GBM reported no problems with mental health or substance use, there are many GBM who would benefit from mental health promotion and treatment services and harm reduction services for men using crystal methamphetamines or non-medicinal injection drug use.



# Introduction

The objective of the Engage Study is to provide an up-to-date portrait of various aspects related to the sexual and mental health of gay, bisexual and other men who have sex with men (GBM). This information aims to support health interventions serving this population.

Despite important advances in antiretroviral therapy (ART) resulting in the reduction of morbidity and mortality rates for people living with HIV, GBM remain disproportionately affected by HIV in Canada. GBM account for more than half of all Canadians living with HIV (52%), despite only representing 2 to 3% of the general population (1). These trends are also consistent in Ontario, where GBM account for 52% of new HIV diagnoses and the estimated prevalence of HIV among GBM in Toronto is 23% (1). Similarly, the rates of bacterial sexually transmitted infections (STIs) are disproportionately high in this population, with these pathogens also playing a role as co-factors in HIV transmission (2). The epidemiology of HIV and STIs in Canada makes GBM a high priority population for HIV/STI prevention, care and related research. Further considerations to different socio-behavioural factors such as access to preventative health services, sexual behaviours, mental health and substance use are warranted. Recognizing that there is a significant lack of understanding of the diversity and needs of GBM across Canada, and that GBM continue to be affected and infected by HIV and STIs at alarming rates, the Engage Study was designed to address critical knowledge gaps in HIV and STI prevention.

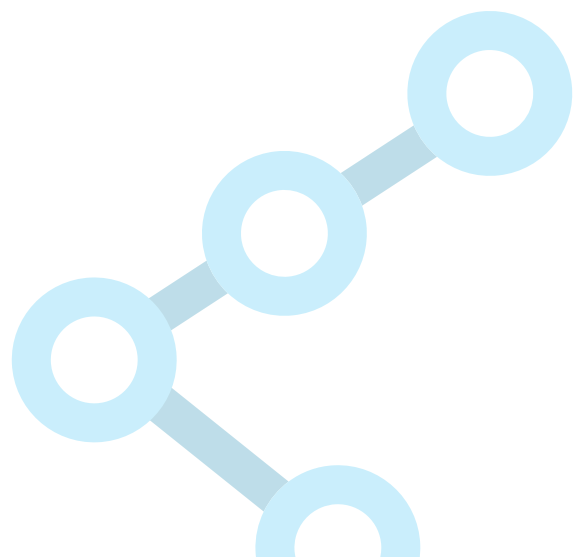
The Engage Study is a community-based longitudinal cohort of GBM that collects detailed sociodemographic, behavioural, attitudinal, and biological information related to sexual health, HIV, hepatitis C, and other STIs, substance use, and psychosocial health. The Engage Study was designed based on the success of the Momentum I Health Study, which was originally conducted in Vancouver from 2012-2019 (3). Building and expanding off of Momentum I, this current study includes the three largest cities in Canada: Vancouver, Toronto and Montréal and represents a national partnership of researchers, public health leaders, and community leaders whose shared goal is to conduct, support, and facilitate high-quality and policy-relevant HIV research on GBM. The Engage Study has six main objectives:

1. To measure self-reported HIV risk behaviour and determinants of risk behaviours among GBM. We defined risk behavior as at least one episode of condomless anal sex (CAS) with a known serodiscordant or unknown serostatus partner in the previous six months.
2. To measure the prevalence and determinants of recent HIV infection among GBM.
3. To measure the proportion and determinants of community viral load (i.e., a measured viral load  $\geq 200$  copies/ mL) among HIV-positive GBM.
4. To measure the prevalence of recent and asymptomatic STIs other than HIV (HBV, HCV, gonorrhea, chlamydia, and syphilis) and related determinants among GBM.
5. To document the exposure and uptake of socio-behavioural and biomedical HIV and STI prevention programs among GBM.
6. To examine associations between specific prevention initiatives with the occurrence of recent HIV, STI, and CAS.

The current document provides an overview of selected indicators from the study data collected between May 2017 and August 2019 from 517 cisgender and transgender men aged 16 to 76 years who took part in the Toronto branch of the Engage Study. The indicators value is situated within the reported margins with a level of confidence of 95%.

The objectives for this report are to provide detailed health information about GBM in Toronto for clinical and public health audiences. These findings can be used to further develop research analyses, support existing and future research, develop HIV and STI prevention and care interventions and support further grant-funded applications. A separate community-facing report will be designed to address the interests and concerns of the GBM community in the Greater Toronto Area.

More information regarding the study and related publications are available at the national Engage website ([www.engage-men.ca](http://www.engage-men.ca)).



# Methods And Analysis

To be eligible for the study, participants needed to 1) be 16 years of age or older, 2) self-identify as a man (cisgender or transgender), 3) be able to read English, 4) live in the Greater Toronto Area, 5) be willing to provide biological samples for HIV and STI testing, and 6) have engaged in sexual activity with another man in the six months prior to their study visit.

We used respondent driven sampling (RDS) to recruit participants in the Engage Study. RDS is a modified form of chain-referral sampling designed to approximate probabilistic samples by adjusting for selection bias (4). Recruitment for the Engage Study in Toronto started in May 2017 and ended in August 2019. The Toronto site initially started with 30 “seed” participants, who were chosen based upon feedback from our Community Engagement Committee of community members and service providers for Toronto gay, bisexual, and queer men’s communities. Seed participants were recruited from diverse racial and ethnic backgrounds, ages, gender identities, HIV statuses, as well as risk factors for HIV and other sexually transmitted and blood-borne infections (STBBIs). Recruitment was monitored to add more seed participants in order to retain steady recruitment and to improve our ability to achieve our targeted sample size. We also used advertisements on social networking applications, such as Grindr, Growlr, and Squirt, as well as posts on Facebook and Craigslist to raise awareness of the study and to recruit potential seed participants.

Participants were encouraged to maintain the chain of recruitment and were compensated \$15 for each person they successfully recruited into the study (to a maximum of 6 people). Potential participants received “coupons” inviting them to participate in the Engage study. Each study participant received \$50 for completing a study visit, which included a self-administered quantitative questionnaire and provision of biological samples for HIV and other STBBIs. Individuals could only participate in the baseline study once, and we collected written informed consent prior to data collection.

## Statistical Adjustment

To increase the representativeness of estimates using Engage Study data, we applied RDS weighting adjustment methods during data analysis. We adjusted all data using RDS-II weights, which is a widely used method that relies on social network size of participants (5). With this weighting method, data are adjusted according to the size of each participant's social network (weight decreases as the size of social network increases) to account for the fact that individuals with larger social networks are more likely to be recruited into the sample. A participant's social network size was based on their answer to the following question: "How many men who have sex with men aged 16 years or older, including trans men, do you know who live or work in the greater Toronto area (whether they identify as gay or otherwise) *This includes gay/bi guys you see or speak to regularly; e.g., close friends, boyfriends, spouses, regular sex partners, roommates, relatives, people you regularly hang out with, etc.?*" For the lower limit, we set the minimum value to 1 as, to be eligible for the study, all participants had to be sexually active with another man within the past six months. To manage unrealistic maximum values, we set an upper limit of 150, following standards on the maximum number of currently maintained relationships, based on Dunbar's number (6).





# Results

## RDS Recruitment

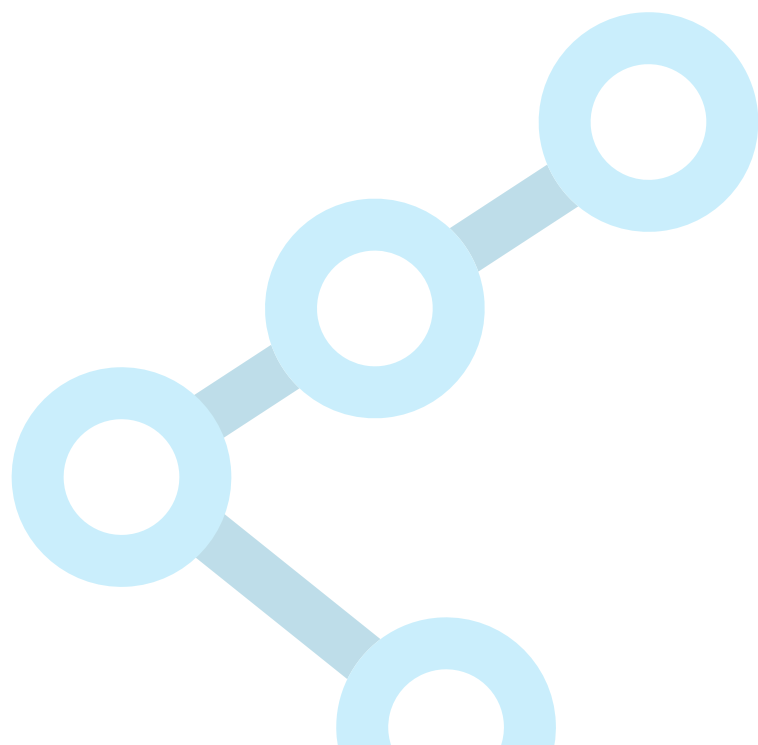
In total, there were 96 “seeds” in Toronto and 53 of these participants (61%) recruited at least one other eligible individual who completed the study protocol. Eligible recruits who finished the study protocol were also given a set number of coupons to recruit their peers. The recruited peers of seeds who enrolled in the survey became wave one respondents, and the recruits of wave one respondents became wave two respondents. This process of recruitment continued through successive waves until our final sample size was reached. In the end, the waves produced by effective seeds made up recruitment chains of varying lengths. The goal was to acquire long recruitment chains made up of multiple waves. The final sample of 517 participants in Toronto was recruited in approximately 27 months (May 2017 – August 2019). The total number of coupons distributed to potential participants was 3078 in Toronto, and the mean number of recruitment waves was 2.67 (95% CI, 2.45, 2.89). The mean length of RDS chains was 5.47 people (95% CI, 5.14, 5.81) and the mean network size (total number of eligible participants the participant knows who live or work in this city) was 56.78 people (95% CI, 52.44, 61.13). When asked about the nature of the relationship with the person from whom participants received an invitation coupon, 99% of participants described their referrer as a friend or current/past sexual partner.

## Specific Challenges

- *Selection bias that could results from the benefits of participating in the study.* Financial compensation is common in epidemiological studies. A generous compensation is likely to attract some people more than others. The ethics review boards that evaluated the study did not determine the amount provided as excessive, especially given travel to the study site and the duration of the study visit (approximately 2 1/2 hours, including time for sample collection). When asked about the main reasons for participating, most respondents reported being interested in issues related to GBM and sexual health, while only 9% reported being mostly interested in financial compensation.

The possibility of free access (regardless of having healthcare coverage in Toronto) to STBBI testing, including the rapid HIV test, may have been more appealing to some GBM than others. However, during the study recruitment period, similar screening services were offered at Hassle Free Clinic, which is not far from the Engage site in downtown Toronto.

- **Degree of similarity between participants and their recruits (homophily).** A high level of homophily suggests that a large proportion of participants with a certain characteristic (e.g., regular substance use) recruited only or mostly people with that same characteristic. Homophily may result in an over-representation of that characteristic. Scores range between -1 (completely recruiting outside one's group) and +1 (completely recruiting within one's group), and a score of 0.3 (or, -0.3) would indicate as "substantial" in-group (or out-group) recruitment (4). An investigation of the Engage Toronto data showed a moderate degree of homophily for age, ethno-cultural background, sexual identity, marital status, and HIV status, which was expected. For example, for age group homophily scores ranged between 0.40 to 0.53, indicating that the GBM in Toronto tended to show an in-group pattern for each age group. We also found that, regarding HIV serostatus (0.54 for HIV- and 0.41 for PLWH), in Toronto GBM tended to others with the same HIV status as their own (an in-group recruitment pattern), which is in keeping with an RDS recruitment strategy.
- **Equilibrium reached.** As waves of recruitment progress and recruitment chains grow, indicators (e.g., average annual income or age) are expected to stabilize, such that the addition of new participants introduces little change in the indicator (in other words, new participants are representative of the population). The investigation of data on selected sociodemographic, psychosocial and behavioural indicators and health outcomes showed that indeed equilibrium was reached for the Toronto sample before data collection ended.



## Table 1: Sociodemographic Characteristics of GBM Living in Toronto

The Engage study reached many GBM under 30 years of age and the majority were born in Canada. We were able to recruit men of different ethnic backgrounds and the majority of men had a bachelor's degree and above.

Characteristics	Overall (N=517)					HIV Negative/Unknown (n=419)				Living with HIV (n=98)						
	Total N	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI			
Self-reported HIV status	<b>517</b>															
HIV negative/unknown		419	81.0	<b>78.6</b>	67.3	86.7										
HIV positive		98	19.0	<b>21.4</b>	13.3	32.7										
Age	<b>517</b>															
Less than 30		222	42.9	<b>50.7</b>	41.4	59.9	200	47.7	<b>57.5</b>	48.3	66.3	22	22.5	<b>25.6</b>	10.4	50.2
30 to 44		221	42.8	<b>28.3</b>	21.5	36.4	181	43.2	<b>28.3</b>	22.0	35.6	40	40.8	<b>28.5</b>	10.5	57.6
45 or more		74	14.3	<b>21.0</b>	12.9	32.2	38	9.1	<b>14.2</b>	7.6	24.9	36	36.7	<b>45.9</b>	21.5	72.4
Born in Canada	<b>517</b>															
No		204	39.5	<b>42.6</b>	34.0	51.7	171	40.8	<b>44.4</b>	35.7	53.4	33	33.7	<b>36.3</b>	15.3	64.2
Yes		313	60.5	<b>57.4</b>	48.3	66.0	248	59.2	<b>55.6</b>	46.6	64.2	65	66.3	<b>63.7</b>	35.8	84.7
Ethnicity	<b>517</b>															
White		336	65.0	<b>59.7</b>	50.6	68.2	264	63.0	<b>58.6</b>	49.6	67.1	72	73.5	<b>63.8</b>	35.8	84.7
Black		23	4.4	<b>5.6</b>	2.7	11.4	19	4.5	<b>6.8</b>	3.1	14.0	4	4.1	<b>1.4</b>	0.4	5.0
Latin American		40	7.7	<b>8.4</b>	5.3	13.1	33	7.9	<b>9.2</b>	5.6	14.9	7	7.1	<b>5.5</b>	1.8	15.7
East/South-East Asian		43	8.3	<b>10.3</b>	5.4	18.9	41	9.8	<b>9.2</b>	5.7	14.6	2	2.0	<b>14.5</b>	2.1	56.9
Aboriginal/Indigenous		3	0.6	<b>2.2</b>	0.5	9.2	3	0.7	<b>2.8</b>	0.6	11.5	0	0.0	<b>0.0</b>	0.0	0.0
South Asian		20	3.9	<b>3.6</b>	1.9	6.5	18	4.3	<b>4.4</b>	2.3	8.1	2	2.0	<b>0.7</b>	0.1	4.0
West Asian/North African		16	3.1	<b>3.6</b>	1.4	9.1	11	2.6	<b>2.3</b>	0.9	5.8	5	5.1	<b>8.5</b>	1.5	36.0
Unidentified/Others		18	3.5	<b>2.8</b>	1.6	5.1	15	3.6	<b>3.0</b>	1.6	5.7	3	3.1	<b>2.2</b>	0.5	9.7
Mixed Race/Ethnicity		18	3.5	<b>3.7</b>	1.8	7.4	15	3.6	<b>3.8</b>	1.6	8.5	3	3.1	<b>3.3</b>	0.9	12
Highest level of education	<b>517</b>															
High school or less		55	10.7	<b>19.6</b>	12.2	30.0	41	9.8	<b>17.9</b>	10.8	28.2	14	14.3	<b>25.7</b>	7.9	58.2
Some College		163	31.6	<b>37.5</b>	28.6	47.5	123	29.4	<b>34.0</b>	25.3	43.8	40	40.8	<b>50.6</b>	25.4	75.6
Bachelor's Degree and Above		298	57.7	<b>42.9</b>	34.5	51.6	254	60.8	<b>48.1</b>	39.1	57.2	44	44.9	<b>23.6</b>	10.4	45.1
Annual income	<b>517</b>															
Less than \$30,000		247	47.8	<b>57.4</b>	47.9	66.4	197	47.0	<b>60.1</b>	50.9	68.7	50	51.0	<b>47.4</b>	23.1	73.0
\$30,000 to \$59,999		160	30.9	<b>32.0</b>	23.3	42.1	130	31.0	<b>27.4</b>	19.6	36.9	30	30.6	<b>48.8</b>	23.8	74.4
\$60,000 or higher		110	21.3	<b>10.6</b>	7.5	14.9	92	22.0	<b>12.5</b>	8.7	17.7	18	18.4	<b>3.8</b>	1.7	8.4

## Table 2: Gender, Sexual Orientation, Relationships, and Homophobic Discrimination

Engage participants had diverse identities but the majority (72.4%) identified as gay and did not identify as transgender (95.9%). Less than half (47.5%) were not in a relationship, and across a variety of questions about past discrimination, most reported some homophobic discriminatory experiences.

Characteristics	Overall (N=517)					HIV-negative/Unknown (n=419)					Living with HIV (n=98)					
	Total N	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI			
<b>Sexual orientation</b>	<b>517</b>															
Gay		403	77.9	<b>72.4</b>	63.1	80.1	318	75.9	<b>71.7</b>	62.8	79.2	85	86.7	<b>74.9</b>	41.9	92.5
Bisexual		23	4.5	<b>13.6</b>	7.4	23.4	17	4.1	<b>10.8</b>	5.9	19.1	6	6.1	<b>23.6</b>	6.5	57.7
Straight		0	0.0	<b>0.0</b>	0.0	0.0	0	0	<b>0</b>	0.0	0.0	0	0.0	<b>0.0</b>	0.0	0.0
Queer		75	14.5	<b>9.3</b>	6.5	13.1	70	16.7	<b>11.6</b>	8.1	16.2	5	5.1	<b>0.9</b>	0.2	3.1
Questioning		0	0.0	<b>0.0</b>	0.0	0.0	0	0.0	<b>0.0</b>	0.0	0.0	0.0	0.0	<b>0.0</b>	0.0	0.0
Asexual		0	0.0	<b>0.0</b>	0.0	0.0	0	0.0	<b>0.0</b>	0.0	0.0	0.0	0.0	<b>0.0</b>	0.0	0.0
Pansexual		13	2.5	<b>2.9</b>	0.9	8.3	11	2.6	<b>3.5</b>	1.1	10.5	2	2.0	<b>0.7</b>	0.1	4.0
Two Spirit		3	0.6	<b>1.9</b>	0.3	9.1	3	0.7	<b>2.4</b>	0.5	11.4	0	0.0	<b>0.0</b>	0.0	0.0
<b>Transgender participant</b>	<b>517</b>															
No		502	97.1	<b>95.9</b>	90.6	98.3	404	96.4	<b>94.8</b>	88.2	97.8	98	100.0	<b>100.0</b>	100.0	100.0
Yes		15	2.9	<b>4.1</b>	1.7	9.4	15	3.6	<b>5.2</b>	2.2	11.8	0	0.0	<b>0.0</b>	0.0	0.0
<b>Current relationship with a main partner</b>	<b>517</b>															
No		279	54.0	<b>47.5</b>	38.4	56.7	216	51.5	<b>46.8</b>	37.8	56.0	63	64.3	<b>50.0</b>	24.8	75.1
Yes		238	46.0	<b>52.5</b>	43.3	61.6	203	48.5	<b>53.2</b>	44.0	62.2	35	35.7	<b>50.0</b>	24.9	75.2
<b>Social time spent with gay/bi guys who you know quite well</b>	<b>512</b>															
50% or less of my social time		230	44.9	<b>59.5</b>	50.6	67.9	189	45.4	<b>56.9</b>	47.6	65.8	41	42.7	<b>70.8</b>	47.7	86.5
50% or more of social time		282	55.1	<b>40.5</b>	32.1	49.4	227	54.6	<b>43.1</b>	34.2	52.4	55	57.3	<b>29.2</b>	13.5	52.3
<b>P1Y Have been called a name like homo/fag/other names in a derogatory manner</b>	<b>511</b>															
Never		108	21.1	<b>30.2</b>	21.3	40.8	90	21.7	<b>25.2</b>	17.3	35.3	18	18.6	<b>48.1</b>	23.1	74.1
At least once		403	78.9	<b>69.8</b>	59.2	78.7	324	78.3	<b>74.7</b>	64.7	82.7	79	81.4	<b>51.9</b>	25.8	76.9
<b>P1Y Have heard anti-gay/bi-sexual remarks from family members</b>	<b>511</b>															
Never		143	28.0	<b>25.2</b>	18.1	33.8	115	27.8	<b>21.7</b>	15.9	28.8	28	28.9	<b>37.9</b>	16.3	65.6
At least once		368	72.0	<b>74.8</b>	66.2	81.9	299	72.2	<b>78.3</b>	71.2	84.1	69	71.1	<b>62.1</b>	34.4	83.7
<b>P1Y Have been treated unfairly by strangers because you are a gay/bisexual man</b>	<b>509</b>															
Never		98	19.3	<b>23.1</b>	15.8	32.3	81	19.7	<b>22.3</b>	15.4	31.2	17	17.5	<b>25.9</b>	8.5	56.9
At least once		411	80.7	<b>76.9</b>	67.7	84.2	331	80.3	<b>77.7</b>	68.8	84.6	80	82.5	<b>74.1</b>	43.1	91.5
<b>P1Y Have been verbally insulted because you are a gay/bisexual man</b>	<b>509</b>															
Never		165	32.4	<b>43.3</b>	34.0	53.1	133	32.3	<b>38.3</b>	29.4	48.0	32	33.0	<b>61.5</b>	34.8	82.7
At least once		344	67.6	<b>56.7</b>	46.9	66.0	279	67.6	<b>61.7</b>	52.0	70.6	65	67.0	<b>38.5</b>	17.3	65.2
<b>P1Y Have been treated unfairly by your family because you are a gay/bisexual man</b>	<b>506</b>															
Never		193	38.1	<b>39.6</b>	30.8	49.2	160	39.0	<b>36.2</b>	28.3	44.9	33	34.4	<b>52.0</b>	26.3	76.6
At least once		313	61.9	<b>60.4</b>	50.8	69.2	250	61.0	<b>63.8</b>	55.1	71.7	63	65.6	<b>48.0</b>	23.4	73.7

### Table 3a: Sexual Activities (in the past 6 months)

Most of Engage GBM (88.2%) had anal sex with another man in the past six months. Only 11.2% had sex with a female partner. Regarding condom use, 54.2% reported anal sex without a condom, and 36.9% reported condomless anal sex with an opposite or unknown HIV-status partner in the past sex months.

Characteristics	Overall (N=517)					HIV-negative/Unknown (n=419)					Living with HIV (n=98)					
	Total N	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI			
P6M Has had sex with a female partner																
No	517	485	93.8	<b>88.8</b>	79.7	94.1	390	93.1	<b>90.0</b>	83.0	94.3	95	96.9	<b>84.3</b>	44.1	97.4
Yes		32	6.2	<b>11.2</b>	5.9	20.3	29	6.9	<b>10.0</b>	5.7	17.0	3	3.1	<b>15.7</b>	2.6	55.9
P6M Has had sex with 6 or more male partners																
No	517	203	39.3	<b>65.7</b>	58.1	72.6	172	41.0	<b>65.2</b>	57.4	72.2	31	31.6	<b>67.7</b>	45.1	84.3
Yes		314	60.7	<b>34.3</b>	27.3	41.9	247	58.9	<b>34.8</b>	27.8	42.5	67	68.4	<b>32.3</b>	15.7	54.9
P6M Has had anal sex with a male partner																
No	517	45	8.7	<b>11.8</b>	6.4	20.9	42	10.0	<b>11.0</b>	6.5	18.1	3	3.1	<b>14.6</b>	2.2	56.8
Yes		472	91.3	<b>88.2</b>	79.1	93.6	377	90.0	<b>89.0</b>	81.9	93.5	95	96.9	<b>85.4</b>	43.2	97.8
P6M Has had anal sex with 6 or more male partners																
No	517	294	56.9	<b>76.1</b>	69.5	81.6	253	60.4	<b>77.7</b>	71.2	83.0	41	41.8	<b>70.1</b>	47.8	85.7
Yes		223	43.1	<b>23.9</b>	18.4	30.5	166	39.6	<b>22.3</b>	16.9	28.8	57	58.2	<b>29.9</b>	14.3	52.2
P6M Has had anal sex without a condom with at least one guy																
No	517	142	27.5	<b>45.8</b>	36.4	55.4	128	30.5	<b>42.3</b>	33.2	51.9	14	14.3	<b>58.7</b>	34.4	79.3
Yes		375	72.5	<b>54.2</b>	44.5	63.6	291	69.5	<b>57.7</b>	48.1	66.8	84	85.7	<b>41.3</b>	20.7	65.6
P6M Condomless anal sex																
Never had anal sex/no anal sex	515	8	1.6	<b>4.6</b>	1.7	11.6	8	1.9	<b>5.8</b>	2.2	14.2	0	0	<b>0</b>	0	0
Condomless anal sex P6M	517	375	72.5	<b>54.2</b>	44.6	63.6	291	69.4	<b>57.7</b>	48.1	66.7	84	85.7	<b>41.3</b>	20.7	65.6
Condomless anal sex with the same status partner	517	233	45.1	<b>63.1</b>	54.5	70.9	213	50.8	<b>63.7</b>	54.8	72.9	20	20.4	<b>60.7</b>	36.8	80.4
Condomless anal sex with an opposite or unknown status partner	517	284	54.9	<b>36.9</b>	29.1	45.5	206	49.2	<b>36.2</b>	28.1	45.2	78	79.6	<b>39.3</b>	19.6	63.2

### Table 3b: Contexts for Sex (in the past 6 months)

Overall, 24.1% of Engage participants had group sex, 40.8% participated in bathhouse or sex club, and 6% reported giving or receiving money for sex in the past six months.

Characteristics	Overall (N=517)					HIV Negative/Unknown (n=419)					Living with HIV (n=98)					
	Total N	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI			
P6M Group sex event																
No	508	316	62.2	<b>75.9</b>	69.0	81.6	259	62.9	<b>76.7</b>	69.9	82.4	57	59.4	<b>72.4</b>	48.7	87.9
Yes		192	37.8	<b>24.1</b>	18.3	31.0	153	37.1	<b>23.3</b>	17.6	30.1	39	40.6	<b>27.6</b>	12.1	51.2
P6M Bathhouse or sex club																
No	510	237	46.5	<b>59.2</b>	50.3	67.6	201	48.5	<b>58.7</b>	49.3	67.5	36	37.5	<b>61.2</b>	36.7	81.1
Yes		273	53.5	<b>40.8</b>	32.4	49.7	213	51.5	<b>41.3</b>	32.5	50.7	60	62.5	<b>38.8</b>	18.9	63.3
P6M GIVEN money in exchange for sex																
No	508	494	97.2	<b>98.3</b>	96.4	99.2	403	97.6	<b>98.3</b>	96.0	99.3	91	95.8	<b>98.2</b>	91.6	99.6
Yes		14	2.8	<b>1.7</b>	0.8	3.6	10	2.4	<b>1.7</b>	0.7	3.9	4	4.2	<b>1.8</b>	0.3	8.4
P6M RECEIVED money in exchange for sex																
No	507	467	92.1	<b>95.7</b>	93.1	97.3	383	92.7	<b>95.7</b>	92.6	97.5	84	89.4	<b>95.8</b>	88.9	98.5
Yes		40	7.9	<b>4.3</b>	2.6	6.9	30	7.3	<b>4.3</b>	2.5	7.4	10	10.6	<b>4.2</b>	1.5	11.2

**Table 4: Tobacco, Alcohol, and Other Substance use (in the past 6 months)**

Overall, in the past six months 46.3% and 23.1% of GBM participants used daily or almost daily tobacco and cannabis respectively. The most prevalent frequency of drinking alcohol was 2 to 4 times a month (38.6%) and the most prevalent substance used was cocaine powder (12.9%).

Characteristics	Overall (N=517)					HIV Negative/Unknown (n=419)					Living with HIV (n=98)					
	Total N	N	(%)	RDS %	95% CI	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI			
<b>P6M Use of tobacco 194</b>																
Never		1	0.5	<b>0.2</b>	0.02	1.3	1	0.6	<b>0.2</b>	0.03	1.6	-	-	-	-	
Once or twice		42	21.6	<b>21.3</b>	12.4	34.1	35	22.0	<b>19.6</b>	11.8	30.8	7	20.0	<b>27.2</b>	5.2	71.6
Monthly		36	18.6	<b>20.0</b>	12.1	31.4	34	21.4	<b>25.6</b>	16.0	38.3	2	5.7	<b>0.7</b>	0.1	3.7
Weekly		25	12.9	<b>12.2</b>	6.2	22.5	22	13.8	<b>14.9</b>	7.6	27.2	3	8.6	<b>2.6</b>	0.6	11.2
Daily or almost daily		90	46.4	<b>46.3</b>	32.6	60.6	67	42.1	<b>39.6</b>	27.9	52.7	23	65.7	<b>69.5</b>	27.0	93.4
<b>P6M Use of cannabis 359</b>																
Never		1	0.3	<b>0.3</b>	0.04	2.1	1	0.3	<b>0.4</b>	0.05	2.5	-	-	-	-	
Once or twice		119	33.1	<b>36.0</b>	25.7	47.9	101	34.1	<b>41.2</b>	29.8	53.6	18	28.6	<b>9.8</b>	3.7	23.4
Monthly		74	20.6	<b>21.9</b>	14.7	31.6	63	21.3	<b>25.2</b>	16.8	36.0	11	17.5	<b>5.6</b>	2.0	14.6
Weekly		75	20.9	<b>18.5</b>	10.9	29.6	59	19.9	<b>12.1</b>	8.2	17.7	16	25.4	<b>51.0</b>	20.9	80.4
Daily or almost daily		90	25.1	<b>23.1</b>	16.2	31.8	72	24.3	<b>21.1</b>	14.5	29.7	18	28.6	<b>33.6</b>	12.1	65.0
<b>How often do you have a drink containing alcohol 513</b>																
Never		44	8.6	<b>6.0</b>	3.8	9.3	30	7.2	<b>6.0</b>	3.6	9.9	14	14.6	<b>6.1</b>	2.6	13.7
Monthly or less		104	20.3	<b>29.3</b>	21.4	38.5	79	18.9	<b>27.6</b>	20.2	36.5	25	26.0	<b>36.4</b>	14.4	66.1
2 to 4 times a month		173	33.7	<b>38.6</b>	29.8	48.3	151	36.2	<b>39.5</b>	30.3	49.4	22	22.9	<b>34.9</b>	13.7	64.3
2 to 3 times a week		116	22.6	<b>17.0</b>	12.2	23.3	96	23.0	<b>17.3</b>	12.4	23.6	20	20.8	<b>16.0</b>	5.1	40.3
4 or more times a week		76	14.8	<b>9.1</b>	5.7	14.2	61	14.6	<b>9.6</b>	5.7	15.8	15	15.6	<b>6.6</b>	2.5	16.2
<b>Use of alcohol: 6 drinks or more and 4 times a week or more 513</b>																
No		441	86.0	<b>91.7</b>	86.6	94.9	358	85.8	<b>90.5</b>	84.3	94.4	83	86.5	<b>96.8</b>	92.0	98.7
Yes		72	14.0	<b>8.3</b>	5.1	13.4	59	14.2	<b>9.5</b>	5.6	15.7	13	13.5	<b>3.2</b>	1.3	7.9
<b>Use of (NON-MEDICAL USE ONLY) Cocaine Powder 512</b>																
No		405	79.1	<b>87.1</b>	82.4	90.7	333	80.2	<b>85.7</b>	80.2	89.9	72	74.2	<b>92.0</b>	83.5	96.3
Yes		107	20.9	<b>12.9</b>	9.3	17.6	82	19.8	<b>14.3</b>	10.1	19.8	25	25.8	<b>8.0</b>	3.7	16.5
<b>Use of (NON-MEDICAL USE ONLY) Crack Cocaine 507</b>																
No		492	97.0	<b>98.1</b>	95.6	99.2	401	97.8	<b>98.2</b>	95.0	99.4	91	93.8	<b>97.6</b>	91.4	99.4
Yes		15	3.0	<b>1.9</b>	0.8	4.4	9	2.2	<b>1.8</b>	0.6	5.0	6	6.2	<b>2.4</b>	0.6	8.5
<b>P6M Frequency of cocaine use 111</b>																
Never		5	4.5	<b>4.2</b>	1.5	11.3	4	4.5	<b>3.5</b>	1.2	9.9	1	4.6	<b>6.0</b>	0.5	44.4
Once or twice		73	65.8	<b>57.1</b>	35.3	76.5	57	64.0	<b>68.1</b>	48.6	82.8	16	75.7	<b>25.6</b>	5.0	69.2
Monthly		26	23.4	<b>34.9</b>	15.8	60.4	22	24.7	<b>24.0</b>	10.6	45.9	4	18.2	<b>66.0</b>	20.0	93.8
Weekly		7	6.3	<b>3.9</b>	1.3	10.8	6	6.7	<b>4.4</b>	1.3	13.4	1	4.6	<b>2.4</b>	0.2	23.1
Daily or almost daily		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Characteristics	Overall (N=517)					HIV Negative/Unknown (n=419)					Living with HIV (n=98)				
	Total N	N	(%)	RDS %	95% CI	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI		
Use of (NON-MEDICAL USE ONLY) Ketamine	511														
Never	374	73.2	<b>86.9</b>	82.7	90.3	326	78.7	<b>87.9</b>	83.3	91.4	48	49.5	<b>83.4</b>	70.0	91.5
Used in the past 6 months	43	8.4	<b>3.0</b>	2.0	4.5	27	6.5	<b>2.5</b>	1.5	4.1	16	16.5	<b>4.9</b>	2.2	10.7
Used greater than 6 months ago	94	18.4	<b>10.1</b>	7.2	13.9	61	14.7	<b>9.6</b>	6.5	14.0	33	34.0	<b>11.7</b>	5.6	22.7
Use of (NON-MEDICAL USE ONLY) Crystal Methamphetamine	509														
Never	391	76.8	<b>87.6</b>	82.5	91.3	353	85.9	<b>90.4</b>	84.4	94.2	38	38.8	<b>77.5</b>	60.7	88.5
Used in the past 6 months	59	11.6	<b>7.1</b>	4.1	11.9	23	5.6	<b>5.2</b>	2.2	11.9	36	36.7	<b>13.7</b>	6.7	26.0
Used greater than 6 months ago	59	11.6	<b>5.4</b>	3.6	7.8	35	8.5	<b>4.4</b>	2.8	6.9	24	24.5	<b>8.8</b>	3.9	18.8
P6M Frequency of amphetamines use	164														
Never	8	4.9	<b>5.6</b>	1.9	14.9	7	5.3	<b>6.9</b>	2.4	18.9	1	3.1	<b>1.4</b>	0.1	12.6
Once or twice	90	54.9	<b>60.5</b>	43.6	75.2	77	55.3	<b>60.8</b>	43.5	75.8	13	40.6	<b>59.3</b>	18.2	90.5
Monthly	39	23.8	<b>14.7</b>	6.9	28.8	27	20.5	<b>16.2</b>	6.8	33.8	12	37.5	<b>10.1</b>	2.7	31.3
Weekly	13	7.9	<b>11.7</b>	4.6	26.7	9	6.8	<b>6.9</b>	3.0	15.0	4	12.5	<b>26.8</b>	4.5	74.2
Daily or almost daily	14	8.5	<b>7.5</b>	3.1	16.9	12	9.1	<b>9.1</b>	3.6	21.0	2	6.3	<b>2.4</b>	0.3	16.8
Use of (NON-MEDICAL USE ONLY) Steroids (NOT on prescription)	511														
Never	483	94.5	<b>98.6</b>	97.7	99.2	398	96.1	<b>99.1</b>	98.3	99.5	85	87.6	<b>96.9</b>	92.4	98.8
Used in the past 6 months	10	2.0	<b>0.3</b>	0.1	0.7	8	1.9	<b>0.4</b>	0.2	0.9	2	2.1	<b>0.2</b>	0.0	0.9
Used greater than 6 months ago	18	3.5	<b>1.0</b>	0.5	1.9	8	1.9	<b>0.5</b>	0.2	1.3	10	10.3	<b>2.9</b>	1.1	7.4
Use of any drug by injection (NON-MEDICAL USE ONLY)	516														
Never	462	89.5	<b>87.3</b>	75.8	93.8	397	95.0	<b>96.2</b>	89.6	98.6	65	66.3	<b>54.8</b>	27.8	79.2
Used in the p6m	29	5.6	<b>3.6</b>	1.5	8.5	12	2.9	<b>2.9</b>	0.8	10.6	17	17.3	<b>6.0</b>	2.6	13.2
Used more than 6 months ago	25	4.8	<b>9.1</b>	3.5	21.8	9	2.1	<b>0.9</b>	0.4	2.2	16	16.3	<b>39.2</b>	15.7	69.0
If used any drug by injection in the past 6 months, used a syringe ALREADY USED by someone else to inject drugs	29														
No	20	69.0	<b>40.1</b>	11.4	77.8	10	83.3	<b>29.3</b>	3.5	82.6	10	58.8	<b>59.4</b>	24.5	86.8
Yes	9	31.0	<b>59.9</b>	22.2	88.6	2	16.7	<b>70.7</b>	17.3	96.5	7	41.2	<b>40.6</b>	13.1	75.5

## Table 5: Access to Health and Prevention Services

In the past year, 72.9% and 63.7% of HIV negative/unknown participants were tested for HIV and an STI respectively. Of this group, only 3.6% had ever taken post-exposure prophylaxis (PEP), and 11.2% had taken PrEP in the past six months.

Characteristics	Overall (N=517)						HIV Negative/Unknown (n=419)					Living with HIV (n=98)				
	Total N	N	(%)	(RDS) %	95% CI		N	(%)	(RDS) %	95% CI		N	(%)	(RDS) %	95% CI	
Currently have a regular primary health care provider	517															
No	101	19.5	26.1	19.5	33.9	100	23.9	33.1	25.3	42.0	1	1.0	0.1	0.0	0.7	
Yes	416	80.5	73.9	66.1	80.5	319	76.1	66.9	58.0	74.7	97	99.0	99.9	99.2	100.0	
Current regular primary health care provider know that the participant has sex with men	389															
No	26	6.7	11.5	6.4	20.0	26	8.9	16.1	9.0	27.0	0	0.0	0.0	0.0	0.0	
Yes	363	93.3	88.5	80.0	93.6	267	91.1	83.9	73.0	91.0	96	100.0	100.0	100.0	100.0	
P6M Receive information about sexual health from On-line interaction with a worker or volunteer from a Community-Based Organization	517															
No	484	93.6	93.3	87.6	96.5	397	94.7	95.5	90.5	97.9	87	88.8	85.3	62.4	95.3	
Yes	33	6.4	6.7	3.5	12.4	22	5.3	4.5	2.1	9.5	11	11.2	14.7	4.7	37.5	
P6M Receive information about sexual health from On-going or multiple-session programs or support groups	517															
No	488	94.4	95.3	91.4	97.4	407	97.1	96.4	91.6	98.5	81	82.6	91.0	79.2	96.4	
Yes	29	5.6	4.7	2.6	8.6	12	2.9	3.6	1.5	8.4	17	17.4	9.0	3.6	20.7	
P6M Receive information about sexual health from One-time workshop or presentation	517															
No	449	86.9	85.0	76.2	90.9	384	91.6	93.8	90.1	96.2	65	66.3	52.6	26.9	77.0	
Yes	68	13.1	15.0	9.1	23.8	35	8.4	6.2	3.8	9.9	33	33.7	47.4	23.0	73.1	
P6M Receive information about sexual health from In-person interaction with a worker or volunteer from a Community-Based Organization	517															
No	438	84.7	85.7	77.4	91.3	375	89.5	92.9	89.0	95.4	63	64.3	59.7	32.7	81.8	
Yes	79	15.3	14.3	8.6	22.6	44	10.5	7.1	4.6	11.0	35	35.7	40.3	18.1	67.2	
P1Y Tested for HIV	402															
No	70	17.4	27.1	17.8	38.9	70	17.5	27.1	17.8	38.9	0	0.0	0.0	0.0	0.0	
Yes	332	82.6	72.9	61.1	82.2	331	82.5	72.9	60.1	82.2	1	100.0	100.0	100.0	100.0	
P6M Tested for HIV (among participants had 6 or more male sex partners)	246															
No	64	26.0	27.5	20	36.6	64	26.1	27.5	20.0	36.6	0	0.0	0.0	0.0	0.0	
Yes	182	74.0	72.5	63.4	80.0	181	73.9	72.5	63.4	80.0	1	100.0	100.0	100.0	100.0	
P1Y Tested for an STI	510															
No	121	23.7	41.5	32.1	51.6	108	26.1	36.3	27.0	46.7	13	13.4	63.1	40.7	81.0	
Yes	389	76.3	58.5	48.4	67.9	305	73.9	63.7	53.3	73.0	84	86.6	36.9	19.0	59.3	
P6M Tested for an STI (among participants had 6 or more male sex partners)	302															
No	35	11.6	14.7	7.6	26.6	32	13.6	10.5	6.6	16.2	3	4.5	30.2	8.1	67.9	
Yes	267	88.4	85.3	73.4	92.4	203	86.4	89.5	83.4	93.4	64	95.5	69.8	32.1	91.9	

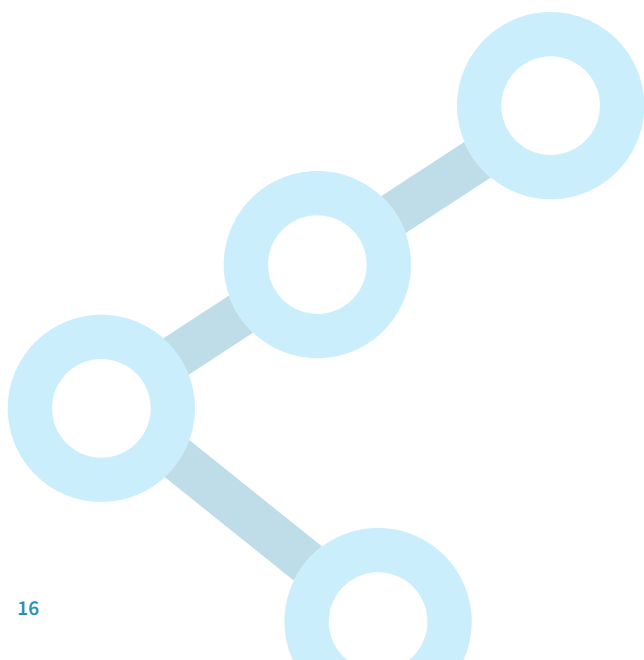


Characteristics	Overall (N=517)					HIV Negative/Unknown (n=419)					Living with HIV (n=98)				
	Total N	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI		
Ever received one or more doses of Hepatitis B vaccine	423														
No	47	11.1	<b>13.8</b>	8.6	21.5	41	12.1	<b>17.3</b>	10.7	26.7	6	7.2	<b>3.3</b>	1.0	10.6
Yes	376	88.9	<b>86.2</b>	78.5	91.4	299	87.9	<b>82.7</b>	73.3	89.3	77	92.8	<b>96.7</b>	89.4	99.0
Ever received one or more doses of the HPV vaccine	485														
No	229	47.2	<b>41.4</b>	32.1	51.3	192	48.1	<b>43.2</b>	33.8	53.0	37	43.0	<b>33.9</b>	12.2	65.4
Yes	165	34.0	<b>30.5</b>	22.8	39.4	129	32.4	<b>27.9</b>	21.1	36.0	36	41.9	<b>41.3</b>	17.0	70.7
Never heard of the HPV vaccine	68	14.0	<b>21.7</b>	14.5	31.2	58	14.5	<b>21.1</b>	14.5	29.6	10	11.6	<b>24.4</b>	6.1	61.6
Unsure if heard of the HPV vaccine	23	4.7	<b>6.4</b>	3.2	12.2	20	5.0	<b>7.8</b>	4.0	14.9	3	3.5	<b>0.3</b>	0.1	1.3
Ever received one or more doses of the HPV vaccine (among participants 26 years old or younger)	114														
No	42	36.8	<b>34.7</b>	19.9	53.3	39	37.1	<b>34.3</b>	19.0	53.9	3	33.3	<b>43.0</b>	9.7	84.0
Yes	50	43.9	<b>35.8</b>	22.9	51.0	45	42.9	<b>35.3</b>	22.1	51.3	5	55.6	<b>44.8</b>	11.0	84.1
Never heard of the HPV vaccine	15	13.2	<b>18.6</b>	9.3	33.6	14	13.3	<b>18.9</b>	9.3	34.6	1	11.1	<b>12.2</b>	1.0	66.4
Unsure if heard of the HPV vaccine	7	6.1	<b>10.9</b>	3.7	28.0	7	6.7	<b>11.5</b>	3.9	29.3	0	0.0	<b>0.0</b>	0.0	0.0
Ever taken PEP	516														
No	388	75.2	<b>66.9</b>	57.1	75.4	312	74.5	<b>64.6</b>	54.6	73.5					
Yes	44	8.5	<b>4.1</b>	2.5	6.6	32	7.6	<b>3.6</b>	2.0	6.4					
Never heard of PEP	78	15.1	<b>25.1</b>	17.6	34.5	71	16.9	<b>31.0</b>	22.0	41.4					
Unsure if heard of PEP	6	1.2	<b>3.9</b>	0.8	16.5	4	1.0	<b>0.8</b>	0.2	2.6					
P6M Taken PrEP	419														
No						330	78.8	<b>88.8</b>	84.5	92.1					
Yes						89	21.2	<b>11.2</b>	7.9	15.5					
P6M Taken PrEP (among participants who had 6 or more male sex partners)	314														
No						165	66.8	<b>73.5</b>	64.9	80.7					
Yes						82	33.2	<b>26.5</b>	19.3	35.1					
Contacted most or all of the recent sexual partners to tell them to get tested or treated (among participants who have received a diagnosis of a sexually transmitted infection (STI) P6M)	81														
No	27	33.3	<b>38.5</b>	21.5	58.9	16	27.6	<b>33.6</b>	14.8	59.5	11	47.8	<b>55.0</b>	25.2	81.5
Yes	54	66.7	<b>61.5</b>	41.1	78.5	42	72.4	<b>66.4</b>	40.5	85.1	12	52.2	<b>45.0</b>	18.5	74.8

## Table 6: Opinions About HIV Infection

Of those living with HIV, more than half (52.5%) agreed that new HIV treatments would take worry out of sex and made HIV/AIDS a less serious threat (54.3%), while 70.6% of those living with HIV disagreed with the idea that It is very hard to get HIV nowadays because most HIV-positive guys have undetectable viral loads. However, the majority (98.0%) perceived themselves as low risk for transmitting HIV to a sex partner.

Characteristics	Overall (N = 517)					HIV-negative/Unknown (n=419)				Living with HIV (n=98)					
	Total N	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI		
<b>If a guy is using pre-exposure prophylaxis it makes using condoms during anal sex less important</b>	<b>516</b>														
Strongly disagree/Disagree	269	52.1	<b>67.8</b>	59.9	74.8	233	55.7	<b>67.7</b>	59.5	74.9	36	36.7	<b>68.0</b>	45.2	84.6
Agree/Strongly agree	247	47.9	<b>32.2</b>	25.2	40.1	185	44.3	<b>32.3</b>	25.0	40.4	62	63.3	<b>32.0</b>	15.4	54.7
<b>New HIV treatments will take the worry out of sex</b>	<b>516</b>														
Strongly disagree/Disagree	231	44.8	<b>54.1</b>	45.0	63.0	203	48.6	<b>55.9</b>	46.9	64.5	28	28.6	<b>47.5</b>	22.7	73.6
Agree/Strongly agree	285	55.2	<b>45.9</b>	37.0	55.0	215	51.4	<b>44.1</b>	35.5	53.1	70	71.4	<b>52.5</b>	26.4	77.3
<b>HIV/AIDS is a less serious threat than it used to be because of new treatments</b>	<b>516</b>														
Strongly disagree/Disagree	161	31.2	<b>41.2</b>	32.1	51.0	137	32.8	<b>40.0</b>	31.1	49.6	24	24.5	<b>45.7</b>	21.2	72.5
Agree/Strongly agree	355	68.8	<b>58.8</b>	48.9	67.9	281	67.2	<b>60.0</b>	50.3	68.9	74	75.5	<b>54.3</b>	27.5	78.8
<b>It is very hard to get HIV nowadays because most HIV-positive guys have undetectable viral loads</b>	<b>516</b>														
Strongly disagree/Disagree	437	84.7	<b>86.4</b>	77.9	92.0	365	87.3	<b>90.7</b>	86.0	94.0	72	73.5	<b>70.6</b>	40.2	89.6
Agree/Strongly agree	79	15.3	<b>13.6</b>	8.0	22.0	53	12.7	<b>9.2</b>	6.0	14.0	26	26.5	<b>29.4</b>	10.4	59.8
<b>Current risk of getting HIV</b>	<b>412</b>														
Low perceived risk	338	82.0	<b>80.3</b>	72.9	86.1	337	82.0	<b>80.3</b>	72.9	86.1					
High perceived risk	73	17.7	<b>18.4</b>	12.9	25.4	73	17.8	<b>18.4</b>	12.9	25.4					
May already be HIV-positive	1	0.2	<b>1.3</b>	0.2	8.9	1	0.2	<b>1.3</b>	0.2	8.9					
<b>Current risk of transmitting HIV to a sex partner</b>	<b>95</b>														
Low perceived HIV transmission risk	92	96.8	<b>97.5</b>	90.0	99.4						92	97.9	<b>98.0</b>	89.9	99.6
High perceived HIV transmission risk	3	3.2	<b>2.5</b>	0.6	10.0						2	2.1	<b>2.0</b>	0.3	10.1



## Table 7a: Health Status for All Participants

Engage HIV negative/unknown participants had higher rates of poor mental health (13.1% vs 8.1%), mild, moderate or severe anxiety (62.7% vs 41.5%), and mild, moderate or severe depression (25.8% vs 19.5%) compared to those living with HIV. Participants living with HIV had a higher prevalence of gonorrhoea (28.8% vs 6.8%), chlamydia (10.4% vs 4.4%), and reactive syphilis (47.9% vs 7.0%) compared to HIV negative/unknown participants. HIV testing at the time of interview identified 2 GBM who were not aware of their HIV infection. The prevalence of HCV infection among all participants was 3.9%, while the prevalence was higher among GBM living with HIV compared to HIV-negative (14.9% vs 0.8%).

Characteristics	Overall (N = 517)					HIV Negative/Unknown (n=419)				Living with HIV (n=98)						
	Total N	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI			
<b>P6M Mental health in general<sup>6</sup></b>	<b>512</b>															
Good or excellent mental health		441	86.1	<b>87.8</b>	82.8	91.5	360	<b>86.3</b>	86.8	81.0	91.1	81	<b>85.3</b>	91.9	81.9	96.6
Poor mental health		71	13.9	<b>12.2</b>	8.5	17.2	57	13.7	<b>13.1</b>	9.0	19.0	14	14.7	<b>8.1</b>	3.4	18.1
<b>HADS anxiety score (dichotomized)<sup>7</sup></b>	<b>493</b>															
Normal		219	44.4	<b>41.4</b>	32.2	51.3	177	44.2	<b>37.3</b>	28.5	47.0	42	45.2	<b>58.5</b>	32.7	80.2
Mild/Moderate/Severe		274	55.6	<b>58.6</b>	48.7	67.8	223	55.8	<b>62.7</b>	53.0	71.5	51	54.8	<b>41.5</b>	19.7	67.2
<b>HADS depression score (dichotomized)<sup>7</sup></b>	<b>485</b>															
Normal		389	80.2	<b>75.5</b>	67.0	82.3	323	81.8	<b>74.2</b>	65.1	81.6	66	73.3	<b>80.5</b>	56.4	92.9
Mild/Moderate/Severe		96	19.8	<b>24.5</b>	17.7	32.9	72	18.2	<b>25.8</b>	18.3	34.9	24	26.7	<b>19.5</b>	7.1	43.6
<b>ASSIST Score (alcohol)</b>	<b>472</b>															
Low risk (ASSIST score 0 to 10)		321	68.0	<b>75.8</b>	68.9	81.6	258	67.5	<b>73.2</b>	65.5	79.7	63	70.0	<b>86.2</b>	72.5	93.7
Moderate risk (ASSIST score 11 to 26)		120	25.4	<b>20.8</b>	15.5	27.5	101	26.4	<b>23.8</b>	17.6	31.3	19	21.1	<b>9.3</b>	3.9	20.5
High risk (ASSIST score 27+)		31	6.6	<b>3.3</b>	2.0	5.4	23	6.0	<b>3.0</b>	1.7	5.3	8	8.9	<b>4.5</b>	1.5	12.4
Never used drugs (lifetime)	<b>515</b>	25	4.9	<b>8.7</b>	4.0	17.7	20	4.8	<b>6.8</b>	3.7	12.2	5	5.2	<b>15.5</b>	2.6	56.1
Used, within P6M		460	89.3	<b>82.7</b>	72.4	89.8	377	90.2	<b>83.4</b>	72.9	90.4	83	85.6	<b>80.3</b>	45.4	95.3
Used, but not within P6M		30	5.8	<b>8.6</b>	3.9	18.0	21	5.1	<b>9.8</b>	4.1	21.7	9	9.3	<b>4.2</b>	1.5	11.3
<b>ASSIST Score (cocaine/amphetamines/inhalants/sedatives/hallucinogens and opioids)</b>	<b>490</b>															
Low risk (any ASSIST Score 0 to 3)		272	55.5	<b>72.7</b>	65.4	78.9	240	60.5	<b>77.2</b>	71.1	82.4	32	34.4	<b>55.0</b>	29.3	78.3
Moderate risk (any ASSIST score 4 to 26)		162	33.1	<b>21.7</b>	16.1	28.6	129	32.5	<b>19.0</b>	14.4	24.6	33	35.5	<b>32.5</b>	14.0	58.8
High Risk (any ASSIST score 27+)		56	11.4	<b>5.6</b>	3.7	8.2	28	7.0	<b>3.8</b>	2.2	6.6	28	30.1	<b>12.5</b>	5.9	24.4
Did not use in P6M	<b>514</b>	217	42.2	<b>60.7</b>	52.2	68.7	192	46.2	<b>62.2</b>	53.7	69.9	25	25.5	<b>55.6</b>	30.5	78.0
Used at least one in P6M		117	22.8	<b>20.6</b>	14.7	28.2	95	22.8	<b>20.1</b>	14.3	27.6	22	22.5	<b>22.4</b>	8.4	47.6
Used at least two or more in P6M		180	35.0	<b>18.6</b>	14.3	23.9	129	31.0	<b>17.7</b>	13.2	23.3	51	52.0	<b>22.0</b>	11.0	39.2
<b>Ever been told by a doctor or nurse that he has Genital or Anal Warts</b>	<b>509</b>															
No		395	77.6	<b>81.2</b>	72.7	87.5	338	81.8	<b>83.8</b>	74.2	90.3	57	59.4	<b>70.0</b>	46.2	86.4
Yes		114	22.4	<b>18.8</b>	12.5	27.2	75	18.2	<b>16.2</b>	9.7	25.8	39	40.6	<b>30.0</b>	13.6	53.8
<b>Ever been told by a doctor or nurse that he has Herpes Simplex Virus</b>	<b>506</b>															
No		423	83.6	<b>90.8</b>	86.7	93.7	359	87.1	<b>92.0</b>	87.5	95.0	64	68.1	<b>85.6</b>	71.7	93.3
Yes		83	16.4	<b>9.2</b>	6.2	13.2	53	12.9	<b>8.0</b>	5.0	12.5	30	31.9	<b>14.4</b>	6.7	28.3

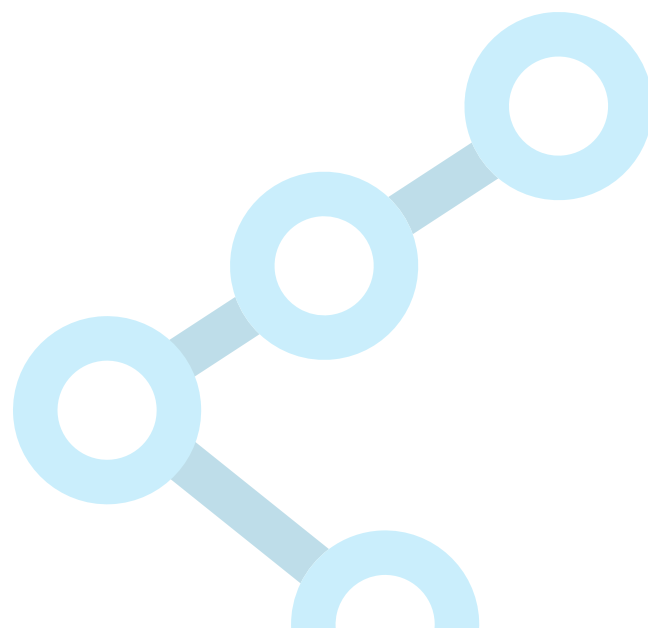
Characteristics	Overall (N = 517)					HIV Negative/Unknown (n=419)					Living with HIV (n=98)				
	Total N	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI	N	(%)	(RDS) %	95% CI		
P1Y Had been told by a doctor or nurse that he has Chlamydia	502														
Yes in P1Y	84	16.7	<b>10.3</b>	6.9	15.1	63	15.5	<b>10.3</b>	6.5	15.9	21	22.1	<b>10.2</b>	4.4	21.8
Yes but not in P1Y	107	21.3	<b>13.7</b>	9.5	19.3	71	17.4	<b>11.6</b>	7.9	16.6	36	37.9	<b>22.6</b>	9.2	45.8
Never	311	62.0	<b>76.0</b>	69.2	81.8	273	67.1	<b>78.1</b>	71.2	84.7	38	40.0	<b>67.2</b>	43.4	84.5
P1Y Had been told by a doctor or nurse that he has Gonorrhea	507														
Yes in P1Y	91	17.9	<b>10.4</b>	7.2	14.6	73	17.7	<b>11.4</b>	7.7	16.4	18	19.1	<b>6.0</b>	2.4	13.9
Yes but not in P1Y	108	21.3	<b>15.0</b>	10.3	21.4	67	16.2	<b>10.3</b>	6.9	15.1	41	43.6	<b>35.2</b>	15.9	61.0
Never	308	60.8	<b>74.6</b>	67.5	80.7	273	66.1	<b>78.3</b>	71.8	83.7	35	37.2	<b>58.8</b>	33.3	80.4
P1Y Had been told by a doctor or nurse that he has Syphilis	504														
Yes in P1Y	33	6.5	<b>4.7</b>	2.6	8.5	18	4.4	<b>4.1</b>	1.9	8.9	15	16.1	<b>7.4</b>	3.0	17.1
Yes but not in P1Y	78	15.5	<b>11.6</b>	7.6	17.2	37	9.0	<b>6.0</b>	3.3	10.5	41	44.1	<b>35.7</b>	16.9	60.3
Never	393	78.0	<b>83.7</b>	77.4	88.5	356	86.6	<b>89.9</b>	84.2	93.7	37	39.8	<b>56.8</b>	31.7	78.9
<b>Biomedical STIs - Data Collected During Nursing Visit</b>															
Prevalence of gonorrhoea (pharyngeal or urinary or rectal)	221														
Negative	201	90.9	<b>90.1</b>	8.3	94.4	174	93.5	<b>93.2</b>	86.1	96.8	27	77.1	<b>71.2</b>	33.9	92.2
Positive	20	9.1	<b>9.9</b>	5.6	17.0	12	6.5	<b>6.8</b>	3.2	13.9	8	22.9	<b>28.8</b>	7.8	66.1
Prevalence of chlamydia (pharyngeal or urinary or rectal)	220														
Negative	197	89.5	<b>94.7</b>	90.3	97.2	168	92.3	<b>95.6</b>	90.5	98.0	29	76.3	<b>89.6</b>	69.6	97.0
Positive	23	10.5	<b>5.3</b>	2.8	9.7	14	7.7	<b>4.4</b>	2.0	9.5	9	23.7	<b>10.4</b>	3.0	30.4
Prevalence of syphilis	517														
Nonreactive	427	82.6	<b>84.2</b>	75.8	90.0	377	90.0	<b>93.0</b>	88.3	95.8	50	51.0	<b>52.1</b>	26.6	76.5
Reactive	90	17.4	<b>15.8</b>	9.9	24.2	42	10.0	<b>7.0</b>	4.2	11.7	48	49.0	<b>47.9</b>	23.5	73.4
Non-treponemal: RPR titer >= 1:16 (compatible with an active infection)	517														
No	506	97.9	<b>99.1</b>	97.9	99.6	416	99.5	<b>99.8</b>	99.1	99.9	89	90.8	<b>96.5</b>	90.2	98.8
Yes	11	2.1	<b>0.9</b>	0.4	0.2	2	0.5	<b>0.2</b>	0.0	0.9	9	9.2	<b>3.5</b>	1.2	9.8
HBV Infection	498														
Acute/Chronic-Infection detected	3	0.6	<b>1.3</b>	0.2	6.6	1	0.3	<b>1.4</b>	0.2	9.2	2	2.1	<b>0.8</b>	0.1	5.0
Acute/Chronic-Infection not detected	495	99.4	<b>98.7</b>	93.4	99.8	401	99.7	<b>98.6</b>	90.8	99.8	94	97.9	<b>99.2</b>	94.9	99.9
HIV Infection (test result)	517														
HIV Negative/unknown	417	80.7	<b>77.9</b>	66.7	86.1	417	99.5	<b>99.1</b>	95.1	99.8	0	0.0	<b>0.0</b>	0.0	0.0
HIV Positive	100	19.3	<b>22.1</b>	13.9	33.3	2	0.5	<b>0.9</b>	0.2	4.9	98	100.0	<b>100.0</b>	100.0	100.0
Final HIV status (among participants who had ever used injection drugs)	52														
HIV-negative	21	38.9	<b>23.7</b>	6.75	57.1										
HIV-positive	33	61.1	<b>76.3</b>	43.0	93.3										
Co-infection of HIV and HCV	506*														
HCV negative	497	98.2	<b>96.1</b>	83.0	99.2	407	99.3	<b>99.2</b>	97.1	99.8	90	93.7	<b>85.1</b>	43.3	97.7
HCV positive	9	1.8	<b>3.9</b>	0.8	17.0	3	0.7	<b>0.8</b>	0.2	2.9	6	6.3	<b>14.9</b>	2.3	56.7

\* Note: 11 participants had missing data for HCV antibody testing.

## Table 7b: Health Status for Participants Living with HIV

The majority of Engage participants who were living with HIV were aware of their HIV status (96.8%). Of those who were aware, 86.5% were on treatment and 97.8% had an undetectable viral load.

Characteristics	Overall (N=517)					HIV Negative/Unknown (n=419)				Living with HIV (n=98)				
	Total N	N	(%)	RDS %	95% CI	N	(%)	RDS %	95% CI	N	(%)	RDS %	95% CI	
<b>Aware of HIV status (among HIV positive participants)</b>	<b>100</b>													
No		2	2.0	<b>3.2</b>	0.5	17.1				0	0.0	<b>0.0</b>	0.0	0.0
Yes		98	98.0	<b>96.8</b>	82.8	99.5				98	100.0	<b>100.0</b>	100.0	100.0
<b>Currently on treatment (among participants aware of HIV status)</b>	<b>97</b>													
No		2	2.1	<b>14.6</b>	2.1	57.2				2	2.1	<b>14.6</b>	2.1	57.2
Yes		95	97.9	<b>85.4</b>	47.7	97.9				95	97.9	<b>85.4</b>	47.7	97.9
<b>Tested HIV viral load (among participants aware of HIV status and currently on treatment)</b>	<b>87</b>													
Less than 50 copies/ml		81	93.1	<b>97.8</b>	93.8	99.2				81	93.1	<b>97.8</b>	93.8	99.2
50 or higher		6	6.9	<b>2.2</b>	0.8	6.2				6	6.9	<b>2.2</b>	0.8	6.2
<b>Tested HIV viral load (among participants aware of HIV status and currently on treatment)</b>	<b>87</b>													
Less than 200 copies/ml		85	97.7	<b>99.3</b>	96.7	99.8				85	97.7	<b>99.3</b>	96.7	99.8
200 or higher		2	2.3	<b>0.7</b>	0.1	3.3				2	2.3	<b>0.7</b>	0.1	3.3
<b>Self-reported HIV viral load (among participants aware of HIV status and currently on treatment)</b>	<b>95</b>													
Detectable		4	4.2	<b>4.0</b>	1.1	13.5				4	4.2	<b>4.0</b>	1.1	13.5
Undetectable		91	95.8	<b>96.0</b>	86.5	98.9				91	95.8	<b>96.0</b>	86.5	98.9



# Notes

- 1. The Greater Toronto Area:** Includes the city of Toronto and the surrounding suburbs that form the Greater Toronto Area (GTA).
- 2. Missing data:** Depending on the variable, the proportion of missing data (“prefer not to answer” or “don’t know/don’t remember”) varied between 0.1-3.5%. However, when scores are obtained from psychosocial-behavioural scales composed of several questions, the proportion of missing data varied between 2.1-3.9%.
- 3. RDS-adjusted data:** The indicators presented and their 95% confidence intervals were adjusted based on the size of the social network reported by each participant (5).
- 4. Testing for sexually transmitted infections other than HIV:** The list of infections included chlamydia, gonorrhoea, syphilis, lymphogranuloma venereum (LGV), hepatitis A (HAV), hepatitis B (HBV), hepatitis C (HCV), anal and genital warts, shigella, giardiasis and herpes (HSV).
- 5. Discrimination scale:** The Heterosexist Harassment, Rejection and Discrimination Scale consists of 14 items. Respondents indicate the frequency at which each event occurred over the past year (“never”, “once in a while”, “sometimes”, “a lot”, “most of the time”, “all of the time”) (7).
- 6. Self-rated mental health:** Excellent, very good, good, fair= Excellent or Good mental health. Poor=Poor mental health.
- 7. Anxiety and Depression Scale:** The Hospital Anxiety and Depression Scale consists of 14 items (7 measuring anxiety and 7 measuring depression). Participants choose the answer that best corresponds to how they had felt during the past week (e.g., “I feel tense or wound up”; answer choices include: “most of the time”, “a lot of the time”, “from time to time/occasionally”, “not at all”). Scores are classified into the 4 following categories: normal, mild (low), moderate or severe (8).
- 8. Psychoactive drugs used in the context of sexual activities (chemsex):** This includes any of the following 2 substances: gamma-hydroxybutyrate (GHB) or methamphetamine (crystal meth).
- 9. ASSIST:** The types of amphetamines are grouped according to the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). ASSIST was developed for the World Health Organization (WHO) by an international group of substance abuse researchers to detect the risk of developing substance use dependence and related problems. ASSIST is a 7-item questionnaire; scores are classified into 3 categories: lower risk, moderate risk or high risk (9).
- 10. Includes the following substances:** cocaine, amphetamines, inhalants, sedatives, hallucinogens, opioids.

# Conclusions

The Engage Toronto study recruited a total of 517 participants from diverse racial and ethnic backgrounds, ages, gender identities, HIV statuses, as well as risk factors for HIV and other STBBIs. The majority (59.7%) did not identify as a member of a racialized group, with racialized participants reporting their ethnicity as East/South-East Asian (10.3%); Latin American (8.4%); Black (5.6%); South Asian (3.6%); West Asian/North African (3.6%); Aboriginal or Indigenous (2.2%); mixed race (3.7%); or Unidentified/Others (2.8%). As such, Aboriginal/Indigenous participants, African, Caribbean, or Black participants and South Asian participants might be underrepresented in our data. Further research on the associations between intersecting identities and health and wellbeing for sexual and gender minorities is warranted.

In Engage Toronto we found encouraging findings on HIV care cascade outcomes. HIV prevalence was 21.4% (95% CI: 13.3 - 32.7). A total of 85.4% (95% CI: 47.7 - 97.9) of GBM living with HIV were receiving ART and 97.8% had an undetectable viral load (95% CI: 93.8 - 99.2). In our sample, 14.9% (95% CI: 2.3 - 56.7) of GBM living with HIV ever had an HIV and HCV co-infection. Assessing HIV attitudes towards treatment and stigma in Engage Toronto, we found similar agreement between self-reported HIV-negative/unknown and GBM living with HIV. Taken together, our findings demonstrate GBM in Toronto are actively engaged in the HIV Cascade of Care, promoting treatment as prevention in decreasing community viral load (10).

We also looked at other STBBIs among our sample. The presence of bacterial STIs varied from 15.8% (95% CI: 9.9 - 24.2) for syphilis, 5.3% (95% CI: 2.8 - 9.7) for chlamydia, and 9.9% (95% CI: 5.6 - 17.0) for gonorrhoea. Nine (3.9%, 95% CI: 0.8 - 17.0) participants in the study had a reactive HCV antibody (Ab) result. HCV was more prevalent among GBM who had ever injected drugs and among those who also had a positive HIV test. Among GBM who both injected drugs and were living with HIV, the prevalence of HCV was 32.8% (95% CI: 4.6 - 83.2). STBBIs continue to disproportionately affect GBM and further public health efforts are needed to prevent, test and treat infections to reduce disease burden.

Looking at access to health services, almost all GBM living with HIV had a primary care provider (99.9%, 95% CI: 99.2 - 100.0) and were open about their sexual orientation with their provider (100%). These levels were lower for HIV-negative/unknown GBM. Among all HIV-negative/unknown GBM, we found 72.9% (95% CI: 60.1 - 82.2)

tested for HIV in the past year, while 63.7% (95% CI, 53.3 - 73.0) tested for an STI. Also, HIV-negative/unknown GBM who reported six or more partners in the past six months, reported higher rates of PrEP utilization than other GBM in the past six months. Our research demonstrates that there continues to be a gap between HIV testing and STI testing, begging the issue of comprehensive sexual health screening. Given the relative newness of PrEP across Canada, we support further qualitative and quantitative research on the effects of PrEP use and U=U on attitudes toward traditional, condom use-focused methods, and on the HIV and STI diagnoses, testing, and treatment<sup>11</sup>.

Self-reported HIV risk behaviours varied by HIV status. Among HIV-negative/unknown GBM, 36.2% (95% CI, 28.1 - 45.2) reported condomless anal sex with an unknown or different status partner at least once in the past six months, while prevalence was 39.3% (95% CI: 19.6 - 63.2) among GBM living with HIV. Overall, around a quarter (23.9%) of GBM reported anal sex with six or more male partners in the past six months, where as this rate is 29.9% (95% CI: 14.3 - 52.2) among GBM living with HIV. We also found more GBM living with HIV reported sex with a female than GBM HIV-negative/unknown GBM in the past six months (15.7% vs. 10.0%). Further analysis is needed to examine factors associated with sexual behaviours such as PrEP use and reporting an undetectable viral load or having sexual partners who are undetectable.

We assessed various determinants of risk behaviour including mental health and substance use factors. Although a substantial minority of GBM (12.2%) reported poor mental health, 58.6% of GBM reported at least some form of anxiety, 24.5% reported symptoms of depression. We also found that more than half of all GBM in the sample reported at least one form of discrimination in the past year. Non-prescription substance use varied by self-reported HIV status. Compared to GBM with HIV-negative/unknown status, GBM living with HIV reported more daily or almost daily cigarette smoking (39.6% vs. 69.5%), daily or almost daily cannabis use (21.1% vs. 33.6%), but less problematic levels (e.g., having 6 or more drinks in one sitting 4 or more times a week) of alcohol use (9.5% vs 3.2%). Notably, about a quarter (24.1%) of GBM reported moderate or high risk of developing alcohol related dependency (a score greater than 10 on ASSIST Scale), and 27.3% reported moderate or high risk of developing non-alcoholic substance use related dependency (a score greater than 3 on ASSIST Scale). These findings demonstrate the importance of reaching a group of GBM who struggle with mental health and substance use problems. These findings also demonstrate the need to reach men living with HIV, who may be more likely to use certain substances than men who are HIV-negative.

Taken together, our findings highlight various health and wellbeing outcomes among GBM in Toronto, including psychosocial health, substance use, STI, HIV risk and HIV prevention, and community viral load. These baseline findings provide useful data specific to GBM who may often be overlooked in population health research. Future longitudinal data collection from the Engage study will allow us to explore temporal associations between various exposures and health outcomes that further explain the risks and resiliencies of GBM.



# References

1. Challacombe L. The epidemiology of HIV in gay, bisexual and other men who have sex with men CATIE2018 [Available from: <https://www.catie.ca/fact-sheets/epidemiology/epidemiology-hiv-gay-men-and-other-men-who-have-sex-men>]
2. Brogan N, Paquette DM, Lachowsky NJ, Blais M, Brennan DJ, Hart TA, Adam B. Canadian results from the European Men-who-have-sex-with-men Internet survey (EMIS-2017). *Can Commun Dis Rep*. 2019 Nov 7;45(11):271-282. doi: 10.14745/ccdr.v45i11a01. PMID: 31755878; PMCID: PMC6850724.
3. Lachowsky NJ, Lal A, Forrest JI, Card KG, Cui Z, Sereda P, et al. Including Online-Recruited Seeds: A Respondent-Driven Sample of Men Who Have Sex With Men. *Journal of medical Internet research*. 2016;18(3):e51.
4. Heckathorn DD. Respondent-Driven Sampling II: Deriving Valid Population Estimates from Chain-Referral Samples of Hidden Populations. *Social problems* (Berkeley, Calif). 2002;49(1):11-34.
5. Volz E, & Heckathorn, D. D Probability based estimation theory for respondent driven sampling. *Journal of Official Statistics*. 2008;24(1):79-97.
6. Dunbar RIM. *How many friends does one person need?: Dunbar's number and other evolutionary quirks*. London; Cambridge, MA;: Harvard University Press; 2010.
7. Szymanski DM. Does Internalized Heterosexism Moderate the Link Between Heterosexist Events and Lesbians' Psychological Distress? *Sex roles*. 2006;54(3-4):227-34.
8. Snaith RP. The Hospital Anxiety And Depression Scale. *Health and Quality of Life Outcomes*. 2003;1(1):29-.
9. Humeniuk R, Ali R, Babor TF, Farrell M, Formigoni ML, Jittiwutikarn J, et al. Validation of the alcohol, smoking and substance involvement screening test (ASSIST). *Addiction* (Abingdon, England). 2008;103(6):1039-47.
10. Montaner JSG, Lima VD, Harrigan PR, Lourenço L, Yip B, Nosyk B, et al. Expansion of HAART Coverage Is Associated with Sustained Decreases in HIV/AIDS Morbidity, Mortality and HIV Transmission: The "HIV Treatment as Prevention" Experience in a Canadian Setting. *PloS one*. 2014;9(2):e87872-e.
11. Grace D, Nath R, Parry R, Connell J, Wong J, Grennan T. '... if U equals U what does the second U mean?': sexual minority men's accounts of HIV undetectability and untransmittable scepticism. *Culture, Health & Sexuality*. 2020;17:1-7.

