

Washington HIV Prevention Project

Key findings, 2018-2019

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Washington HIV Prevention Project

I. Overview

Background: The Washington HIV/STI Prevention Project (WHSP) is an internet-based survey initiated in 2017 to monitor demand, uptake, and unmet need for HIV prevention interventions statewide. A key focus of this effort is pre-exposure prophylaxis (PrEP), a biomedical prevention strategy that involves people who are not diagnosed with HIV taking medicine on a regular basis to prevent infection. End AIDS Washington (EAW) has identified increasing access to PrEP as an important component of the state's goal to reduce the rate of new HIV diagnoses by 50% between 2014 and 2020.¹

To assess the HIV prevention needs and behaviors of groups at high risk of HIV infection, the WHSP surveys focus on transgender individuals and gay, bisexual, and other men who have sex with men (MSM). In 2017, MSM comprised 71% of people living with diagnosed HIV (PLWDH) in Washington and 59% of newly diagnosed cases.² The first round of the survey, conducted in January and February 2017, found that 19% of sexually active cisgender MSM were currently using PrEP, with use as high as 31% among MSM at high risk of infection based on self-reported behavior.

Purpose: This report presents the results from a second round of the survey, conducted from November 2018 to January 2019. Comparisons with the 2017 (Round 1) data allow for monitoring progress towards EAW goals. This round of the survey also included respondents who reported an HIV diagnosis to measure engagement in HIV care and barriers to antiretroviral therapy (ART) adherence. Respondents not diagnosed with HIV who indicated interest in or met PrEP eligibility criteria were offered referrals to Washington's Prevention Navigation program to assist with initiating and paying for PrEP and other prevention services. Respondents living with diagnosed HIV who reported being out of care were offered referrals to Disease Intervention Specialists.

Methodology: Respondents were recruited by placing banner and broadcast advertisements on social media, male-male sexual networking, and general LGBTQ-interest apps and websites. Advertisements and the survey were available in English and Spanish. Eligible respondents were 16 years of age or older, male sex at birth or identified as male gender, reported ever having had sex with a man, and resided in Washington State. As an incentive for survey completion, respondents could select from a list of charitable organizations to receive a \$5 donation upon survey completion.

Data are presented separately for cisgender men who have sex with men and trans and other gender respondents. Thirteen percent of respondents (n = 159) did not identify as cisgender male. The small sample size for these subgroups limited our ability to conduct meaningful analyses, so the data presented in Section 7 should be interpreted with caution. Data from persons living with diagnosed HIV (PLWDH; n = 76) are presented in Section 8. For the remainder of the report, data from cisgender males are stratified by recency of sex (oral or anal) with males: in the past 12

months (“sexually active MSM”) or more than 12 months ago. Several sections of this report present data only for sexually active cisgender MSM who have never been diagnosed with HIV.

Respondents who had not been diagnosed with HIV were classified into PrEP candidacy categories based on Washington’s PrEP Implementation Guidelines³ using criteria outlined in Box 1. The two categories are ‘recommended for PrEP’ and ‘should discuss PrEP’ with a provider. Those recommended for PrEP or who should discuss PrEP are collectively referred to as ‘PrEP candidates.’ For sexually active cisgender males, associations with current PrEP use were explored using bivariate and multivariable logistic regression.

This work was conducted as a public health surveillance activity and therefore determined not to be human subjects research by the University of Washington Institutional Review Board.

Acknowledgements: We thank all respondents for taking the time to complete the survey and providing us with valuable data that will be used to improve HIV prevention programs and services in Washington. Thanks to their time and participation, the project raised \$5,010 for the following organizations:

- Equal Rights Washington
- The Northwest Network of Bi, Trans, Lesbian, and Gay Survivors of Abuse
- It Gets Better Project
- The Human Rights Campaign Foundation
- The Latino Commission on AIDS

II. Summary of Findings

Between November 2, 2018 and January 20, 2019, a total of 1,024 people completed the survey. An additional 199 individuals provided partial survey responses with information about use of PrEP and are included in this report.

Sample characteristics

- The median age of respondents was 34 years (range: 16-81).
- Three-quarters of the sample was white, 13% was Hispanic, and 2% was black.
- Forty-seven percent of the sample had earned a 4-year college degree or higher.
- Forty-eight percent of respondents reported residence in King County (see Figure 1).
- 157 individuals (13%) reported a gender other than cisgender male: 7% identified as transgender female, 1% transgender male, 4% multiple genders, and 2% genderqueer.
- Six percent of the sample (n = 76) reported having an HIV diagnosis.

HIV risk behavior

- Seventy-two percent of sexually active MSM reported condomless anal sex in the past year.
- Sixteen percent of sexually active MSM reported 10 or more anal sex partners in the past year.
- Thirty-five percent of sexually active men were recommended for PrEP according to the Washington guidelines³ (see Box 1) and 26% should discuss use of PrEP with a provider.
- Six out of 70 transgender men are recommended for PrEP, and 9 out of 70 transgender men should discuss PrEP with a provider. Zero out of the 10 transgender women respondents are recommended PrEP and 2 out of 10 of transgender women should discuss PrEP with a provider.

PrEP awareness, interest, and use

- Compared to men who had not had sex with a man in the past 12 months, sexually active MSM were more likely to be aware of PrEP (92% vs. 64%) and to be currently using PrEP (25% vs. 1%).
- Among sexually active MSM, PrEP use was most common in King County (35% vs. 16% in other Washington counties).
- Of respondents recommended for PrEP, 46% had discussed PrEP with a medical provider in the prior 12 months
- Among sexually active MSM who are recommended for or should discuss PrEP, 44% reported current PrEP use, up from 28% in the 2017 survey.⁴
- Current PrEP use was reported by 2 transgender males (2%), 1 transgender female (11%), 3 respondents who identified as multiple genders (7%) and 0 respondents who identified as queer
- Interest in starting PrEP among sexually active MSM recommended for PrEP who had never used it was reported by 38%, and 27% were unsure.
- Twenty-five percent of transgender females (2/8), thirty-nine percent of transgender males (29/75), twenty-six percent of those identifying as multiple genders (10/39), and ten percent of respondents who identified as queer (2/20) were interested in PrEP.

- Access and lack of information appear to be barriers to PrEP use. Of men who are not currently taking PrEP but are interested in starting it, 34% did not know where or how to get PrEP and 19% reported not knowing enough about PrEP.

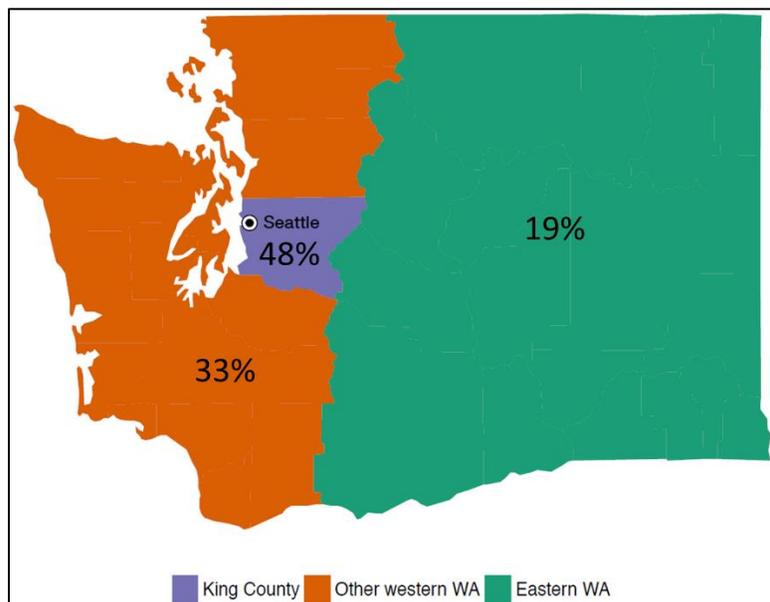
Healthcare utilization

- Sexually active MSM were more likely to have been tested for HIV in the past 12 months (55%) compared to MSM who did not report sex with a man in the past 12 months (16%).
- Among men who reported condomless anal sex with a non-monogamous partner in the past 12 months, 72% had tested for HIV in the past 12 months.
- Of 91 transgender respondents, 50% of transgender females (5/10) and 29% of transgender males (23/81) had been tested for HIV in the past 12 months.
- At the end of the survey, PrEP candidates and respondents who expressed interest in PrEP were asked if they wanted to be connected with a Prevention Navigator, and 34% indicated interest in this service.

HIV care engagement

- Ninety-nine percent of diagnosed HIV-positive respondents reported having an HIV medical provider, and 92% were currently taking ART.
- Ninety-nine percent of PLWDH reported a viral load test in the past 12 months, of whom 95% reported a suppressed or undetectable viral load.

Figure 1: Percentage of Washington HIV/STI Prevention Project survey respondents by state region.



III. Characteristics of cisgender male respondents not diagnosed with HIV

Of cisgender male respondents not diagnosed with HIV, 48% reported that they currently reside in King County, 33% in other counties in western Washington, and 19% in eastern Washington, as shown in Figure 1. Seventy-three percent of the sample was sexually active, defined as reporting sex with men in the past 12 months. Overall, 66% percent of cisgender respondents reported their sexual orientation as gay/homosexual, 20% bisexual, 7% heterosexual, and 6% other. Seventy-four percent of the sample identified as White, 1.6% as Black or African-American, and 14% as Hispanic. Forty-seven percent of the sample had at least a four-year college education, and 45% of respondents reported an income of \$50,000 or higher per year.

Additional characteristics of the sample, stratified by time since sex with another man, are shown in Tables 1, below. Compared to not sexually active men, sexually active men were more likely to live in King County (52% vs. 40%), identify as gay or homosexual (84% vs. 25%), and were younger (median age of 35 vs. 44).

Demographic characteristics of sexually active men also varied by region (Table 2). Respondents in King County were more likely to identify as gay or homosexual (89% in King County vs. 81% and 73% in other western counties and eastern Washington, respectively). King County respondents were also older (median age 37 compared to 34 and 31 years in other western and eastern Washington), more likely to have a college degree (63% vs. 37% and 34%), and reported higher annual income. A larger proportion of respondents outside of King County identified as Hispanic (23% in eastern Washington and 17% in other western counties, vs. 12% in King County).

Table 1: Characteristics of cisgender male respondents not diagnosed with HIV by recency of sex with males

	Sex with men in the past 12 months (N=720 ^a) Column % (95% CI)	Sex with a man >12 months ago (N=168 ^a) Column % (95% CI)	p-value ^b
Region			0.009
King County	52% (48 - 56%)	40% (33 - 48%)	
Other Western WA	30% (27 - 33%)	36% (28 - 43%)	
Eastern WA	18% (15 - 21%)	24% (17 - 30%)	
Age			<0.001*
16 to 24	21% (18 - 24%)	13% (8 - 18%)	
25 to 34	28% (25 - 31%)	22% (16 - 28%)	
35 to 44	19% (16 - 22%)	15% (10 - 21%)	
45 to 54	18% (16 - 21%)	17% (12 - 23%)	
55 and older	14% (11 - 16%)	32% (25 - 39%)	
Race/ethnicity ^c			<0.001*
Hispanic	15% (13 - 18%)	4% (1 - 6%) ^e	
White	73% (70 - 77%)	82% (76 - 88%)	
Black	2% (1 - 3%) ^e	2% (0 - 4%) ^e	
Asian	4% (3 - 6%)	4% (1 - 6%) ^e	
Multiple Races	4% (3 - 5%)	7% (3 - 11%) ^e	
Other ^d	1% (0 - 2%) ^e	2% (0 - 4%) ^e	
Gay/homosexual identity	84% (81 - 87%)	25% (18 - 31%)	<0.001
Education			0.826
High school or less	14% (11 - 16%)	13% (8 - 18%)	
Some college/vocational school	36% (33 - 40%)	39% (32 - 46%)	
4-year college or higher	50% (46 - 53%)	48% (40 - 55%)	
Income			0.11
Less than \$15,000	9% (7 - 11%)	11% (6 - 16%)	
\$15,000 to \$29,999	16% (13 - 19%)	12% (7 - 17%)	
\$30,000 to \$49,999	17% (14 - 20%)	16% (10 - 22%)	
\$50,000 to \$99,999	26% (23 - 29%)	31% (24 - 39%)	
\$100,000 or more	28% (25 - 32%)	23% (16 - 30%)	
I prefer not to answer	3% (2 - 5%)	7% (3 - 11%) ^e	
^a The number of respondents for each variable may vary due to survey drop-off and missing responses: the minimum sample size due to survey drop-off and non-response was 682 among men who had sex with a man in the past 12 months and 155 among men who last had sex with men >12 months ago; ^b Pearson χ^2 p-value or Fishers Exact p-value where noted with *; ^c Hispanic respondents can be of any race, and all other racial groups are non-Hispanic; ^d Other includes American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, and other non-Hispanic races ^e Flagged for potential instability of estimate due to relative standard error (RSE) >25%			

Table 2: Characteristics of cisgender male respondents not diagnosed with HIV who had sex with men in the past 12 months, by region

	King County (N=375 ^a) Column % (95% CI)	Other Western WA (N=216 ^a) Column % (95% CI)	Eastern WA (N=129 ^a) Column % (95% CI)	p-value ^b
Age				
16 to 24	15% (11 - 18%)	26% (20 - 32%)	29% (22 - 37%)	0.002*
25 to 34	30% (26 - 35%)	26% (21 - 32%)	25% (17 - 32%)	
35 to 44	22% (17 - 26%)	18% (13 - 23%)	14% (8 - 20%)	
45 to 54	21% (17 - 25%)	17% (12 - 22%)	14% (8 - 20%)	
55 and older	13% (9 - 16%)	13% (9 - 18%)	18% (11 - 24%)	
Race/ethnicity^c				0.022*
Hispanic	12% (9 - 16%)	17% (12 - 22%)	22% (15 - 30%)	
White	74% (69 - 78%)	75% (69 - 81%)	70% (62 - 78%)	
Black	3% (1 - 4%) ^e	1% (0 - 2%) ^e	0% (0 - 3%) ^e	
Asian	6% (4 - 9%)	2% (0 - 4%) ^e	3% (0 - 6%) ^e	
Multiple Races	5% (2 - 7%)	4% (2 - 7%) ^e	2% (0 - 5%) ^e	
Other ^d	1% (0 - 1%) ^e	1% (0 - 2%) ^e	2% (0 - 5%) ^e	
Gay/homosexual identity	89% (86 - 92%)	81% (76 - 86%)	73% (66 - 81%)	<0.001
Education				<0.001
High school or less	8% (5 - 10%)	19% (14 - 24%)	24% (16 - 31%)	
Some college/vocational school	30% (25 - 34%)	44% (38 - 51%)	43% (34 - 51%)	
4-year college or higher	63% (58 - 68%)	37% (30 - 43%)	34% (26 - 42%)	
Income				<0.001*
Less than \$15,000	7% (4 - 9%)	11% (7 - 16%)	14% (8 - 20%)	
\$15,000 to \$29,999	10% (7 - 13%)	23% (17 - 29%)	22% (14 - 30%)	
\$30,000 to \$49,999	16% (12 - 20%)	16% (11 - 21%)	22% (14 - 30%)	
\$50,000 to \$99,999	27% (22 - 31%)	26% (20 - 33%)	23% (15 - 31)	
\$100,000 or more	37% (32 - 43%)	20% (15 - 26%)	14% (8 - 20%)	
I prefer not to answer	3% (1 - 5%) ^e	3% (1 - 5%) ^e	5% (1 - 9%) ^e	
^a The number of respondents for each variable may vary due to survey drop-off and missing responses: minimum sample size due to survey drop-off was 358 for King County, 205 for other Western Washington, and 119 for eastern Washington; ^b Pearson χ^2 p-value for regional differences or Fishers Exact p-value where noted with *; ^c Hispanic respondents can be of any race, and all other racial groups are non-Hispanic; ^d Includes American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, and other non-Hispanic races ^d ^e Flagged for potential instability of estimate due to relative standard error (RSE) >25%				

IV. HIV Risk Behaviors

Measuring sexual and drug use behaviors provides valuable data on HIV transmission risks in the population, which can be used to tailor programs to meet prevention needs. Respondents who had not been diagnosed with HIV were classified into PrEP candidacy categories based on their reported risk behaviors using Washington’s PrEP Implementation Guidelines with the criteria outlined in Box 1. Twenty-six percent of sexually active MSM respondents met the criteria to discuss PrEP with their provider (discuss PrEP group), and 35% of respondents met criteria indicating a medical provider should recommend that they initiate PrEP (hereafter referred to as the PrEP recommended group). These findings are consistent with the proportion of eligible respondents reported in the previous round of this survey (30% and 33%, respectively Table 3).

The most common HIV risk factors reported by respondents were condomless anal sex (CAS) with a non-monogamous male partner (47%), diagnosis with a bacterial STI in the past 12 months (19%), and use of poppers (28%). Sexually active respondents reported a median of 2 anal sex partners in the past year, with 16% reporting ten or more anal sex partners in the past year.

Compared to the Round 1 WHSPP survey, sexually active respondents in the Round 2 survey were less likely to report CAS with partners of unknown HIV status, injection drug use, or methamphetamine use (Table 3). The

Box 1: Washington State PrEP Implementation Guidelines³

Measured in this survey	<p>PrEP is recommended for individuals who meet the following criteria:</p> <ul style="list-style-type: none"> - Men and transgender persons who have sex with men and... <ul style="list-style-type: none"> o have been diagnosed with rectal gonorrhea or syphilis in the past 12 months o or used methamphetamine or poppers in the past 12 months o or have provided sex in exchange for money or drugs in the past 12 months - All persons in ongoing sexual partnerships with HIV-positive partner(s) who are not taking or are within 6 months of starting antiretroviral therapy (ART), or who are not virologically suppressed <p>Providers should discuss use of PrEP with individuals who meet the following criteria:</p> <ul style="list-style-type: none"> - Men and transgender persons who have sex with men and... <ul style="list-style-type: none"> o have had condomless anal sex (CAS)^a outside of a mutually monogamous long-term partnership with a man who is HIV negative, o or have been diagnosed with urethral gonorrhea or rectal chlamydia in the past 12 months - All persons who... <ul style="list-style-type: none"> o are in ongoing sexual partnerships with HIV-positive partner(s) who have been on ART for more than 6 months and are virologically suppressed o or use injection drugs not prescribed by a medical provider o or are completing a course of post-exposure prophylaxis (PEP) for non-occupational exposure to HIV
	Not Measured

samples were similar in number and type of sex partners, cohabiting with a male partner, diagnosis with a bacterial STI, and engagement in exchange sex.

Table 3: Sexual behavior and HIV risk indicators^a among cisgender male respondents not diagnosed with HIV who had sex with men in the past 12 months, WHSPP survey rounds 1 and 2

	Round 2 (2018-2019) (N=720 ^b) Column % (95% CI)	Round 1 (2017) (N=1080 ^b) Column % (95% CI)	p-value ^c
Sex with cisgender females	10% (8 - 12%)	10% (8 - 12%)	>0.999
Sex with trans males	3% (2 - 5%)	3% (2 - 5%)	>0.999
Sex with trans females	3% (1 - 4%)	2% (1 - 2%)	0.159
≥10 male anal sex partners	16% (13 - 19%)	16% (14 - 18%)	>0.999
Living with a male partner	36% (32 - 39%)	35% (32 - 38%)	0.123*
CAS with non-monogamous male partner ^{d, g}	47% (43 - 50%)	48% (45 - 51%)	0.460
Condomless anal sex with someone who was...			
HIV+ ^g	15% (12 - 17%)	15% (13 - 17%)	0.931
Unknown HIV status ^g	21% (18 - 24%)	29% (26 - 31%)	<0.001*
STI diagnosis (past 12 months)			
Rectal gonorrhea	5% (4 - 7%)	5% (3 - 6%)	0.574
Syphilis	5% (4 - 7%)	6% (4 - 7%)	0.992
Any bacterial STI ^e	20% (17 - 22%)	18% (16 - 21%)	<0.001
Drug use			
Injection drugs	1% (0 - 2%) ⁱ	6% (5 - 8%)	<0.001
Methamphetamine	2% (1 - 3%) ⁱ	9% (7 - 11%)	<0.001
Poppers	28% (25 - 31%)	23% (20 - 25%)	0.020
History of exchanging sex	3% (2 - 4%)	4% (3 - 5%)	0.294
PrEP candidacy ^{f, h}			0.282
Discuss	26% (23 - 29%)	30% (27 - 33%)	
Recommend	35% (31 - 38%)	33% (30 - 36%)	

Acronyms: STI, sexually transmitted infection; CAS, condomless anal sex; ART, antiretroviral therapy; PrEP, pre-exposure prophylaxis

^aIndicators refer to current or past-year behaviors and events; ^bThe number of respondents for each variable may vary due to survey drop-off and missing responses: unless otherwise noted, the minimum sample size due to survey drop-off and non-response was 912 in Round 1 and 611 in Round 2; ^cPearson χ^2 p-value unless noted with *, which indicates Fisher's exact p-value; ^dIn round 1 respondents were asked about sex with partners that were not described as "main" or primary whereas in the round 2 survey respondents were asked about sex with partners that were not monogamous; ^eDiagnosis of gonorrhea (pharyngeal, urethral, or rectal), chlamydia (pharyngeal, urethral, or rectal), or syphilis; ^fSee Box 1 for detail on Washington PrEP guidelines; ^gData on CAS were imputed for 177 respondents with missing values resulting from a programming error in Round 2 of the survey; ^hData on CAS and ongoing positive partners were imputed for 177 and 136 respondents, respectively, with missing values resulting from a programming error in Round 2 of the survey. ⁱFlagged for potential instability of estimate due to relative standard error (RSE) >25%.

V. PrEP Awareness, Eligibility and Use

Among sexually active cisgender males who have not been diagnosed with HIV, 93% had heard of PrEP and 25% were currently using PrEP. An additional 5% reported past use of PrEP. Of respondents in the PrEP recommended group, 46% had discussed PrEP with a medical provider in the prior 12 months, 40% were currently on PrEP, and 8% had taken PrEP in the past. Sixty-six percent of persons in the PrEP recommended group who had never taken PrEP were interested in either starting PrEP or learning more. Figure 2 presents a PrEP cascade, showing the percent of men in the PrEP recommended group who reported awareness, interest, uptake, and adherence to PrEP. Of men in the “discuss” category, 36% reported current PrEP use at the time of the survey, and an additional 7% report past use of PrEP. Seventy-one percent of men with indications for discussing PrEP and who had never taken it were interested in starting or learning more about PrEP.

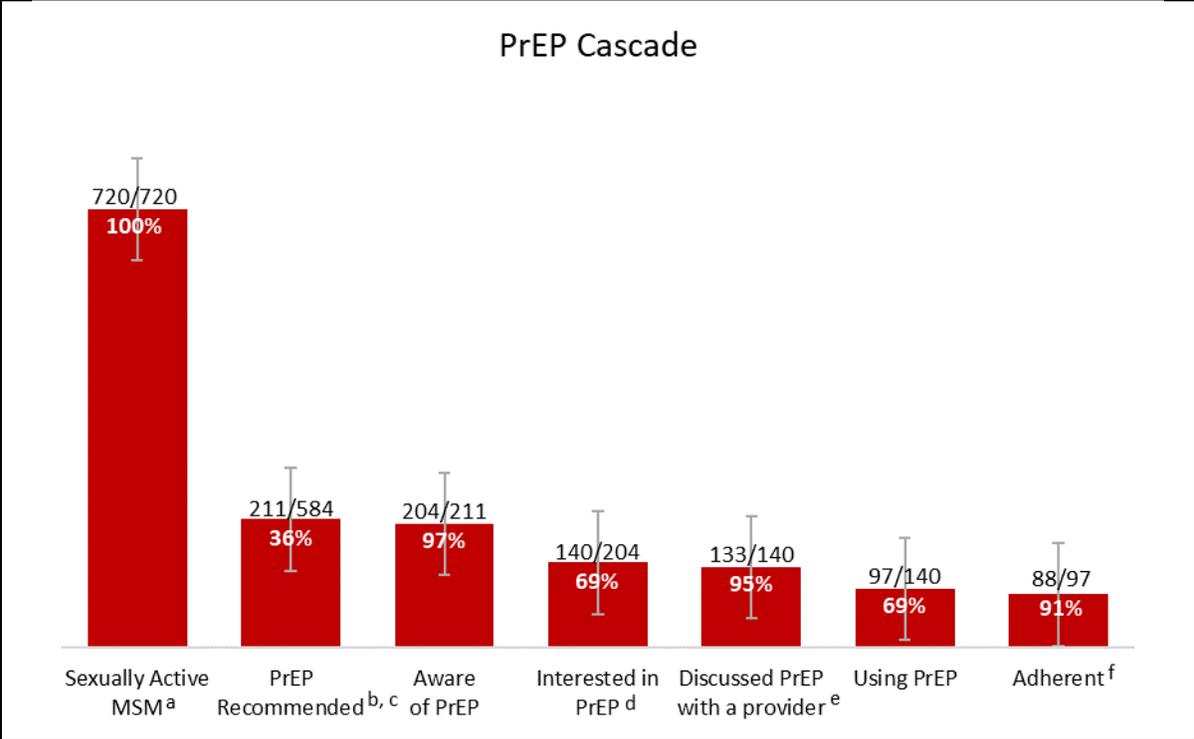
Respondents who reported current use of PrEP were asked about changes in their behaviors since starting PrEP. The most common changes in behavior that increase HIV risk were being more likely to have sex without a condom (63%), having more sex partners (48%), and hooking up with strangers (41%). Respondents also reported being more likely to engage in risk-reduction strategies since starting PrEP, such as testing for STIs other than HIV (64%) and discussing HIV before having sex (44%). Twenty-one percent of PrEP users reported no changes in behavior with use of PrEP.

Respondents who had never used PrEP were asked to report reasons they had not yet started or were not interested in taking it. Of PrEP candidates in either the “recommend” or “discuss” categories, the most common reasons for not taking PrEP or having no interest in taking it were being at low risk for HIV, concerns about side-effects, not knowing enough about PrEP, and cost barriers (see Figure 3 below). Respondents who had taken PrEP in the past were asked to report their reasons for discontinuing PrEP. The most common reasons for discontinuation were perception of no longer being at high risk for getting HIV (43%) concern about long-term health effects of PrEP (27%), inability to continue paying for PrEP (20%), and doctor recommendation for discontinued use (18%). Of respondents who discontinued PrEP, the median time since most recently starting PrEP was seven months (IQR: 2.5, 18).

Compared to Round 1 of the survey, Round 2 respondents were more likely to be aware of PrEP (93% vs. 79%, $p < 0.001$) and more likely to report current use of PrEP (26% vs. 19%, Table 4). In a multivariable logistic regression model adjusting for differences in the risk and demographic characteristics¹ of the samples, this difference in current use of PrEP remained statistically significant ($p = 0.002$). Among men who had never used PrEP, fewer Round 2 respondents reported interest in starting PrEP (26% vs. 36%), which may reflect progress in meeting demand for PrEP in the years between survey rounds. Among those using PrEP, self-reported adherence remained high (91% in Round 2 vs. 86% in Round 1 reporting $\geq 90\%$ adherence in the past 30 days). The proportion of respondents who had discussed PrEP with a provider in the past 12 months was similar in the two surveys (24% vs. 23%).

¹ The model included as covariates: region of residence in Washington, age group, race/ethnicity, sexual orientation, educational attainment, income, insurance status, recruitment platform (social media, geospatial sexual networking, or other website), and PrEP candidacy category.

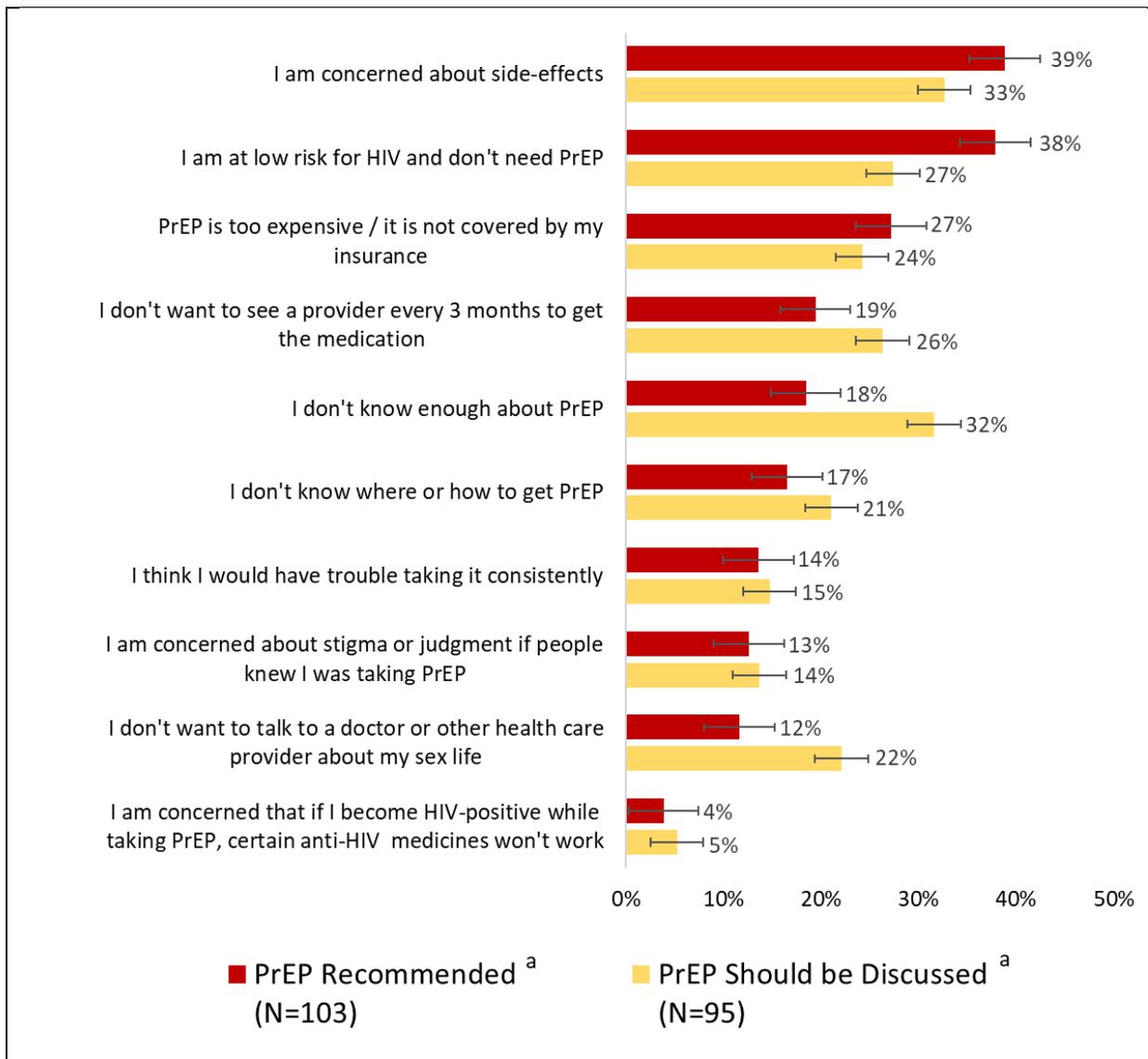
Figure 2: PrEP Cascade among cisgender male respondents not diagnosed with HIV who had sex with men in the past 12 months



Error bars indicate 95% confidence intervals.

^aDenominator is MSM who reported sex with men in the past 12 months and provided data on PrEP candidacy indicators; ^bPrEP candidacy status was imputed for 136 respondents with missing values for CAS variables resulting from a programming error in Round 2 of the survey; ^cSee Box 1 for detail on Washington State PrEP guidelines; ^dIncludes men who are currently using PrEP; ^eIndicates discussion of PrEP with a healthcare provider in the past 12 months and includes men who are currently taking PrEP; ^fAdherence defined as taking PrEP 27 or more of the past 30 days.

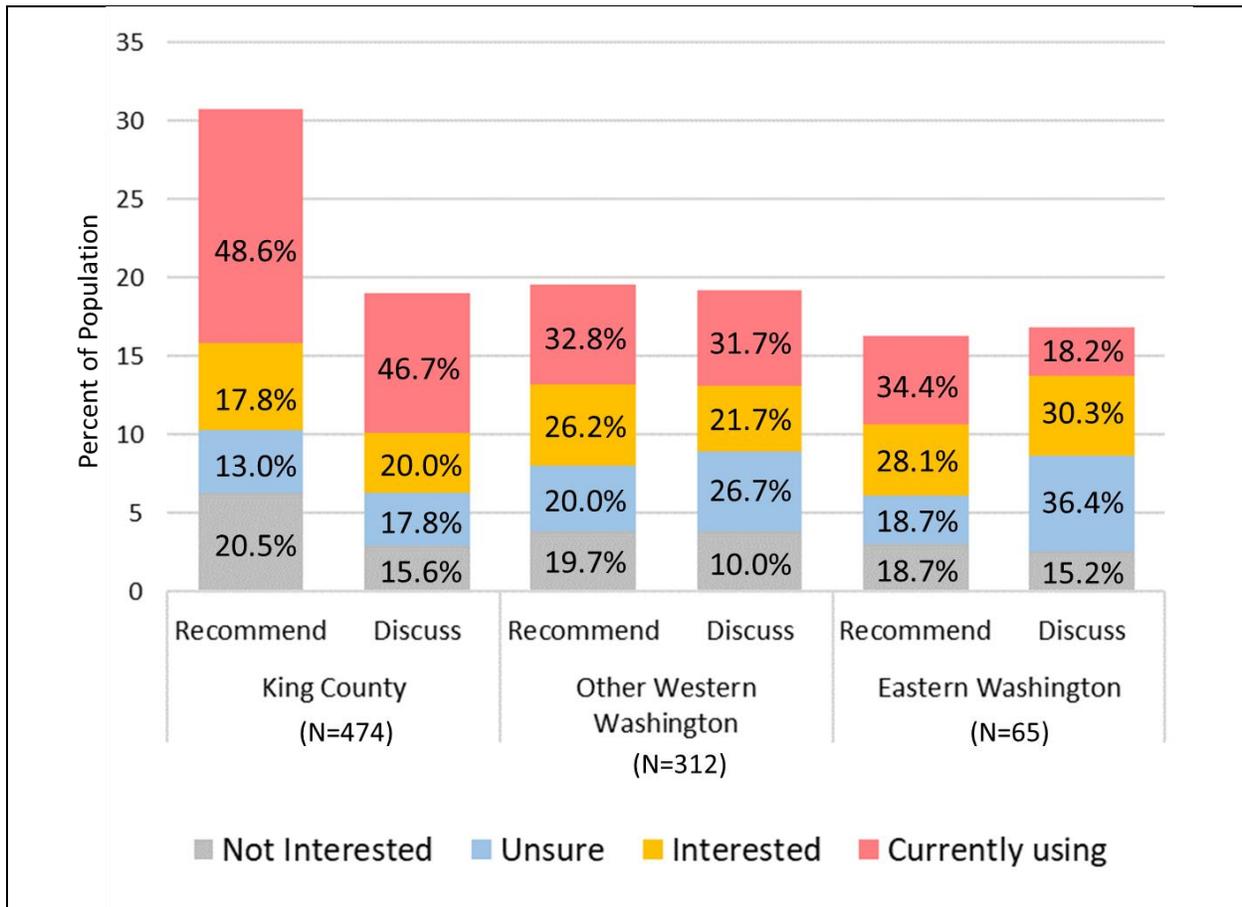
Figure 3: Reasons for not taking PrEP by PrEP candidacy among cisgender male respondents not diagnosed with HIV who had sex with men in the past 12 months



Error bars indicate 95% confidence intervals. ^aSee Box 1 for detail on Washington PrEP guidelines

Note: Data on CAS and ongoing positive partners were imputed for 177 and 136 respondents, respectively, with missing values resulting from a programming error in Round 2 of the survey.

Figure 4. PrEP use and interest among cisgender male respondents not diagnosed with HIV who had sex with men in the past 12 months, by indications for PrEP^a and region.



The height for columns indicates the percentage of all respondents in each PrEP candidacy category by region. Percentages within the columns correspond to the percent of men in each PrEP candidacy category who expressed interest in or reported use of PrEP.

^a See Box 1 for detail on Washington PrEP guidelines

Note: Data on CAS and ongoing positive partners were imputed for 177 and 136 respondents, respectively, with missing values resulting from a programming error in Round 2 of the survey.

Table 4: PrEP awareness, interest, and use among cisgender male respondents not diagnosed with HIV who had sex with men in the past 12 months, by round of the survey

	Round 2 (2018-19) (N=720 ^a) Column % (95% CI)	Round 1 (2017) (N=1080 ^a) Column % (95% CI)	p-value ^b
PrEP awareness	93% (91 - 95%)	79% (76 - 81%)	<0.001
Use of PrEP			<0.001
Current	26% (23 - 29%)	19% (16 - 21%)	
Never	69% (66 - 72%)	77% (75 - 80%)	
Past	5% (2 - 7%)	4% (3 - 6%)	
Interest in starting PrEP ^c			<0.001
Yes	26% (23 - 29%)	37% (34 - 40%)	
No	39% (36 - 43%)	30% (27 - 33%)	
Unsure	35% (31 - 38%)	33% (30 - 36%)	
Discussed PrEP with a health care provider in the past 12 months ^d	24% (20 - 28%)	22% (19 - 26%)	0.002
Preferred PrEP provider ^e			
Regular doctor/provider	42% (38 - 45%)	42% (39 - 45%)	0.988
A clinic or provider that specializes in PrEP	33% (28 - 38%)	39% (35 - 42%)	0.010
A clinic or provider that specializes in LGBTQ health	40% (35 - 45%)	39% (35 - 43%)	0.673
A pharmacy	28% (23 - 33%)	26% (23 - 30%)	0.162
No preference	12% (8 - 15%)	8% (6 - 10%)	0.058
≥90% PrEP adherence ^f	90% (86 - 94%)	86% (81 - 91%)	0.379
Acronyms: Acronyms: PrEP, pre-exposure prophylaxis; IQR, interquartile range			
^a The number of respondents for each variable may vary due to survey drop-off and missing responses: unless otherwise specified, minimum sample size is 1059 responses for Round 1 and 577 for Round 2); ^b Pearson χ^2 p-value unless otherwise specified; ^c Among respondents who had never used PrEP; ^d Among respondents who had heard of PrEP and were not currently using it; ^e Among respondents not currently using PrEP who reported interest in or said they were unsure about taking PrEP; Categories are not mutually exclusive; ^f Among current PrEP users, corresponds to taking PrEP 27 or more out of the past 30 days.			

Below, Table 5 presents data on correlates of current PrEP use among sexually active cisgender male respondents. In bivariate analyses, current use of PrEP was associated with residence in King County, age, identifying as gay or homosexual, higher education, and meeting indications for PrEP being recommended or discussed based on reported HIV risk behaviors (Table 4). In a multivariable model residence in King County, age, homosexual identity, and PrEP candidacy were significantly associated with current use of PrEP. Although race/ethnicity was not associated with PrEP use, the number of Black respondents in the survey (n= 22) was too small to draw firm conclusions regarding possible differences in PrEP use between Black men and men of other races.

Table 5: Correlates of current PrEP use among cisgender male respondents not diagnosed with HIV who had sex with men in the past 12 months (N=592^a)

	Using PrEP		Unadjusted association ^b		Adjusted association ^b	
	n	%	OR (95% CI)	p-value	OR (95% CI)	p-value
Region of residence				<0.001		0.029
King County	119	37%	Reference		Reference	
Other western Washington	42	23%	0.52 (0.34, 0.79)		0.68 (0.41, 1.12)	
Eastern Washington	14	14%	0.29 (0.15, 0.51)		0.40 (0.19, 0.80)	
Age				<0.001		<0.001
16 to 24	11	10%	Reference		Reference	
25 to 34	46	28%	3.53 (1.79, 7.49)		2.58 (1.15, 6.20)	
35 to 44	52	41%	6.34 (3.21, 13.56)		4.71 (2.07, 11.52)	
45 to 54	44	40%	6.18 (3.07, 13.38)		5.11 (2.17, 12.92)	
55 and older	22	25%	3.14 (1.45, 7.13)		1.92 (0.76, 5.07)	
Race/ethnicity				0.678		0.982
White	132	29%	Reference		Reference	
Hispanic	22	25%	0.80 (0.46, 1.32)		0.88 (0.46, 1.65)	
Black	2	25%	0.81 (0.12, 3.56)		0.92 (0.11, 5.68)	
Other	19	34%	1.24 (0.68, 2.22)		0.97 (0.47, 1.98)	
Gay/homosexual identity	165	32%	3.71 (1.96, 7.81)	<0.001	3.22 (1.55, 7.30)	0.003
Education				0.008		0.211
High school or less	11	14%	Reference		Reference	
Some college/vocational school	61	30%	2.48 (1.27, 5.24)		1.97 (0.85, 4.84)	
4-year college or higher	103	33%	2.95 (1.55, 6.10)		2.16 (0.94, 5.30)	
Income				0.079		0.984
Less than \$15,000	11	22%	Reference		Reference	
\$15,000 to \$29,999	19	20%	0.87 (0.38, 2.07)		1.17 (0.46, 3.07)	
\$30,000 to \$49,999	29	29%	1.45 (0.67, 3.32)		1.19 (0.48, 3.05)	
\$50,000 to \$99,999	52	34%	1.79 (0.87, 3.93)		1.28 (0.54, 3.15)	
\$100,000 or more	59	35%	1.87 (0.92, 4.07)		1.15 (0.47, 2.91)	
Prefer not to answer	4	19%	0.83 (0.21, 2.84)		1.83 (0.33, 9.58)	
PrEP candidacy ^{c,d}				<0.001		<0.001
Recommend	101	49%	13.08 (7.63, 23.68)		12.76 (7.21, 23.78)	
Discuss	57	37%	7.92 (4.47, 14.68)		9.82 (5.33, 18.96)	
Not indicated	17	7%	Reference		Reference	

Acronyms: PrEP, pre-exposure prophylaxis

^aThis analysis is restricted to respondents who have never or are currently using PrEP and provided responses to all covariates; ^bAnalyses conducted using log binomial regression; ^cSee Box 1 for detail on Washington PrEP guidelines; ^d Data on CAS and ongoing positive partners were imputed for 177 and 136 respondents, respectively, with missing values resulting from a programming error in Round 2 of the survey.

VI. Healthcare and Services Utilization

Access to healthcare services and prevention resources is a crucial component of Washington's strategy to prevent HIV infections. Ninety-two percent of cisgender male respondents stated that they have some form of health insurance, and 78% reported having a regular doctor or provider. Of those with a regular provider, 73% reported that their regular provider knows they have sex with men.

Sixty percent of sexually active respondents had been tested for chlamydia, gonorrhea, or syphilis in the past 12 months. Fifty-five percent had been tested for HIV at least once in the past 12 months. Of those who had ever been tested for HIV, the median number of tests in past two years was 1, (IQR: 0 - 4). Six percent of respondents reported a previous HIV diagnosis, and more detail about testing and health care for persons living with diagnosed HIV (PLWDH) can be found in Section 8.

Respondents were asked about their awareness, interest, and use of the Washington State Department of Health's Prevention Navigation service. Prevention Navigation is available at several organizations throughout the state to support HIV/STI testing, access to PrEP and PEP, health insurance enrollment, and access to condoms.⁷ Only 17% of respondents who were recommended for PrEP and 20% of respondents who should discuss PrEP with their provider were aware of this service. At the end of the survey, PrEP candidates and respondents who expressed interest in PrEP were asked if they wanted to be connected with a Prevention Navigator, and 34% indicated interest in this service.

Seventy-six percent of current PrEP users were enrolled in at least one program to help pay for PrEP: 56% in Gilead's Medication Assistance Program, 18% in Washington State PrEP DAP, 2% in other programs including research studies and the Patient Advocate Co-Pay Relief Program.

Respondents were also asked about their interest in an at-home HIV test kit that involves pricking your finger and mailing the blood sample to a lab. Twenty-one percent of respondents said they would buy and use this test, an additional 37% said they would use it if it was covered by insurance but would not buy it, 18% were not sure, and 24% would not use such a test.

Box 2. HIV and STI Testing Information

Current guidelines recommend that sexually active men who have sex with men test for STIs and HIV at least once a year⁵. Some may benefit from testing every 3-6 months. Transgender persons are advised to talk to a provider to identify a strategy for screening and prevention.⁶ Men who are not sexually active with other men should test for HIV at least once in their lifetime.

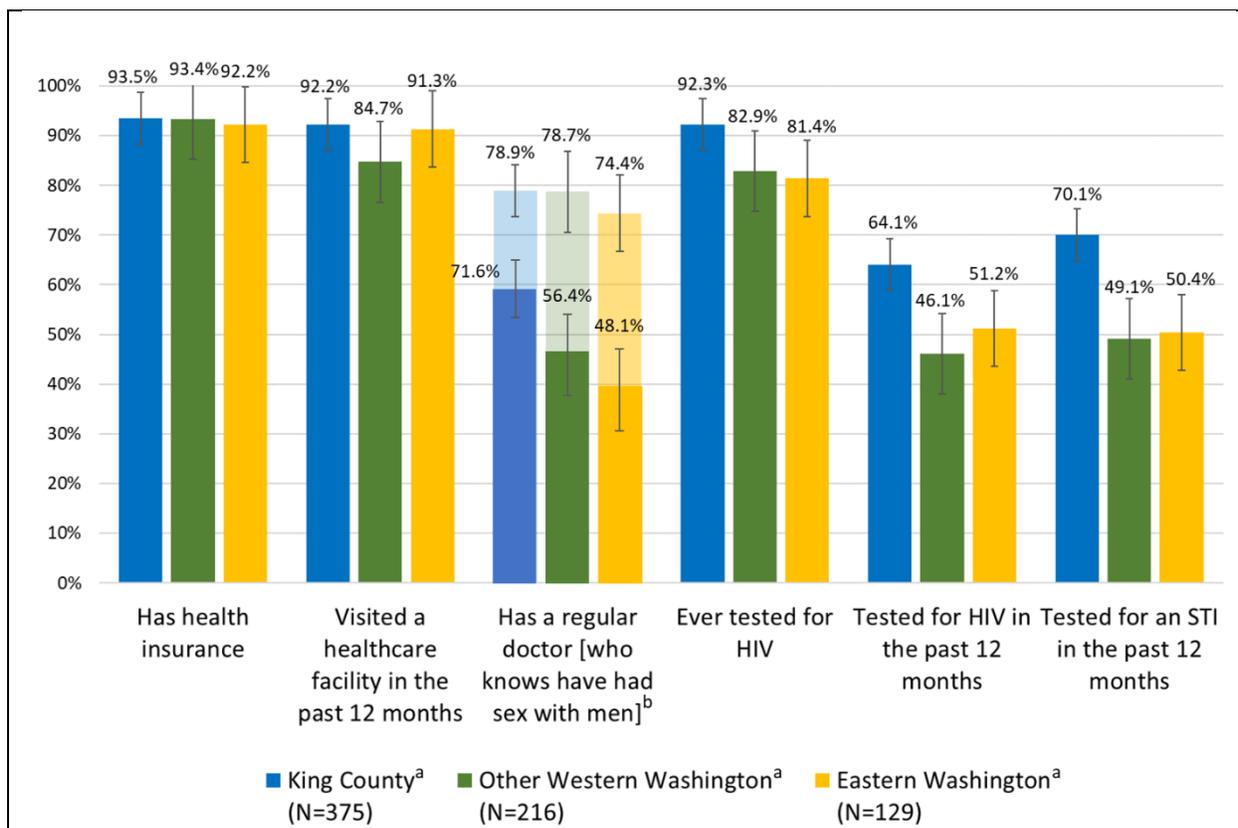
To learn more about HIV and STI testing and to find out where you can get tested, follow these links:

<http://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/HIVAIDS/Prevention/Testing>

<http://www.kingcounty.gov/depts/health/communicable-diseases/hiv-std/patients/testing.aspx>

<https://aidsvu.org/locators/testing-sites/>

Figure 5: Healthcare utilization among cisgender male respondents not diagnosed with HIV who had sex with men in the past 12 months, by region



Acronyms: STI, sexually transmitted infection

Error bars indicate 95% confidence intervals. ^aThe number of respondents for each variable may vary due to survey drop-off and missing responses. Minimum sample sizes for each region were 368 for King County, 210 for other Western Washington, and 125 for Eastern Washington. ^bBack (light) columns indicate the percent who reported having a regular doctor, columns in front indicate the percent who reported having a regular doctor who knows they have had sex with men

VII. Transgender and gender non-binary respondents

The survey was completed by 10 transgender females, 82 transgender males, 43 persons who identified with multiple genders, and 22 queer-identifying persons. Due to these small sample sizes, many of our findings in these populations do not meet agency standards for statistical reliability, and only high-level summaries will be presented.

Compared to cisgender male respondents, transgender and gender non-binary respondents had lower awareness of PrEP (73% vs. 93%) and interest in PrEP (17% vs. 26%). A lower percentage of transgender and gender non-binary respondents met indications for PrEP than in the cisgender male sample (25% vs. 49%). Since the risk behaviors measured in this survey focused on sexual behavior with other males, this may not capture all the relevant indicators of interest among non-cisgender populations. Additionally, these are distinct populations with distinct HIV prevention needs: for example, transgender females and those who identified as multiple genders were more likely to report behaviors that indicate PrEP candidacy than transgender males and those who identified as queer. Additional data are needed to verify and explore observed patterns.

Table 6: Transgender and gender non-binary respondents

	Transgender Female (n = 10) Column % (95% CI)	Transgender Male (n = 82) Column % (95% CI)	Multiple Genders (n = 43) Column % (95% CI)	Queer (n = 22) Column % (95% CI)
Region				
King County	60% (30 - 90%) ^b	34% (24 - 44%)	53% (39 - 68%)	36% (16 - 56%)
Other Western WA	30% (2 - 58%) ^b	52% (42 - 63%)	30% (17 - 44%)	36% (16 - 56%)
Eastern WA	10% (0 - 29%) ^b	13% (6 - 21%) ^b	16% (5 - 27%)	27% (9 - 46%) ^b
Race/ethnicity				
White	80% (55 - 100%)	76% (66 - 85%)	60% (46 - 75%)	77% (60 - 95%)
Hispanic	10% (0 - 29%) ^b	7% (2 - 13%) ^b	21% (9 - 33%)	9% (0 - 21%) ^b
Black	0% (0 - 30%) ^b	1% (0 - 4%) ^b	5% (0 - 11%)	0% (0 - 14%) ^b
Other	10% (0 - 29%) ^b	16% (8 - 24%) ^b	14% (4 - 24%)	14% (0 - 28%) ^b
Education				
High school or less	0% (0 - 30%) ^b	35% (25 - 46%)	27% (13 - 40%)	19% (2 - 36%) ^b
Some college/ vocational school	70% (42 - 98%) ^b	47% (36 - 58%)	39% (24 - 54%)	62% (41 - 83%)
4-year college or higher	30% (2 - 58%) ^b	18% (9 - 26%)	34% (20 - 49%)	19% (2 - 36%) ^b
Income				
Less than \$15,000	22% (0 - 49%) ^b	22% (11 - 33%)	34% (18 - 51%)	15% (0 - 31%) ^b
\$15,000 to \$29,999	22% (0 - 49%) ^b	27% (16 - 38%)	19% (5 - 32%)	35% (14 - 56%) ^b
\$30,000 to \$49,999	22% (0 - 49%) ^b	14% (5 - 22%) ^b	19% (5 - 32%)	15% (0 - 31%) ^b
\$50,000 to \$99,999	33% (3 - 64%) ^b	14% (5 - 22%) ^b	19% (5 - 32%)	20% (2 - 38%) ^b
\$100,000 or more	0% (0 - 30%) ^b	19% (9 - 29%) ^b	9% (0 - 19%)	15% (0 - 31%) ^b
Prefer not to answer	0% (0 - 30%) ^b	5% (0 - 11%) ^b	0% (0 - 7%)	0% (0 - 14%) ^b
Tested for HIV at least twice in the past 2 years*	50% (19 - 81%) ^b	27% (17 - 37%) ^b	51% (36 - 66%)	18% (2 - 34%) ^b
PrEP candidacy^a				
Discuss	25% (0 - 55%) ^b	13% (5 - 21%) ^b	9% (0 - 18%)	12% (0 - 27%) ^b
Recommend	0% (0 - 30%) ^b	9% (2 - 15%) ^b	26% (11 - 40%)	6% (0 - 17%) ^b
PrEP Awareness	60% (30 - 90%) ^b	74% (65 - 84%)	79% (66 - 91%)	64% (44 - 84%)
PrEP Interest				
Yes	25% (0 - 55%) ^b	13% (6 - 21%) ^b	26% (12 - 39%)	10% (0 - 23%) ^b
No	38% (4 - 71%) ^b	48% (37 - 59%)	33% (19 - 48%)	45% (23 - 67%) ^b
Unsure	38% (4 - 71%) ^b	39% (28 - 50%)	41% (26 - 56%)	45% (23 - 67%) ^b
Ever use of PrEP				
Current	11% (0 - 32%) ^b	2% (0 - 6%) ^b	7% (0 - 15%)	0% (0 - 14%) ^b
Never	89% (68 - 100%) ^b	94% (89 - 99%)	88% (78 - 98%)	95% (86 - 100%)
Past	0% (0 - 30%) ^b	4% (0 - 8%) ^b	5% (0 - 11%)	5% (0 - 14%) ^b
* restricted to respondents who indicated sex with a male at least once in the past 12 months				
^a See Box 1 for more detail on Washington PrEP guidelines ^b Flagged for potential instability of estimate due to relative standard error (RSE) >25%				

VIII. Persons living with diagnosed HIV (PLWDH)

Seventy-six respondents (6% of the sample) reported having ever tested positive for HIV. The characteristics of these respondents are presented in Table 7 below. Ninety-seven percent were cisgender male, and 61% resided in King County. Ninety-nine percent of PLWDH had an HIV provider, and 95% had a suppressed viral load. In addition to HIV care and treatment, PLWDH were also asked about strategies to reduce transmission risk. All respondents reported engaging in at least one transmission risk reduction behavior, with the most common being taking prescribed medications, being the receptive partner with all sex partners, and only having condomless anal sex with discordant partners who are taking PrEP. Ninety-nine percent of PLWDH had heard of PrEP, which is higher than the 84% awareness among respondents who had never been diagnosed with HIV ($p = 0.003$).

Five PLWDH respondents reported not currently being on antiretroviral therapy (ART). The reasons cited for being out of care were, “I don’t have money or insurance to cover the cost” ($n = 3$), “I am worried about side effects” ($n = 1$), and “getting medical care for HIV is too complicated” ($n = 1$). These respondents were offered to be contacted by a Disease Intervention Specialist to assist with connecting them to care. None opted to receive this service.

Table 7: Respondents living with diagnosed HIV

	PLWDH (N=76) % (95% CI)
Gender	
Cisgender Male	97% (93 - 100%)
Transgender Male	0% (0 - 5%) ^a
Transgender Female	1% (0 - 4%) ^a
Multiple Genders	0% (0 - 5%) ^a
Queer or Other	1% (0 - 4%) ^a
Region	
King County	61% (50 - 72%)
Other Western WA	29% (19 - 39%)
Eastern WA	11% (4 - 17%) ^a
Age	
16 to 24	3% (0 - 6%) ^a
25 to 34	9% (3 - 16%) ^a
35 to 44	20% (11 - 29%)
45 to 54	33% (22 - 43%)
55 and older	36% (25 - 46%)
Has an HIV provider	99% (96 - 100%)
Time since last HIV care visit	
<= 3 months	64% (53 - 74%)
4-6 months	31% (21 - 42%)
7-12 months	5% (0 - 11%) ^a
Currently taking ART	92% (86 - 98%)
Viral load measured in past 12 months	99% (96 - 100%)
Suppressed viral load	95% (90 - 100%)
Bacterial STI in past 12 months	32% (21 - 43%)
PrEP Awareness	99% (96 - 100%)
Transmission Risk Reduction Strategies	
Take prescribed medications	89% (81 - 97%)
Bottom position with all partners	22% (12 - 34%)
CAS with discordant partner only if he was taking PrEP	17% (8 - 27%)
Use condoms with discordant partners	15% (7 - 25%)
CAS with discordant partners only if viral load is suppressed	10% (2 - 17%) ^a
No sex with discordant partners	8% (1 - 15%) ^a
Bottom position with discordant partners	8% (1 - 15%) ^a
No anal sex with discordant partners	6% (1 - 12%) ^a
Use condoms with all partners	6% (1 - 12%) ^a
Other	3% (0 - 8%) ^a
None of the above strategies	0% (0 - 5%) ^a
^a Flagged for potential instability of estimate due to relative standard error (RSE) >25%	

IX. HIV and LGBTQ stigma

On a scale from 0 (not at all accepting) to 100 (very accepting), respondents were asked “How accepting are the people you regularly talk to and interact with of people with HIV/AIDS?” and “How accepting are people where you live of people with HIV/AIDS?”. The median for each question was 70 (IQR: 50 – 90) and 61 (IQR: 40 – 82), respectively. PLWDH reported higher scores for each question, with median scores of 83 and 70, compared to scores of 70 and 60 reported by respondents not diagnosed with HIV. Respondents from King County reported the highest acceptance on both measures (75 and 71) and respondents from eastern Washington reported the lowest (60 and 48, respectively).

Respondents were asked a similar pair of questions on LGBTQ acceptance in their communities: “How accepting are the people you regularly talk to and interact with of LGBTQ individuals?” and “How accepting are people where you live of LGBTQ individuals?”. The median for each question was 90 (IQR: 75 – 100) and 81 (IQR: 62 – 95), respectively. As with stigma surrounding HIV, respondents from King County reported the highest acceptance on both measures (90 and 89) and respondents from eastern Washington reported the lowest (85 and 58, respectively).

X. Limitations

The Washington HIV/STI Prevention Project uses an online convenience sampling approach, from which the representativeness of the sample is unknown. As such, findings may not be generalizable to the target population of all cisgender males, transgender individuals, and gender non-binary individuals in Washington State. Additionally, because of the small sample sizes of several racial/ethnic minority groups, data on PrEP use by race/ethnicity should be interpreted with caution.

XI. Conclusions

The data from this survey suggest high levels of awareness and interest in PrEP among internet-using MSM in Washington. Comparison with the Round 1 survey indicates that PrEP use continues to increase among MSM in Washington State, although important gaps in coverage remain. Less than half (47%) of sexually active males who are recommended to be on PrEP are currently using PrEP, and 38% of those who met criteria to discuss PrEP with their provider are currently using PrEP. Among those not currently taking PrEP, 59% expressed interest in starting PrEP or learning more about it. Among PrEP candidates, the most common reasons for not taking or having no interest in taking PrEP were a perception of being at low risk, concern about side-effects, not knowing enough about PrEP, and cost barriers to PrEP. Awareness, interest, and use of PrEP were lower for transgender and gender non-binary respondents, suggesting a need for increased efforts to reach these groups.

In addition to continued efforts to support use of PrEP, these data suggest a need for increased efforts to promote and facilitate HIV and STI testing, particularly among MSM living outside of King County. Among respondents living with diagnosed HIV, engagement in care and viral suppression were high, but continuing to help cover the costs of care and reengage individuals not on ART remain priorities.

The results of this survey provide direction for future Washington State Department of Health programming and allocation of resources to continue progress towards the goal of reducing rates

of new HIV diagnoses by 50% between 2014 and 2020.¹ Alongside data from other surveys, these findings are used to monitor trends, evaluate the impact of programs, and assess prevention needs. Continued monitoring and assessment of trends are needed to track Washington's progress towards goals to end the HIV epidemic and identify populations with the greatest need of preventative services. Additionally, Washington State Department of Health continues to create partnerships and provide services and programs to promote effective interventions to prevent and treat HIV throughout the state.

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