HIV AND STI BIOBEHAVIORAL SURVEY AMONG MEN WHO HAVE SEX WITH MEN, TRANSGENDER WOMEN, AND GENDERQUEER INDIVIDUALS IN ZIMBABWE

Final Report

August 2020

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Acknowledgements

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Acronyms and Abbreviations

ART	Antiretroviral therapy
CDC	U.S. Centers for Disease Control and Prevention
CeSHHAR	Centre for Sexual Health and HIV AIDS Research Zimbabwe
CI	Confidence interval
GALZ	Gays and Lesbians of Zimbabwe
EDTA	Ethylenediaminetetraacetic acid
GQ	Genderqueer
HBV	Hepatitis B
HCG	Homophily configuration graph
HIV	Human immunodeficiency virus
IQR	Interquartile range
KP	Key population
mL	Milliliters
MOHCC	Zimbabwe Ministry of Health and Child Care
MSM	Men who have sex with men
NAC	National AIDS Council
NMRL	National Microbiology Reference Laboratory
PEP	Post-exposure prophylaxis
PEPFAR	President's Emergency Plan for AIDS Relief
PrEP	Pre-exposure prophylaxis
PSE	Population size estimation
PSI	Population Services International
PWID	People who inject drugs
TB	Tuberculosis
TGW	Transgender women
RDS	Respondent-driven sampling
RDSCM	Respondent-driven Sampling Coupon Manager
RTRI	Rapid test for recent infection
RITA	Recent infection testing algorithm
SOGI	Sexual orientation and gender identity
SS-PSE	Successive sampling population size estimate
STI	Sexually transmitted infection
UPC	Unique participant code
ZIMPHIA	Zimbabwe Population-based HIV Impact Assessment

Key Terms

Beep	Calling a phone number and hanging up after one ring and before the other person answers the phone. This informs the receiving individual that s/he can call the person back who placed the original call.
Candidate participant	A coupon recipient who attempts to enroll in the survey. Not all candidate participants will be members of the target population or consent to be interviewed, and thus not all candidate participants will become survey participants.
Coupon recipient	A person who receives a coupon. Not all coupon recipients are members of the target population and not all coupon recipients become participants.
Equilibrium	A sample is said to have reached "equilibrium" if the observed sample composition matches the expected long-run sample composition, assuming a specific model of the sampling process.
MSM	Any man who has had anal or oral sex with another man in the past 12 months, irrespective of their sexual identity.
RDS	Sampling methodology used for hard-to-reach population. See the "Methods" section for a full explanation.
Recruiter	A participant who has completed the interview process and has received coupons with which to recruit peers.
Recruitment chain	The set of all participants linked to a specific seed. In respondent-driven sampling, several waves of recruitment make up a recruitment chain.
Seed	A participant who was recruited non-randomly by survey staff, rather than by a peer.
Survey participant	Member of the target population who provided consent and completed the survey interview. This person was either recruited by researchers (in which case these participants are known as "seeds") or by peers (known as "peer-recruited participants").
TGW	Any transgender woman (born biologically male) who has had anal or oral sex with another man in the past 12 months, irrespective of their sexual identity.

Executive Summary

Objectives

In 2018–2019, ICAP at Columbia University, in partnership with the Zimbabwe Ministry of Health and Child Care (MOHCC) and the U.S. Centers for Disease Control and Prevention (CDC), and with support from the Gays and Lesbians of Zimbabwe (GALZ), implemented a formative assessment and biobehavioral survey (BBS) among men who have sex with men (MSM) and transgender women/genderqueer individuals (TGW/GQ) in Harare and Bulawayo, Zimbabwe. To better inform the development and implementation of HIV prevention and control programs by the Zimbabwe MOHCC and the National AIDS Council (NAC), the project aimed to identify biobehavioral risk factors and estimate the HIV prevalence and population size for MSM and TGW/GQ in Harare and Bulawayo.

Key objectives of the project included:

1. Measuring the prevalence of HIV and sexually transmitted infections (STIs) and associated risk behaviors among MSM and TGW/GQ in Harare and Bulawayo
2. Estimating the population size of MSM and TGW/GQ in Harare and Bulawayo
3. Better understanding barriers and facilitators to HIV and STI prevention, care, and treatment among MSM and TGW/GQ in Harare and Bulawayo

Methods

First, a formative assessment was conducted from December 2018 to January 2019 to inform the development of the BBS. Findings from the formative assessment confirmed the planned survey approaches. Following the formative assessment, from March to July 2019, MSM and TGW/GQ aged 18 years and over were recruited to participate in a cross-sectional BBS using respondent-driven sampling (RDS). Consenting participants completed a questionnaire on sociodemographic and HIV risk behaviors and underwent biomarker testing, including rapid testing for HIV, hepatitis B (HBV), and syphilis, and if tested HIV-positive, were tested for CD4, viral load, and recent HIV infection via the rapid test for recent HIV infection (RTRI). Participants with RTRI-recent results and an unsuppressed viral load (HIV RNA ≥1,000 copies/ml) were classified as recent according to the recent infection testing algorithm (RITA). Participants who tested positive for HIV, HBV, or syphilis were referred to key population (KP)-friendly clinics for care and treatment. Univariate analyses were used to calculate sample prevalence estimates, including PEPFAR Priority Indicators displayed in Tables 1 and 2, as data did not reach convergence for key indicators.

Key Findings of the BBS

- HIV prevalence was comparable by city (Harare: 21.4%, Bulawayo: 23.4%) and differed by KP in Harare (MSM: 17.1%, TGW/GQ: 28.0%).
- Achievements against the UNAIDS 90-90-90 targets highlight gaps in the first 90, with lower awareness of HIV status in Harare (35-90-83) compared to Bulawayo (53-95-80). Among those who were aware of their status, a high percentage in both cities were on ART and, of those, a relatively high percentage were virally suppressed. Viral load suppression was 48.7% among persons newly diagnosed, and 61.5% among all PLHIV (regardless of self-reported HIV status).
- Among participants who reported anal sex in the past six months, most (Harare: 63.8%, Bulawayo: 69.9%) used a condom at last sex with their main male partner. In both cities, MSM more commonly reported condom use at last sex than TGW/GQ.
- Half of participants in Harare had never engaged with an outreach worker, compared to a third of participants in Bulawayo. Of those who had engaged with an outreach worker, most (Harare: 62.7%, Bulawayo: 42.7%) had engagement within the past three months.
- Ever testing for HIV was high in both cities (Harare: 88.6%, Bulawayo: 82.8%), and of those who had ever tested for HIV, half in Harare and more than a third in Bulawayo had tested for HIV within the past six months.
- Prevalence of current HBV infection was 3.3% in Harare and 4.3% in Bulawayo. Among people living with HIV (PLHIV), HBV co-infection was 7.4% in Harare and 11.5% in Bulawayo.
- Active syphilis infection was 5.5% in Harare and 5.6% in Bulawayo. Among PLHIV, active syphilis co-infection was 10.1% in Harare and 11.0% in Bulawayo. Active syphilis infection was higher among TGW/GQ compared to MSM in both cities.
- Participants who self-reported an HIV-negative or unknown status in Bulawayo had lower awareness of pre-exposure prophylaxis (PrEP) than in Harare (34.6% v. 60.4%) and less than a quarter had ever taken PrEP. PrEP uptake was higher among TGW/GQ than MSM in both cities.
- Among participants self-reporting to be newly diagnosed with HIV, RTRI-recency was 8.6% (Harare: 11.3%, Bulawayo: 5.6%) and RITA-recency was 1.1% (Harare: 2.1%, Bulawayo: 0%).
- In both cities, the most common reported acts of stigma experienced by participants were blackmail (Harare: 13.5%, Bulawayo: 17.3%) and family member rejection (Harare: 13.5%, Bulawayo: 15.9%).

Population Size Estimation

To estimate the population size of MSM and TGW/GQ, several approaches were used: service multiplier, unique object multiplier, and successive sampling. Workshops were held in each city to review the population size estimation (PSE) methods employed and their findings, along with the strengths and weakness of each approach. During the workshops, PSEs and 95% confidence intervals (CIs) and their proportions relative to the adult male population were reviewed, compared, and discussed to reach a consensus estimate for each city. The following consensus estimates were reached:

- Harare: 15,875 (95% CI: 11,907-19,843)
- Bulawayo: 7,451 (95% CI: 6,353-8,549)

PEPFAR Priority Results

Table 1. PEPFAR priority indicators by key population, Harare, Zimbabwe, 2019			
Variable[1]	**MSM (N=431)**	**TGW/GQ (N=287)**	**Overall (N=718)**
	n (Unadjusted %)		
Age			
18–19	45 (10.4)	46 (16.0)	91 (12.7)
20–24	148 (34.3)	141 (49.1)	289 (40.3)
25–29	109 (25.3)	59 (20.6)	168 (23.4)
30–34	62 (14.4)	25 (8.7)	87 (12.1)
35–39	34 (7.9)	11 (3.8)	45 (6.3)
≥40	33 (7.7)	5 (1.7)	38 (5.3)
Residence			
Harare Central	7 (1.6)	2 (0.7)	9 (1.3)
Harare East	28 (6.5)	18 (6.3)	46 (6.4)
Harare South	122 (28.3)	109 (38.0)	231 (32.2)
Harare West	195 (45.2)	114 (39.7)	309 (43.0)
Harare North	79 (18.3)	44 (15.3)	123 (17.1)
Among those who reported anal sex in the past six months, used a condom at last sex with main male partner, n=682	274 (67.2)	161 (58.8)	435 (63.8)
Ever experienced physical violence because of KP status	13 (3.0)	18 (6.3)	31 (4.3)
Ever experienced sexual violence because of KP status	2 (0.5)	5 (1.7)	7 (1.0)
Ever forced to have sex	49 (11.4)	50 (17.4)	99 (13.8)
Ever arrested because of KP status	21 (4.9)	17 (5.9)	38 (5.3)
Ever treated unfairly or denied healthcare because of KP status	14 (3.3)	14 (4.9)	28 (3.9)
Among those with an STI symptom in the last 12 months, received treatment for a sexually transmitted infection, sought screening, n=168	64 (66.0)	44 (62.0)	108 (64.3)
Among those with an STI symptom, received treatment for a sexually transmitted infection in the last 12 months, n=168	65 (67.0)	41 (57.7)	106 (63.1)
Time since last engagement with an outreach worker			
Never	216 (50.1)	151 (52.6)	367 (51.1)
0–3 months	138 (32.0)	82 (28.6)	220 (30.6)
4–6 months	38 (8.8)	31 (10.8)	69 (9.6)
7–12 months	20 (4.6)	17 (5.9)	37 (5.2)
>12 months	19 (4.4)	6 (2.1)	25 (3.5)
Received free lubricants in the last six months	162 (37.6)	120 (41.8)	282 (39.3)
Ever tested for HIV	383 (88.9)	253 (88.2)	636 (88.6)
Reason for never testing for HIV, n=82			
I feel I am not at risk for HIV	15 ([31.3])	10 ([29.4])	25 (30.5)
Fear of positive result	21 ([43.8])	11 ([32.4])	32 (39.0)
No time to get tested	10 ([20.8])	12 ([35.3)	22 (26.8)
Concerns about confidentiality	1 ([2.1])	1 ([2.9])	2 (2.4)
Other	1 ([2.1])	0 ([0])	1 (1.2)
Time since last HIV test, n=636			
≤6 months	209 (54.6)	138 (54.5)	347 (54.6)
7–12 months	75 (19.6)	58 (22.9)	133 (20.9)
>12 months	99 (25.9)	57 (22.5)	156 (24.5)

Location of last HIV test, n=636 I went somewhere They came to me I tested myself	 336 (87.7) 17 (4.4) 30 (7.8)	 234 (92.5) 4 (1.6) 15 (5.9)	 570 (89.6) 21 (3.3) 45 (7.1)
Among those with self-reported HIV negative/unknown status, ever heard of PrEP, n=661	233 (57.8)	166 (64.3)	399 (60.4)
Among those aware of PrEP and with self-reported HIV negative/unknown status, ever taken PrEP, n=399	72 (30.9)	54 (32.5)	126 (31.6)
Among those who have ever taken PrEP, taken PrEP in the last six months, n=126	54 (75.0)	35 (64.8)	89 (70.6)
HIV prevalence[4], n=695	71 (17.1)	78 (28.0)	149 (21.4)
Among those in HIV care, care provider[3], n=47 Health clinic or hospital KP center/organizations Private facility	 17 (*) 5 (*) 0 (*)	 9 ([36.0]) 14 ([56.0]) 2 ([8.0])	 26 ([55.3]) 19 ([40.4]) 2 ([4.3])
Reason for not seeking HIV care[3], n=5 Feel healthy Stigma/don't want others to know Other	 1 (*) 1 (*) 0 (*)	 0 (*) 1 (*) 2 (*)	 1 (*) 2 (*) 2 (*)
Among those in HIV care, screened for tuberculosis (TB) during visit to the HIV clinic in the last 12 months[3], n=47	12 (*)	14 ([56.0])	26 ([55.3])
Among those in HIV care and diagnosed with TB, received TB treatment last time diagnosed with TB[3], n=0	0 (*)	0 (*)	0 (*)
Among those in HIV care, had HIV viral load measured in last 12 months[3], n=47	17 (*)	22 ([88.0])	39 ([83.0])
Aware of HIV-positive status (1st 90), n=149	24 (33.8)	28 (35.9)	52 (34.9)
Aware of HIV-positive status and on ART (2nd 90), n=52	22 (*)	25 ([89.3])	47 (90.4)
On ART and virally suppressed (3rd 90), n=47	18 (*)	21 ([84.0])	39 ([83.0])
Viral suppression among all PLHIV, n=149	49 (69.0)	43 (55.1)	92 (61.7)
Active syphilis prevalence[4], n=695	21 (5.1)	17 (6.1)	38 (5.5)
Reported any STI symptoms in the past 12 months	97 (22.5)	71 (24.7)	168 (23.4)
Reported urethral discharge in the past 12 months	26 (6.0)	11 (3.8)	37 (5.2)
Reported anal discharge in the past 12 months	11 (2.6)	24 (8.4)	35 (4.9)
Current HBV infection prevalence[4], n=695	10 (2.4)	13 (4.7)	23 (3.3)
Reported 1 or more TB symptoms during survey visit[2,4], n=695	40 (9.6)	22 (7.9)	62 (8.9)
HIV and current HBV or active syphilis co-infection[4], n=695	13 (3.1)	12 (4.3)	25 (3.6)

[1]Denominators are provided for each variable where n<718, [2]Reported one of the following symptoms to survey nurse among HIV-positive participants: a cough, night sweats, unplanned weight loss, or fever or reported one of the following symptoms to survey nurse among HIV-negative participants: a cough lasting two weeks or more, night sweats, unplanned weight loss, or fever lasting three weeks or more. [3]Among those tested HIV-positive in survey and self-reported HIV-positive. [4]Among biomarker consenting participants regardless of HIV status.
Estimates in brackets are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk in parentheses indicates that an estimate is based on a very small number (<25) of unweighted cases and has been suppressed.

Table 2. PEPFAR priority indicators by key population, Bulawayo, Zimbabwe, 2019			
Variable[1]	**MSM (N=763)**	**TGW/GQ (N=57)**	**Overall (N=820)**
	n (Unadjusted %)		
Age			
18–19	76 (10.0)	8 (14.0)	84 (10.2)
20–24	230 (30.1)	26 (45.6)	256 (31.2)
25–29	142 (18.6)	13 (22.8)	155 (18.9)
30–34	129 (16.9)	7 (12.3)	136 (16.6)
35–39	78 (10.2)	2 (3.5)	80 (9.8)
≥40	108 (14.2)	1 (1.8)	109 (13.3)
Residence			
Bulawayo Central	28 (3.7)	2 (3.5)	30 (3.7)
Bulawayo East	54 (7.1)	7 (12.3)	61 (7.4)
Bulawayo North	69 (9.0)	4 (7.0)	73 (8.9)
Bulawayo South	54 (7.1)	3 (5.3)	57 (7.0)
Bulawayo West	558 (73.1)	41 (71.9)	599 (73.0)
Among those who reported anal sex in the past six months, used a condom at last sex with main male partner, n=786	514 (70.3)	35 (63.6)	549 (69.8)
Ever experienced physical violence because of KP status	33 (4.3)	10 (17.5)	43 (5.2)
Ever experienced sexual violence because of KP status	17 (2.2)	7 (12.3)	24 (2.9)
Ever forced to have sex	57 (7.5)	17 (29.8)	74 (9.0)
Ever arrested because of KP status	29 (3.8)	9 (15.8)	38 (4.6)
Ever treated unfairly or denied healthcare because of KP status	18 (2.4)	11 (19.3)	29 (3.5)
Among those with symptoms of a sexually transmitted infection (STI) in the last 12 months, sought screening, n=124	61 (57.0)	8 (*)	69 (55.6)
Among those with an STI symptom in the last 12 months, received treatment for a sexually transmitted infection, n=124	75 (70.1)	9 (*)	84 (67.7)
Time since last engagement with an outreach worker			
Never	240 (31.5)	16 (28.1)	256 (31.2)
0–3 months	212 (27.8)	29 (50.9)	241 (29.4)
4–6 months	70 (9.2)	4 (7.0)	74 (9.0)
7–12 months	88 (11.5)	4 (7.0)	92 (11.2)
>12 months (one year)	153 (20.1)	4 (7.0)	157 (19.1)
Received free lubricants in the last six months	199 (26.1)	28 (49.1)	227 (27.7)
Ever tested for HIV	628 (82.3)	51 (89.5)	679 (82.8)
Reason for never testing for HIV, n=141			
I feel I am not at risk for HIV	58 (43.0)	3 (*)	61 (43.3)
Fear of positive result	42 (31.1)	0 (*)	42 (29.8)
No money to get tested	2 (1.5)	0 (*)	2 (1.4)
No time to get tested	10 (7.4)	3 (*)	13 (9.2)
Concerns about confidentiality	2 (1.5)	0 (*)	2 (1.4)
Stigma by healthcare workers	1 (0.7)	0 (*)	1 (0.7)
Other	20 (14.8)	0 (*)	20 (14.2)
Time since last HIV test, n=679			
≤6 months	240 (38.2)	23 (45.1)	263 (38.7)
7–12 months	105 (16.7)	9 (17.6)	114 (16.8)
>12 months	282 (44.9)	19 (37.3)	301 (44.3)
Don't know	1 (0.2)	0 (0)	1 (0.2)

Location of last HIV test, n=679 I went somewhere They came to me I tested myself	 566 (90.1) 35 (5.6) 27 (4.3)	 45 (88.2) 4 (7.8) 2 (3.9)	 611 (90.0) 39 (5.7) 29 (4.3)
Among those with self-reported HIV negative/unknown status, ever heard of PrEP, n=716	218 (32.8)	30 (58.8)	248 (34.6)
Among those aware of PrEP and with self-reported HIV negative/unknown status, ever taken PrEP, n=248	54 (24.8)	16 ([53.3])	70 (28.2)
Among those who have ever taken PrEP, taken PrEP in the last six months, n=70	40 (74.1)	10 (*)	50 (71.4)
HIV prevalence[5], n=816	177 (23.3)	14 (25.0)	191 (23.4)
Among those in HIV care, care provider[4], n=95 Health clinic or hospital KP center/organizations Private facility	 70 (77.8) 17 (18.9) 3 (3.3)	 2 (*) 3 (*) 0 (*)	 72 (75.8) 20 (21.1) 3 (3.2)
Reason for not seeking HIV care[2,4], n=5 Stigma/don't want others to know Other	 1 (*) 4 (*)	 0 (*) 0 (*)	 1 (*) 4 (*)
Among those in HIV care, screened for TB during visit to the HIV clinic in the last 12 months[4], n=95	70 (77.8)	4 (*)	74 (77.9)
Among those in HIV care and diagnosed with TB, received TB treatment last time diagnosed with TB[4], n=3	3 (*)	0 (*)	3 (*)
Among those in HIV care, had HIV viral load measured in last 12 months[4], n=95	78 (86.7)	4 (*)	82 (86.3)
Aware of HIV-positive status (1st 90), n=191	95 (53.7)	6 (*)	101 (52.9)
Aware of HIV-positive status and on ART (2nd 90), n=101	90 (94.7)	6 (*)	96 (95.0)
On ART and virally suppressed (3rd 90), n=96	71 (78.9)	6 (*)	77 (80.2)
Viral suppression among all PLHIV, n=191	109 (61.6)	8 (*)	117 (61.3)
Active syphilis prevalence[5], n=816	35 (4.6)	11 (19.6)	46 (5.6)
Reported any STI symptoms in the past 12 months	107 (14.0)	17 (29.8)	124 (15.1)
Reported urethral discharge in the past 12 months	37 (4.9)	2 (3.5)	39 (4.8)
Reported anal discharge in the past 12 months	10 (1.3)	5 (8.8)	15 (1.8)
Current HBV infection prevalence[5], n=816	33 (4.3)	2 (3.6)	35 (4.3)
Reported one or more TB symptoms during survey visit[3,5], n=816	157 (20.7)	11 (19.6)	168 (20.6)
HIV and current HBV or active syphilis co-infection[5], n=816	34 (4.5)	7 (12.5)	41 (5.0)

[1]Denominators are provided for each variable for each variable where n<820, [2]Includes results among those who never sought care. In Bulawayo, one participant reported they had previously sought care but are no longer in care and are not reflected, [3]Reported one of the following symptoms to survey nurse (among HIV-positive participants): a cough, night sweats, unplanned weight loss, or fever; or reported one of the following symptoms to survey nurse (among HIV-negative participants): a cough lasting two weeks or more, night sweats, unplanned weight loss, or fever lasting three weeks or more, [4]Among those tested HIV-positive in survey and self-reported HIV-positive, [5]Among biomarker consenting participants regardless of HIV status.

Estimates in brackets are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk in parentheses indicates that an estimate is based on a very small number (<25) of unweighted cases and has been suppressed.

Introduction and Background

In Zimbabwe, HIV prevalence among adults aged 15–49 years is 12.7% and approximately 1.2 million adults are living with HIV/AIDS.[1] Data from other countries demonstrate that certain sub-populations, such as incarcerated populations, female sex workers (FSW), people who inject drugs (PWID), men who have sex with men (MSM), transgender women (TGW), and other sexual and gender minorities, including genderqueer (GQ) individuals, are disproportionally affected by HIV.[2]

In 2012, a cross-sectional survey was conducted by the Southern African Development Community (SADC), the National AIDS Council (NAC), and the Zimbabwe Ministry of Health and Child Care (MOHCC) to investigate demographics and HIV risk behaviors of MSM in Zimbabwe.[3] This survey used snowball sampling to recruit and interview 383 MSM. The survey population was relatively young (mean age: 26 years), 96% identified as gay or bisexual, and more than 60% of respondents who identified as gay had had sex with at least one man in the past 12 months. Over half of participants also reported having had sex with a female partner in the past 12 months; 18% reported having between two and six new female partners in the past month; and 36% reported having a regular female partner. Condom use was inconsistent and less frequent with female partners compared to males, with 79% of participants reporting using a condom sometimes or always with their regular female partner (versus 88% with a regular male partner). Among participants, 23.5% were HIV-positive. The survey also revealed that MSM were regularly subjected to acts of discrimination and stigmatization, given the cultural and legal context around same-sex sexual behaviors. While these data provide insight into the high burden of HIV among MSM in Zimbabwe, limitations of the sampling strategy warrant additional research to establish population-level estimates of key HIV and behavioral indicators among MSM.

In 2018–2019, ICAP at Columbia University, in partnership with the Zimbabwe MOHCC and the U.S. Centers for Disease Control and Prevention (CDC), and with support from the Gays and Lesbians of Zimbabwe (GALZ), implemented a formative assessment and biobehavioral survey (BBS) with MSM and TGW/GQ in Harare and Bulawayo, Zimbabwe. To better inform the development and implementation of HIV prevention and control programs by the Zimbabwe MOHCC and NAC, the project aimed to identify biobehavioral risk factors and estimate the HIV prevalence and population size for MSM and TGW/GQ in Harare and Bulawayo.

Key objectives of the project included:

1. Measuring the prevalence of HIV and sexually transmitted infections (STIs) and associated risk behaviors among MSM and TGW/GQ in Harare and Bulawayo
2. Estimating the population size of MSM and TGW/GQ in Harare and Bulawayo
3. Better understanding barriers and facilitators to HIV and STI prevention, care, and treatment among MSM and TGW/GQ in Harare and Bulawayo

[1] Zimbabwe country fact sheet. Geneva: UNAIDS; 2018. Available at: https://www.unaids.org/en/regionscountries/countries/zimbabwe. Accessed April 17, 2020.
[2] Global report: UNAIDS report on the global AIDS epidemic 2012. Geneva: UNAIDS; 2012. Available at: https://www.unaids.org/en/resources/documents/2012/20121120_UNAIDS_Global_Report_2012. Accessed April 17, 2020.
[3] Sexual minorities and HIV in Zimbabwe draft report. Gaborone: Southern African Development Community. 2013.

Methods

The methods used in this BBS were adapted from the Biobehavioral Survey Guidelines for Populations at Risk for HIV.[4]

Formative Assessment

To inform the development of this BBS, a formative assessment was conducted in Harare and Bulawayo from December 2018–January 2019. The objectives of the formative assessment included identifying sociocultural factors that limit or facilitate access to MSM and TGW/GQ and identifying operational and logistical requirements of conducting the BBS, including the feasibility of methods and procedures and the identification of potential seeds and key population (KP)-friendly services for BBS referrals.

In-depth interviews (IDI) were conducted with 15 MSM and TGW/GQ and 10 key informants purposively recruited with support from GALZ and other LGBTQ organizations and through snowball sampling. Key informants included MSM and TGW/GQ service providers and "facilitators," which are an owner/employee of a local business that caters to MSM and TGW/GQ, a male or female sex worker, or someone with special access to MSM and TGW/GQ. In addition, four focus group discussions (FGD) were held with 6–8 MSM and TGW/GQ per FGD across both cities. FGD participants were identified with support from GALZ. The following eligibility criteria was used for FGD and IDI participants:

- **FGDs and IDIs with MSM:** Biologically born male; had anal or oral sex with a man in the past 12 months; 18 years of age or older; lived in Harare/Bulawayo for at least the past one month; speaks English, Shona, or Ndebele; and able to provide verbal informed consent
- **IDIs with facilitators:** Owner/employee of a local business that caters to MSM, male or female sex worker, organizer of festive activities, or any person who has special access to MSM and who protects their interests; 18 years of age or older; lived in Harare/Bulawayo for at least the past one month; speaks English, Shona, or Ndebele; and able to provide verbal informed consent
- **IDIs with service providers:** Currently employed by a non-governmental organization (NGO), governmental entity, or other institution to provide HIV/STI counseling, testing, or treatment, particularly to MSM in Harare or Bulawayo; in current position for at least six months; 18 years of age or older; lived in Harare/Bulawayo for at least the past one month; speaks English, Shona, or Ndebele; and able to provide verbal informed consent

Verbal informed consent was obtained from each eligible FGD and IDI participant. Data were captured in written notes for both FGDs and IDIs, as well as in audio recordings for FGDs only. Qualitative data were analyzed via rapid evaluation techniques, including rapid identification of themes from audio recordings and review of field notes and memos. Key themes were developed deductively from IDI and FGD guides and inductively through memoing, a qualitative analytic approach that involves reflective notetaking to interpret emergent findings. Themes that reached saturation were summarized in a report. Ethnographic mapping was conducted as a component of FGDs and IDIs to identify locations where MSM and TGW/GQ were likely to congregate, including expected numbers by location and times of congregation, in order to inform components of the BBS.

[4] Biobehavioral survey guidelines for populations at risk for HIV. WHO, CDC, UNAIDS, FHI 360; 2017. Licence:CC BY-NC-SA 3.0 IGO.

Findings from the assessment highlighted contextually relevant considerations, including behaviors and languages to avoid when working with MSM and TGW/GQ in Zimbabwe; appropriate incentive amounts for survey participation; proposed data collection sites; and differences in sexual openness, marital status, and networks among younger versus older MSM and TGW/GQ. While the BBS's initial objectives were focused on MSM, the formative assessment highlighted the importance of including TGW/GQ in the BBS. Participants reported an interest in BBS participation because it would allow them to express themselves and also provide an opportunity for MSM and TGW/GQ who may otherwise be disengaged in services to access needed HIV counseling and testing services. Participants also reported strong network ties, suggesting that respondent-driven sampling (RDS)—a chain referral approach used to recruit hard-to-reach populations[5]—would be a contextually appropriate recruitment method for this BBS.

Survey Population

We estimated a sample size of 1538 participants (Harare: 718, Bulawayo: 820), inclusive of MSM and TGW/GQ, was needed to ensure sufficient power to: 1) detect the estimated HIV prevalence and HIV viral load suppression among MSM and TGW/GQ in Harare and Bulawayo; and 2) detect a change in HIV prevalence between the current survey and future BBS conducted among MSM and TGW/GQ, should the MOHCC integrate MSM and TGW/GQ into their routine surveillance system. More detailed methods on sample size calculation can be found in Annex 1.

MSM and TGW/GQ were eligible to participate in the BBS if they were born biologically male; engaged in anal or oral sex with a man in the past 12 months; were 18 years or older; resided in Harare/Bulawayo for at least the past one month; spoke English, Shona, or Ndebele; provided written informed consent; and were in possession of a valid recruitment coupon (for candidate participants).

Selection of Seeds, Recruitment Process, and Study Sites

Initial survey participants ("seeds") were recruited by the survey team to start recruitment chains in their respective social networks. Seeds were purposively recruited to reflect diversity in sociodemographic characteristics (e.g., age, sexual orientation and gender identity [SOGI], education, area of residence, marital status, language, religion). Seeds also had to meet all eligibility criteria. To support rapid recruitment, seeds were selected if they were well-regarded by their peers and well-connected within their social networks. Seeds were identified with support from KP organizations and invited to participate based on the criteria listed above. At the time of their enrollment, seeds were oriented to promote a feeling of survey ownership and enthusiasm about the project, and were provided with three referral coupons and instructions for peer recruitment using a recruitment process script.

Participants were recruited using RDS. For the recruitment of peer-recruited participants, candidate participants received a coupon from a peer who had already participated in the survey. The coupon included the following information in English: a coupon ID number, the survey name, the survey site location, a phone number to call or "beep" to make an appointment for participation, hours of operation for drop-ins, an activation date (the date after which the candidate participant can schedule an interview), an expiration date (deadline by which to participate in the survey), and the

[5] Heckathorn DD. Respondent-driven sampling: a new approach to the study of hidden populations. *Social Problems.* 1997;44(2):174–99.

MOHCC logo. No information that identified the survey with MSM or TGW/GQ appeared on the coupons. Participants also received referral coupons and instructions for peer recruitment. Survey participants who indicated that they were not interested in recruiting were still encouraged to take the coupons in case they changed their minds. Initially, each participant was given three coupons. This number was reduced to one or two as recruitment needs slowed and then stopped when the sample size was reached. During every interview, participants were informed that no interviews would be conducted once the sample size was reached, and survey sites had standard operating procedures (SOPs) to explain the termination of the survey to anyone who presented to the survey site after the sample size had already been reached.

Data were collected in Harare and Bulawayo, Zimbabwe between March–July 2019. Each city had two survey sites, with survey staff rotating between sites throughout the week. Survey sites were open Monday through Saturday to accommodate participants' schedules in both cities. More detailed information on the data collection process and interview scheduling can be found in Annex 2.

Coupon Management

An Excel template called the Respondent-driven Sampling Coupon Manager (or "RDSCM")[6] was used to manage and track the unique coupon numbers that linked recruiters to their recruits, and to capture information on reimbursement and return of results. More detailed information on the RDSCM can be found in Annex 2.

Screening and Informed Consent

Once the coupon was verified, potential participants were screened for eligibility. If eligible, the survey was explained further and if the person was interested, written, informed consent was obtained. Participants provided separate consent for each survey component: 1) completion of the questionnaire; 2) provision of venous blood and storage for future testing; and 3) permission to be contacted by survey staff for follow-up. A copy of the signed consent form was provided to each participant.

Interview Administration

Next, staff administered a structured questionnaire using a tablet. The questionnaire, adapted from the Global HIV Strategic Information Working Group Biobehavioural Survey Guidelines for Populations at Risk for HIV[7], included questions on socio-demographics; sexual history; HIV and STI-related behaviors, knowledge, and attitudes; condom and lubricant use; alcohol and drug consumption; and experience with health and support programs available to MSM and TGW/GQ, and with stigma and discrimination. The questionnaire was administered in English, Shona, or Ndebele. Each interview took 1–2 hours. All participants scheduled a return visit to the survey office (typically two weeks after the first visit) to verify if their peer recruits had been enrolled, complete the second visit questionnaire, and receive viral load and HIV recency results (if HIV-positive). Additional information on data collection can be found in Annex 2.

[6] Biobehavioral survey guidelines for populations at risk for HIV. WHO, CDC, UNAIDS, FHI 360; 2017. Licence:CC BY-NC-SA 3.0 IGO.
[7] Ibid.

Pre-test Counseling for Biomarker Testing

Upon completion of the questionnaire, participants who consented to biomarker testing received pre-test/risk reduction counseling for HIV, syphilis, and HBV following Zimbabwe's national guidelines.[8] While participants were free to opt out of biomarker testing, they were counseled on the benefits of early diagnosis and remaining negative if uninfected. The rate of testing uptake was tracked during the survey.

Biological Specimen Collection, Storage, Transport, and Processing

On-site rapid HIV testing (using an adaption of the Zimbabwe National HIV Testing Algorithm[8]) was conducted for all individuals regardless of self-reported HIV status. Alere™ HIV Combo was used as the first antibody test, in lieu of Determine or Standard Q, as it detects acute HIV infections better than other tests. Chembio and Insti were used as second and third tests. CD4 and HIV recency testing were conducted on all HIV-positive samples. Recency testing utilized the Asanté™ HIV-1 Rapid Recency™ Assay to differentiate recent from long-term HIV-1 infections. All HIV-positive samples were also sent for offsite HIV viral load testing.

Regardless of HIV status, consenting participants were tested for active syphilis using the Chembio Dual Path Platform (DPP) Syphilis Screen and Confirm Assay and current HBV infection using the Alere Determine HBsAg Rapid Test.

Blood samples were transported to offsite laboratories (Bulawayo Blood Transfusion Centre and the National Microbiology Reference Laboratory [NMRL] in Harare) in cooler boxes for immediate processing into plasma aliquots and dried blood spots (DBS) cards. Two DBS cards (10 spots total, approximately 75 mL of blood in total) for each participant were prepared on Whatman 903 filter paper or comparable filter paper. All DBS cards were labeled using the participant's coupon number. The remaining blood was prepared into plasma aliquots labeled with the participant's coupon number. The plasma aliquots were frozen immediately. Samples were stored temporarily at these labs before they were shipped to the Lancet Laboratories for viral load testing and long-term storage.

All laboratory staff were trained by CDC and had experience conducting the included tests. At the Bulawayo Blood Transfusion Centre and NMRL, 5% of the HIV-negative samples were retested and all HIV-positive samples were confirmed with a Geenius test for quality control. Indeterminant Geenius results underwent DNA PCR testing to determine final HIV status.

Post-test Counseling for Biomarker Testing

Return of results, post-test counseling, and referral to care and treatment for those who tested positive for HIV, HBV, and/or syphilis were provided immediately following rapid testing. Post-test counseling was provided per national guidelines. Post-test counseling for those who tested HIV-negative included strategies for behavioral risk reduction, maintenance of risk reduction, and explanation of risk reduction methods (e.g., condom use and pre-exposure prophylaxis [PrEP]). Post-test counseling for those who tested HIV-positive included an assessment of psychosocial needs and a discussion of living with HIV infection, HIV treatment and care, and issues related to

[8] Zimbabwe national guidelines on HIV testing and counselling. Second edition. Harare: Ministry of Health and Child Care; 2014. Available at: https://aidsfree.usaid.gov/sites/default/files/hts_zimbabwe_2014.pdf. Accessed April 17, 2020.

discrimination. HIV transmission to partners and behavior change strategies were also discussed. After being tested for HIV, participants were also screened for TB symptoms using the national screening questions. Participants who tested HIV-positive and did not report being in care, and those who tested positive for either active syphilis or HBV infection, or screened positive for TB symptoms, were offered the option of being driven that day to a KP-friendly healthcare facility offering HIV and related services. HIV-negative participants were referred for PrEP enrollment at KP-friendly health facilities. If participants declined, they were given a referral card for the relevant clinic. All referrals were tracked.

Participants not willing to receive their healthcare at the designated facilities were asked to share information about their preferred health facility, as well as the date they intended to visit the facility. In addition, to allow for follow-up to determine whether the participant received care, their mobile number was collected. Participants were followed up 14 days after their visit date to confirm if they had received the care for which they were referred. If they reported having visited the facility, the survey team collected the copy of the referral slips that participants provided to the facility. If the participant reported not having visited the facility, they were counseled to seek care and called again after seven days. This process was repeated for a maximum of three times, after which the participant was deemed to have refused to seek care or to not be reachable, and the survey team stopped following up. Any participant who indicated that they had previously been diagnosed with HIV and were regularly accessing healthcare or check-ups for their HIV did not receive a referral.

Second Visit

All participants were asked to return to the survey site two weeks later for a second visit. During the second visit, participants were asked how many eligible candidate participants they approached, how many referral coupons they handed out, and why potential candidate participants had not accepted the coupons. Basic information was collected on those who refused the offered coupon or for candidate participants who accepted the coupon but had not visited the survey office by the time the coupon expired. Participants who tested positive for any biomarker testing were also asked whether they had sought care and, if not, reasons for not seeking care. The participant's remaining coupons were collected and filed.

All viral load results were received by the survey sites and issued to participants during their second visit. During the second visit, participants also received HIV recency results according to the recent infection testing algorithm (RITA). Participants were classified as RITA-recent if their results were recent via the rapid test for recent HIV infection (RTRI) and had an unsuppressed viral load (HIV RNA ≥1,000 copies/ml).

Participant Incentives

Participants were compensated USD 5 during their first visit to cover transport costs to and from the survey site. During their second visit, participants received an additional USD 5 to cover transport costs, and USD 5 for each successfully recruited peer (maximum of three peers) to cover communication and related costs incurred during the peer recruitment process.

Recruitment Monitoring

For each city, recruitment effectiveness and differential recruitment between groups (i.e., homophily) were analyzed weekly in RDS-Analyst[9], as well as using convergence and bottleneck plots. Convergence plots were used to assess whether an estimate was biased by seed selection or had stabilized, indicating less seed bias, and bottleneck plots were used to evaluate potential bottlenecks. Key variables assessed included data collection site, gender identity/KP, age, ethnicity, language, education, religion, employment, marital status, neighborhood of residence, HIV result, HIV recency result, syphilis result, received services from KP organizations, last test for HIV, and received a unique object. Recruitment diagnostic plots (recruitment tree, bar chart of recruits by wave, bar chart of recruits by seed, and network size by wave) were produced, stratified by HIV status. Monitoring of coupon refusals, reasons for refusal, and age of those who refused coupons was conducted using data from the second visit questionnaire.

Analysis

For this project, we provide RDS-unadjusted estimates as we did not reach convergence on key variables, including HIV. All analyses were conducted using SAS and graphical outputs were generated using RDS-Analyst. RDS-unadjusted estimates of key demographic, behavioral, and health outcome data, stratified by city, are presented in tables and figures. Additional stratification of descriptive results by KP are presented in select tables and figures. Denominators and numerators are provided in all tables.

Missing data were minimal due to constraints in place as part of the electronic data collection. Missing data (including refused/don't know) are reported as footnotes when presenting sample estimates in tables, unless ≥5%. Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk in parentheses indicates that an estimate is based on a very small number (<25) of unweighted cases and has been suppressed.

Key indicators, as outlined in the supplemental materials from the Biobehavioral Survey Guidelines for Populations at Risk for HIV[10], and PEPFAR priority results[11] are reported as applicable. For example, indictors or results specific to being biologically female (e.g., antenatal HIV testing, use of hormonal family planning methods, etc.) are not reported and indicator periods of reference may differ based on the inclusion of questions in the survey (e.g., 12 v. 6 months). PEPFAR priority results (provided in the executive summary) were prioritized for data analysis and were shared with key stakeholders during the September 2019 data analysis workshop in Zimbabwe.

[9] Handcock MS, Fellows IE, Gile KJ. RDS Analyst: Software for the Analysis of Respondent-Driven Sampling Data, Version 0.71; 2014. URL: http://hpmrg.org
[10] Biobehavioral survey guidelines for populations at risk for HIV. WHO, CDC, UNAIDS, FHI 360; 2017. Licence:CC BY-NC-SA 3.0 IGO.
[11] Expedited Biobehavioral Surveys and Data Availability. PEPFAR Website.https://www.pepfarsolutions.org/tools-2/tag/biobehavioral. Published July 5, 2018. Accessed April 17, 2020.

Ethical Considerations

The survey was approved by the Columbia University Institutional Review Board and the Medical Research Council of Zimbabwe. This project was also reviewed by the Office of the Associate Director of Science at the U.S. Centers for Disease Control and Prevention (CDC) and was determined to be research, but CDC investigators did not interact with human subjects or have access to identifiable data or specimens for research purposes.

All project staff were experienced in conducting similar surveys and trained in Good Clinical Practices and signed a confidentiality agreement. More detailed information on staff training can be found in Annex 2. No personal identifying information was recorded except for the signature on the BBS consent form and the contact information obtained from those who had a positive test result to ensure that they were linked to care. Informed consent and all procedures occurred in a private setting. All hard copies of forms, logs, and notes were kept in a locked filing cabinet only accessible to authorized personnel. All electronic devices were encrypted and password protected.

Any participant that reported abuse or violence was provided with the contact details for the District Social Welfare Office in their respective districts, with their permission, where they could get necessary assistance. All participants, regardless of test results or reported experiences, were provided a list of health and social services available in their area.

Survey Findings

Sample and Network Characteristics

An initial eight seeds were recruited in Harare (6 MSM/2 TGW/GQ) and six seeds were recruited in Bulawayo (2 MSM/4 TGW/GQ). To recruit under-represented subpopulations, including older MSM and TGW/GQ and MSM and TGW/GQ residing in other areas of each city, an additional three and two seeds were added in Harare and Bulawayo, respectively, during the survey. In Harare, the mean number of waves was 5.5 and the longest wave was 17. In Bulawayo, the mean number of waves was 7.5 and the longest wave was 14.

Table 3. Recruitment statistics among MSM/TGW/GQ by city, Zimbabwe, 2019

	Number of seeds	Mean number of recruits by seed	Mean number of waves	Longest wave	Coupon return rate
Harare	11	64	5.5	17	42.8%
Bulawayo	8	102	7.5	14	52.3%

Among the candidate participants screened for eligibility in Harare and Bulawayo, 86% and 81% respectively were eligible to participate and, of those, 100% enrolled in the survey (Table 2). The combined sample size was 1538 (Harare: 718, Bulawayo: 820). Most participants (Harare: 97%, Bulawayo: 99.5%) consented for biomarker testing and returned for a second visit (Harare: 69%, Bulawayo: 83%).

Table 4. Screening, enrollment, and testing statistics by city, Zimbabwe, 2019

	Screened	Eligible		Enrolled		Tested for HIV		Returned for Second Visit	
	n	n	% of those screened	n	% of those eligible	n	% of those enrolled	n	% of those enrolled
Harare	836	718	85.9%	718	100.0%	695	96.8%	493	68.7%
Bulawayo	1009	820	81.3%	820	100.0%	816	99.5%	680	82.9%

Recruitment trees for each city, stratified by HIV status and area of residence, can be found in Annexes 3–4.

Socio-demographics

Key Findings:

- A high percentage of the sample in Harare identified as TGW/GQ (40.0%) compared to Bulawayo (7.0%).
- Most participants were between 18–24 years (Harare: 52.9%, Bulawayo: 41.5%), unemployed (Harare: 30.8%, Bulawayo: 43.4%), and single/never married (Harare: 81.8%, Bulawayo: 81.3%).

In Harare, the majority of participants were young (18–24 years: 52.9%, 25–34 years: 35.5%) and were single/never married (81.8%). Most participants resided in Harare West (43.0%), followed by Harare South (32.2%), Harare North (17.1%), Harare East (6.4%), and Harare Central (1.3%). Approximately 40% of participants identified as TGW/GQ. Nearly one-third of participants were unemployed. Of those who were employed, most (81.3%) made ≤ USD 200 the previous month. Participants most commonly (68.7%) reported secondary school as the highest level of education attended.

Similar to Harare, in Bulawayo, most participants were young (18–24 years: 41.5%, 25–34 years: 35.5%) and single/never married (81.3%). Most participants resided in Bulawayo West (73.0%), followed by Bulawayo North (8.9%), Bulawayo East (7.4%), Bulawayo South (7.0%), and Bulawayo Central (3.7%). Among the sample, 7.0% identified as TGW/GQ. Unemployment was high (43.4%) in Bulawayo. Of those who were employed, 84.4% made USD 200 or less in the previous month. Participants most commonly (72.3%) reported secondary school as the highest level of education attended.

Table 5. Demographic characteristics by city and key population, Zimbabwe, 2019

Demographic characteristics among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
Age								
18–24	44.8	193	65.2	187	40.1	306	59.7	34
25–34	39.7	171	29.3	84	35.5	271	35.1	20
35–44	11.6	50	4.9	14	15.9	121	5.3	3
45 or older	3.9	17	0.7	2	8.5	65	0	0
median (IQR)	25 (22–31)		23 (20–26)		27 (22–34)		23 (20–28)	
Race								
Black African	98.6	425	99.7	286	97.0	740	94.7	54
White	0.2	1	0	0	0.1	1	0	0
Colored	1.2	5	0.4	1	2.6	20	5.3	3
Indian	0	0	0	0	0.1	1	0	0
Asian	0	0	0	0	0.1	1	0	0
Nationality								
Zimbabwean	99.3	428	99.0	284	98.7	753	94.7	54
Other African	0.7	3	1.1	3	1.3	10	5.3	3

Area of residence								
Harare Central	1.6	7	0.7	2	0	0	0	0
Harare North	18.3	79	15.3	44	0	0	0	0
Harare West	45.2	195	39.7	114	0	0	0	0
Harare East	6.5	28	6.3	18	0	0	0	0
Harare South	28.3	122	38.0	109	0	0	0	0
Bulawayo Central	0	0	0	0	3.7	28	3.5	2
Bulawayo North	0	0	0	0	9.0	69	7.0	4
Bulawayo West	0	0	0	0	73.1	558	71.9	41
Bulawayo East	0	0	0	0	7.1	54	12.3	7
Bulawayo South	0	0	0	0	7.1	54	5.3	3
Employment status								
Self-employed	25.5	110	20.9	60	24.8	189	26.3	15
Employed full-time	22.0	95	16.0	46	9.2	70	7.0	4
Employed part-time	12.8	55	9.4	27	9.0	69	12.3	7
Full-time student	12.3	53	17.1	49	12.7	97	14.0	8
Retired	0.5	2	0	0	0.4	3	0	0
Unemployed	26.9	116	36.6	105	43.6	333	40.4	23
Other	0	0	0	0	0.3	2	0	0
Income earned last month[1,2]								
<USD 50	21.4	56	28.6	38	26.0	85	3.9	1
USD 50–100	39.7	104	39.1	52	46.5	152	53.9	14
USD 101–150	8.4	22	15.0	20	8.0	26	15.4	4
USD 151–200	6.5	17	9.0	12	4.6	15	3.9	1
>USD 200	24.1	63	8.3	11	15.0	49	23.1	6
median (IQR)	100 (50–200)		80 (40–120)		75 (40–120)		100 (70–200)	
Highest education attended								
None	0	0	0	0	0.5	4	0	0
Primary	0.9	4	1.7	5	8.3	63	10.5	6
Secondary	66.8	288	71.4	205	72.4	552	71.9	41
Tertiary	23.0	99	17.8	51	17.7	135	15.8	9
Vocational	9.3	40	9.1	26	1.2	9	1.8	1
Marital status								
Single, never married	75.6	326	90.9	261	80.6	615	91.2	52
Married (to one or more women)	10.4	45	1.7	5	3.8	29	1.8	1
Married (to one or more men)	0.5	2	0	0	1.1	8	1.8	1
Separated/divorced	12.1	52	7.0	20	12.3	94	3.5	2
Widowed	0.2	1	0.4	1	1.1	8	0	0
Cohabiting	1.2	5	0	0	1.2	9	1.8	1
Religion								
Traditional	0.7	3	0.7	2	4.6	35	5.3	3
Roman Catholic	19.7	85	16.7	48	21.0	160	17.5	10
Protestant	22.5	97	22.7	65	10.4	79	14.0	8
Pentecostal	31.6	136	33.1	95	23.6	180	33.3	19
Apostolic Sect	5.8	25	7.0	20	5.0	38	1.8	1
Other Christian	3.7	16	4.9	14	11.5	88	5.3	3
Muslim	0.2	1	0.7	2	1.2	9	0	0

None	15.3	66	13.9	40	22.3	170	22.8	13
Other	0.5	2	0.4	1	0.5	4	0	0
Sexual orientation[3]								
Gay/homosexual	44.6	192	77.0	221	59.8	456	77.2	44
Bisexual	55.0	237	23.0	66	40.0	305	19.3	11
Straight/heterosexual	0.2	1	0	0	0.1	1	0	0
Other	0.2	1	0	0	0	0	3.5	2
Regular place to sleep at night								
Yes	98.6	425	99.3	285	98.7	753	96.5	55
No	1.4	6	0.7	2	1.3	10	3.5	2
Shelter type								
House	91.9	396	94.4	271	88.1	672	84.2	48
Apartment	6.5	28	4.9	14	10.6	81	15.8	9
Dormitory	1.6	7	0.7	2	1.1	8	0	0
Community center	0	0	0	0	0.1	1	0	0
Other	0	0	0	0	0.1	1	0	0

[1]Question not asked to students or unemployed participants, [2]n=6 don't know/refuse to answer, [3] n=1 don't know/refuse to answer.

Less than half of TGW had dressed or presented oneself as a woman in the past six months in Harare, compared to almost 90% in Bulawayo. In both cities, a small percentage of TGW reported using hormones to change their bodies. In Harare, disclosure of gender identity was highest with gay/lesbian friends (96.7%) and lowest with spouses (0.5%), healthcare providers (15.2%), and family (28.3%). In Bulawayo, disclosure of gender identity was high overall and highest with other transgender friends (94.7%).

Table 6. Gender identity among transgender women by city, Zimbabwe, 2019

Gender identity characteristics among transgender women by city, Zimbabwe, 2019

	Harare (n=198)		Bulawayo (n=38)		Total (n=236)	
	%	n	%	n	%	n
Dressed/presented oneself as a woman in the past six months						
Yes	37.4	74	(86.8)	33	45.3	107
No	62.6	124	(13.2)	5	54.7	129
Ever used hormones to change body						
Yes	5.6	11	(23.7)	9	8.5	20
No	94.4	187	(76.3)	29	91.5	216
Disclosed transgender identity to[1]						
Transgender friends	68.2	135	(94.7)	36	72.5	171
Gay/lesbian friends who are not transgender	96.7	192	(89.5)	34	95.8	226
Heterosexual friends who are not transgender	32.8	65	(71.1)	27	39.0	92
Family	28.3	56	(73.7)	28	35.6	84
Spouse	0.5	1	(18.4)	7	3.4	8
Healthcare provider	15.2	30	(34.2)	13	18.2	43
Other	1.0	2	(5.3)	2	1.7	4

[1]Responses not mutually exclusive.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution.

Sexual Behaviors

Key Findings:

- A large proportion of participants have had female partners—including recent female partners—though MSM were more likely to report female partners than TGW/GQ. Over 15% of MSM in both cities reported 10 or more female partners in their lifetime.
- Over 20% in all groups reported 10 or more male partners in their lifetime, with TGW/GQ reporting more male partners than MSM. However, the majority (85% or more) reported five or less male partners in the last six months.
- Condomless, receptive anal intercourse was more common among TGW/GQ than MSM. Consistent condom use was low across both groups.

A large proportion of participants in both cities reported ever having vaginal or anal sex with a female partner. MSM reported more female partners than TGW/GQ in both Harare (71% v. 36.6%) and Bulawayo (64.7% v. 42.1%). The median number of lifetime female sexual partners was four for MSM in both cities; for TGW/GQ in Harare, it was two. Over 18% of MSM in both cities reported 10 or more female partners. The median age at first vaginal or anal sex with a female partner was approximately 18 years. The proportion of participants aged 18–24 years reporting early sexual debut with a female partner was 10–11% among MSM and TGW/GQ in Harare and MSM in Bulawayo.

The median number of lifetime male partners ranged from four to six across cities and gender identities. Over 20% of MSM and TGW/GQ reported 10 or more lifetime male partners in both cities. In Harare, the median age at first sexual intercourse with a male partner was 20 years among MSM and 18 years among TGW/GQ. In Bulawayo, the median age at first sexual intercourse with a male partner was 19 years among MSM and 17 years among TGW/GQ. The proportion of participants aged 18–24 years reporting early sexual debut with a male partner was less than 10% among MSM in both cities and TGW/GQ in Harare, but was higher (17.7%) among TGW/GQ in Bulawayo. The proportion of participants reporting that their first sex with a male partner was transactional was higher among TGW/GQ than MSM in Harare (14.1% v. 6.7%) and Bulawayo (17.5% v. 9%). Participants in Harare most commonly indicated that their first male sexual partner was a friend, acquaintance, or coworker, while participants in Bulawayo most commonly indicated their first male sexual partner was a boyfriend or partner. The proportion of participants reporting concurrent male/female sexual partnerships in the past six months was higher among MSM than TGW/GQ in Harare (37.4% v. 13.6%) and Bulawayo (24.9% v. 12.3%).

Table 7. Sexual history by city and key population, Zimbabwe, 2019

Sexual history among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
Ever had vaginal/anal sex with a female partner								
Yes	71.0	306	36.6	105	64.7	494	42.1	24
No	29.0	125	63.4	182	35.3	269	57.9	33
Age at first vaginal/anal sex with a female partner								
<15	7.5	23	7.6	8	8.1	40	*	7
15–19	56.9	174	60.0	63	73.5	363	*	14
20–24	25.5	78	23.8	25	13.0	64	*	2
≥25	10.1	31	8.6	9	5.5	27	*	1
median (IQR)	18 (16–21)		18 (16–21)		17 (16–19)		*	
Early sexual debut among young participants with a female partner[5]								
	11.1	13	10.9	6	10.4	19	*	5
Lifetime number of female partners[6]								
1–5	69.2	211	73.3	77	59.3	293	*	22
6–10	12.5	38	16.2	17	18.4	91	*	2
10+	18.4	56	10.5	11	22.3	110	*	0
median (IQR)	4 (2–7)		2 (1–6)		4 (2–10)		*	
Age at first sexual intercourse with a male partner[7]								
<15	5.7	24	8.1	23	4.8	36	22.8	13
15-19	42.6	179	57.6	163	47.0	355	52.6	30
20-24	32.9	138	25.1	71	25.9	196	19.3	11
≥25	18.8	79	9.2	26	22.4	169	5.3	3
median (IQR)	20 (18–23)		18 (17–21)		19 (17–23)		17 (15–19)	
Early sexual debut among young participants with a male partner[5,8]								
	4.3	8	8.2	15	5.6	17	(17.7)	6
Lifetime number of male partners[7]								
1–5	56.7	238	46.3	131	59.1	447	40.4	23
6–10	18.6	78	24.0	68	17.9	135	28.1	16
10+	24.8	104	29.7	84	23.0	174	31.6	18
median (IQR)	5 (3–10)		6 (3–15)		4 (2–10)		6 (4–20)	
First sex with male partner transactional[1,7]								
Yes	6.7	28	14.1	40	9.0	68	17.5	10
No	93.3	392	85.9	243	91.0	688	82.5	47
First male sexual partner[7]								
Boyfriend/partner	27.1	114	35.4	100	38.9	294	52.6	30
Friend/acquaintance/co worker	60.0	252	44.9	127	35.9	271	22.8	13
Relative	3.1	13	4.6	13	1.9	14	7.0	4
Stranger	6.4	27	11.0	31	13.0	98	12.3	7
Authority figure[2]	1.0	4	1.8	5	0.7	5	1.8	1
Inmate[3]	0	0	0	0	9.7	73	0	0
Other	2.4	10	2.5	7	0.1	1	3.5	2
Concurrent male/female sexual partnerships in last 6 months[3]								
Yes	37.4	161	13.6	39	24.9	190	12.3	7
No	62.7	270	86.4	248	75.1	573	87.7	50

[1]Participant reported receiving money or goods from first male sexual partner, [2]Authority figures include government official, religious leader, teacher, employer, military, police, prison guard, [3]Recoded from "other" free response, [4]Defined as having both male and female sexual partnerships within the last six months, [5]Of those 18–24 years who had sexual intercourse with a man/woman before the age of 15 years, [6]n=1 don't know/refuse to answer, [7]n=22 missing, [8]n=12 missing.

Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

A large percentage of MSM in Harare (>55%) and Bulawayo (>40%) reported one or more female sexual partners in the past six months. The percentage of TGW/GQ individuals in Harare reporting one or more female partners in the past six months was also high (40%); the number of TGW/GQ individuals in Bulawayo reporting female partners in the past six months was small. Among MSM, condom use at last sex and consistent condom use was higher with casual female partners than with main female partners. In Harare, 50.9% of MSM used a condom at last sex with a main female partner, while 85.9% used a condom at last sex with a casual partner. In Bulawayo, 64.5% used a condom at last sex with a main female partner, while 78.2% used a condom at last sex with a casual female partner. Consistent condom use with a main partner in the past six months was reported by 39.2% of MSM in Harare and 43.5% of MSM in Bulawayo. Consistent condom use with a casual partner in the past six months was reported by 72.9% of MSM in Harare and 53.9% of MSM in Bulawayo.

Table 8. Recent female sexual partners by city and key population, Zimbabwe, 2019

Recent female sexual partners among men who have sex with men, transgender women, and gender queer individuals who report ever having sex with a female partner by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=305)		TGW/GQ (n=105)		MSM (n=494)		TGW/GQ (n=24)	
	%	n	%	n	%	n	%	n
Number of female sexual partners in the past six months[1]								
0	43.9	134	60.0	63	59.5	294	*	16
1–5	50.5	154	37.1	39	38.3	189	*	8
6–10	4.3	13	1.9	2	1.8	9	*	0
≥10	1.3	4	1.0	1	0.4	2	*	0
median (IQR)	1 (0–2)		0 (0–1)		0 (0–1)		*	
Used condom at last sex (main female partner)[2]								
Yes	50.9	87	(54.8)	23	64.5	129	*	5
No	49.1	84	(45.2)	19	35.5	71	*	3
Used condom at last sex (casual female partner)[3]								
Yes	85.9	73	*	10	78.2	61	*	3
No	14.1	12	*	6	21.8	17	*	0
Consistent condom use in the past six months (main female partner)[2]								
Yes	39.2	67	(31.0)	13	43.5	87	*	5
No	60.8	104	(69.1)	29	56.5	113	*	3
Consistent condom use in the past six months (casual female partner)[3]								
Yes	72.9	62	*	8	53.9	42	*	3
No	27.1	23	*	8	46.2	36	*	0

[1] n=1 missing, [2] Of those reporting sex with a main female partner in the past six months, [3] Of those reporting sex with a casual female partner in the past six months.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Over 84% of participants in both cities reported one to five anal or oral male sexual partners in the past six months. Over 58% of participants reported using a condom at last sex with a main male partner and over 75% reported using a condom at last sex with a casual male partner in both cities. Consistent condom use in the past six months with male partners was low overall, although both MSM and TGW/GQ reported higher consistent condom use with casual partners than main partners.

TGW/GQ individuals reported higher condomless receptive anal intercourse (CRAI) at last sex with a main male partner than MSM in both Harare (36.9% v. 11.3%) and Bulawayo (29.1% v. 10%), and higher CRAI at last sex with a casual male partner than MSM in Harare (18.6% v. 7.3%). In Bulawayo, 7.2% of MSM reported CRAI with a casual male partner in the past six months, while the number of TGW/GQ reporting sex with a casual partner in the past six months was negligible. Overall, only 2.5% of participants reported having sex with a TGW partner in the past six months (Harare: 2.4%, Bulawayo: 2.6%) and nearly 80% of participants reported using a condom at last sex with a main TGW partner.

Table 9. Recent male sexual partners by city and key population, Zimbabwe, 2019

Recent male sexual partners among men who have sex with men, transgender women, and gender queer individuals reporting anal sex in the past six months by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
Number of male anal or oral sexual partners in the past six months[1]								
0	2.4	10	1.4	4	3.0	23	3.5	2
1–5	87.4	367	84.5	239	89.2	674	84.2	48
6–10	6.9	29	9.9	28	4.6	35	3.5	2
≥10	3.3	14	4.2	12	3.2	24	8.8	5
median (IQR)	2 (1–3)		2 (1–4)		1 (1–2)		2 (1–3)	
Had main male anal/oral sex partner in the past six months[1]								
Yes	97.6	410	98.6	279	97.0	733	96.5	55
No	2.4	10	1.4	4	3.0	23	3.5	2
Had casual male anal/oral sex partner in the past six months[2]								
Yes	49.3	207	56.2	159	38.5	291	50.9	29
No	50.7	213	43.8	124	61.5	464	49.1	28
Engaged in condomless receptive anal intercourse at last sex in the past six months (main male partner)[3]								
Yes	11.3	46	36.9	101	10.0	73	29.1	16
No	88.7	362	63.1	173	90.0	658	70.9	39
Engaged in condomless receptive anal intercourse at last sex in the past six months (casual male partner)[4]								
Yes	7.3	15	18.6	29	7.2	21	(10.3)	3
No	92.7	191	81.4	127	92.8	269	(89.7)	26
Used condom at last sex (main male partner)[3]								
Yes	67.2	274	58.8	161	70.3	514	63.6	35
No	32.8	134	41.2	113	29.7	217	36.4	20
Used condom at last sex (casual male partner)[4]								
Yes	80.6	166	78.9	123	78.3	227	(89.7)	26
No	19.4	40	21.2	33	21.7	63	(10.3)	3
Consistent condom use in the past six months (main male partner)[2,5]								
Yes	42.9	175	38.8	108	51.7	379	40.0	22
No	57.1	233	61.2	170	48.2	353	60.0	33
Consistent condom use in the past six months (casual male partner)[4]								
Yes	59.7	123	54.5	85	62.1	180	(75.9)	22
No	40.3	83	45.5	71	37.9	110	(24.1)	7

[1] n=22 missing, [2] Of those reporting anal/oral sex with a male partner in the past six months, [3] Of those reporting anal sex with a main male partner in the past six months, [4] Of those reporting anal sex with a casual male partner in the past six months, [5]n=4 don't know/refuse to answer.

Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution.

The proportion of participants reporting giving somebody money, goods, or services for sex in the past six months was low (<5%) in both cities. Receiving money, goods, or services for sex in the past six months was more common (Harare: 10.4%, Bulawayo: 6.2%). The median age at first sexual exchange was 20 years. The most commonly reported reason for first sexual exchange was to acquire money, goods, or services to help family. Over half of participants who reported transactional sex in the past six months in both cities reported working one to five years in sex work. Overall, 96.8% of participants who had reported transactional sex in the past six months reported exchanging sex for money, while 56.9% reported exchanging sex for goods, and 10.6% reported exchanging sex for services. Entertainment venues such as concerts, clubs, bars, and restaurants were the most commonly reported sex work venues in both cities.

Most participants who reported transactional sex in the past six months reported being able to refuse a client if needed, while almost all controlled the payment amount for sex (92.7%) and controlled the services provided to clients (96.8%). Participants most commonly reported that both themselves and the client controls where to have sex. Sex work was the primary source of income for nearly a third of participants who reported transactional sex in the past six months. Of those who self-reported transactional sex in the past six months, over 45% reported negotiating condoms with clients frequently in the past six months, and 23.6% were abused or threatened by clients in the past six months. In Harare, 16.4% of participants who reported transactional sex in the past six months were forced to have sex by a client in the past six months, and 17.8% felt denied of police protection because of sex work. In Bulawayo, 14.0% of participants who reported transactional sex in the past six months were forced to have sex by a client in the past six months and 34% felt denied of police protection because of sex work.

Table 10. Transactional sex and sex work by city, Zimbabwe, 2019

Sex work experiences among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	%	n	%	n	%	n
Given somebody money, goods, or services for sex in the past six months[1]						
Yes	3.7	26	4.6	37	4.2	63
No	96.3	677	95.4	775	95.8	1452
Received money, goods, or services for sex in the past six months[1]						
Yes	10.4	73	6.2	50	8.1	123
No	89.6	630	93.8	762	91.9	1392
Age at first sexual exchange, median (IQR)[2]						
	20 (18–23)		20 (18–25)		20 (18–24)	
Main reason for first sexual exchange[2]						
Needed money, goods, or services to help the family	57.5	42	36.0	18	48.8	60
Needed money to pay a debt	2.7	2	10.0	5	5.7	7
Was forced	0	0	0	0	0	0
Like to do it/pleasure/self-esteem	31.5	23	30.0	15	30.9	38
Friends/family were doing it	6.9	5	8.0	4	7.3	9
Other	1.4	1	16.0	8	7.3	9
Years in sex work[2]						
<1	6.9	5	0	0	4.1	5
1–5	57.5	42	54.0	27	56.1	69

6–10	23.3	17	26.0	13	24.4	30
>10	12.3	9	20.0	10	15.5	19
median (IQR)	4 (2–7)		5 (3–9)		4 (2–8)	
Exchanged sex in the past six months for[2,3]						
Money	95.9	70	98.0	49	96.8	119
Goods	58.9	43	54.0	27	56.9	70
Services	11.0	8	10.0	5	10.6	13
Other	1.4	1	2.0	1	1.6	2
Sex work venues[2,3]						
School/university campus	5.5	4	6.0	3	5.7	7
Concert, club, bar, restaurant	63.0	46	74.0	37	67.5	83
Private place	12.3	9	2.0	1	8.1	10
Hotel/lodge	11.0	8	10.0	5	10.6	13
Religious organization	0	0	0	0	0	0
Spa/fitness center/beauty salon	0	0	2.0	1	0.8	1
Internet	39.7	29	18.0	9	30.9	38
Street	11.0	8	36.0	18	21.1	26
Other	9.6	7	14.0	7	11.4	14
Able to refuse a client[2]						
Yes	89.0	65	90.0	45	89.4	110
No	11.0	8	10.0	5	10.6	13
Controls payment amount for sex[2]						
Self	98.6	72	84.0	42	92.7	114
Someone else	1.4	1	16.0	8	7.3	9
Controls services provided to client[2]						
Self	97.3	71	96.0	48	96.8	119
Someone else	2.7	2	4.0	2	3.3	4
Controls where to have sex[2]						
Self	37.0	27	42.0	21	39.0	48
Client	23.3	17	12.0	6	18.7	23
Both self and the client	39.7	29	46.0	23	42.3	52
Sex work is primary source of income[2]						
Yes	28.8	21	38.0	19	32.5	40
No	71.2	52	62.0	31	67.5	83
Frequency of condom negotiation with client in the past six months[2]						
Never	24.7	18	22.0	11	23.6	29
Rarely	15.1	11	12.0	6	13.8	17
Sometimes	13.7	10	22.0	11	17.1	21
Frequently	46.6	34	44.0	22	45.5	56
Abused or threatened by client in the past six months[2]						
Yes	20.6	15	28.0	14	23.6	29
No	79.5	58	72.0	36	76.4	94
Forced sex by client in the past six months[2]						
Yes	16.4	12	14.0	7	15.5	19
No	83.6	61	86.0	43	84.6	104
Felt police refused protection due to sex work[2]						
Yes	17.8	13	34.0	17	24.4	30
No	82.2	60	66.0	33	75.6	93

[1] n=23 missing, [2] Of those who self-reported transactional sex in the past six months, [3] Responses not mutually exclusive. Data were not stratified by key population due to suppression rules.

HIV Knowledge, HIV Prevention, and Outreach

Key Findings:

- Comprehensive HIV knowledge was higher in Harare compared to Bulawayo (80.5% v. 65.6%), and higher among MSM than TGW/GQ in both cities.
- A higher percentage of TGW/GQ identified anal sex as the most efficient mode of sexual transmission of HIV compared to MSM in both cities.
- Receipt of HIV messaging from a peer educator/outreach worker was more common in Bulawayo than Harare (68.8% v. 48.9%); peer educators/outreach workers and healthcare providers were identified as preferred sources of HIV information in both cities.
- In both cities, sex with a regular partner was the most commonly reported circumstance where condoms were not used during anal sex.

Comprehensive HIV knowledge was defined by correctly answering five questions on HIV transmission risk that were aligned with the UNAIDS definition. Overall, comprehensive HIV knowledge was higher in Harare than Bulawayo (80.5% v. 65.6%) and higher among MSM than TGW/GQ in both Harare (82.8% v. 77.0%) and Bulawayo (67.2% v. 43.9%).

In both cities, a greater proportion of TGW/GQ identified anal sex as the kind of sex that put them most at risk of sexual acquisition of HIV, compared to MSM (65.2% v. 54.8% in Harare, 57.1% v. 47.8% in Bulawayo). Participants in both cities most commonly reported that CRAI and insertive anal sex carry the same risk. In Bulawayo, nearly a third of MSM identified insertive anal sex as riskier than CRAI, compared to less than 5% of MSM in Harare.

Table 11. Knowledge, opinions, and attitudes toward HIV/AIDS by city and key population, Zimbabwe, 2019

HIV knowledge among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
Can the risk of HIV transmission be reduced by having sex with only one uninfected sex partner who has no other partners?[1]								
Yes	93.5	403	90.9	261	89.5	682	73.7	42
No	6.5	28	9.1	26	10.5	80	26.3	15
Can a person reduce the risk of getting HIV by using a condom every time they have sex?								
Yes	94.2	406	92.0	264	91.5	698	84.2	48
No	5.8	25	8.0	23	8.5	65	15.8	9
Can a healthy-looking person have HIV or AIDS?[2]								
Yes	97.7	421	98.6	283	92.1	700	86.0	49
No	2.3	10	1.4	4	7.9	60	14.0	8
Can a person get HIV from mosquito bites?[3]								
Yes	5.1	22	10.2	29	14.0	106	14.3	8
No	94.9	406	89.8	256	86.0	651	85.7	48
Can a person get HIV by sharing food with someone who is infected?[4]								
Yes	1.4	6	1.7	5	4.5	34	5.3	3
No	98.6	423	98.3	282	95.5	729	94.7	54

Comprehensive knowledge of HIV[5]								
Yes	82.8	357	77.0	221	67.2	513	43.9	25
No	17.2	74	23.0	66	32.8	250	56.1	32
If a condom is not used, what kind of sex puts you most at risk for HIV?[4]								
Fingering/hand job	0	0	0	0	1.6	12	0	0
Oral sex	5.8	25	7.0	20	4.1	31	8.9	5
Vaginal sex	39.4	170	27.9	80	46.6	355	33.9	19
Anal sex	54.8	236	65.2	187	47.8	364	57.1	32
If a condom is not used, what kind of anal sex puts you most at risk for HIV?[4]								
Insertive anal sex	3.3	14	1.7	5	27.7	211	17.5	10
Receptive anal sex	19.0	82	22.7	65	20.0	152	31.6	18
Both have the same risk	77.5	334	75.3	216	47.7	363	50.9	29
Both have no risk	0.2	1	0.4	1	4.6	35	0	0

[1] n=1 don't know/refuse to answer, [2] n=3 don't know/refuse to answer, [3] n=12 don't know/refuse to answer, [4] n=2 don't know/refuse to answer, [5] Participant correctly answered five questions on HIV transmission risk: 1) Can the risk of HIV transmission be reduced by having sex with only one uninfected sex partner who has no other partners?, 2) Can a person reduce the risk of getting HIV by using a condom every time they have sex?, 3) Can a healthy-looking person have HIV?, 4) Can a person get HIV from mosquito bites?, 5) Can a person get HIV by sharing food with someone who is infected?

Overall, the proportion of participants who reported ever receiving HIV messaging from a peer educator/outreach worker was higher in Bulawayo than Harare (68.8% v. 48.9%). Of those who had received messaging, most had received it in the previous three months. In both cities, most (76.4%) participants reported that current HIV messaging applies to MSM; in Bulawayo, the proportion was higher among TGW/GQ compared to MSM (84.2% v. 68.2%). Peer educators/outreach workers and healthcare providers were identified as preferred sources of HIV information in both cities.

In both cities, male condoms, lubricants, and pamphlets or brochures were the most common items received at participants' last encounter with an outreach worker. In Harare, over 80% of the sample who had received HIV messaging from an outreach worker received risk counseling at their last encounter with an outreach worker, while 22.3% of MSM and 28.7% of TGW/GQ received HIV testing. In Bulawayo, 65.2% of MSM and 51.2% of TGW/GQ who had received HIV messaging from an outreach worker received risk counseling at their last encounter with an outreach worker, while 17.2% MSM and 22.0% TGW/GQ received HIV testing.

Table 12. Outreach services and HIV information by city and key population, Zimbabwe, 2019

Outreach services and HIV information among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
Ever received HIV messaging from peer educator/outreach worker								
Yes	49.9	215	47.4	136	68.6	523	71.9	41
No	50.1	216	52.6	151	31.5	240	28.1	16
Received HIV messaging from peer educator/outreach worker[1]								
0–3 months ago	64.2	138	60.3	82	40.5	212	(70.7)	29
4–6 months ago	17.7	38	22.8	31	13.4	70	(9.8)	4
7–12 months ago	9.3	20	12.5	17	16.8	88	(9.8)	4
Longer than a year ago	8.8	19	4.4	6	29.3	153	(9.8)	4

Items received from peer educator/outreach worker at last encounter[1,2]								
Nothing	24.7	53	22.8	31	24.3	127	26.8	11
Male condoms	59.5	128	62.5	85	54.3	284	48.8	20
Female condoms	2.3	5	2.2	3	2.1	11	2.4	1
Lubricants	31.6	68	40.4	55	15.3	80	39.0	16
Pamphlet or brochure	34.4	74	36.0	49	36.3	190	39.0	16
Medicines	2.8	6	3.7	5	1.3	7	4.9	2
HIV self-test	15.8	34	12.5	17	3.8	20	4.9	2
Voucher for HIV self-test	3.3	7	3.7	5	3.6	19	9.8	4
Offer to escort to a health facility	2.8	6	4.4	6	5.2	27	0	0
Other	0.5	1	0	0	3.4	18	4.9	2
Services received from peer educator/outreach worker at last encounter[1,2]								
Nothing	7.4	16	5.2	7	15.7	82	17.1	7
HIV testing	22.3	48	28.7	39	17.2	90	22.0	9
STI testing	4.2	9	5.3	7	1.0	5	12.2	5
STI screening	4.7	10	7.4	10	3.1	16	22.0	9
TB screening	0	0	3.7	5	2.7	14	7.3	3
Referral	23.3	50	20.6	28	8.4	44	14.6	6
Training on condom use	44.2	95	60.3	82	22.4	117	26.8	11
Counseling on risk	81.4	175	89.0	121	65.2	341	51.2	21
Other	0.9	2	0.7	1	2.7	14	4.9	2
Current HIV messages apply to MSM/TGW/GQ[3]								
Yes	83.7	360	85.7	246	68.2	520	84.2	48
No	16.3	70	14.3	41	31.9	243	15.8	9
Preferred source(s) to receive HIV information[2]								
Radio	26.0	112	28.9	83	21.2	162	12.3	7
Television	22.0	95	24.7	71	24.1	184	12.3	7
Newspaper	11.8	51	11.9	34	11.0	84	15.8	9
Internet	31.8	137	25.4	73	21.0	160	22.8	13
Mobile Apps	7.9	34	7.0	20	3.6	24	7.0	4
Telephone/SMS/WhatsApp	7.9	34	9.4	27	3.3	25	5.3	3
Brochure	10.0	43	10.1	29	16.3	124	12.3	7
Friends	19.7	85	21.7	62	12.3	94	15.8	9
Family	9.3	40	10.5	30	6.0	46	8.8	5
Sex partners	5.1	22	7.3	21	6.8	52	3.5	2
Healthcare providers	91.9	396	93.7	269	65.1	497	63.2	36
Peer educator/outreach worker	65.2	281	71.8	206	34.7	265	42.1	24
Religious leader	13.9	60	19.2	55	2.6	20	1.8	1
Other	15.3	66	17.8	51	8.3	63	19.3	11

[1] Of those who had received HIV messaging from a peer educator/outreach worker, [2] Responses not mutually exclusive, [3] n=1 don't know/refuse to answer.

Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution.

In both Harare and Bulawayo, MSM and TGW/GQ most commonly indicated shops and supermarkets, health facilities, and NGOs as locations to access condoms. Most participants had received free condoms and information about condoms and safe sex in the past year; these proportions were highest among TGW/GQ in Bulawayo (80.7% received free condoms, 71.9% received information). Less than 20% of participants in both cities reported difficulty accessing

condoms in the past year; those who reported difficulty most commonly identified inconvenience, unavailability, and cost as reasons for the difficulty.

Sex with a regular partner was the most commonly reported circumstance where condoms were not used during anal sex among both MSM and TGW/GQ; the second most common circumstance when a condom was not used during anal sex was when drunk or high. TGW/GQ reported being more likely to use a condom during receptive anal sex (Harare: 49.1%, Bulawayo: 39.3%) compared to insertive anal sex (Harare: 3.1%, Bulawayo: 7.1%). MSM reported being more likely to use a condom during insertive anal sex (Harare: 37.0%, Bulawayo: 58.7%) than receptive anal sex (Harare: 7.2%, Bulawayo: 10.6%).

Overall, use of a lubricant during anal sex in the past six months was high (Harare: 76.4%, Bulawayo: 83.4%). Of those who reported not using a lubricant during anal sex in the past six months, the most common reason was that the participant had never heard of lubricants. Less than half of the sample had received lubricants for free in the past six months, with higher coverage of free lubricants in Harare than Bulawayo (39.3% v. 27.7%). Water-based lubricants were the most commonly used lubricants in the past six months. Of those who reported using water-based lubricants in the past six months, three-quarters were able to access water-based lubricants when needed. NGOs were the most commonly identified location at which MSM and TGW/GQ individuals accessed water-based lubricants in the past six months. Less than 10% of participants who had used water-based lubricants in the past six months accessed them from health facilities (Harare: 7.9% MSM, 14.4% TGW/GQ, Bulawayo: 4.9% MSM, 5.6% TGW/QG).

Table 13. Condoms and lubricants by city and key population, Zimbabwe, 2019

Condom and lubricant use and access among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
Can access condoms from[1]								
Shop or supermarket	71.7	309	70.0	201	61.7	471	42.1	24
Pharmacy	42.9	185	46.0	132	22.0	168	17.5	10
Health facility	72.9	314	73.2	210	71.2	543	54.4	31
Hotel room	1.2	5	0.7	2	2.9	22	10.5	6
NGO/organization	52.2	225	55.4	159	26.7	204	49.1	28
Friends	12.1	52	15.3	44	12.7	97	5.3	3
Sex partner	7.7	33	11.5	33	11.9	91	1.8	1
Other	33.6	145	35.9	103	16.6	127	19.3	11
Preferred condom brand[1]								
Protector Plus	67.8	292	70.7	203	67.2	513	61.4	35
Panther	18.3	79	18.8	54	29.8	227	19.3	11
Carex	29.7	128	26.5	76	19.5	149	42.1	24
Vibe	0	0	0	0	0	0	0	0
Durex	9.7	42	11.9	34	11.1	85	12.3	7
Foreplay	0	0	0	0	0.1	1	0	0
Playboy	0	0	0.4	1	0.8	6	1.8	1
ESP	0	0	0	0	0	0	0	0
Cassanova	0.2	1	0.4	1	0.4	3	0	0

Contempo	0	0	0	0	0.1	1	0	0
Moods	0.2	1	0	0	0	0	0	0
Trust	0.2	1	0.7	2	0.1	1	0	0
Other	10.9	47	14.3	41	7.2	55	1.8	1
Received free condoms in the past year								
Yes	66.8	288	65.2	187	69.6	531	80.7	46
No	33.2	143	34.8	100	30.4	232	19.3	11
Difficulty accessing condoms in the past year[2]								
Yes, I have sometimes had difficulty	10.4	45	8.7	25	12.1	92	17.5	10
No, I have always found them	89.6	386	91.3	261	87.9	666	82.5	47
Reasons difficulty accessing condoms in the past year[1]								
Costs too much	(22.2)	10	(24.0)	6	15.2	14	*	1
Not convenient	(31.1)	14	(44.0)	11	46.8	43	*	6
Clinic does not provide them	(2.2)	1	(0)	0	0	0	*	0
Embarrassed to get condoms	(8.9)	4	(0)	0	10.9	10	*	2
Do not know where to get condoms	(2.2)	1	(12.0)	3	3.3	3	*	0
Condoms not available	(57.8)	26	(60.0)	15	22.8	21	*	1
Other	(4.4)	2	(8.0)	2	13.0	12	*	1
Received information on condom use and safe sex in the past year								
Yes	54.1	233	64.8	186	53.0	404	71.9	41
No	45.9	198	35.2	101	47.1	359	28.1	16
Use of more than one condom at a time[3]								
Yes	10.9	47	8.0	23	11.9	91	24.5	14
No	89.1	384	92.0	264	88.1	671	75.4	43
Circumstances where condoms were not used during anal sex[1]								
When drunk or high	23.2	100	19.9	57	32.1	245	43.9	25
When afraid to ask partner to use a condom or they refuse[3]	6.0	26	8.0	23	11.3	86	26.3	15
When having sex with a regular partner[3]	58.7	253	66.2	190	46.8	357	59.7	34
When having sex with a non-regular partner[4]	3.9	17	4.5	13	10.0	76	3.5	2
When participant is the insertive (top) partner[5]	4.6	20	2.8	8	12.1	92	10.5	6
When participant is the receptive (bottom) partner[6]	3.7	16	5.9	17	8.4	64	14.0	8
When partner does not ejaculate[7]	1.9	8	2.1	6	6.2	47	17.5	10
When offered or offer money for sex without a condom[4]	4.9	21	9.1	26	5.9	45	12.3	**7**
More likely to use a condom during receptive or anal sex[8]								
Receptive anal sex	7.2	31	49.1	141	10.6	79	39.3	22
Insertive anal sex	37.0	159	3.1	9	58.7	437	7.1	4
Equally likely to use during receptive or anal sex	55.8	240	47.7	137	30.7	228	53.6	30

Used lubricant during anal sex in the past six months[9]								
Yes	73.2	314	81.2	233	83.2	634	86.0	49
No	26.8	115	18.8	54	16.8	128	14.0	8
Main reason for not using lubricants in the past six months								
Can't get them easily/too expensive	14.8	17	13.0	7	10.2	13	*	0
Do not like lubricants	20.0	23	16.7	9	18.0	23	*	0
Partner doesn't like lubricants	6.1	7	0	0	0.8	1	*	0
I've never heard of lubricants	41.7	48	44.4	24	39.1	50	*	6
I'm ashamed/ embarrassed to buy lubricants because it is associated with homosexuals	0.9	1	0	0	0.8	1	*	0
Other	16.5	19	25.9	14	31.3	40	*	2
Type of lubricant used in the past six months								
Saliva	17.5	55	19.7	46	23.3	148	34.7	17
Petroleum jelly (vaseline, pommade)	30.3	95	30.5	71	52.8	335	36.7	18
Water-based lubricant	80.9	254	80.3	187	51.1	324	73.5	36
Shea butter	23.9	75	24.0	56	3.2	20	12.2	6
Vaginal gel	1.6	5	2.6	6	2.2	14	2.0	1
Baby oil	11.8	37	8.6	20	15.8	100	14.3	7
Butter, blue band, cooking oil	3.8	12	4.2	10	4.1	26	4.1	2
Able to get water-based lubricants when needed[10]								
Yes	74.8	190	73.3	137	71.9	233	(86.1)	31
No	25.2	64	26.7	50	28.1	91	(13.9)	5
Accessed water-based lubricants in the past six months from[1,10]								
Shop or supermarket	5.1	13	4.8	9	4.9	16	(5.6)	2
Pharmacy	15.4	39	16.6	31	11.7	38	(8.3)	3
Health facility	7.9	20	14.4	27	4.9	16	(5.6)	2
Hotel/Lodge	0	0	0.5	1	0	0	(0)	0
NGO/organization	52.0	132	56.2	105	48.5	157	(66.7)	24
Friends	24.8	63	23.0	43	17.0	55	(13.9)	5
Sex partner	24.4	62	26.2	49	33.3	108	(13.9)	5
Other	3.9	10	4.3	8	0.6	2	(2.8)	1
Frequency of using water-based lubricants in the past six months[10]								
Always	74.8	190	67.4	126	64.2	208	(72.2)	26
Sometimes	25.2	64	32.6	61	34.6	112	(27.8)	10
Never	0	0	0	0	1.2	4	(0)	0
Received lubricants for free in the past six months								
Yes	37.6	162	41.8	120	26.1	199	(49.1)	28
No	62.4	269	58.2	167	73.9	564	(50.9)	29

[1] Responses not mutually exclusive, [2] n=6 don't know/refuse to answer, [3] n=1 don't know/refuse to answer, [4] n=2 don't know/refuse to answer, [5] n=7 don't know/refuse to answer, [6] n=17 don't know/refuse to answer, [7] n=4 don't know/refuse to answer, [8] n=21 don't know/refuse to answer, [9] n=3 don't know/refuse to answer, [10] Of those who reported using water-based lubricant during anal sex in the past six months.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

HIV Prevention Service Utilization

Key Findings:

- Overall, a high percentage of participants (>80%) had ever tested for HIV; among those who had not, fear of a positive result was commonly reported as a reason for never testing.
- Participants who self-reported an HIV-negative or unknown status in Bulawayo had lower awareness of PrEP than in Harare (34.6% v. 60.4%), and less than one in six of all participants with a self-reported HIV-negative or unknown status had ever taken PrEP.
- Less than half of participants were circumcised (Harare: 29.1%, Bulawayo: 42.2%). In both cities, younger participants and HIV-negative participants had a higher percentage of circumcision.
- Among HIV-negative participants, 18.0% sought PrEP through survey referrals.

Over 80% of participants reported ever having tested for HIV. Fear of a positive result and the perception that they were not at risk for HIV were the most commonly reported reasons for never testing for HIV. Participants in Harare reported a preference for HIV testing at clinics and HIV health facilities, while participants in Bulawayo reported a preference for HIV testing at a KP clinic, KP organization, or KP center.

Of those who had received an HIV test in Harare, half had tested within the past six months, while a quarter had tested more than 12 months prior. Compared to Harare, Bulawayo had a lower proportion reporting an HIV test in the past six months (38.8% v. 54.6%) and a higher proportion reporting an HIV test more than 12 months prior to the survey (44.4% v. 24.5.4%). Timing of the last HIV test was similar among MSM and TGW/GQ in Harare, though, in Bulawayo, a greater proportion of TGW/GQ reported an HIV test in the past six months compared to MSM (45.1% v. 38.2%). Of those who had ever tested for HIV and excluding known positives who were tested more than 12 months prior to the survey, 68.7% of participants in Harare and 50.5% of participants in Bulawayo had received an HIV test in the last 12 months and knew their results.

Table 14. HIV testing by city and key population, Zimbabwe, 2019

HIV testing experiences and preferences among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
Ever tested for HIV								
Yes	88.9	383	88.2	253	82.3	628	89.5	51
No	11.1	48	11.9	34	17.7	135	10.5	6
Reason for not testing[1]								
I feel I am not at risk for HIV	(31.3)	15	(29.4)	10	43.0	58	*	3
Fear of positive result	(43.8)	21	(32.4)	11	31.1	42	*	0
No money to get tested	(0)	0	(0)	0	1.5	2	*	0
No time to get tested	(20.8)	10	(35.3)	12	7.4	10	*	3
Concerns about confidentiality	(2.1)	1	(2.9)	1	1.5	2	*	0
Stigma by healthcare workers	(0)	0	(0)	0	0.7	1	*	0
Other	(2.1)	1	(0)	0	14.8	20	*	0
Preferred HIV testing site[2]								
Home visit	7.2	31	7.3	21	7.6	58	12.3	7
Home self-test	10.4	45	10.5	30	16.4	125	21.1	12
KP clinic/organization/center	54.8	236	61.0	175	48.9	373	50.9	29
Hospital	63.6	274	56.5	162	26.0	198	31.6	18
Clinic	78.4	338	74.9	215	46.4	354	38.6	22
HIV testing health facility	78.0	336	81.5	234	19.5	149	35.1	20
By my normal doctor	8.8	38	9.8	28	5.1	39	5.3	3
Where I socialize	6.3	27	4.5	13	5.4	41	8.8	5
Other	3.3	14	1.4	4	1.1	8	0	0
Last HIV test[3,4]								
In the last six months	54.6	209	54.6	138	38.2	240	(45.1)	23
Between 7–12 months ago	19.6	75	22.9	58	16.7	105	(17.7)	9
More than 12 months ago	25.9	99	22.5	57	44.9	282	(37.3)	19
Received an HIV test in the last 12 months and know the results[5]								
Yes	67.2	283	70.9	195	49.7	344	61.5	32
No	32.8	138	29.1	80	50.3	348	38.5	20

[1] Of those who had never tested for HIV, [2] Responses not mutually exclusive, [3] Of those tested for HIV, [4] n=1 don't know/refuse to answer, [5] Excludes known positives who were tested more than 12 months ago.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Participants who self-reported an HIV-negative or unknown status in Bulawayo had lower awareness of PrEP than in Harare (34.6% v. 60.4%) and, in both cities, TGW/GQ participants had higher awareness than MSM. Among participants who self-reported an HIV-negative or unknown status, less than a quarter had ever taken PrEP. PrEP uptake was higher among TGW/GQ participants than MSM in both cities. Of those who had ever taken PrEP, the majority had taken PrEP in the last six months. Most participants who were aware of PrEP were willing to take PrEP. The top three reasons for never initiating PrEP in Harare were not knowing where to access PrEP, feeling afraid of side effects, and not wanting PrEP. The top three reasons for never initiating PrEP in

Bulawayo were not feeling at risk for HIV, not knowing where to access PrEP, and feeling afraid of side effects. In both cities, the most common reason for initiating and stopping PrEP was side effects.

Table 15. Pre-exposure prophylaxis by city and key population, Zimbabwe, 2019

PrEP use and access among men who have sex with men, transgender women, and gender queer individuals with self-reported HIV-negative or unknown HIV status by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=403)		TGW/GQ (n=258)		MSM (n=665)		TGW/GQ (n=51)	
	%	n	%	n	%	n	%	n
Ever heard of PrEP								
Yes	57.8	233	64.3	166	32.8	218	58.8	30
No	42.2	170	35.7	92	67.2	447	41.2	21
Ever taken PrEP								
Yes	17.9	72	20.9	54	8.1	54	31.4	16
No	82.1	331	79.1	204	91.9	611	68.6	35
Taken PrEP in the last six months[1]								
Yes	75.0	54	64.8	35	74.1	40	*	10
No	25.0	18	35.2	19	25.9	14	*	6
Last took PrEP[2]								
Yesterday or today	42.6	23	(45.7)	16	(40.0)	16	*	5
2–3 days ago	3.7	2	(2.9)	1	(5.0)	2	*	0
4–7 days ago	3.7	2	(0)	0	(2.5)	1	*	0
1–2 weeks ago	11.1	6	(5.7)	2	(2.5)	1	*	1
More than two weeks ago	38.9	21	(45.7)	16	(50.0)	20	*	4
Willing to take PrEP[3]								
Yes	63.4	102	72.3	81	79.3	130	*	10
No	36.7	59	27.7	31	20.7	34	*	4
Reason for never taking PrEP[3]								
Embarrassed to talk about it with doctor/nurse	0	0	3.6	4	2.4	4	*	0
Don't feel at risk for HIV	11.2	18	14.3	16	28.1	46	*	4
Not available where I live	3.1	5	3.6	4	4.9	8	*	1
Don't know where to get it	28.0	45	29.5	33	18.3	30	*	3
Don't want it	14.3	23	20.5	23	9.2	15	*	2
Afraid of side effects	28.0	45	17.9	20	18.3	30	*	2
Don't want others to know	6.2	10	2.7	3	1.8	3	*	1
Other: Not enough information	5.0	8	5.4	6	5.5	9	*	0
Other: Cost/provider did not give/afraid of HIV test/other	4.4	7	2.7	3	11.6	19	*	1
Reason for stopping PrEP[4]								
I trust my partners	*	2	*	0	*	2	*	0
Can't get PrEP anymore	*	0	*	2	*	0	*	1
Had side effects	*	9	*	14	*	7	*	4
Don't want others to know	*	1	*	2	*	0	*	1
Tested HIV-positive	*	0	*	0	*	0	*	0
Other	*	6	*	1	*	5	*	0

[1] Of those who had ever taken PrEP, [2] Of those who had taken PrEP in the past six months, [3] Of those aware of but not on PrEP, [4] Of those who stopped PrEP. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Eighteen percent of participants who tested HIV-negative in the survey reported seeking PrEP from a KP-friendly organization or clinic through survey referrals. Among those who did not seek PrEP, the most common reason was not having time.

Table 16. Survey linkage to pre-exposure prophylaxis by city, Zimbabwe, 2019

Men who have sex with men, transgender women, and gender queer individuals linked to PrEP as a result of survey participation by city, Zimbabwe, 2019

	Harare (n=546)		Bulawayo (n=625)		Total (n=1171)	
	%	n	%	n	%	n
Sought PrEP (among HIV-negative participants)						
Yes	18.9	103	17.3	108	18.0	211
No	46.2	252	64.0	400	55.7	652
Unknown[1]	35.0	191	18.7	117	26.3	308
Main reason for not seeking PrEP						
I have not had time	28.2	71	58.8	235	46.9	306
Not ready yet	27.8	70	26.5	106	27.0	176
Feel healthy	22.2	56	0	0	8.6	56
Stigma, don't want others to know	4.8	12	0	0	1.8	12
Cost or transportation problems	0.4	1	0.8	3	0.6	4
Poor attitude of healthcare workers	2.4	6	0.3	1	1.1	7
Waiting time or clinic hours not good	0	0	1.0	4	0.6	4
Side effects	12.0	30	3.0	12	6.4	42
Other	2.0	5	9.8	39	6.8	44
Don't know	0.4	1	0	0	0.2	1

[1] Contact number was unreachable, unavailable, or not provided and participant did not return for second visit.

Less than half of participants who self-reported an HIV-negative or unknown status had ever heard of post-exposure prophylaxis (PEP) and awareness was lower in Bulawayo than Harare (22.8% v. 46.1%). Among those aware of PEP, less than 5% had ever taken PEP (5.0% in Harare, 1.5% in Bulawayo). Recent PEP use was marginal in both cities.

Table 17. Post-exposure prophylaxis by city and key population, Zimbabwe, 2019

Post-exposure prophylaxis (PEP) use among men who have sex with men, transgender women, and gender queer individuals with self-reported HIV-negative or unknown HIV status by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=403)		TGW/GQ (n=258)		MSM (n=665)		TGW/GQ (n=51)	
	%	n	%	n	%	n	%	n
Ever heard of PEP								
Yes	48.1	194	43.0	111	21.7	144	37.4	19
No	51.9	209	57.0	147	78.4	521	62.8	32
Ever taken PEP								
Yes	5.0	20	5.0	13	1.5	10	2.0	1
No	95.0	383	95.0	245	98.5	655	98.0	50
Taken PEP in the last six months[1]								
Yes	*	4	*	5	*	0	*	0
No	*	16	*	8	*	10	*	1

Reason for taking PEP in the last six months[2]								
I had unprotected sex	*	3	*	5	*	0	*	0
I was raped/forced to have sex	*	1	*	0	*	0	*	0
I share needles	*	0	*	0	*	0	*	0

[1] Of those who had ever taken PEP, [2] Of those who had taken PEP in the last six months.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Overall, 29.1% of participants in Harare and 42.2% of participants in Bulawayo reported being circumcised. A higher percentage of HIV-negative participants reported being circumcised, compared to PLHIV in both cities (31.5% v. 20.8% in Harare, 47.5% v. 25.1% in Bulawayo). In both cities, a higher percentage of participants aged 18–24 years reported being circumcised, compared to participants in other age groups.

Table 18. Circumcision by city, Zimbabwe, 2019

Circumcision among men who have sex with men, transgender women, and gender queer individuals living with HIV by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	%	n	%	n	%	n
Circumcision status						
Circumcised	29.1	209	42.2	346	36.1	555
Not circumcised	70.9	509	57.8	474	63.9	983
Ever had a female partner						
Yes	32.6	134	43.6	226	38.8	360
No	24.4	75	39.7	120	32.0	195
Age						
18-24	31.3	119	58.5	199	44.2	318
25-34	29.0	74	31.6	92	30.4	166
35-44	18.8	12	25.8	32	23.4	44
45 or older	*	4	35.4	23	32.1	27
Key population						
MSM	29.7	128	42.3	323	37.8	451
TGW/GQ	28.2	81	40.4	23	30.2	104
HIV status[1]						
Positive	20.8	31	25.1	48	23.2	79
Negative	31.5	172	47.5	297	40.1	469

[1] Does not include 27 participants who did not consent to biomarker testing.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. Data were not stratified by key population due to suppression rules.

HIV Prevalence and Correlates of Infection

Key Findings

- HIV prevalence was 21.4% in Harare and 23.4% in Bulawayo.
- RTRI-recency was 8.6% and RITA-recency was 1.1% among persons self-reporting being newly diagnosed with HIV.
- Viral load suppression was 48.7% among persons newly diagnosed, and 61.5% among all PLHIV (regardless of self-reported HIV status).

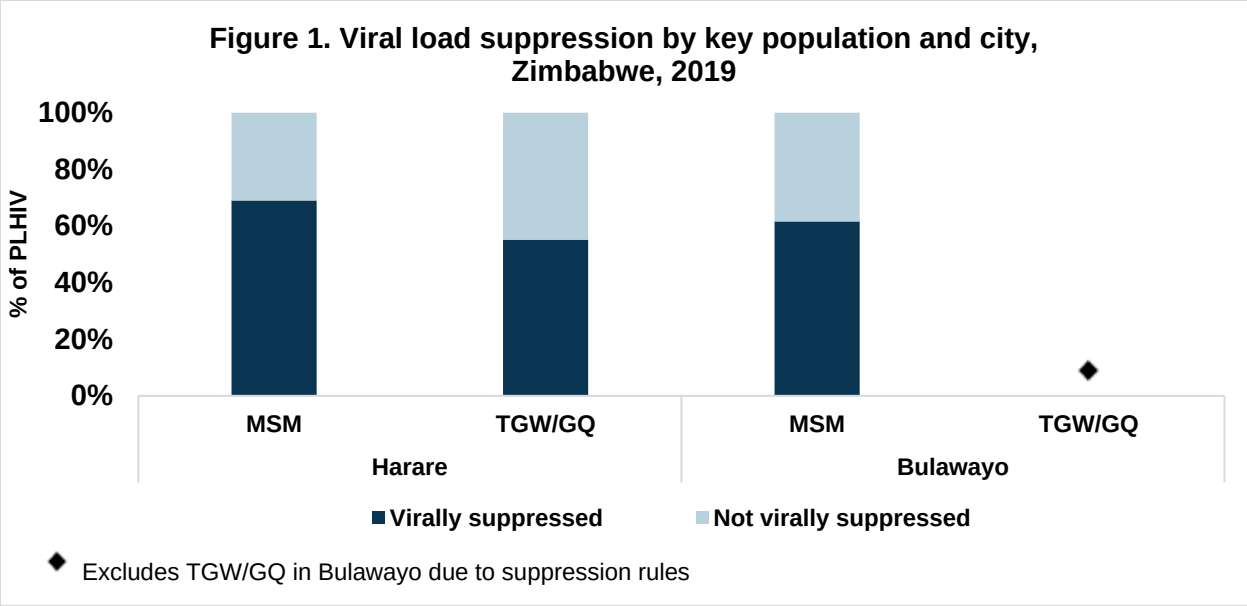
HIV prevalence was comparable by city (Harare: 21.4%, Bulawayo: 23.4%) but lower among MSM compared to TGW/GQ in both cities (Harare: 17.1% v. 28.0%, Bulawayo: 23.3% v. 25.0%). Overall, HIV prevalence was highest (43.4%) among participants aged ≥45 years. Viral load suppression was comparable between the two cities (Harare: 61.7%, Bulawayo: 61.3%) and was lowest (50.6%) among participants aged 18–24 years. In both cities, viral load suppression was higher among MSM compared to TGW/GQ (Harare: 69.0% v. 55.1%, Bulawayo: 61.6% v. 57.1%).

Table 19. HIV prevalence and viral load suppression by city, Zimbabwe, 2019

HIV prevalence and viral load suppression among men who have sex with men, transgender women, and gender queer individuals living with HIV by city, Zimbabwe, 2019

	Harare (n=695)		Bulawayo (n=816)		Total (n=1511)	
	%	n	%	n	%	n
HIV prevalence						
18–24	14.6	54	8.0	27	11.4	81
25–34	28.7	70	27.2	79	27.9	149
35–44	31.2	19	44.7	55	40.2	74
45 or older	*	6	46.9	30	43.4	36
Overall	21.4	149	23.4	191	22.5	340
Viral load suppression[1]						
18–24	53.7	29	(44.4)	12	50.6	41
25–34	67.1	47	51.9	41	59.1	88
35–44	*	11	78.2	43	73.0	54
45 or older	*	5	(70.0)	21	(72.2)	26
Overall	61.7	92	61.3	117	61.5	209

[1] HIV RNA <1,000 copies/ml.
Does not include 27 participants who did not consent to biomarker testing.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. Data were not stratified by key population due to suppression rules.



Among all persons living with HIV, median CD4 counts in Harare and Bulawayo were 479 and 384, respectively. More than half (61.5%) of all participants living with HIV were virally suppressed.

Table 20a. HIV biomarkers among all participants living with HIV by city, Zimbabwe, 2019

HIV biomarkers among all men who have sex with men, transgender women, and gender queer individuals living with HIV by city, Zimbabwe, 2019

	Harare (n=149)		Bulawayo (n=191)		Total (n=340)	
	%	n	%	n	%	n
CD4 count						
<200	4.0	6	17.8	34	11.8	40
200–350	22.2	33	24.6	47	23.5	80
350–500	29.5	44	25.7	49	27.4	93
>500	44.3	66	31.9	61	37.4	127
median (IQR)	479 (345–605)		384 (257–558)		426 (301.5–581)	
Viral load result						
<1000 copies/mL	61.7	92	61.3	117	61.5	209
≥1000 copies/mL	38.3	57	38.7	74	38.5	131
geometric mean[a]	373.1		427.3		402.6	
geometric mean[b]	320.5		362.3		343.3	
geometric mean[c]	93.2		94.8		94.1	

Does not include 27 participants who did not consent to biomarker testing. RTRI inconclusive indicates participant tested HIV-positive according to HIV testing algorithm but tested HIV-negative via RTRI. RITA-recent indicates participant tested RTRI-recent and had unsuppressed viral load (HIV RNA ≥1,000 copies/ml). Single imputation replaced values below the detection limit in three ways: (a) at the level of detection, (b) at the level of detection/sqrt2, (c) at a value of 1 copy/mL. Data were not stratified by key population due to suppression rules.

Among persons self-reporting being newly diagnosed with HIV, RTRI-recency was 11.3% in Harare and 5.6% in Bulawayo. After accounting for viral load, RITA-recency was 2.1% in Harare and 0% in Bulawayo. Median CD4 count in Harare and Bulawayo was 462 and 361.5, respectively. Viral load suppression among persons newly diagnosed was lower than among PLHIV overall. Among persons

self-reporting being newly diagnosed with HIV, viral load suppression was 53.6% in Harare and 43.3% in Bulawayo.

Table 20b. HIV biomarkers among newly diagnosed by city, Zimbabwe, 2019

HIV biomarkers among newly diagnosed men who have sex with men, transgender women, and gender queer individuals living with HIV by city, Zimbabwe, 2019

	Harare (n=97)		Bulawayo (n=90)		Total (n=187)	
	%	n	%	n	%	n
Rapid test for recent infection (RTRI)						
Recent infection	11.3	11	5.6	5	8.6	16
Long-term infection	88.7	86	94.4	85	91.4	171
Inconclusive	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0
Recent infection testing algorithm (RITA)						
Recent infection	2.1	2	0	0	1.1	2
Long-term infection	97.9	95	100.0	90	98.9	185
CD4 count						
<200	3.1	3	17.8	16	10.2	19
200–350	23.7	23	27.8	25	25.7	48
350–500	36.1	35	25.6	23	31.0	58
>500	37.1	36	28.9	26	33.2	62
median (IQR)	462 (338–584)		362 (281–538)		413 (305–573)	
Viral load result						
<1000 copies/mL	53.6	52	43.3	39	48.7	91
≥1000 copies/mL	46.4	45	56.7	51	51.3	96
geometric mean[a]	647.7		1408.7		941.4	
geometric mean[b]	567.6		1253.4		831.0	
geometric mean[c]	194.2		485.5		301.9	

RTRI inconclusive indicates participant tested HIV-positive according to HIV testing algorithm, but tested HIV-negative via RTRI. RITA-recent indicates participant tested RTRI-recent and had unsuppressed viral load (HIV RNA ≥1,000 copies/ml). Single imputation replaced values below the detection limit in three ways: (a) at the level of detection, (b) at the level of detection/sqrt2, (c) at a value of 1 copy/mL. Data were not stratified by key population due to suppression rules.

In Harare, PLHIV reported higher proportions of ever testing for HIV than persons who tested HIV-negative (93.3% v. 87.0%), though among those who had ever tested for HIV, HIV-negative participants reported their last HIV test to be more recent. Similarly, in Bulawayo, HIV-negative participants reported a more recent HIV test than PLHIV. Half of PLHIV in Harare reported that it was possible they had HIV, compared to just 20.1% in Bulawayo. Most HIV-negative participants in Harare (78.9%) and Bulawayo (72.3%) reported their chances of becoming infected with HIV in the next 12 months to be low.

Table 21. HIV prevalence by HIV testing history and self-perceived risk of HIV acquisition, Zimbabwe, 2019

HIV prevalence by HIV testing history and self-perceived risk of HIV acquisition among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	HIV-negative (n=546)		HIV-positive (n=149)		HIV-negative (n=625)		HIV-positive (n=191)	
	%	n	%	n	%	n	%	n
Ever tested for HIV								
Yes	87.0	475	93.3	139	83.0	519	82.2	157
No	13.0	71	6.7	10	17.0	106	17.8	34
Last HIV test[1]								
In the last six months	58.1	276	42.5	59	43.4	225	22.3	35
Between 7–12 months ago	21.1	100	20.9	29	18.9	98	10.2	16
More than 12 months ago	20.8	99	36.7	51	37.6	195	67.5	106
Do you think it is possible you have HIV[2]								
Yes	39.5	215	52.4	78	25.0	156	20.1	38
No	60.4	329	22.2	33	74.5	465	30.2	57
I already know I have HIV	0.2	1	25.5	38	0.5	3	49.7	94
In the next 12 months, do you think your chances of becoming infected with HIV is…[1]								
High	4.2	23	16.2	18	6.0	37	17.5	17
Medium	16.9	92	31.5	35	21.7	135	21.7	21
Low	78.9	430	52.3	58	72.3	449	60.8	59

[1] n=1 don't know/refuse to answer, [2] n=4 don't know/refuse to answer.
Does not include 27 participants who did not consent to biomarker testing.

HIV Care, Antiretroviral Therapy Use, and Viral Load Suppression

Key Findings:

- Overall, 45.0% of PLHIV were aware of their HIV status, 93.5% of those were self-reported on antiretroviral therapy (ART), and 81.1% of those were virally suppressed.
- Of self-reported PLHIV, most (93.5%) had seen a provider related to HIV. Among those who had seen a provider related to HIV, almost all (99.3%) were currently in HIV care, 90.9% had a CD4 count, and 91.6% had a viral load test.
- Of self-reported PLHIV, 69.9% were screened for TB symptoms in the past 12 months and 15.4% had experienced TB symptoms.

Overall, 45% of PLHIV were aware of their HIV status. Of those, 93.5% were on ART, and, of those on ART, 81.1% were virally suppressed. Among PLHIV aged 18–24 years, 38.3% were aware of their HIV status, 87.1% of those aware of their HIV status were on ART, and 77.8% of those on ART were virally suppressed. Among PLHIV aged 25–34 years, 42.3% were aware of their HIV status, 95.2% of those aware of their HIV status were on ART, and 80% of those on ART were virally suppressed. Among PLHIV aged 35–44 years, 55.4% were aware of their HIV status, 95.1% of those aware of their HIV status were on ART, and 82.1% of those on ART were virally suppressed. Among PLHIV aged 45 years or older, 50% were aware of their HIV status, 94.4% of those aware of their HIV status were on ART, and 88.2% of those on ART were virally suppressed.

Table 22. HIV cascade (conditional) by city, Zimbabwe, 2019

90-90-90 achievements among men who have sex with men, transgender women, and gender queer individuals by city and age, Zimbabwe, 2019

	Diagnosed						On Treatment					
	Harare (n=149)		Bulawayo (n=191)		Total (n=340)		Harare (n=52)		Bulawayo (n=101)		Total (n=153)	
Age	% who self-reported HIV positive	n	% who self-reported HIV-positive	n	% who self-reported HIV positive	n	% who self-reported ART among those diagnosed	n	% who self-reported ART among those diagnosed	n	% who self-reported ART among those diagnosed	n
18–24	29.6	16	(55.6)	15	38.3	31	*	15	*	12	(87.1)	27
25–34	38.6	27	45.6	36	42.3	63	(92.6)	25	(97.2)	35	95.2	60
35–44	*	7	61.8	34	55.4	41	*	5	(100.0)	34	(95.1)	39
45+	*	2	(53.3)	16	(50.0)	18	*	2	*	15	*	17
Total	34.9	52	52.9	101	45.0	153	90.4	47	95.1	96	93.5	143

	Virally Suppressed					
	Harare (n=47)		Bulawayo (n=96)		Total (n=143)	
Age	% virally suppressed among those on ART	n	% virally suppressed among those on ART	n	% virally suppressed among those on ART	n
18–24	*	12	*	9	(77.8)	21
25–34	(88.0)	22	(74.3)	26	80.0	48
35–44	*	3	(85.3)	29	(82.1)	32
45+	*	2	*	13	*	15
Total	83.0	39	80.2	77	81.1	116

Does not include 27 participants who did not consent to biomarker testing. Data were not stratified by key population due to suppression rules. Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

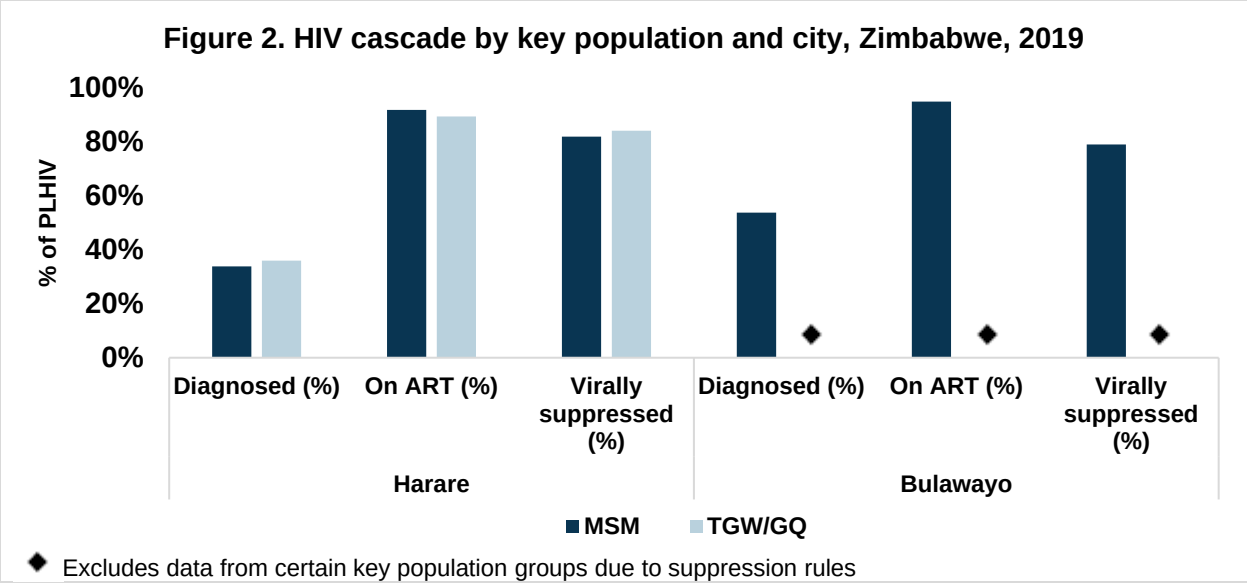


Figure 2. HIV cascade by key population and city, Zimbabwe, 2019
100%
80%
60%
40%
20%
0%
% of PLHIV
Diagnosed (%)
On ART (%)
Virally suppressed (%)
Diagnosed (%)
On ART (%)
Virally suppressed (%)
Harare
Bulawayo
MSM
TGW/GQ
Excludes data from certain key population groups due to suppression rules

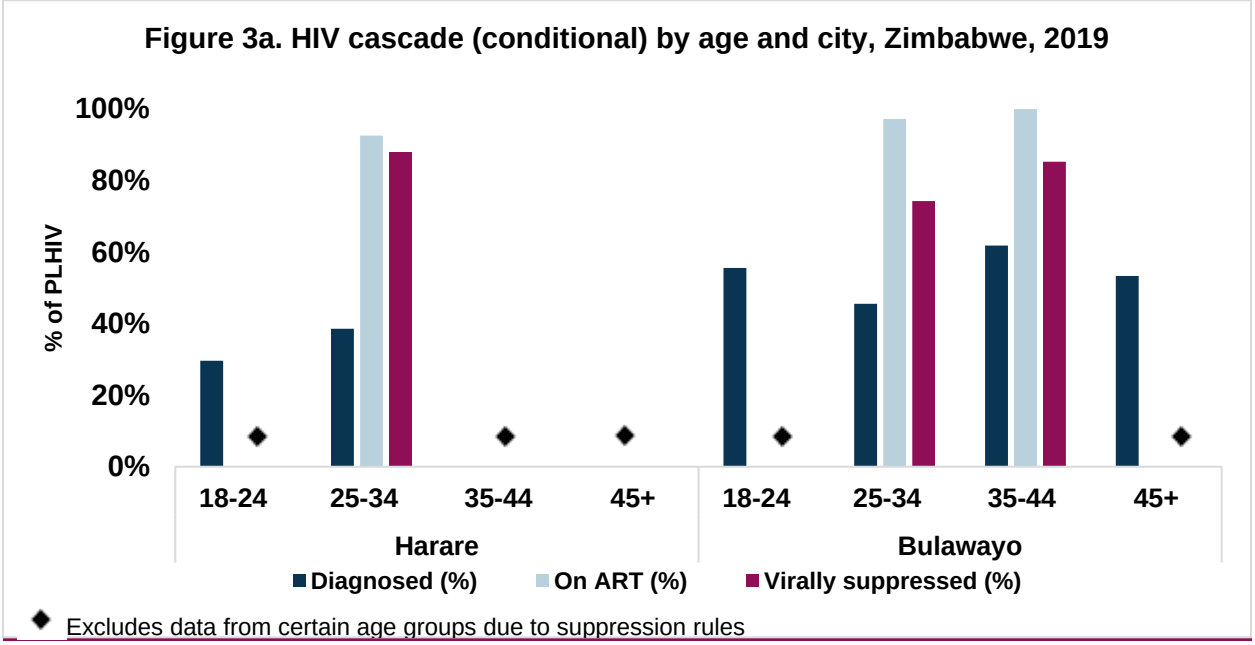
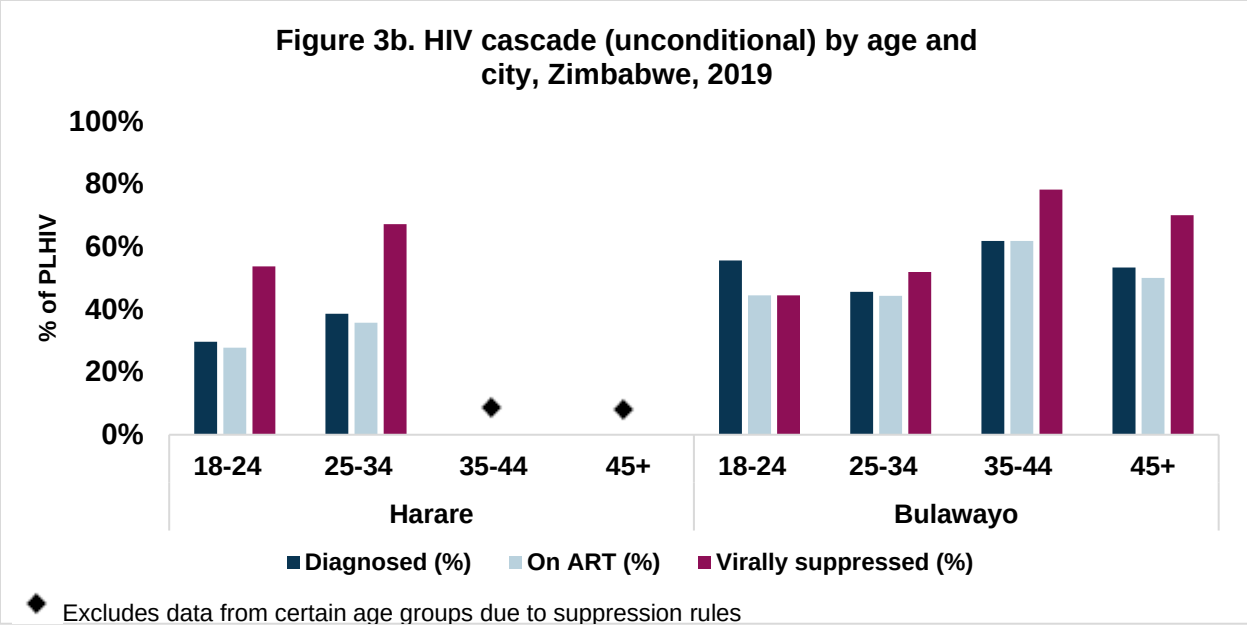
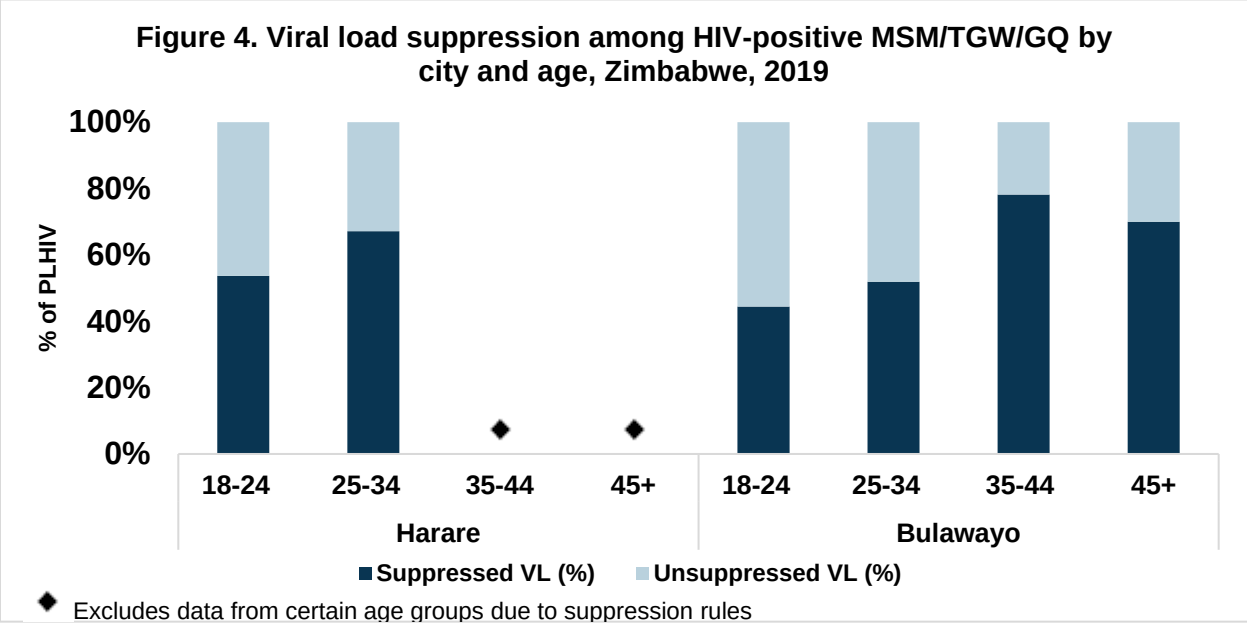


Figure 3a. HIV cascade (conditional) by age and city, Zimbabwe, 2019
100%
80%
60%
40%
20%
0%
% of PLHIV
18-24
25-34
35-44
45+
18-24
25-34
35-44
45+
Harare
Bulawayo
Diagnosed (%)
On ART (%)
Virally suppressed (%)
Excludes data from certain age groups due to suppression rules





Overall, 93.5% of participants who self-reported HIV-positive had seen a provider related to HIV (90.4% in Harare, 95.1% in Bulawayo). The number of self-reported PLHIV who had not seen a provider was negligible. Of those who had seen a provider, over 99.3% were currently in HIV care, 90.9% had received CD4 count testing, and 91.6% had received viral load testing. Of those who had a CD4 count, 69.8% in Harare and 61.6% in Bulawayo had received a CD4 count in the past six months. Of those who had a viral load test, 95.1% in Harare and 92.2% in Bulawayo had received the test in the last 12 months. All self-reported PLHIV who had seen a provider related to HIV were currently

on ART. Less than half (Harare: 36.5%, Bulawayo: 50.5%) of self-reported PLHIV had disclosed their HIV status to their sexual partner, a key component to HIV risk reduction.

Table 23. HIV care and treatment and HIV disclosure by city, Zimbabwe, 2019

HIV care and treatment and disclosure among self-reported HIV-positive men who have sex with men, transgender women, and gender queer individuals living with HIV by city, Zimbabwe, 2019

	Harare (n=52)		Bulawayo (n=101)		Total (n=153)	
	%	n	%	n	%	n
Seen a provider related to HIV[1]						
Yes	90.4	47	95.1	96	93.5	143
No	9.6	5	5.0	5	6.5	10
Main reason for never seeking HIV care[2]						
Feel healthy	*	1	*	0	*	1
Stigma, don't want others to know	*	2	*	1	*	3
Cost/distance to clinic	*	0	*	0	*	0
Poor attitude of healthcare workers	*	0	*	0	*	0
Waiting time or clinic hours not good	*	0	*	0	*	0
Other	*	2	*	4	*	6
Currently in care for HIV[3]						
Yes	(100.0)	47	99.0	95	99.3	142
No, I stopped receiving care/going to checkups[4]	(0)	0	1.0	1	0.7	1
Had a CD4 count or viral load test[1]						
Yes	84.6	44	92.1	93	89.5	137
No	15.4	8	7.9	8	10.5	16
Had a CD4 count[3,5]						
Yes	(91.5)	43	90.5	86	90.9	129
No	(8.5)	4	9.5	9	9.2	13
Last CD4 count[6]						
In the last six months	(69.8)	30	61.6	53	64.3	83
Between 7–12 months ago	(18.6)	8	19.8	17	19.4	25
More than 12 months ago	(11.6)	5	18.6	16	16.3	21
Had a viral load test[3]						
Yes	(87.2)	41	93.8	90	91.6	131
No	(12.8)	6	6.3	6	8.4	12
Last viral load test[7]						
In the last 12 months	(95.1)	39	92.2	83	93.1	122
More than 12 months ago	(4.9)	2	7.8	7	6.9	9
Ever been on ART[3]						
Yes	(100.0)	47	100.0	96	100.0	143
No	(0)	0	0	0	0	0
Currently on ART[3]						
Yes	(100.0)	47	100.0	96	100.0	143
No	(0)	0	0	0	0	0

Disclosed HIV-positive status to[1,8]						
No one	5.8	3	4.0	4	4.6	7
Spouse/sex partner	36.5	19	50.5	51	45.8	70
Doctor/ healthcare provider	21.2	11	27.7	28	25.5	39
Friend	51.9	27	68.3	69	62.8	96
Family member	71.2	37	84.2	85	79.7	122
Other	5.8	3	2.0	2	3.3	5

[1] Of those self-reported HIV positive, [2] Of those never in care, [3] Of those who had seen a provider for HIV, [4] Main reason for no longer seeking HIV care (n=1) was feeling healthy, [5] n=1 don't know/refuse to answer, [6] Of those who had a CD4 count, [7] Of those who had a viral load test, [8] Responses not mutually exclusive.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. Data were not stratified by key population due to suppression rules.

Among PLHIV who reported being aware of their status, 69.9% reported being screened for TB symptoms in the past 12 months; this proportion was higher in Bulawayo than Harare (77.1% v. 55.3%). Of those self-reported PLHIV, 15.4% had experienced TB symptoms and this proportion was higher in Harare (21.3% v. 12.5%). The number of participants who received a sputum test out of those who experienced TB symptoms was negligible.

Table 24. TB services among self-reported HIV-positive participants by city, Zimbabwe, 2019

Among self-reported HIV-positive men who have sex with men, transgender women, and gender queer individuals, percentage who experienced TB symptoms in the past 12 months; among those with TB symptoms in the past 12 months, percentage who received a sputum test; among those who received a sputum test, percentage who were diagnosed with TB; among those who were diagnosed with TB, percentage who received TB treatment, by city, Zimbabwe, 2019

	Among HIV-positive persons (n=143)		Among HIV-positive persons (n=143)		Among HIV-positive persons who had TB symptoms[1] (n=22)		Among HIV-positive persons who received a sputum test (n=10)		Among HIV-positive persons diagnosed with TB (n=3)	
	% screened for TB symptoms in the past 12 months[1]	n	% who experienced TB symptoms in the past 12 months[1]	n	% who received a sputum test	n	% who were diagnosed with TB	n	% who received TB treatment	n
City										
Harare	55.3	26	21.3	10	*	4	*	0	*	0
Bulawayo	77.1	74	12.5	12	*	6	*	3	*	3
Total	69.9	100	15.4	22	*	10	*	3	*	3

[1] Symptoms include: night sweats, cough, fever, or weight loss. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. Data were not stratified by key population due to suppression rules.

Biomarker Results and Linkage to Care

Key Findings:

- Prevalence of current HBV virus infection was 3.3% in Harare and 4.3% in Bulawayo.
- Active syphilis infection was 5.5% in Harare and 5.6% in Bulawayo.
- Active syphilis infection was higher among TGW/GQ compared to MSM in both cities and HBV was higher among TGW/GQ in Harare.
- Most (71.1%) participants who were newly diagnosed with HIV in the survey reported subsequently seeking HIV care.

In Harare, 3.3% were positive for HBV surface antigen (MSM: 2.4%; TGW/GQ: 4.7%) and 5.5% had active syphilis infection (MSM: 5.1%; TGW/GQ: 6.1%). Among PLHIV, hepatitis B coinfection was 7.4% (MSM: 5.6%; TGW/GQ: 9.0%) and active syphilis co-infection was 10.1% (MSM: 12.7%; TGW/GQ: 7.7%). Previous or resolved syphilis infection was 2.6% (MSM: 2.2%; TGW/GQ: 3.2%).

In Bulawayo, 4.3% were positive for HBV surface antigen (MSM: 4.3%; TGW/GQ: 3.6%) and 5.6% had active syphilis infection (MSM: 4.6%; TGW/GQ: 19.6%). Among PLHIV, HBV coinfection was 11.5% (MSM: 11.9%; TGW/GQ: estimate suppressed) and active syphilis co-infection was 11.0% (MSM: 8.5%; TGW/GQ: estimate suppressed). Active syphilis infection was higher among TGW/GQ than MSM (19.6% v. 4.6%). Previous or resolved syphilis infection was 4.3% (MSM: 4.3%; TGW/GQ: 3.6%).

Table 25. Hepatitis B, Syphilis, and HIV co-infections by city and key population, Zimbabwe, 2019

Prevalence of HBV, syphilis, and HIV co-infections among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=416)		TGW/GQ (n=279)		MSM (n=760)		TGW/GQ (n=56)	
	%	n	%	n	%	n	%	n
Hepatitis B								
Positive	2.4	10	4.7	13	4.3	33	3.6	2
Negative	97.6	406	95.3	266	95.7	727	96.4	54
Syphilis								
Active infection	5.1	21	6.1	17	4.6	35	19.6	11
Previous infection	2.2	9	3.2	9	4.3	33	3.6	2
Negative	92.6	385	90.0	251	90.5	688	75.0	42
Inconclusive	0.2	1	0.7	2	0.5	4	1.8	1
HIV/HBV Co-infection								
	5.6	4	9.0	7	11.9	21	*	1
HIV/Syphilis Co-infection								
	12.7	9	7.7	6	8.5	15	*	6

Does not include 27 participants who did not consent to biomarker testing. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

In Harare, 12.8% of participants living with HIV and 7.9% of HIV-negative participants screened positive for TB symptoms using the national symptom screening questionnaire. In Bulawayo, 33.5% of participants living with HIV and 16.6% of HIV-negative participants screened positive for TB.

Among PLHIV, proportions screened positive for TB were higher among MSM than TGW/GQ in both cities. Conversely, among HIV-negative participants, TGW/GQ had marginally higher proportions compared to MSM.

Table 26. TB screening by city and key population, Zimbabwe, 2019

TB screening results among men who have sex with men, transgender women, and gender queer individuals by city and HIV status, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=416)		TGW/GQ (n=279)		MSM (n=760)		TGW/GQ (n=56)	
	%	n	%	n	%	n	%	n
TB screening result among HIV-positive participants								
Positive[1]	14.1	10	11.5	9	34.5	61	*	3
Negative	85.9	61	88.5	69	65.5	116	*	11
TB screening result among HIV-negative participants								
Positive[1]	8.7	30	6.5	13	16.5	96	(19.1)	8
Negative	91.3	315	93.5	188	83.5	487	(81.0)	34

[1] Reported one of the following symptoms to survey nurse: a cough, night sweats, unplanned weight loss, or fever, [2] Reported one of the following symptoms to survey nurse: a cough lasting two weeks or more, night sweats, unplanned weight loss, or fever lasting three weeks or more. Screening questions used were per the Zimbabwe national guidelines.
Does not include 27 participants who did not consent to biomarker testing.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Most (71.1%) participants who were newly diagnosed with HIV were linked to HIV care. Linkage to HIV care was higher in Harare than Bulawayo (76.3% v. 65.6%). Nearly 20% of newly diagnosed participants did not provide contact information or provided contact information that was unreachable or unavailable and did not return for a second visit to confirm whether they sought HIV care. Where available, participants that reported not accessing HIV care between their first and second visits reported their primary reason to be not having time, not being ready, or other reasons.

Table 27. Survey linkage to HIV care by city, Zimbabwe, 2019

Men who have sex with men, transgender women, and gender queer individuals linked to HIV care as a result of survey participation by city, Zimbabwe, 2019

	Harare (n=97)		Bulawayo (n=90)		Total (n=187)	
	%	n	%	n	%	n
Newly diagnosed and sought HIV care[1]						
Yes	76.3	74	65.6	59	71.1	133
No	6.2	6	17.8	16	11.8	22
Unknown[2]	17.5	17	16.7	15	17.1	32
Main reason for not seeking HIV care[3]						
I have not had time	*	2	*	9	*	11
Not ready yet	*	2	*	2	*	4
Feel healthy	*	0	*	0	*	0
Stigma, don't want others to know	*	0	*	0	*	0
Cost or transportation problems	*	0	*	0	*	0
Poor attitude of healthcare workers	*	0	*	0	*	0
Waiting time or clinic hours not good	*	0	*	0	*	0

Side effects	*	0	*	0	*	0
Other	*	2	*	5	*	7

[1] Newly diagnosed according to self-report and survey test result, [2]Contact number was unreachable, unavailable, or not provided and participant did not return for second visit, [3] Of those newly diagnosed.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Sexually Transmitted Infections

Key Findings:

- Nearly one in five MSM and TGW/GQ had experienced one or more STI symptoms in the past year.
- MSM and TGW/GQ in Harare had similar proportions diagnosed with an STI in the past 12 months (13.7% v. 12.5%).
- In Bulawayo, MSM had lower proportions diagnosed with an STI in the past 12 months than TGW/GQ (8.0% v. 12.3%).
- In both cities, experiencing any STI symptoms in the past 12 months and diagnosis of an STI in the past 12 months was higher among PLHIV than HIV-negative participants

In Harare, the most common STI symptom experienced in the past 12 months was pain on urination (11.7%), followed by abnormal discharge from penis (5.2%), abnormal discharge from anus (4.9%), anal warts (4.9%), ulcer/sore on or near anus (3.8%), and ulcer/sore on or near penis (2.9%). Similar proportions of MSM and TGW/GQ experienced one or more STI symptoms in the past 12 months (22.5% v. 24.7%) and were diagnosed with an STI in the past 12 months (13.7% v. 12.5%). Most participants sought healthcare (64.3%) and treatment (63.1%) for symptoms in the past 12 months and reporting abstaining from sex or always used condoms while experiencing symptoms (79.8%).

Fewer participants reported STI symptoms in the past 12 months in Bulawayo (15.1%) than Harare (23.4%). In Bulawayo, the most common STI symptom experienced in the past 12 months was pain on urination (9.5%), followed by abnormal discharge from penis (4.8%), ulcer/sore on or near penis (3.3%), abnormal discharge from anus (1.8%), ulcer/sore on or near anus (1.8%), and anal warts (1.7%). MSM had lower proportions diagnosed with an STI in the past 12 months compared to TGW/GQ (8.0% v. 12.3%). More people experiencing STI symptoms in the past 12 months sought treatment for symptoms (67.7%) than healthcare (55.6%) and the majority (78.2%) reported abstaining from sex or always using a condom while experiencing symptoms.

Table 28. Sexually transmitted infections by city and key population, Zimbabwe, 2019

STIs among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
Abnormal discharge from penis[1,2]								
Yes	6.1	26	3.8	11	4.9	37	3.5	2
No	94.0	404	96.2	276	95.2	726	96.5	55
Ulcer/sore on or near penis[1,2]								
Yes	3.9	17	1.4	4	3.5	27	0	0
No	96.1	414	98.6	283	96.5	735	100.0	57
Ulcer/sore on or near anus[1,3]								
Yes	2.3	10	5.9	17	1.1	8	12.5	7
No	97.7	421	94.1	270	99.0	754	87.5	49
Abnormal discharge from anus[1]								
Yes	2.6	11	8.4	24	1.3	10	8.8	5
No	97.5	420	91.6	263	98.7	753	91.2	52
Pain on urination[1]								
Yes	13.7	59	8.7	25	9.4	72	10.5	6
No	86.3	372	91.3	262	90.6	691	89.5	51
Anal warts[1]								
Yes	2.8	12	8.0	23	1.4	11	5.3	3
No	97.2	419	92.0	264	98.6	752	94.7	54
Had one or more STI symptom[1]								
Yes	22.5	97	24.7	71	14.0	107	29.8	17
No	77.5	334	75.3	216	86.0	656	70.2	40
Sought healthcare for symptoms above[1,2]								
Yes	66.0	64	62.9	44	57.0	61	*	8
No	34.0	33	37.1	26	43.0	46	*	9
Sought treatment for symptoms above[1]								
Yes	67.0	65	57.8	41	70.1	75	*	9
No	33.0	32	42.3	30	29.9	32	*	8
Abstained from sex or always used condoms during symptoms above								
Yes	82.5	80	76.1	54	77.6	83	*	14
No	17.5	17	23.9	17	22.4	24	*	3
Diagnosed with STI in the past 12 months								
Yes	13.7	59	12.5	36	8.0	61	12.3	7
No	86.3	372	87.5	251	92.0	702	87.7	50

[1] Experienced symptoms within the past 12 months, [2] n=1 don't know/refuse to answer, [3] n=2 don't know/refuse to answer. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

A higher percentage of PLHIV compared to HIV-negative participants in Harare reported symptoms of ulcer/sore on or near anus (6.0% v. 3.3%), ulcer/sore on or near penis (4.0% v. 2.8%), abnormal discharge from anus (10.1% v. 3.5%), and anal warts (9.4% v. 3.7%) than HIV-negative participants. In Bulawayo, a higher percentage of PLHIV reported symptoms of ulcer/sore on or near penis (6.3% v. 2.4%), abnormal discharge from anus (3.7% v. 1.3%), anal warts (2.1% v. 1.6%), and ulcer/sore on or near anus (2.1% v. 1.8%). Experiencing any STI symptoms in the past 12 months and diagnosis of an STI in the past 12 months was higher among PLHIV in both cities.

Table 29. HIV prevalence by self-reported sexually transmitted infection symptoms, Zimbabwe, 2019

HIV prevalence by self-reported STIs among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	HIV-negative (n=546)		HIV-positive (n=149)		HIV-negative (n=625)		HIV-positive (n=191)	
	%	n	%	n	%	n	%	n
Abnormal discharge from penis[1]								
Yes	5.7	31	3.4	5	5.3	33	3.1	6
No	94.3	514	96.6	144	94.7	592	96.9	185
Ulcer/sore on or near penis[1]								
Yes	2.8	15	4.0	6	2.4	15	6.3	12
No	97.3	531	96.0	143	97.6	610	93.7	178
Ulcer/sore on or near anus[1]								
Yes	3.3	18	6.0	9	1.8	11	2.1	4
No	96.7	528	94.0	140	98.2	612	97.9	187
Abnormal discharge from anus[1]								
Yes	3.5	19	10.1	15	1.3	8	3.7	7
No	96.5	527	89.9	134	98.7	617	96.3	184
Pain on urination[1]								
Yes	12.3	67	10.1	15	9.6	60	9.4	18
No	87.7	479	89.9	134	90.4	565	90.6	173
Anal warts[1]								
Yes	3.7	20	9.4	14	1.6	10	2.1	4
No	96.3	526	90.6	135	98.4	615	97.9	187
Had one or more STI symptom[1]								
Yes	22.3	122	28.9	43	14.4	90	17.8	34
No	77.7	424	71.1	106	85.6	535	82.2	157
Sought healthcare for symptoms above[1,2]								
Yes	66.4	81	(57.1)	24	50.0	45	(70.6)	24
No	33.6	41	(42.9)	18	50.0	45	(29.4)	10
Sought treatment for symptoms above[1]								
Yes	63.9	78	(58.1)	25	64.4	58	(76.5)	26
No	36.1	44	(41.9)	18	35.6	32	(23.5)	8
Abstained from sex or always used condoms during symptoms above								
Yes	82.0	100	(72.1)	31	81.1	73	(70.8)	24
No	18.0	22	(27.9)	12	18.9	17	(29.4)	10
Diagnosed with STI in the past 12 months								
Yes	12.1	66	16.1	24	7.8	49	10.0	19
No	87.9	480	83.9	125	92.2	576	90.0	172

[1] Experienced symptoms within the past 12 months, [2] n=1 don't know/refuse to answer.
Does not include 27 participants who did not consent to biomarker testing.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution.

Alcohol and Drug Use

Key Findings:

- Alcohol dependence was higher in Bulawayo (26.8%) than Harare (17.3%) and higher among MSM compared to TGW/GW in Harare (19.3% v. 14.3%), but not in Bulawayo (25.4% v. 45.6%).
- While MSM and TGW/GQ reported recent drug use (Harare: 33.4%, Bulawayo: 52.0%), injection drug use was negligible among participants.

The Alcohol Use Disorders Identification Test (AUDIT) is a validated, 10-item screening tool developed by the World Health Organization to assess alcohol consumption, drinking behaviors, and alcohol-related problems. Alcohol dependence was defined using an AUDIT score of ≥15. Overall, a higher percentage of participants in Bulawayo reported alcohol dependence than those living in Harare. In Harare, a higher percentage of MSM (19.3%) than TGW/GQ (14.3%) reported alcohol dependence. Conversely, in Bulawayo, TGW/GQ reported higher alcohol dependence (45.6%) than MSM (25.4%).

Table 30. Alcohol use by city and key population, Zimbabwe, 2019

Alcohol use among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
Alcohol dependence[1]								
Yes	19.3	83	14.3	41	25.4	194	45.6	26
No	80.7	348	85.7	246	74.6	569	54.4	31

[1] AUDIT score of ≥15

Similar to alcohol dependence, recent drug use (<6 months) was more common in Bulawayo (52.0%) than Harare (33.4%). Despite over a third of participants in Harare and half of participants in Bulawayo reporting recent drug use, injection drug use was negligible (<1%). Among those who reported ever injecting, recent injection (<6 months) was also negligible.

Table 31. Non-injection and injection drug use by city, Zimbabwe, 2019

Drug use among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	%	n	%	n	%	n
Used drugs in the past six months (non-injection)						
Yes	33.4	240	52.0	426	43.3	666
No	66.6	478	48.0	394	56.7	872
Ever injected drugs with a syringe						
Yes	0.8	6	0.9	7	0.9	13
No	99.2	712	99.1	813	99.1	1525
Injected drugs in the past six months[1]						
Yes	*	1	*	0	*	1
No	*	5	*	7	*	12
Shared needle or syringe in the past six months[2]						
Yes	*	0	*	0	*	0
No	*	1	*	0	*	1

[1] Of those who had ever injected drugs, [2] Of those who had injected drugs in the past six months.

An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. Data were not stratified by key population due to suppression rules.

Social Cohesion and Stigma

Key Findings:

- A higher proportion of participants in Bulawayo reported that they could count on other MSM or TGW/GQ individuals for social support, compared to Harare.
- In both cities, the most commonly reported acts of stigma experienced by participants were being blackmailed and rejected by family members for being MSM or TGW/GQ individuals.
- Compared to MSM, a higher proportion of TGW/GQ individuals in Bulawayo reported having ever been arrested (15.8% v. 3.8%), rejected by family (36.8% v. 14.3%), terminated from a job (7.0% v. 2.0%), denied a job (17.5% v. 2.4%), and blackmailed (33.3% v. 16.1%) due to their KP status.
- In Bulawayo, more TGW/GQ than MSM (31.6% v. 18.7%) avoided seeking healthcare for fear of their KP status being disclosed.
- In both cities, physical, sexual, or verbal abuse and forced sex were more common among TGW/GQ than MSM.

Participants were asked how strongly they agreed with statements that they could count on other MSM or TGW/GQ individuals to lend them money, accompany them to the doctor or hospital, talk about problems, and provide a place to stay. Overall, a higher proportion of participants in Bulawayo agreed with all statements compared to Harare. Participants most commonly agreed that they were able to count on other MSM or TGW/GQ individuals to accompany them to the doctor or hospital (Harare: >50%, Bulawayo: >75%) and discuss problems (Harare: >55%, Bulawayo: >75%).

In Harare, 27.6% of MSM and 33.8% of TGW/GQ participants reported having negotiated or stood up against a non-MSM or non-TGW/GQ individual in order to help a fellow MSM or TGW/GQ individual in the past six months, while 29.2% of MSM and 45.6% of TGW/GQ individuals in Bulawayo reported engaging in this type of negotiation. Most participants in both cities reported having never or rarely attended a support group for gay men, MSM, or TGW/GQ individuals in the past six months.

Table 32. Social cohesion by city and key population, Zimbabwe, 2019

Social cohesion among all men who have sex with men, transgender women, and gender queer individuals living with HIV by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
I can count on other MSM/TGW/GQ if I need to borrow money[1]								
Strongly agree/agree	45.5	196	48.1	138	76.1	580	61.4	35
Neutral	12.8	55	8.0	23	8.1	62	10.5	6
Strongly disagree/disagree	41.8	180	43.9	126	15.8	120	28.1	16
I can count on other MSM/TGW/GQ to accompany me to the doctor or hospital[1]								
Strongly agree/agree	55.9	241	50.9	146	78.6	599	79.0	45
Neutral	7.0	30	5.2	15	5.6	43	7.0	4
Strongly disagree/disagree	37.1	160	43.9	126	15.8	120	14.0	8
I can count on other MSM/TGW/GQ if I need to talk about my problems								
Strongly agree/agree	58.0	250	60.0	172	87.6	668	75.4	43
Neutral	9.3	40	7.0	20	4.2	32	8.8	5
Strongly disagree/disagree	32.7	141	33.0	95	8.3	63	15.8	9
I can count on other MSM/TGW/GQ if I need somewhere to stay								
Strongly agree/agree	46.6	201	48.8	140	78.0	595	68.4	39
Neutral	10.4	45	8.0	23	7.2	55	10.5	6
Strongly disagree/disagree	42.9	185	43.2	124	14.8	113	21.1	12
Negotiated with or stood up against a non-MSM/non-TGW/non-GQ in order to help a fellow MSM/TGW/GQ in the past six months								
Yes	27.6	119	33.8	97	29.2	223	45.6	26
No	72.4	312	66.2	190	70.8	540	54.4	31
Attended a support group for gay men, MSM, TGW, or GQ in the past six months								
Never	66.4	286	59.9	172	68.2	520	49.1	28
Once or twice	21.1	91	25.1	72	19.1	146	26.3	15
About six times	6.7	29	8.7	25	7.9	60	12.3	7
About 12 times	3.3	14	2.4	7	1.8	14	5.3	3
More than 12 times	2.6	11	3.8	11	3.0	23	7.0	4

[1] n=1 don't know/refuse to answer.

In Harare, higher proportions of arrests (5.9% v. 4.9%), family rejection (18.1% v. 10.4%), job termination (4.9% v. 1.6%), employment denial (4.9% v. 2.1%), denial of healthcare (4.9% v. 3.3%), avoidance of seeking healthcare (18.1% v. 16.5%), and abuse (36.2% v. 24.1%) related to SOGI were reported by TGW/GQ compared to MSM. More TGW/GQ also reported experiencing forced sex than MSM (17.4% v. 11.4%).

In Bulawayo, differences between MSM and TGW/GQ were even larger. Higher proportions of arrests (15.8% v. 3.8%), family rejection (36.8% v. 14.3%), job termination (7.0% v. 2.0%), employment denial (17.5% v. 2.4%), blackmail (33.3% v. 16.1%), denial of healthcare (19.3% v. 2.4%), avoidance of seeking healthcare (31.6% v. 18.7%), and abuse (61.4% v. 29.1%) related to SOGI were reported by TGW/GQ compared to MSM. Similar to Harare, more TGW/GQ in Bulawayo reported experiences of forced sex (29.8% v. 7.5%).

Table 33. Stigma, violence, and mental health by city and key population, Zimbabwe, 2019

Stigma, violence, and mental health among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	MSM (n=431)		TGW/GQ (n=287)		MSM (n=763)		TGW/GQ (n=57)	
	%	n	%	n	%	n	%	n
Ever arrested for being MSM/TGW/GQ								
Yes	4.9	21	5.9	17	3.8	29	15.8	9
In the last six months	*	2	*	3	(10.3)	3	*	2
Not in the last six months	*	19	*	14	(89.7)	26	*	7
No	95.1	410	94.1	270	96.2	734	84.2	48
Ever rejected by family for being MSM/TGW/GQ								
Yes	10.4	45	18.1	52	14.3	109	36.8	21
In the last six months	(11.1)	5	28.9	15	26.6	29	*	6
Not in the last six months	(88.9)	40	71.2	37	73.4	80	*	15
No	89.6	386	81.9	235	85.7	654	63.2	36
Ever terminated from a job for being MSM/TGW/GQ								
Yes	1.6	7	4.9	14	2.0	15	7.0	4
In the last six months	*	2	*	5	*	6	*	1
Not in the last six months	*	5	*	9	*	9	*	3
No	98.4	424	95.1	273	98.0	748	93.0	53
Ever denied a job for being MSM/TGW/GQ								
Yes	2.1	9	4.9	14	2.4	18	17.5	10
In the last six months	*	2	*	9	*	5	*	5
Not in the last six months	*	7	*	5	*	13	*	5
No	97.9	422	95.1	273	97.6	745	82.5	47
Ever blackmailed for being MSM/TGW/GQ								
Yes	13.2	57	13.9	40	16.1	123	33.3	19
In the last six months	38.6	22	(52.5)	21	39.0	48	*	9
Not in the last six months	61.4	35	(47.5)	19	70.0	75	*	10
No	86.8	374	86.1	247	83.9	640	66.7	38
Ever treated unfairly/denied healthcare for being MSM/TGW/GQ								
Yes	3.3	14	4.9	14	2.4	18	19.3	11
In the last six months	*	2	*	7	*	5	*	5
Not in the last six months	*	12	*	7	*	13	*	6
No	96.7	417	95.1	273	97.6	745	80.7	46
Ever avoided seeking healthcare services for fear of being identified as MSM/TGW/GQ								
Yes	16.5	71	18.1	52	18.7	143	31.6	18
In the last six months	52.1	37	51.9	27	43.4	62	*	10
Not in the last six months	47.9	34	48.1	25	56.6	81	*	8
No	83.5	360	81.9	235	81.3	620	68.4	39
Ever physically/sexually/verbally abused for being MSM/TGW/GQ								
Yes	24.1	104	36.2	104	29.1	222	61.4	35
In the last six months	61.5	64	71.2	74	50.9	113	(60.0)	21
Not in the last six months	38.5	40	28.9	30	49.1	109	(40.0)	14
No	75.9	327	63.8	183	70.9	541	38.6	22
Physically/sexually/verbally abused for being MSM/TGW/GQ by[1]								
Family member	16.4	17	19.2	20	32.0	71	(28.6)	10
Sexual partner	5.8	6	8.7	9	7.2	16	(14.3)	5
Friends	65.4	68	63.5	66	46.4	103	(40.0)	14
Authority figure[2]	2.9	3	2.9	3	4.5	10	(22.9)	8
Healthcare worker	3.9	4	3.9	4	3.6	8	(17.1)	6
Stranger	38.5	40	50.0	52	39.2	87	(48.6)	17
Prison inmate	1.9	2	0	0	2.6	5	(0)	(0)
Uniformed services personnel	1.9	2	3.9	4	5.9	13	(25.7)	9

Other	1.9	2	1.0	1	0.5	1	(0)	(0)
Ever forced to have sex								
Yes	11.4	49	17.4	50	7.5	57	29.8	17
In the last six months	(40.8)	20	36.0	18	15.8	9	*	8
Not in the last six months	(59.2)	29	64.0	32	84.2	48	*	9
No	88.6	382	82.6	237	92.5	706	70.2	40
Forced to have sex by[1]								
Family member	(4.1)	2	4.0	2	10.5	6	*	1
Sexual partner	(36.7)	18	46.0	23	26.3	15	*	4
Friends	(49.0)	24	30.0	15	17.5	10	*	5
Authority figure[2]	(2.0)	1	2.0	1	1.8	1	*	2
Healthcare worker	(0)	0	0	0	0	0	*	0
Stranger	(4.1)	2	16.0	8	22.8	13	*	7
Prison inmate	(0)	0	4.0	2	21.1	12	*	0
Uniformed services personnel	(0)	0	2.0	1	0	0	*	0
Other	(6.1)	3	0	0	5.3	3	*	1

[1] Responses not mutually exclusive, [2] Authority figures include government official, religious leader, teacher, employer, military, police, prison guard. Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

In Harare, more PLHIV compared to HIV-negative participants reported arrests (12.8% v. 2.8%), family rejection (25.5% v. 9.5%), job termination (4.0% v. 2.8%), employment denial (7.4% v. 2.0%), blackmail (18.8% v. 12.1%), denial of healthcare (5.4% v. 2.8%), avoidance of seeking healthcare (25.5% v. 14.7%), and abuse (44.3% v. 24.0%) related to SOGI. Similar trends were seen in Bulawayo where higher proportions of PLHIV reported arrests (6.3% v. 4.2%), family rejection (17.8% v. 15.4%), job termination (3.7% v. 1.9%), employment denial (4.7% v. 2.9%), blackmail (22.0% v. 16.0%), denial of healthcare (5.2% v. 2.9%), and abuse (38.2% v. 29.4%) than HIV-negative participants.

Table 34. HIV prevalence by stigma and violence related to SOGI, Zimbabwe, 2019

HIV prevalence by stigma and violence among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare				Bulawayo			
	HIV-negative (n=546)		HIV-positive (n=149)		HIV-negative (n=625)		HIV-positive (n=191)	
	%	n	%	n	%	n	%	n
Ever arrested for being MSM/TGW/GQ								
Yes	2.8	15	12.8	19	4.2	26	6.3	12
No	97.3	531	87.3	130	95.8	599	93.7	179
Ever rejected by family for being MSM/TGW/GQ								
Yes	9.5	52	25.5	38	15.4	96	17.8	34
No	90.5	494	74.5	111	84.6	529	82.2	157
Ever terminated from a job for being MSM/TGW/GQ								
Yes	2.8	15	4.0	6	1.9	12	3.7	7
No	97.3	531	96.0	143	98.1	613	96.3	184
Ever denied a job for being MSM/TGW/GQ								
Yes	2.0	11	7.4	11	2.9	18	4.7	9
No	98.0	535	92.6	138	97.1	607	95.3	182
Ever blackmailed for being MSM/TGW/GQ								
Yes	12.1	66	18.8	28	16.0	100	22.0	42
No	87.9	480	81.2	121	84.0	525	78.0	149

Ever treated unfairly/denied healthcare for being MSM/TGW/GQ								
Yes	2.8	15	5.4	8	2.9	18	5.2	10
No	97.3	531	94.6	141	97.1	607	94.8	181
Ever avoided seeking healthcare services for fear of being identified as MSM/TGW/GQ								
Yes	14.7	80	25.5	38	20.2	126	18.3	35
No	85.3	466	74.5	111	79.8	499	81.7	156
Ever physically/sexually/verbally abused for being MSM/TGW/GQ								
Yes	24.0	131	44.3	66	29.4	184	38.2	73
No	76.0	415	55.7	83	70.6	441	61.8	118

Does not include 27 participants who did not consent to biomarker testing.

Compared to Bulawayo, a higher proportion of self-reported PLHIV in Harare agreed or strongly agreed that they had lost respect or standing in their community (7.7% v. 3.0%), thought less of themselves (25.0% v. 10.9%), and felt ashamed (26.9% v. 20.8%) because of their HIV status. Among self-reported PLHIV (≥75%), over 20% reported that they had ever experienced people talking badly about them because of their HIV status and over 15% reported that they had ever been verbally insulted, harassed, or threatened because of their HIV status. Among self-reported PLHIV, 4.1% reported that someone else had disclosed their HIV status often, 14.2% a few times, 8.1% once, and 73.7% never. Approximately 3% of participants reported that a healthcare worker had disclosed their HIV status without permission. Very few PLHIV reported being denied health services or experienced healthcare workers talking badly about them due to their HIV status.

Table 35. HIV stigma among self-reported HIV-positive participants by city, Zimbabwe, 2019

HIV stigma among men who have sex with men, transgender women, and gender queer individuals self-reportedly living with HIV by city, Zimbabwe, 2019

	Harare (n=52)		Bulawayo (n=101)		Total (n=153)	
	%	n	%	n	%	n
Lost respect or standing in the community because of my HIV status						
Strongly agree or agree	7.7	4	3.0	3	4.6	7
Strongly disagree or disagree	92.3	48	97.0	98	95.4	146
Think less of myself because of my HIV status						
Strongly agree or agree	25.0	13	10.9	11	15.7	24
Strongly disagree or disagree	75.0	39	89.1	90	84.3	129
Felt ashamed because of my HIV status						
Strongly agree or agree	26.9	14	20.8	21	22.9	35
Strongly disagree or disagree	73.1	38	79.2	80	77.1	118
People have talked badly about me because of my HIV status[1]						
Never	85.4	41	76.0	76	79.1	117
Once	0	0	4.0	4	2.7	4
A few times	8.3	4	17.0	17	14.2	21
Often	6.3	3	3.0	3	4.1	6
I have been verbally insulted, harassed, and/or threatened because of my HIV status[1]						
Never	89.6	43	82.0	82	84.5	125
Once	0	0	5.0	5	3.4	5
A few times	6.3	3	12.0	12	10.1	15
Often	4.2	2	1.0	1	2.0	3

Someone else disclosed my HIV status without my permission[1]						
Never	79.2	38	71.0	71	73.7	109
Once	10.4	5	7.0	7	8.1	12
A few times	4.2	2	19.0	19	14.2	21
Often	6.2	3	3.0	3	4.1	6
I have been denied health services because of my HIV status						
Never	100.0	52	99.0	100	99.4	152
Once	0	0	0	0	0	0
A few times	0	0	1.0	1	0.6	1
Often	0	0	0	0	0	0
Healthcare workers talked badly about me because of my HIV status						
Never	98.1	51	100.0	101	99.4	152
Once	0	0	0	0	0	0
A few times	1.9	1	0	0	0.6	1
Often	0	0	0	0	0	0
A health worker disclosed my HIV status without my permission						
Never	96.2	50	97.0	98	96.7	148
Once	3.9	2	3.0	3	3.3	5
A few times	0	0	0	0	0	0
Often	0	0	0	0	0	0

[1] Of those who had disclosed their HIV status, n=5 reported N/A, no one knows my HIV status.
Data were not stratified by key population due to suppression rules.

Population Size Estimates (PSE)

To estimate the population size of MSM and TGW/GQ, we used several approaches: service multiplier, unique object multiplier, and successive sampling, as described in the Biobehavioral Survey Guidelines for Populations at Risk for HIV .[12]

Service Multiplier Method

We used the service multiplier method to determine the overlap in two independent data sources by: 1) asking about the use of HIV prevention, care, and treatment services, as well as STI services from specific facilities or organizations in 2018 in the BBS questionnaire; and 2) obtaining the unduplicated counts of MSM and TGW/GQ using the relevant services or facilities. Unduplicated programmatic data were received from two KP organizations, one of which collected on disaggregations consistent with BBS eligibility.

The following equation was used to derive PSE using the service multiplier method:

$$N=B/m$$

N = estimate of total population size
B = total number of the population who received a particular service (program data)
m = proportion of the population receiving a particular service (survey data)
L = number of the population receiving a particular service (survey data)
C2 = sample size of the second capture (i.e., the survey)

Variance and 95% confidence intervals (CI) were computed using the following equations:

$$Var(N) = [B*C2*(B–L) \times (C2–L)]/L^3$$

$$95\%CI = N \pm 1.96 \times \sqrt{Var(N)}$$

Unique Object Multiplier

One week prior to survey implementation, volunteers identified through the support of several KP organizations, distributed a blue keychain to MSM and TGW/GQ at sites where MSM and TGW/GQ congregate in Harare and Bulawayo. Sites included nightclubs, bars, community centers, selected street points in the city center, shopping malls, and residential areas. Volunteers wore a white bracelet during distribution and collected information on the number of objects they distributed and the date and location of the distribution. Each person encountered by volunteers received only one keychain and were instructed to keep the keychain as they may be asked about it if invited to participate in the upcoming survey. Volunteers also verified that the person had not already received an object. During the RDS survey, study participants were asked whether they received the object through a series of questions, which was used as input for generating PSE.

Using the equations above and the inputs below, we also derived the PSE, variance, and 95%CI using the unique object multiplier method:

N = estimate of total population size
B = total number of unique objects distributed

[12] Biobehavioral survey guidelines for populations at risk for HIV. WHO, CDC, UNAIDS, FHI 360; 2017. Licence:CC BY-NC-SA 3.0 IGO.

m = proportion of participants who correctly show or identify the unique object in survey
L = number of participants who correctly show or identify the unique object in survey
C2 = sample size of the second capture (i.e., the survey)

Successive Sampling-PSE

Successive sample (SS-PSE) involves creating a probability model as a function of the self-reported network sizes in the RDS sample, investigators' knowledge or assumptions about the population size, and the unobserved network sizes. SS-PSE was generated in RDS-Analyst using a prior PSE of 1% of the adult male population. We generated additional SS-PSE using imputed visibility.

Consensus PSE

PSE workshops were held in each city to review the PSE methods employed and the strengths and weakness of each approach. Representatives from the MoHCC, NAC, GALZ, Centre for Sexual Health and HIV/AIDS Research Zimbabwe, TranSmart, Sexual Rights Centre, Population Services International, Hands of Hope, TIRZ, and PANGEA were in attendance. During the workshops, PSEs and 95% CIs and their proportions relative to the adult male population (Annexes 5–6) were reviewed, compared, and discussed to reach a consensus estimate for each city. The following consensus estimates were reached in both cities:

- Harare: 15,875 (95% CI: 11,907–19,843)
- Bulawayo: 7,451 (95% CI: 6,353–8,549)

As service data provided were not disaggregated by KP and unique object distribution log data did not include gender identity, these PSE represent the combined MSM and TGW/GQ population. To establish proxy PSE for MSM and TGW/GQ separately, we applied the proportion of MSM and TGW/GQ in the RDS survey to the PSE, inclusive of MSM and TGW/GQ (Annexes 5–6).

Conclusions

Key Findings

This is the first BBS to be implemented among MSM and TGW/GQ individuals in Zimbabwe. Completion of this survey demonstrates the feasibility of using RDS to recruit MSM and TGW/GQ individuals to estimate the prevalence of HIV, other STIs, and associated risk behaviors in urban areas of Zimbabwe. Additionally, this project generated the first estimate of MSM and TGW/GQ population size in Zimbabwe. Population size estimation yielded combined MSM and TGW/GQ consensus estimates of 15,875 (95% CI: 11,907–19,843) in Harare and 7,451 (95% CI: 6,353–8,549) in Bulawayo.

A total of 1538 MSM and TGW/GQ individuals were recruited in Harare and Bulawayo for the BBS. Most participants were young (18–34), unemployed, and single/never married. A high percentage of the sample in Harare identified as TGW/GQ (40.0%), compared to Bulawayo (7.0%).

HIV prevalence was 21.4% in Harare and 23.4% in Bulawayo. These estimates indicate a two-fold increase in HIV prevalence compared to the general adult male population (aged 15–49), which is estimated at 10.0%.[13] Similar to trends observed in the general male population,[14] HIV prevalence increased with age, reaching 43.4% overall for those aged 45 years or older. Higher HIV prevalence may suggest cumulative exposure to HIV risk behaviors over time and a lack of engagement in KP services among older MSM and TGW/GQ individuals.

Using the recency assay (RTRI), 11.3% in Harare and 5.6% in Bulawayo had recent infections among those who self-reported being newly diagnosed with HIV. However, after accounting for viral load (RITA), those percentages decreased to 2.1% in Harare and 0% in Bulawayo. Discrepancies between RTRI and RITA recency results may reflect that some participants did not disclose ART status during the survey questionnaire, potentially leading to false RTRI-recent results.

Findings indicate low awareness of HIV status among PLHIV (45.0%) in the combined sample. However, ART treatment was high among those self-reportedly aware of their HIV status (93.5%), and viral load suppression was high (81.1%) among those self-reported on ART. Among persons newly diagnosed, viral load suppression was 48.7% compared to 61.5% among all PLHIV (regardless of self-reported HIV status). In Harare, 34.9% of PLHIV were aware of their HIV status, 90.4% of those who were aware of their HIV status were on ART, and 83.0% of those on ART were virally suppressed. In Bulawayo, 52.9% of PLHIV were aware of their HIV status, 95.1% of those who were aware of their HIV status were on ART, and 80.2% of those on ART were virally suppressed. Gaps in the first 90 of the HIV cascade, particularly in Harare, underscore the need for interventions that promote HIV testing and early diagnosis among MSM and TGW/GQ individuals in Zimbabwe.

Consistent condom use in the past six months was low among MSM and TGW/GQ individuals in both Harare and Bulawayo. Over 30% of participants who reported anal sex in the six months preceding the survey did not use a condom at last sex with their main male partner. In both cities, MSM more commonly reported condom use at last sex than TGW/GQ individuals. Over 70% of participants used a lubricant during anal sex in the past six months; however, findings highlight

[13] Zimbabwe country fact sheet. Geneva: UNAIDS; 2018. Available at: https://www.unaids.org/en/regionscountries/countries/zimbabwe. Accessed April 17, 2020.
[14] Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA) 2015–2016: Final Report. Harare: Ministry of Health and Child Care; 2019.

remaining gaps in lubricant knowledge. Among those who did not use a lubricant during anal sex, the most commonly reported reason was that the participant had never heard of lubricants. Overall, less than 50% of participants had received lubricants for free in the past six months.

Gaps in HIV knowledge and engagement with peer educators or outreach workers remain. Comprehensive HIV knowledge was lower in Bulawayo (65.6%) compared to Harare (80.5%), and less than a third of participants identified receptive anal sex as the most efficient mode of HIV acquisition. Peer educators and outreach workers were identified as preferred sources of HIV information in both cities, although approximately half of the participants in Harare and a third of the participants in Bulawayo had never engaged with a peer educator or outreach worker.

HIV testing was high in both cities. The proportion of participants who had ever tested for HIV was 88.6% and 82.8% in Harare and Bulawayo, respectively. However, awareness of HIV status among PLHIV was low despite high testing coverage. It is possible that PLHIV underreported their HIV status due to social desirability bias. Alternatively, low awareness of HIV status among PLHIV may suggest remaining gaps in testing coverage. Less than 30% of those who had engaged with HIV outreach services reported receiving HIV testing at their last encounter with a peer educator or outreach worker. Additionally, while a large proportion of participants who had ever tested for HIV reported receiving a test within the six months preceding the BBS, this survey did not include questions on HIV testing frequency. Future work should examine frequency of HIV testing to better understand the low awareness of HIV status among PLHIV in this population.

Prevalence of current HBV infection was 3.3% in Harare and 4.3% in Bulawayo, and was higher among TGW/GQ individuals in Harare. Active syphilis infection was 5.5% in Harare and 5.6% in Bulawayo, and was higher among TGW/GQ individuals compared to MSM in both cities. Nearly a third of MSM and TGW/GQ participants had experienced one or more STI symptoms in the past year, and approximately 10% of participants reported a clinical diagnosis of an STI. Among PLHIV, 28.9% of participants in Harare and 17.8% of participants in Bulawayo reported any STI symptoms in the previous 12 months, while 16.1% in Harare and 10.0% in Bulawayo reported STI diagnoses. These estimates are higher than the general population results from ZIMPHIA,[15] in which 2.9% of men overall and 6.4% of men with HIV reported a clinical diagnosis of an STI.

Awareness and uptake of PrEP was low among MSM and TGW/GQ individuals in this sample. Among those who self-reported a negative or unknown HIV status, two-thirds in Harare and one-third in Bulawayo had never heard of PrEP, and less than 25% of participants had ever taken PrEP. Among the most commonly reported reasons for never taking PrEP were that the participant did not know where to obtain it or did not feel at risk for HIV. PrEP accessibility is expanding in Zimbabwe, guided by MOHCC's Implementation Plan for HIV Pre-Exposure Prophylaxis in Zimbabwe (2018-2020). Despite increased availability of PrEP, low PrEP awareness and uptake in this population may reflect limited or poor messaging and counseling on PrEP for MSM and TGW/GQ individuals.

The most commonly reported acts of SOGI stigma among MSM and TGW/GQ individuals in this sample were blackmail (Harare: 13.5%, Bulawayo: 17.3%) and family member rejection (Harare: 13.5%, Bulawayo: 15.9%). SOGI stigma, including arrests, family rejection, job termination, employment denial, blackmail, denial of healthcare, avoidance of seeking healthcare, and abuse were more common among PLHIV compared to HIV-negative participants. These findings support the

[15] Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA) 2015–2016: Final Report. Harare: Ministry of Health and Child Care; 2019.

idea of "compounded stigma," which describes how persons such as MSM and TGW/GQ individuals living with HIV may possess multiple stigmatized identities by facing both HIV and SOGI stigma.

Challenges

During survey implementation, Zimbabwe experienced severe hyper-inflation, resulting in unpredictable variation in the price of fuel, food, and cost of living. Toward the end of data collection, Zimbabwe implemented a water rationing program due to acute water shortages, limiting water to once per week for some residents, and electricity rationing with power cuts of up to 18 hours per day. These challenges may have impacted participants' ability to return for a second visit.

Same-sex sexual behaviors are illegal and highly stigmatized in Zimbabwe. Those who were recruited and agreed to participate may be a self-selected group of individuals who were more comfortable disclosing their sexual behavior. They may, for example, already have contact with MSM and TGW/GQ services, self-identify as "gay," be unmarried, be more educated, or perceive that they are at less risk for harm related to being MSM or TGW/GQ than those who did not participate. Using RDS helped to address this limitation by recruiting through peer networks, which has been shown to be effective in recruiting hidden or hard-to-reach populations[16]. This project is limited to Harare and Bulawayo and does not reflect MSM and TGW/GQ activity throughout all of Zimbabwe. Additionally, the sample was not initially powered to produce separate MSM and TGW/GQ estimates. All questionnaire data (condom use, history of HIV testing, awareness of status, and ART use) were self-reported and may be subject to social desirability bias. We sought to overcome this limitation by training data collectors to use nonjudgmental behavior and nonverbal cues and build rapport with participants prior to commencing the interview.

Considerations

- HIV prevalence among MSM and TGW/GQ individuals in Harare and Bulawayo is high compared to the general adult male population. The BBS results indicate gaps in HIV prevention programs and services for MSM and TGW/GQ individuals in these cities. Programs could be considered to increase awareness of HIV transmission and prevention methods by focusing on:
  - **Comprehensive knowledge of HIV transmission.** Gaps remain in comprehensive HIV knowledge in both cities and was particularly low among MSM and TGW/GQ individuals in Bulawayo. Education programs and HIV messaging tailored to the MSM and TGW/GQ community should consider focusing on improving HIV knowledge, as well as highlighting risk differences between condomless receptive and insertive anal sex.
  - **Awareness and uptake of PrEP,** which was low in both cities. Appropriate risk assessment and counseling by providers serving KP and PrEP messaging tailored to MSM and TGW/GQ communities may improve PrEP awareness and uptake in this population.
  - **Accessibility and use of condoms and lubricants.** Prevention programs for MSM and TGW/GQ individuals should consider including counseling on condom use. Survey findings also reveal gaps in use and awareness of lubricants. Programs should consider including information about water-based lubricants in HIV messaging targeting MSM

[16] Heckathorn DD. Respondent-driven sampling: a new approach to the study of hidden populations. *Social Problems.* 1997;44(2):174–99.

and TGW/GQ individuals, as well as making water-based lubricants available at all facilities and NGOs serving KPs.

- Low awareness of HIV status among PLHIV in this sample and limited contact with peer educators indicate a need for expanded coverage of outreach and testing services. Specifically, survey results underscore a need to:
  - **Increase engagement of MSM and TGW/GQ individuals with peer educators and outreach workers.** Programs should consider sensitizing peer educators and outreach workers toward MSM and TGW/GQ individuals in order to serve these populations effectively. Funding for additional outreach programs may help increase contact of MSM and TGW/GQ individuals with peer educators and outreach workers.
  - **Improve coverage and frequency of HIV testing among MSM and TGW/GQ individuals.** Although most survey participants had tested for HIV, gaps in the first 90 indicate low awareness of HIV status among PLHIV. Expansion of community-based HIV testing services to better reach KPs may help reach MSM and TGW/GQ individuals that are not engaged with healthcare services. Furthermore, this survey demonstrated the feasibility of network-based recruitment strategies in this population, suggesting social network-based approaches that offer HIV testing or HIV self-testing to contacts of KPs in line with WHO's Consolidated Guidelines on HIV Testing Services (2019)[17] may help expand testing coverage among hard-to-reach MSM and TGW/GQ individuals.
- Despite low prevalence of enacted KP stigma by healthcare workers, nearly 20% of participants avoided seeking healthcare services out of fear of identification as MSM or TGW/GQ. Improving KP service delivery in the public sector may allow for better uptake of healthcare services, including HIV prevention, care, and treatment services among these groups, particularly given participant preference for receiving HIV testing at government facilities.
- Results highlight variation in RTRI- and RITA-recent infections among newly diagnosed MSM and TGW/GQ, underscoring the importance of viral load testing to increase the accuracy of testing for recent HIV infections. With the incorporation of viral load results, >85% of RTRI-recent cases were classified as RITA-long term. This may be due to failure to disclose ART-status during the interview process, which may decrease the positive predictive value of true recent infections. Programs should consider including probing for ART status in pre-test counseling. Zimbabwe should also consider incorporating viral load testing as part of recency testing, where feasible.
- A high proportion of MSM and TGW/GQ participants reported STI symptoms in the 12 months preceding the study. STI symptoms and diagnoses among PLHIV in this sample were higher than general population results from ZIMPHIA.[18] Integration of routine STI screening, counseling, and testing services into programs that provide services to MSM and TGW/GQ individuals, as well as expedited partner therapy, may reduce STIs and help prevent onward transmission. Point-of-care STI testing and treatment approaches should be considered given the well-documented limitations of syndromic management of STIs in resource-limited settings.[19]

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[17] Consolidated guidelines on HIV testing services for a changing epidemic. Geneva: World Health Organization; 2019.
[18] Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA) 2015–2016: Final Report. Harare: Ministry of Health and Child Care; 2019.
[19] Garrett NJ, McGrath N, Mindel A. Advancing STI care in low/middle-income countries: has STI syndromic management reached its use-by date? *Sex Transm Infect.* 2017;93(1):4–5.

- Alcohol dependence among participants (22.4%) was substantially higher than available estimates of alcohol use disorders among the adult male population in Zimbabwe (2.6%),[20] and nearly half of the sample reported recent drug use. Programs and services for MSM and TGW/GQ should consider providing patient-centered care to address challenges in mental health and substance use, which may pose barriers to care, including among PLHIV.
- MSM and TGW/GQ population size estimates can be used to advocate for additional funding for HIV and other STI testing and treatment services among this population. Programs should consider adapting HIV surveillance systems to include MSM and TGW/GQ individuals.

[20] ATLAS of substance use disorders: resources for the prevention and treatment of substance use disorders, Country profile: Zimbabwe. Geneva: World Health Organization; 2010. Available at: https://www.who.int/substance_abuse/publications/atlas_report/profiles/zimbabwe.pdf. Accessed April 17, 2020.

Annex 1. Sample Size Calculations

We estimated that a sample size of 1538 participants was needed to achieve the study objectives: a) to estimate HIV prevalence and HIV viral load suppression with acceptable precision (at 95% confidence level) among the MSM and TGW/GQ population in Harare and Bulawayo; and b) to detect a change in HIV prevalence between the current survey and future BBS conducted among MSM and TGW/GQ, should the MOHCC integrate MSM and TGW/GQ into their routine surveillance system.

Sample size calculations were based on the primary objective of the survey, i.e., to estimate the prevalence of HIV among MSM/TGW in each city. The following formula was used to estimate the sample size:

$$N = DEFF^* Z^2_{(1-\alpha/2)}{}^*p(1-p)/d^2$$

N = Sample size needed
DEFF = Design effect that accounts for the increased variation of the estimates under RDS; a design effect of two was used
Z = Z score (=1.96 here) is the critical value for 95% CI two-sided test
d = precision or error margin allowed; the error margin is the distance, in either direction, from the population proportion (e.g., ±5%), which is a function of the standard error: $\pm Z_{1-\alpha/2} \times$standard error = $\pm Z_{1-\alpha/2} \times \sqrt{[P(1-P)/n]}$. We used an allowed error margin range of 3–5%.
p = HIV prevalence [4, 7–9].

Table A1.1 presents the sample sizes needed to provide estimates of HIV prevalence between 15–40% using RDS, at different margins of error with 95% confidence and a design effect of two. The previous survey of MSM in Zimbabwe found a HIV prevalence of 23.5%. ZIMPHIA found the general population in Harare had a lower HIV prevalence than in Bulawayo (14.2% v. 18.7%).[21]

Table A1.1. Sample size needed to detect a range of possible HIV prevalence given a range of margins of errors with 95% confidence and a design effect of two.

Prevalence	Allowed error margin (m) % (+/-)		
	3%	4%	5%
15%	1089	613	392
20%	1366	768	492
25%	1601	900	576
30%	1793	1008	646
35%	1944	1094	700
40%	2050	1154	738

[21] Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA) 2015–2016: Final Report. Harare: Ministry of Health and Child Care; 2019.

The sample size, assuming a design effect of two, an HIV prevalence of 30% for Harare and 40% for Bulawayo, and a 5% margin of error (24–36%) is 646 for Harare and 738 for Bulawayo. Assuming a participation rate of 90% for HIV testing, enrolling 718 in Harare and 820 in Bulawayo will provide 95% confidence to estimate an HIV prevalence of 30–40%, with a +/-5% error margin (Table A1.1) and to provide sufficient statistical power (80%) to detect a significant absolute decrease in prevalence of 10% in both areas if a future survey is conducted (Tables A1.2 and A1.3). Given these sample sizes, we would also have 95% confidence to detect viral load suppression of 20–50% with adequate precision (Tables A1.4 and A1.5). PASS 14.0.3 (NCSS, LLC, 2015) was used for power and sample size calculations.

Table A1.2. Absolute and relative differences that can be detected for effective sample size of 323, or 646 with design effect of two and 718 with 90% response rate, 80% power, and a two-sided α=0.05 unpooled variance Z-test for Harare.

Sample size for design effect of two and 90% response rate	Effective sample size with design effect of two	Effective sample size	P1	P2	Absolute difference	Relative difference
718	646	323	0.1	0.0435	-0.0565	56.5%
718	646	323	0.2	0.1197	-0.0803	40.2%
718	646	323	0.3	0.2048	-0.0952	31.7%
718	646	323	0.4	0.2956	-0.1044	26.1%

Table A1.3. Absolute and relative differences that can be detected for an effective sample size of 369, or 738 with design effect of two, and 820 with 90% response rate, 80% power, and a two-sided α=0.05 unpooled variance Z-test for Bulawayo.

Sample size for design effect of two and 90% response rate	Effective sample size with design effect of two	Effective sample size	P1	P2	Absolute difference	Relative difference
820	738	369	0.1	0.0465	-0.0525	53.5%
820	738	369	0.2	0.1244	-0.0756	37.8%
820	738	369	0.3	0.2105	-0.0895	29.8%
820	738	369	0.4	0.3031	-0.0979	24.2%

Table A1.4. Precision of estimation for viral load suppression with the sample size of 718 in Harare, 95% CI.

Total N enrolled (design effect of 2 and 90% response rate)	Effective sample size	HIV prevalence (%)	Number of HIV+	Viral load suppression (%)	95% CI	Margin of error (+/-%)
718	323	20.0	65	20.0	10.3–29.7	9.7
				30.0	18.9–41.1	11.1
				40.0	28.1–51.9	11.9

				50.0	37.8–62.2	12.2
		30.0	97	20.0	12.0–28.0	9.0
				30.0	20.9–39.1	9.1
				40.0	30.3–49.7	9.8
				50.0	40.0–60.0	10

Table A1.5. Precision of estimation for viral load suppression with the sample size of 820 in Bulawayo, 95% CI.

Total N enrolled (design effect of two and 90% response rate)	Effective sample size	HIV prevalence (%)	Number of HIV+	Viral load suppression (%)	95% CI	Margin of error (+/-%)
820	369	30.0	111	20.0	12.6–27.4	7.4
				30.0	21.5–38.5	8.5
				40.0	30.9–49.1	9.1
				50.0	40.7–59.3	9.3
		40.0	148	20.0	13.6–26.4	6.4
				30.0	22.6–37.4	7.4
				40.0	32.1–47.9	7.9
				50.0	41.9–58.1	8.1

Annex 2. Additional Information on Methods

Selection of Seeds and Recruitment Process

A series of interview slots were available for scheduled interviews for participants who called or beeped the phone number on the coupon. Interview slots were also held to accommodate candidate participants who visited the survey site without a scheduled appointment. Candidate participants without appointments had the chance to schedule an appointment for a future date on days where the site was busy.

Coupon Management

Unique coupon numbers linked the recruiter to their recruits and were managed in an Excel template (called the 'RDSCM') programmed with conditional color formatting to identify duplicate coupon numbers and non-linked participants and/or new seeds. In addition to linking recruiters and recruits, the RDSCM captured information on primary and secondary reimbursement and return of results, and tracked information on unused or returned coupons, including ineligible, fake, or invalid coupons. The RDSCM also housed the unique participant code (UPC) used to ensure a recruit could not enroll more than once and to verify a participant's identity during their second visit. The UPC was generated using: 1) the first two letters of the participant's mother's name, 2) the first two letters of the district of residence, 3) the last two numbers of the birth year, and 4) the last four digits of the cellphone number.

Screening and Informed Consent

Survey staff examined the coupon presented by each candidate participant (dates, originality, and its status in the RDSCM). The candidate participant's eligibility was then assessed using an eligibility screening form. When doubts about eligibility remained, staff posed additional (non-standardized) questions to confirm true eligibility. This was particularly important to identify persons misrepresenting themselves as MSM and TGW/GQ for purposes of reimbursement, given the economic context at the time of data collection.

Participant Checklist

A participant checklist form was used to help survey staff remember the flow of survey steps and ensure that participants had completed each of the steps needed to receive a primary incentive. Survey staff wrote their initials on the checklist to indicate completion of each task before presenting the participant to the survey personnel at the next step of the survey process. Before the participant left the office, survey staff collected, signed, and filed the checklist.

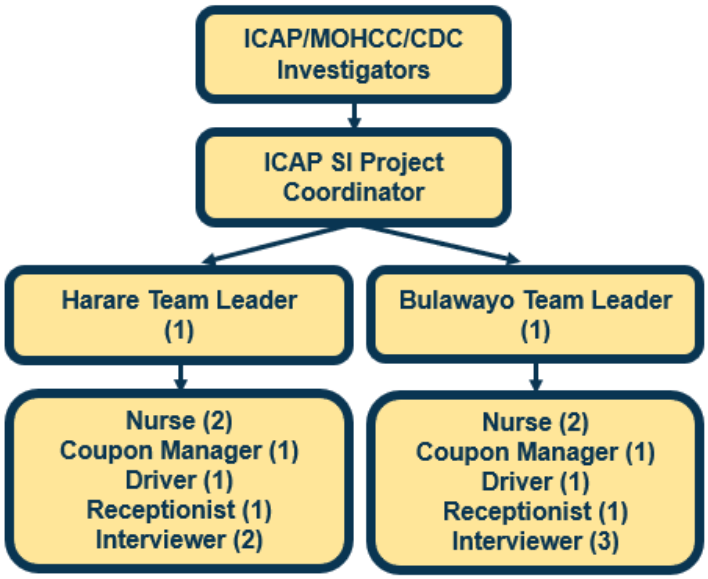
Data Entry and Management

All data were entered using SurveyCTO via password-encrypted tablets. All data collected during the day was stored in the tablet memory and uploaded into the web-based server at the end of each day after entries were checked for completeness and other quality issues (such as logic) by the supervisor. Data entry checks and skip patterns were automatically programmed to occur during the interview. Electronic data were then sent to an encrypted, Web-based server on a regular basis and downloaded for management and analyses.

Staffing and Training

Each site was staffed by 8–10 persons (team lead, receptionist, coupon manager, interviewer[s], and tester[s]). The team structure is outlined in Figure A2.1. All project staff were fluent in English, Shona, and Ndebele languages, and were selected so that the target participants would be comfortable with them. All staff participated in a week-long training that included the following topics: project background, KP sensitivity, design, SOPs (including enrollment; survey administration; HIV testing and counseling; specimen collection, processing, and storage; and participant follow-up), and tools (including the use of tablets for data collection); human subjects (e.g., informed consent); communication skills and interview techniques; data confidentiality; and Good Clinical Practices (which includes study ethics). The training included a practical component where staff practiced procedures, and separate sessions tailored to each staff's role.

Figure A2.1. BBS team structure



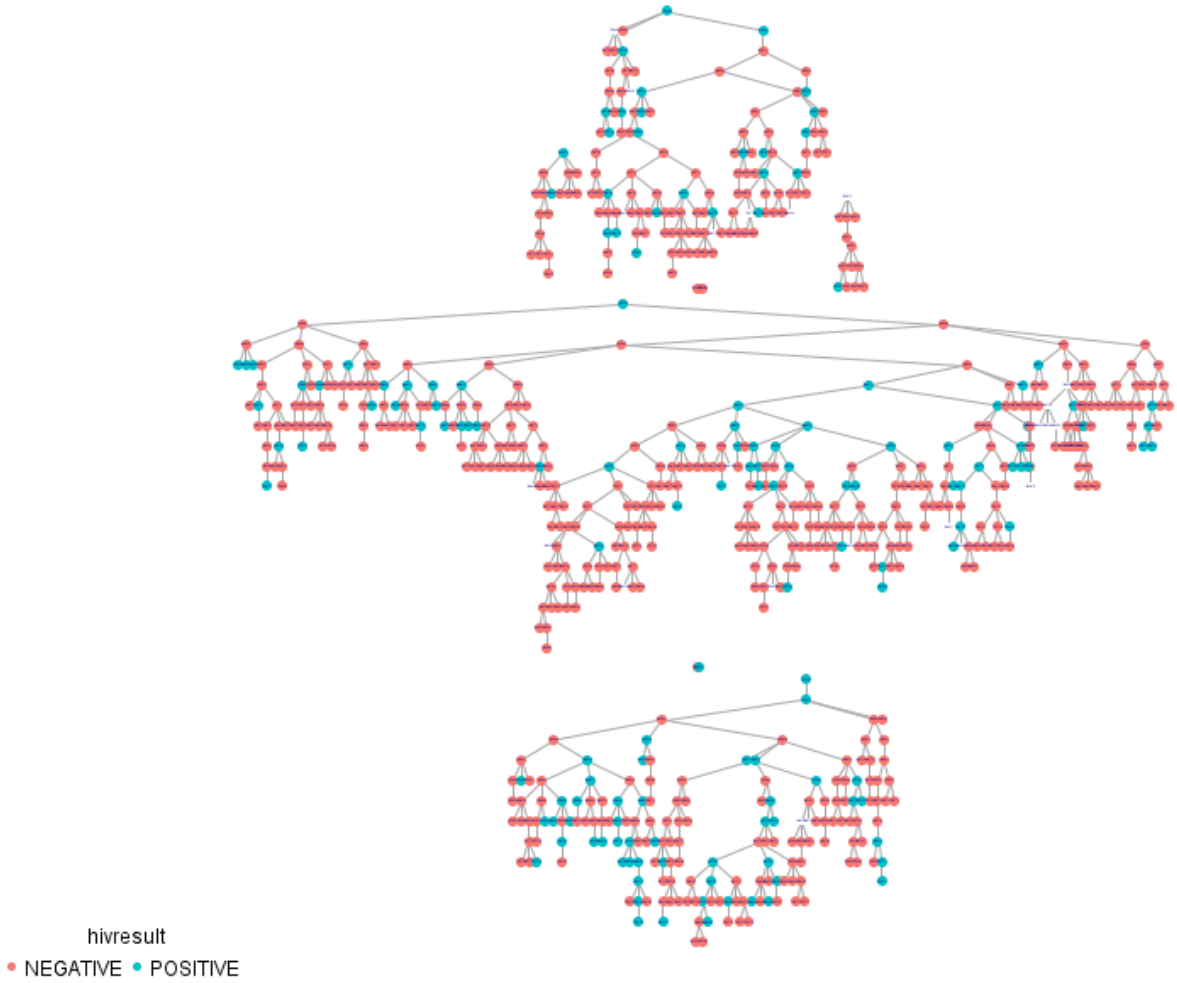
Data Cleaning, Variable Transformation, and Merging of Data

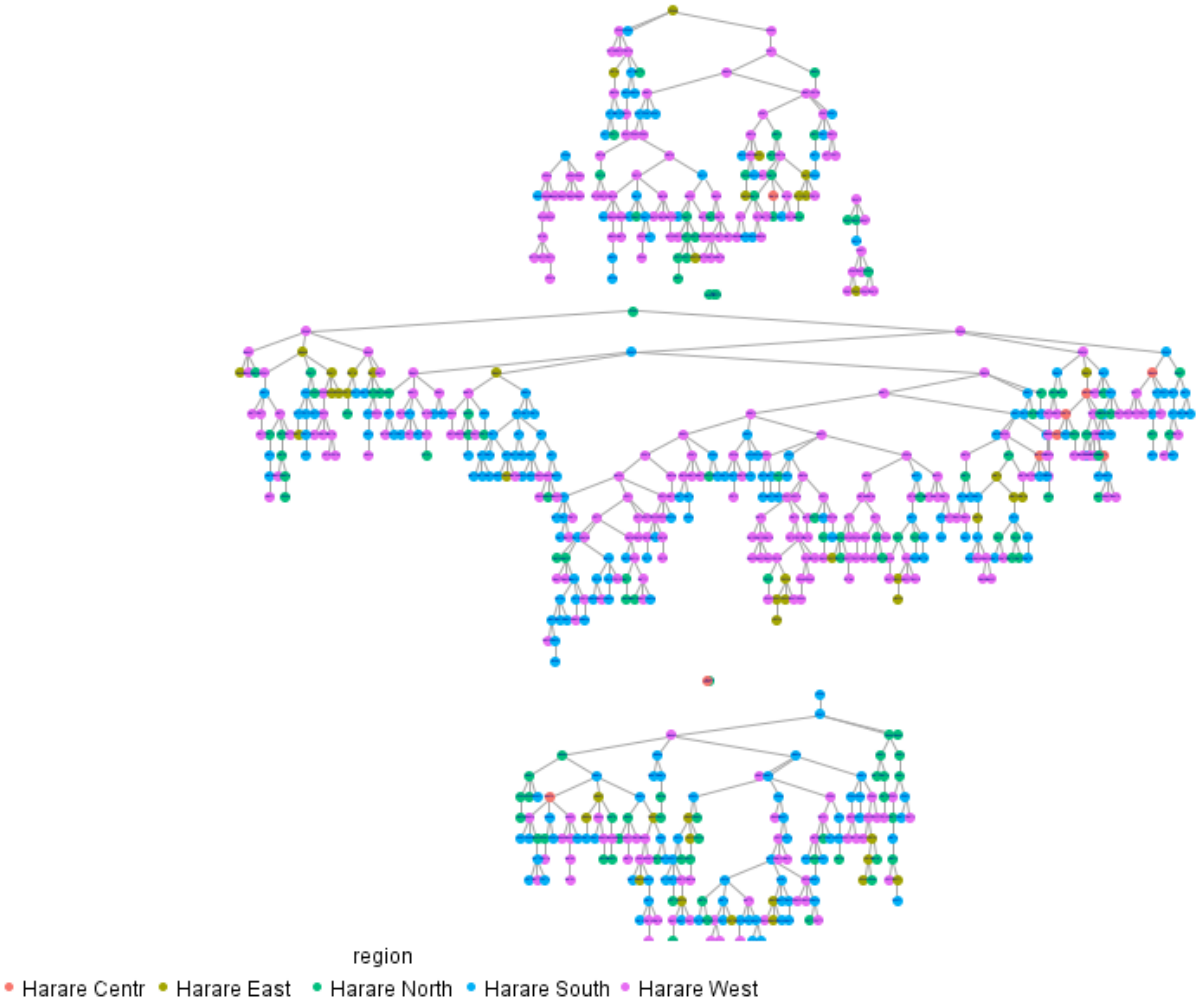
Tablets were pre-programmed with skip patterns and logic checks to ensure data quality and completeness. Data cleaning procedures occurred during and following data collection, including:

- De-duplication of submissions.
- Cleaning of data entry errors (e.g., coupon numbers submitted incorrectly)
- Merging and creation of variables, including creation of categorical variables from continuous variables (examples of analytic variables include "received unique object" created based on responses to the series of unique object questions in the questionnaire)
- Addition of variable labels (for SAS)

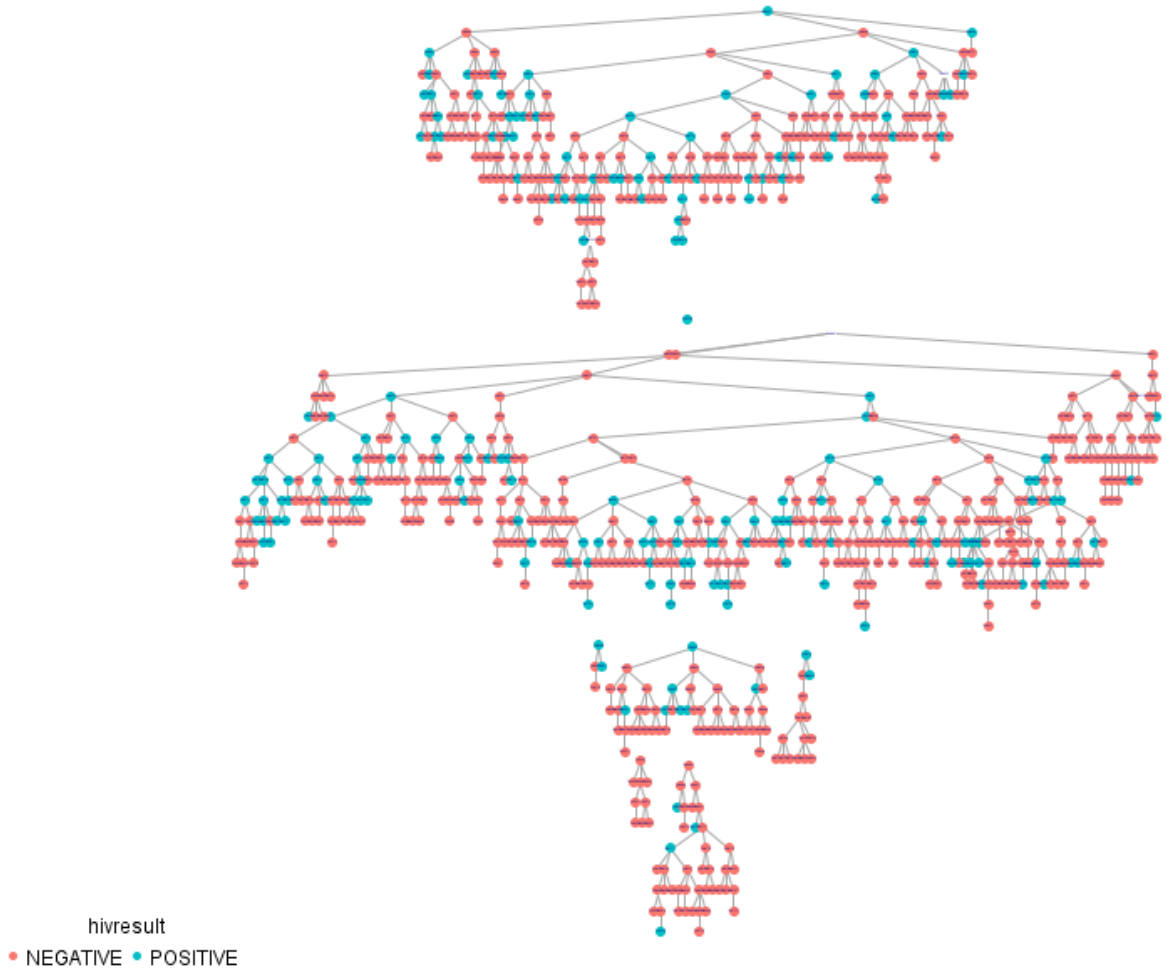
All SurveyCTO datasets and the RDSCM were merged in SAS by coupon number. For this project, we provide the RDS-unadjusted estimates (sample) because the sample did not reach convergence for HIV.

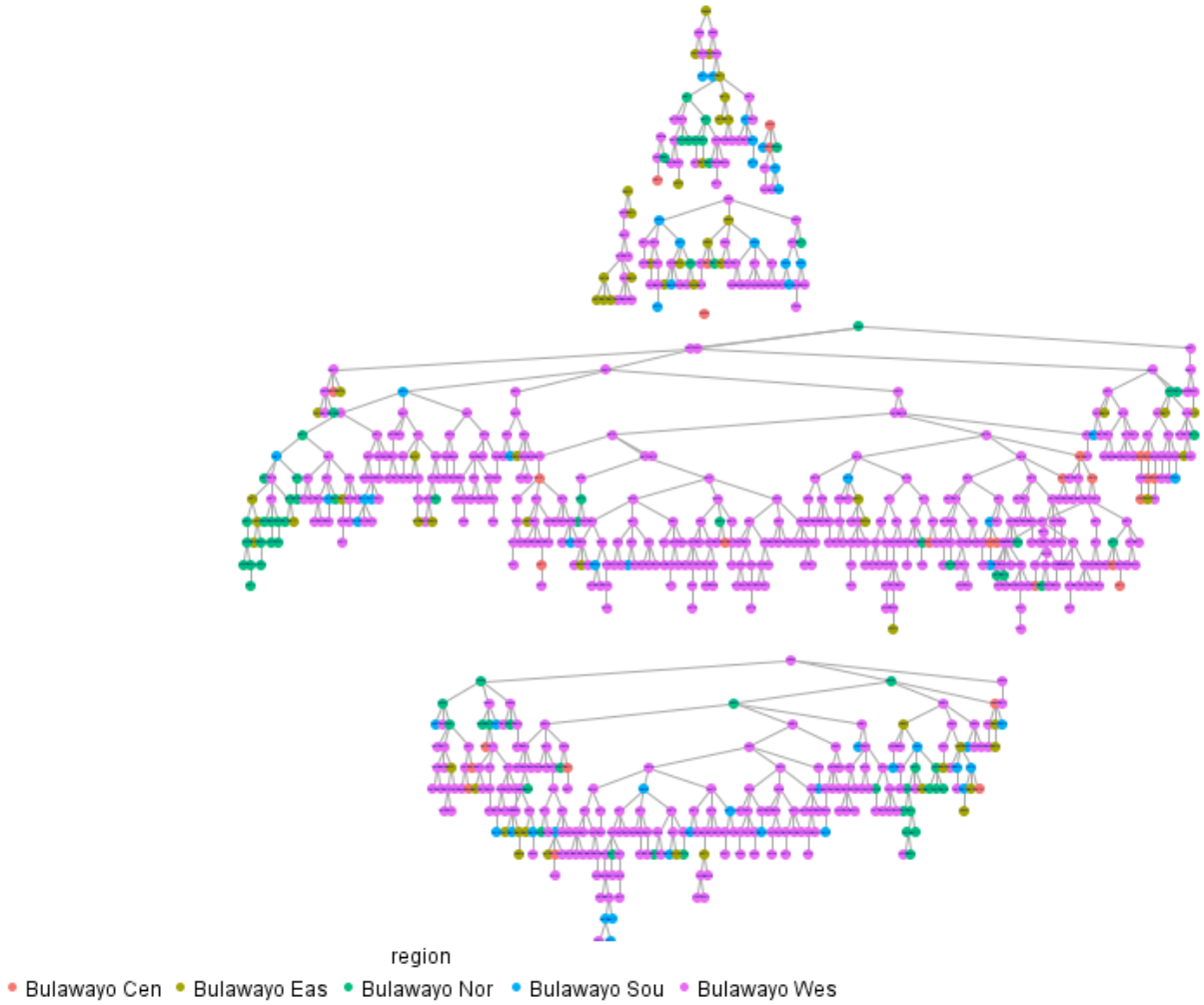
Annex 3. Harare Recruitment Trees




region
Harare Centr
Harare East
Harare North
Harare South
Harare West

Annex 4. Bulawayo Recruitment Trees




region
Bulawayo Cen
Bulawayo Eas
Bulawayo Nor
Bulawayo Sou
Bulawayo Wes

Annex 5. Harare Population Size Estimation

Table A5.1. Harare PSE

Methods	PSE (MSM+TGW)	95% CI		% of male pop (15+)	PSE TGW/GQ (% Unadjusted)	PSE MSM (% Unadjusted)	PSE TGW/GQ (% HCG)	PSE MSM (% HCG)
		LL	UL					
SS-PSE (mode)	7535	-	-	1.0	3012	4523	2763	4772
SS-PSE (median)	6784	4901	7501	0.9	2712	4072	2488	4296
SS-PSE imputed visibility (mode)	7535	-	-	1.0	3012	4523	2763	4772
SS-PSE imputed visibility (median)	6955	5392	7515	0.9	2781	4174	2550	4405
HIV test (weighted)	1893	1751	2036	0.3	757	1136	694	1199
HIV test	1733	1615	1851	0.2	693	1040	636	1098
ART (weighted, GSS)[1]	11090	0	34868	1.5	4434	6656	4067	7024
ART	2270	159	4380	0.3	907	1362	832	1437
STI (weighted)	442	-	-	0.1	177	265	162	280
STI	256	-	-	0.0	102	153	94	162
Unique object (weighted)	15875	11907	19843	2.1	6347	9528	5821	10054
Unique object	10381	8354	12407	1.4	4150	6231	3807	6574
Unique object (imputed visibility)	9302	7604	11001	1.2	3719	5583	3411	5891
MoHCC estimate	8130-8376	-	-	1.0-1.10	3250-3349	4880-5027	2981-3071	5149-5305
Census (1%)	7619	-	-	1.0	3046	4573	2794	4825
Consensus estimate	**15875**	**11907**	**19843**	**2.1**	**6347**	**9528**	**5821**	**10054**

Note: SS-PSE estimates are based on census estimate (1% of adult male population). All weighted estimates were generated using the Homophily Configuration Graph (HCG) estimator, unless otherwise indicated.
[1] Unable to weight using HCG or RDS-I

Annex 6. Bulawayo Population Size Estimation

Table A6.1. Bulawayo PSE

Methods	PSE (MSM+TGW)	95% CI		% of male pop (15+)	PSE TGW/GQ (% Unadjusted)	PSE MSM (% Unadjusted)	PSE TGW/GQ (% HCG)	PSE MSM (% HCG)
		LL	UL					
SS-PSE (mode)	1331	-	-	0.6	93	1238	69	1262
SS-PSE (median)	1331	1152	1578	0.6	93	1238	69	1262
SS-PSE imputed visibility (mode)	1028	-	-	0.4	71	957	54	974
SS-PSE imputed visibility (median)	1066	877	1455	0.5	74	992	56	1010
HIV test (weighted)	1303	1206	1401	0.6	91	1213	68	1235
HIV test	1126	1061	1191	0.5	78	1048	59	1067
ART (weighted, GSS)[1]	488	334	641	0.2	34	454	25	462
ART (weighted, RDS-I)[1]	644	395	893	0.3	45	599	34	610
ART	425	305	545	0.2	30	396	22	403
STI (weighted)	15	-	-	0.0	1	14	1	14
STI	10	-	-	0	1	9	1	10
Unique object (weighted)	23068	16449	29687	9.8	1603	21465	1202	21866
Unique object	8865	7404	10326	3.8	616	8249	462	8403
Unique object (imputed visibility)	7451	6353	8549	3.2	518	6933	388	7063
MoHCC estimate	3077-3170	-	-	1.3-1.4	214-220	2863-2950	160-165	2917-3005
Census (1%)	2352	-	-	1.0	163	2189	123	2229
Consensus estimate	**7451**	**6353**	**8549**	**3.2**	**518**	6933	**388**	7063

Note: SS-PSE estimates are based on census estimate (1% of adult male population). All weighted estimates were generated using the Homophily Configuration Graph (HCG) estimator, unless otherwise indicated.
[1]Unable to weight using HCG

Annex 7. Supplementary Tables

Table A7.1. Demographic characteristics, Zimbabwe, 2019

Demographic characteristics among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	Percentage	Number	Percentage	Number	Percentage	Number
Age						
18–24	52.9	380	41.5	340	46.8	720
25–34	35.5	255	35.5	291	35.5	546
35–44	8.9	64	15.1	124	12.2	188
45 or older	2.6	19	7.9	65	5.5	84
median (IQR)	24 (21–29)		26 (22–34)		25 (21–32)	
Race						
Black African	99.0	711	96.8	794	97.9	1505
White	0.1	1	0.1	1	0.1	2
Colored	0.8	6	2.8	23	1.9	29
Indian	0	0	0.1	1	0.1	1
Asian	0	0	0.1	1	0.1	1
Nationality						
Zimbabwean	99.2	712	98.4	807	98.8	1519
Other African	0.8	6	1.6	13	1.2	19
Area of residence						
Harare Central	1.3	9	0	0	0.6	9
Harare North	17.1	123	0	0	8.0	123
Harare West	43.0	309	0	0	20.1	309
Harare East	6.4	46	0	0	3.0	46
Harare South	32.2	231	0	0	15.0	231
Bulawayo Central	0	0	3.7	30	2.0	30
Bulawayo North	0	0	8.9	73	4.7	73
Bulawayo West	0	0	73.0	599	38.9	599
Bulawayo East	0	0	7.4	61	4.0	61
Bulawayo South	0	0	7.0	57	3.7	57
Employment status						
Self-employed	23.7	170	24.9	204	24.3	374
Employed full-time	19.6	141	9.0	74	14.0	215
Employed part-time	11.4	82	9.3	76	10.3	158
Full-time student	14.2	102	12.8	105	13.5	207
Retired	0.3	2	0.4	3	0.3	5
Unemployed	30.8	221	43.4	356	37.5	577
Other	0	0	0.2	2	0.1	2
Income earned last month, USD[1,2]						
<USD 50	23.8	94	24.4	86	24.1	180
USD 50–100	39.5	156	47.0	166	43.0	322
USD 101–150	10.6	42	8.5	30	9.6	72
USD 151–200	7.3	29	4.5	16	6.0	45
>USD 200	18.7	74	15.6	55	17.2	129
median (IQR)	100 (50–190)		80 (50–150)		90 (50–150)	

Highest education attended						
None	0	0	0.5	4	0.3	4
Primary	1.6	9	8.4	69	5.1	78
Secondary	68.7	493	72.3	593	70.6	1086
Tertiary	20.9	150	17.6	144	19.1	294
Vocational	9.2	66	1.2	10	4.9	76
Marital status						
Single, never married	81.8	587	81.3	667	81.5	1254
Married (to one or more women)	7.0	50	3.7	30	5.2	80
Married (to one or more men)	0.3	2	1.1	9	0.7	11
Separated/divorced	10.0	72	11.7	96	10.9	168
Widowed	0.3	2	1.0	8	0.7	10
Cohabiting	0.7	5	1.2	10	1.0	15
Religion						
Traditional	0.7	5	4.6	38	2.8	43
Roman Catholic	18.5	133	20.7	170	19.7	303
Protestant	22.6	162	10.6	87	16.2	249
Pentecostal	32.2	231	24.3	199	28.0	430
Apostolic Sect	6.3	45	4.8	39	5.5	84
Other Christian	4.2	30	11.1	91	7.9	121
Muslim	0.4	3	1.1	9	0.8	12
None	14.8	106	22.3	183	18.8	289
Other	0.4	3	0.5	4	0.5	7
Key population						
Male	60.0	431	93.0	763	77.6	1194
Female/transwoman	27.6	198	4.6	38	15.3	236
Genderqueer	12.4	89	2.3	19	7.0	108
Sexual orientation[3]						
Gay/homosexual	57.5	413	61.1	500	59.4	913
Bisexual	42.2	303	38.6	316	40.3	619
Straight/heterosexual	0.1	1	0.1	1	0.1	2
Other	0.1	1	0.2	2	0.2	3
Regular place to sleep at night						
Yes	98.9	710	98.5	808	98.7	1518
No	1.1	8	1.5	12	1.3	20
Shelter type						
House	92.9	667	87.8	720	90.2	1387
Apartment	5.8	42	11.0	90	8.6	132
Dormitory	1.3	9	1.0	8	1.1	17
Community center	0	0	0.1	1	0.1	1
Other	0	0	0.1	1	0.1	1

[1]Question not asked to students or unemployed participants, [2]n=6 don't know/refuse to answer, [3]n=1 don't know/refuse to answer.

Table A7.2. Sexual history, Zimbabwe, 2019

Sexual history among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	Percentage	Number	Percentage	Number	Percentage	Number
Ever had vaginal/anal sex with a female partner						
Yes	57.2	411	63.2	518	60.4	929
No	42.8	307	36.8	302	39.6	609
Age at first vaginal/anal sex with a female partner						
<15	7.5	31	9.1	47	8.4	78
15–19	57.7	237	72.8	377	66.1	614
20–24	25.1	103	12.7	66	18.2	169
≥25	9.7	40	5.4	28	7.3	68
median (IQR)	18 (16–21)		16 (15–17)		17 (16–20)	
Early sexual debut among young MSM/TGW with a female partner[1]						
	11.1	19	12.1	24	11.6	43
Lifetime number of female partners[2]						
1–5	70.2	288	60.8	315	65.0	603
6–10	13.4	55	18.0	93	15.9	148
10+	16.3	67	21.2	110	19.1	177
median (IQR)	3 (2–7)		4 (2–9)		4 (2–8)	
Age at first sexual intercourse with a male partner[3]						
<15	6.7	47	6.0	49	6.3	96
15–19	48.6	342	47.4	385	48.0	727
20–24	29.7	209	25.5	207	27.4	416
≥25	14.9	105	21.2	172	18.3	277
median (IQR)	19 (17–22)		19 (17–23)		19 (17–22)	
Early sexual debut among young MSM/TGW with a male partner[1,4]						
	6.2	23	6.8	23	6.5	46
Lifetime number of male partners[3]						
1–5	52.5	369	57.8	470	55.3	839
6–10	20.8	146	18.6	151	19.6	297
10+	26.7	188	23.6	192	25.1	380
median (IQR)	5 (3–12)		5 (2–10)		5 (3–11)	
First sex with male partner transactional[5]						
Yes	9.7	68	9.6	78	9.6	146
No	90.3	635	90.4	735	90.4	1370
First male sexual partner[3]						
Boyfriend/partner	30.4	214	39.9	324	35.5	538
Friend/acquaintance/coworker	53.9	379	34.9	284	43.7	663
Relative	3.7	26	2.2	18	2.9	44
Stranger	8.3	58	12.9	105	10.8	163
Authority figure[6]	1.3	9	0.7	6	1.0	15

Inmate[7]	0	0	9.0	73	4.8	73
Other	2.4	17	0.4	3	1.3	20
Concurrent male/female sexual partnerships[8]						
Yes	27.9	200	24.0	197	25.8	397
No	72.1	518	76.0	623	74.2	1141

[1]Of those 18–24 years who had sexual intercourse with a man/woman before the age of 15 years, [2] n=1 don't know/refuse to answer, [3] n=22 missing, [4] n=12 missing, [5] Participant reported receiving money or goods from first male sexual partner, [6] Authority figures include government official, religious leader, teacher, employer, military, police, prison guard, [7] Recoded from "other" free response, [8] Defined as having both male and female sexual partnerships within the last six months.

Table A7.3. Recent male sexual partners, Zimbabwe, 2019

Recent male sexual partners among men who have sex with men, transgender women, and gender queer individuals reporting anal sex in the past six months by city, Zimbabwe, 2019

	Harare (n=703)		Bulawayo (n=813)		Total (n=1516)	
	Percentage	Number	Percentage	Number	Percentage	Number
Number of male anal or oral sexual partners in the past six months[1]						
0	2.0	14	3.1	25	2.6	39
1-5	86.2	606	88.8	722	87.6	1328
6-10	8.1	57	4.6	37	6.2	94
≥10	3.7	26	3.6	29	3.6	55
median (IQR)	2 (1-3)		1 (1-3)		1 (1-3)	
Engaged in unprotected receptive anal intercourse at last sex in the last six months (main male partner)[2]						
Yes	21.6	147	11.3	89	16.1	236
No	78.4	535	88.7	697	83.9	1232
Engaged in unprotected receptive anal intercourse at last sex in the last six months (casual male partner)[3]						
Yes	12.2	44	7.5	24	10.0	68
No	87.8	318	92.5	295	90.0	613
Used condom at last sex (main male partner)[2]						
Yes	63.8	435	69.8	549	67.0	984
No	36.2	247	30.2	237	33.0	484
Used condom at last sex (casual male partner)[3]						
Yes	79.8	289	79.3	253	79.6	542
No	20.2	73	20.7	66	20.4	139
Consistent condom use in the past six months (main male partner)[4,5]						
Yes	41.3	283	51.0	401	46.4	684
No	58.7	403	49.0	386	53.6	789
Consistent condom use in the past six months (casual male partner)[3]						
Yes	57.5	208	63.3	202	60.2	410
No	42.5	154	36.7	117	39.8	271

[1] n=22 missing, [2] Of those reporting anal sex with a main male partner in the past six months, [3] Of those reporting anal sex with a casual male partner in the past six months, [4] Of those reporting anal/oral sex with a male partner in the past six months, [5] n=4 don't know/refuse to answer.

Table A7.4. Recent female sexual partners, Zimbabwe, 2019

Recent female sexual partners among men who have sex with men, transgender women, and gender queer individuals who report ever having sex with a female partner by city, Zimbabwe, 2019

	Harare (n=410)		Bulawayo (n=518)		Total (n=928)	
	Percentage	Number	Percentage	Number	Percentage	Number
Number of female sexual partners in the past six months[1]						
0	48.0	197	59.8	310	54.6	507
1–5	47.1	193	38.0	197	42.0	390
6–10	3.7	15	1.7	9	2.6	24
≥10	1.2	5	0.4	2	0.8	7
median (IQR)	1 (0–2)		0 (0–1)		0 (0–1)	
Used condom at last sex (main female partner)[2]						
Yes	51.6	110	64.4	134	58.0	244
No	48.4	103	35.6	74	42.0	177
Used condom at last sex (casual female partner)[3]						
Yes	82.2	83	79.0	64	80.8	147
No	17.8	18	21.0	17	19.2	35
Consistent condom use in the past six months (main female partner)[2]						
Yes	37.6	80	44.2	92	40.9	172
No	62.4	133	55.8	116	59.1	249
Consistent condom use in the past six months (casual female partner)[3]						
Yes	69.3	70	55.6	45	63.2	115
No	30.7	31	44.4	36	36.8	67

[1] n=1 missing, [2] Of those reporting sex with a main female partner in the past six months, [3] Of those reporting sex with a casual female partner in the past six months.

Table A7.5. Stigma, violence, and mental health, Zimbabwe, 2019

Stigma, violence, and mental health among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	Percentage	Number	Percentage	Number	Percentage	Number
Ever arrested for being MSM/TGW						
Yes	5.3	38	4.6	38	4.9	76
In the last six months	(13.2)	5	(13.2)	5	13.2	10
Not in the last six months	(86.8)	33	(86.8)	33	86.8	66
No	94.7	680	95.4	782	95.1	1462
Ever rejected by family for being MSM/TGW						
Yes	13.5	97	15.9	130	14.8	227
In the last six months	20.6	20	26.9	35	24.2	55
Not in the last six months	79.4	77	73.1	95	75.8	172
No	86.5	621	84.1	690	85.2	1311

Ever terminated from a job for being MSM/TGW						
Yes	2.9	21	2.3	19	2.6	40
In the last six months	*	7	*	7	(35.0)	14
Not in the last six months	*	14	*	12	(65.0)	26
No	97.1	697	97.7	801	97.4	1498
Ever denied a job for being MSM/TGW						
Yes	3.2	23	3.4	28	3.3	51
In the last six months	*	11	(35.7)	10	41.2	21
Not in the last six months	*	12	(64.3)	18	58.8	30
No	96.8	695	96.6	792	96.7	1487
Ever blackmailed for being MSM/TGW						
Yes	13.5	97	17.3	142	15.5	239
In the last six months	44.3	43	40.1	57	41.8	100
Not in the last six months	55.7	54	59.9	85	58.2	139
No	86.5	621	82.7	678	84.5	1299
Ever treated unfairly/denied healthcare for being MSM/TGW						
Yes	3.9	28	3.5	29	3.7	57
In the last six months	(32.1)	9	(34.5)	10	33.3	19
Not in the last six months	(67.9)	19	(65.5)	19	66.7	38
No	96.1	690	96.5	791	96.3	1481
Ever avoided seeking healthcare services for fear of being identified as MSM/TGW						
Yes	17.1	123	19.6	161	18.5	284
In the last six months	52.0	64	44.7	72	47.9	136
Not in the last six months	48.0	59	55.3	89	52.1	148
No	82.9	595	80.4	659	81.5	1254
Ever physically/sexually/verbally abused for being MSM/TGW						
Yes	29.0	208	31.3	257	30.2	465
In the last six months	66.3	138	52.1	134	58.5	272
Not in the last six months	33.7	70	47.9	123	41.5	193
No	71.0	510	68.7	563	69.8	1073
Physically/sexually/verbally abused for being MSM/TGW by[1]						
Family member	17.8	37	31.5	81	25.4	118
Sexual partner	7.2	15	8.2	21	7.7	36
Friends	64.4	134	45.5	117	54.0	251
Authority figure[2]	2.9	6	7.0	18	5.2	24
Healthcare worker	3.9	8	5.5	14	4.7	22
Stranger	44.2	92	40.5	104	42.2	196
Prison inmate	1.0	2	2.0	5	1.5	7
Uniformed services personnel	1.3	6	8.6	22	6.0	28
Other	1.4	3	0.4	1	0.9	4
Ever forced to have sex						
Yes	13.8	99	9.0	74	11.2	173
In the last six months	38.4	38	23.0	17	31.8	55
Not in the last six months	61.6	61	77.0	57	68.2	118
No	86.2	619	91.0	746	88.8	1365

Forced to have sex by[1]						
Family member	4.0	4	9.5	7	6.4	11
Sexual partner	41.4	41	25.7	19	34.7	60
Friends	39.4	39	20.3	15	31.2	54
Authority figure[2]	2.0	2	4.1	3	2.9	5
Healthcare worker	0	0	0	0	0	0
Stranger	10.1	10	27.0	20	17.3	30
Prison inmate	2.0	2	16.2	12	8.1	14
Uniformed services personnel	1.0	1	0	0	0.6	1
Other	3.0	3	5.4	4	4.1	7

[1] Responses not mutually exclusive, [2] Authority figures include government official, religious leader, teacher, employer, military, police, prison guard.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Table A7.6. Sexually transmitted infections, Zimbabwe, 2019

STIs among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	Percentage	Number	Percentage	Number	Percentage	Number
Abnormal discharge from penis[1,2]						
Yes	5.2	37	4.8	39	4.9	76
No	94.7	680	95.2	781	95.0	1461
Ulcer/sore on or near penis[1,2]						
Yes	2.9	21	3.3	27	3.1	48
No	97.1	697	96.6	792	96.8	1489
Ulcer/sore on or near anus[1,3]						
Yes	3.8	27	1.8	15	2.7	42
No	96.2	691	97.9	803	97.1	1494
Abnormal discharge from anus[1]						
Yes	4.9	35	1.8	15	3.3	50
No	95.1	683	98.2	805	96.7	1488
Pain on urination[1]						
Yes	11.7	84	9.5	78	10.5	162
No	88.3	634	90.5	742	89.5	1376
Anal warts[1]						
Yes	4.9	35	1.7	14	3.2	49
No	95.1	683	98.3	806	96.8	1489
Had one or more STI symptoms[1]						
Yes	23.4	168	15.1	124	19.0	292
No	76.6	550	84.9	696	81.0	1246
Sought healthcare for symptoms above[1,2]						
Yes	64.3	108	55.6	69	60.6	177
No	35.1	59	44.4	55	39.0	114

Sought treatment for symptoms above[1]						
Yes	63.1	106	67.7	84	65.1	190
No	36.9	62	32.3	40	34.9	102
Abstained from sex or always used condoms during symptoms above						
Yes	79.8	134	78.2	97	79.1	231
No	20.2	34	21.8	27	20.9	61
Diagnosed with STI in the past 12 months						
Yes	13.2	95	8.3	68	10.6	163
No	86.8	623	91.7	752	89.4	1375

[1] Experienced symptoms within the past 12 months, [2] n=1 don't know/refuse to answer, [3] n=2 don't know/refuse to answer.

Table A7.7. Knowledge, opinions, and attitudes toward HIV/AIDS, Zimbabwe, 2019

HIV knowledge among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	Percentage	Number	Percentage	Number	Percentage	Number
Can the risk of HIV transmission be reduced by having sex with only one uninfected sex partner who has no other partners?[1]						
Yes	92.5	664	88.4	724	90.3	1388
No	7.5	54	11.6	95	9.7	149
Can a person reduce the risk of getting HIV by using a condom every time they have sex?						
Yes	93.3	670	91.0	746	92.1	1416
No	6.7	48	9.0	74	7.9	122
Can a healthy-looking person have HIV or AIDS?[2]						
Yes	98.1	704	91.7	749	94.7	1453
No	1.9	14	8.3	68	5.3	82
Can a person get HIV from mosquito bites?[3]						
Yes	7.2	51	14.0	114	10.8	165
No	92.8	662	86.0	699	89.2	1361
Can a person get HIV by sharing food with someone who is infected?[4]						
Yes	1.5	11	4.5	37	3.1	48
No	98.5	705	95.5	783	96.9	1488
Comprehensive knowledge of HIV[5]						
Yes	80.5	578	65.6	538	72.6	1116
No	19.5	140	34.4	282	27.4	422
If a condom is not used, what kind of sex puts you most at risk for HIV?[4]						
Fingering/hand job	0	0	1.5	12	0.8	12
Oral sex	6.3	45	4.4	36	5.3	81
Vaginal sex	34.8	250	45.7	374	40.6	624
Anal sex	58.9	423	48.4	396	53.3	819

If a condom is not used, what kind of anal sex puts you most at risk for HIV?[4]						
Insertive anal sex	2.6	19	27.0	221	15.6	240
Receptive anal sex	20.5	147	20.8	170	20.6	317
Both have the same risk	76.6	550	47.9	392	61.3	942
Both have no risk	0.3	2	4.3	35	2.4	37

[1] n=1 don't know/refuse to answer, [2] n=3 don't know/refuse to answer, [3] n=12 don't know/refuse to answer, [5] n=2 don't know/refuse to answer, [4] According to UNAIDS definition.

Table A7.8. Outreach services and HIV information, Zimbabwe, 2019

Outreach services and HIV information among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	Percentage	Number	Percentage	Number	Percentage	Number
Ever received HIV messaging from peer educator/outreach worker						
Yes	48.9	351	68.8	564	59.5	915
No	51.1	367	31.2	256	40.5	623
Received HIV messaging from peer educator/outreach worker[1]						
0–3 months ago	62.7	220	42.7	241	50.4	461
4–6 months ago	19.7	69	13.1	74	15.6	143
7–12 months ago	10.5	37	16.3	92	14.1	129
Longer than a year ago	7.1	25	27.8	157	19.9	182
Items received from peer educator/outreach worker at last encounter[1,2]						
Nothing	23.9	84	24.5	138	24.3	222
Male condoms	60.7	213	53.9	304	56.5	517
Female condoms	2.3	8	2.1	12	2.2	20
Lubricants	35.0	123	17.0	96	23.9	219
Pamphlet or brochure	25.0	123	36.5	206	36.0	329
Medicines	3.1	11	1.6	9	2.2	20
HIV self-test	14.5	51	3.9	22	8.0	73
Voucher for HIV self-test	3.4	12	4.1	23	3.8	35
Offer to escort to a health facility	3.4	12	4.8	27	4.3	39
Other	0.3	1	3.6	20	2.3	21
Services received from peer educator/outreach worker at last encounter[1,2]						
Nothing	6.6	23	15.8	89	12.2	112
HIV testing	24.8	87	17.6	99	20.3	186
STI testing	4.6	16	1.8	10	2.8	26
STI screening	5.7	20	4.4	25	4.9	45
TB screening	1.4	5	3.0	17	2.4	22
Referral	22.2	78	8.9	50	14.0	128
Training on condom use	50.4	177	22.7	128	33.3	305
Counseling on risk	84.3	296	64.2	362	71.9	658
Other	0.9	3	2.8	16	2.1	19

Current HIV messages apply to MSM/TGW/GQ[3]						
Yes	84.5	606	69.3	568	76.4	1174
No	15.5	111	30.7	252	23.6	363
Preferred source(s) to receive HIV information[2]						
Radio	27.2	195	20.6	169	23.7	364
Television	23.1	166	23.3	191	23.2	357
Newspaper	11.8	85	11.3	93	11.6	178
Internet	29.3	210	21.1	173	24.9	383
Mobile Apps	7.5	54	3.4	28	5.3	82
Telephone/SMS/WhatsApp	8.5	61	3.4	28	5.8	89
Brochure	10.0	72	16.0	131	13.2	203
Friends	20.5	147	12.6	103	16.3	250
Family	9.8	70	6.2	51	7.9	121
Sex partners	6.0	43	6.6	54	6.3	97
Healthcare providers	92.6	665	65.0	533	77.9	1198
Peer educator/outreach worker	67.8	487	35.2	289	50.5	776
Religious leader	16.0	115	2.6	21	8.8	136
Other	16.3	117	9.0	74	12.4	191

[1] Of those who had received HIV messaging from a peer educator/outreach worker, [2] Responses not mutually exclusive, [3] n=1 don't know/refuse to answer.

Table A7.9. HIV testing, Zimbabwe, 2019

HIV testing experiences and preferences among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	Percentage	Number	Percentage	Number	Percentage	Number
Ever tested for HIV						
Yes	88.6	636	82.8	679	85.5	1315
No	11.4	82	17.2	141	14.5	223
Reason for not testing[1]						
I feel I am not at risk for HIV	30.5	25	43.3	61	38.6	86
Fear of positive result	39.0	32	29.8	42	33.2	74
No money to get tested	0	0	1.4	2	0.9	2
No time to get tested	26.8	22	9.2	13	15.7	35
Concerns about confidentiality	2.4	2	1.4	2	1.8	4
Stigma by healthcare workers	0	0	0.7	1	0.4	1
Other	1.2	1	14.2	20	9.4	21
Preferred HIV testing site[2]						
Home visit	7.2	52	7.9	65	7.6	117
Home self-test	10.5	75	16.7	137	13.8	212
KP clinic/organization/center	57.2	411	49.0	402	52.9	813
Hospital	60.7	436	26.3	216	42.4	652
Clinic	77.0	553	45.9	376	60.4	929
HIV testing health facility	79.4	570	20.6	169	48.1	739
By my normal doctor	9.2	66	5.1	42	7.0	108
Where I socialize	5.6	40	5.6	46	5.6	86
Other	2.5	18	1.0	8	1.7	26

Last HIV test[3,5]						
In the last 6 months	54.6	347	38.8	263	46.4	610
Between 7–12 months ago	20.9	133	16.8	114	18.8	247
More than 12 months ago	24.5	156	44.4	301	34.8	457
Received an HIV test in the last 12 months and know the results[4]						
Yes	68.7	478	50.5	376	59.3	854
No	31.3	218	49.5	368	40.7	586

[1] Of those who had never tested for HIV, [2] Responses not mutually exclusive, [3] Of those tested for HIV, [4] Excludes known positives who were tested more than 12 months ago, [5] n=1 don't know/refuse to answer.

Table A7.10. Pre-exposure prophylaxis, Zimbabwe, 2019

PrEP use and access among men who have sex with men, transgender women, and gender queer individuals with self-reported HIV-negative or unknown statuses by city, Zimbabwe, 2019

	Harare (n=661)		Bulawayo (n=716)		Total (n=1377)	
	Percentage	Number	Percentage	Number	Percentage	Number
Ever heard of PrEP						
Yes	60.4	399	34.6	248	47.0	647
No	39.6	262	65.4	468	53.0	730
Ever taken PrEP						
Yes	19.1	126	9.8	70	14.2	196
No	80.9	535	90.2	646	85.8	1181
Taken PrEP in the last six months[1]						
Yes	70.6	89	71.4	50	70.9	139
No	29.4	37	28.6	20	29.1	57
Willing to take PrEP[2]						
Yes	67.0	183	78.7	140	71.6	323
No	33.0	90	21.3	38	28.4	128
Reason for never taking PrEP[2]						
Embarrassed to talk about it with doctor/nurse	1.47	4	2.3	4	1.8	8
Don't feel at risk for HIV	12.5	34	28.1	50	18.6	84
Not available where I live	3.3	9	5.1	9	4.0	18
Don't know where to get it	28.6	78	18.5	33	24.6	111
Don't want it	16.9	46	9.6	17	14.0	63
Afraid of side effects	23.8	65	18.0	32	21.5	97
Don't want others to know	4.8	13	2.3	4	3.8	17
Other: Not enough information	5.1	14	5.1	9	5.1	23
Other: Cost/provider did not give/afraid of HIV test/other	3.7	10	11.2	20	6.7	30

Reason for stopping PrEP[3]						
I trust my partners	(5.4)	2	*	2	7.0	4
Can't get PrEP anymore	(5.4)	2	*	1	5.3	3
Had side effects	(62.2)	23	*	11	59.7	34
Don't want others to know	(8.1)	3	*	1	7.0	4
Tested HIV-positive	(0)	0	*	0	0	0
Other	(18.9)	7	*	5	21.1	12

[1] Of those who had ever taken PrEP, [2] Of those aware of but not on PrEP, [3] Of those who stopped PrEP.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Table A7.11. Post-exposure prophylaxis, Zimbabwe, 2019

PEP use among men who have sex with men, transgender women, and gender queer individuals with self-reported HIV-negative or unknown statuses by city, Zimbabwe, 2019

	Harare (n=661)		Bulawayo (n=716)		Total (n=1377)	
	Percentage	Number	Percentage	Number	Percentage	Number
Ever heard of PEP						
Yes	46.1	305	22.8	163	34.0	468
No	53.9	356	77.2	553	66.0	909
Ever taken PEP						
Yes	5.0	33	1.5	11	3.2	44
No	95.0	628	98.5	705	96.8	1333
Taken PEP in the last six months[1]						
Yes	(27.3)	9	*	0	(20.5)	9
No	(72.7)	24	*	11	(79.5)	35
Reason for taking PEP in the last six months[2]						
I had unprotected sex	*	8	*	0	*	8
I was raped/forced to have sex	*	1	*	0	*	1
I share needles	*	0	*	0	*	0

[1] Of those who had ever taken PEP, [2] Of those who had taken PEP in the last six months.
Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Table A7.12. Hepatitis B, syphilis, and HIV co-infections, Zimbabwe, 2019

Prevalence of HBV, Syphilis, and HIV co-infections among men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=695)		Bulawayo (n=816)		Total (n=1511)	
	Percentage	Number	Percentage	Number	Percentage	Number
Hepatitis B						
Positive	3.3	23	4.3	35	3.8	58
Negative	96.7	672	95.7	781	96.2	1453
Syphilis						
Active infection	5.5	38	5.6	46	5.6	84
Previous infection	2.6	18	4.3	35	3.5	53
Negative	91.5	636	89.5	730	90.4	1366
Inconclusive	0.4	3	0.6	5	0.5	8
HIV/HBV Co-infection						
	7.4	11	11.5	22	9.7	33
HIV/Syphilis Co-infection						
	10.1	15	11.0	21	10.6	36

Table A7.13. TB screening, Zimbabwe, 2019

TB screening results among men who have sex with men, transgender women, and gender queer individuals by city and HIV status, Zimbabwe, 2019

	Harare (n=695)		Bulawayo (n=816)		Total (n=1511)	
	Percentage	Number	Percentage	Number	Percentage	Number
TB screening result among HIV-positive participants						
Positive[1]	12.8	19	33.5	64	24.4	83
Negative	87.2	130	66.5	127	75.6	257
TB screening result among HIV-negative participants						
Positive[2]	7.9	43	16.6	104	12.6	147
Negative	92.1	503	83.4	521	87.4	1024

[1] Reported one of the following symptoms to survey nurse: a cough, night sweats, unplanned weight loss, or fever,

[2] Reported one of the following symptoms to survey nurse: a cough lasting two weeks or more, night sweats, unplanned weight loss, or fever lasting three weeks or more. Screening questions used were per the Zimbabwe national guidelines.

Table A7.14. Social cohesion, Zimbabwe, 2019

Social cohesion among all men who have sex with men, transgender women, and gender queer individuals by city, Zimbabwe, 2019

	Harare (n=718)		Bulawayo (n=820)		Total (n=1538)	
	Percentage	Number	Percentage	Number	Percentage	Number
I can count on other MSM/TGW/GQ if I need to borrow money[1]						
Strongly agree/agree	46.5	334	75.1	615	61.7	949
Neutral	10.9	78	8.3	68	9.5	146
Strongly disagree/disagree	42.6	306	16.6	136	28.8	442
I can count on other MSM/TGW/GQ to accompany me to the doctor or hospital[1]						
Strongly agree/agree	53.9	387	78.6	644	67.1	1031
Neutral	6.3	45	5.7	47	6.0	92
Strongly disagree/disagree	39.8	286	15.6	128	26.9	414
I can count on other MSM/TGW/GQ if I need to talk about my problems						
Strongly agree/agree	58.8	422	86.7	711	73.7	1133
Neutral	8.4	60	4.5	37	6.3	97
Strongly disagree/disagree	32.9	236	8.8	72	20.0	308
I can count on other MSM/TGW/GQ if I need somewhere to stay						
Strongly agree/agree	47.5	341	77.3	634	63.4	975
Neutral	9.5	68	7.4	61	8.4	129
Strongly disagree/disagree	43.0	309	15.2	125	28.2	434
Negotiated with or stood up against a non-MSM/non-TGW/non-GQ in order to help a fellow MSM/TGW/GQ in the past six months						
Yes	30.1	216	30.4	249	30.2	465
No	69.9	502	69.6	571	69.8	1073
Attended a support group for gay men, MSM, TGW, or GQ in the past six months						
Never	63.8	458	66.8	548	65.4	1006
Once or twice	22.7	163	19.6	161	21.1	324
About six times	7.5	54	8.2	67	7.9	121
About 12 times	2.9	21	2.1	17	2.5	38
More than 12 times	3.1	22	3.3	27	3.2	49

[1] n=1 don't know/refuse to answer.

Table A7.15. HIV cascade (unconditional) by city, Zimbabwe, 2019

90-90-90 achievements among men who have sex with men, transgender women, and gender queer individuals by city and age, Zimbabwe, 2019

	Diagnosed						On Treatment					
	Harare (n=149)		Bulawayo (n=191)		Total (n=340)		Harare (n=149)		Bulawayo (n=191)		Total (n=340)	
Age	% who self-reported HIV positive	n	% who self-reported HIV positive	n	% who self-reported HIV positive	n	% who self-reported ART	n	% who self-reported ART	n	% who self-reported ART	n
18–24	29.6	16	(55.6)	15	38.3	31	27.8	15	(44.4)	12	33.3	27
25–34	38.6	27	45.6	36	42.3	63	35.7	25	44.3	35	40.3	60
35–44	*	7	61.8	34	55.4	41	*	5	61.8	34	52.7	39
45+	*	2	(53.3)	16	(50.0)	18	*	2	(50.0)	15	(47.2)	17
Total	34.9	52	52.9	101	45.0	153	31.5	47	50.3	96	42.1	143

	Virally Suppressed					
	Harare (n=149)		Bulawayo (n=191)		Total (n=340)	
Age	% virally suppressed	n	% virally suppressed	n	% virally suppressed	n
18–24	53.7	29	(44.4)	12	50.6	41
25–34	67.1	47	51.9	41	59.1	88
35–44	*	11	78.2	43	73.0	54
45+	*	5	(70.0)	21	(72.2)	26
Total	61.7	92	61.3	117	61.5	209

Does not include 27 participants who did not consent to biomarker testing. Estimates in parentheses are based on a small number (25–49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.