



# Biobehavioural Survey Lite and Population Size Estimates among four key populations in seven districts of South Africa, 2025

FINAL REPORT



# Biobehavioural Survey Lite and population size estimates among four key populations in seven districts of South Africa, 2025

## Collaborating Institutions

National Department of Health (NDOH)  
South African National AIDS Council (SANAC)  
Networking HIV and AIDS Community of Southern Africa (NACOSA)  
Centre for Statistical Analysis and Research (CESAR)  
National Institute for Communicable Diseases (NICD)

## Investigators

Principal Investigator: Lifutso Motsieloa (SANAC)  
Co-Investigator: Mashudu Rampilo (SANAC)  
Co-Investigator: Jabulile Sibeko (SANAC)  
Co-Investigator: Braimoh Bello (CESAR)  
Co-Investigator/Technical Lead Consultant: Sharon S Weir (UNC)

## Survey Implementer

Centre for Statistical Analysis and Research (CESAR)  
140 Dunkeld Park, 6 North Road, Dunkeld West,  
Johannesburg, South Africa  
Tel: 011 027 7708 / 011 403 411; Fax: 086 764 0125  
braimoh.bello@cesar-africa.com  
www.cesar-africa.com

## Fieldwork Team

Braimoh Bello (Technical Lead, CESAR)  
Thembelihle Tshabalala (Fieldwork Manager, CESAR)  
Shanelin Wagener (Operations Manager, CESAR)  
Seyi Omogiate (Product Manager, CESAR)  
Naledi Mapitja (Supervisor, CESAR)  
Mpho Molebatsi (Fieldwork Supervisor, CESAR)  
Penelope Setlhapelo (Fieldwork Supervisor, CESAR)  
Khauhelo 'Mota (Fieldwork Supervisor, CESAR)  
David Mantu (Fieldwork Supervisor, CESAR)  
Sibongile Ndlovu (Fieldwork Supervisor, CESAR)  
Nozipo Jili (Fieldwork Supervisor, CESAR)  
Mary Ebusa (Operations Assistant, CESAR)

## Data management and analysis team

Braimoh Bello (Technical Lead and Lead Writer, CESAR))  
Pedzisai Ndagurwa (Senior Analyst, CESAR)  
Naledi Mapitja (Epidemiologist, CESAR)  
Deantha Pather (Data Analyst, CESAR)  
Godwin Kalu (Data Analyst, CESAR)  
Sharon S Weir (Technical Advisor and PSE Writer, UNC)

## Layout & Infographic Designer

Joshua Ekeh (CESAR)

## Study commissioned by:

South African National AIDS Council (SANAC).

## Disclaimer

This document was issued by CESAR for the party that commissioned it and solely for the specific purposes related to the above-captioned project. It must not be relied upon by any other party or used for any other purpose. We accept no liability for the consequences of this document being relied upon by any other party, used for any other purpose, or containing any error or omission resulting from inaccuracies or omissions in data supplied by other parties.

## Suggested citation

Bello B, Motsieloa L, Rampilo M, Sibeko J, Weir S. Biobehavioural Survey Lite and Population Size Estimates among four key populations in seven districts of South Africa, 2025. Johannesburg: SANAC; 2025.

# Acknowledgments

This report would not have been possible without the invaluable contributions, support, and collaboration of a wide range of stakeholders. We extend our deepest gratitude to the South African National AIDS Council (SANAC) and its stakeholders for commissioning this study and for their continued leadership in advancing the national HIV response. We acknowledge the support of Civil Society in the implementation of the survey.

We are especially grateful to the National Department of Health (NDoH) for their support for the BBS-Lite and for their support in facilitating its implementation. Their endorsement underscores the importance of this work in informing public health policy and programming.

We extend our heartfelt appreciation to all key population members who participated in the study. Their willingness to share their experiences, insights, and biological samples is the cornerstone of this research. Without their trust and engagement, this exercise would not have been possible.

We acknowledge the dedicated efforts of the project team, particularly the fieldwork managers, supervisors, interviewers, counsellors and data team, who implemented the study with sensitivity and rigour. Their commitment to ethical practices and data integrity was vital. Their hard work, dedication and resilience to cover the breadth of the study

districts is the reason this project was a success.

We also recognise the Global Fund Sub-recipients (implementing partners) in the four districts where Global Fund programmes are active. Their openness and logistical support in allowing data collection at their sites were vital to the study's reach and depth.

Special thanks are due to the Global Fund Principal Recipients—NACOSA, AFSA, and Beyond Zero—for their support and collaboration. Additionally, NACOSA coordinated the provision of point-of-care test kits for HIV, Hepatitis B and Hepatitis C. They also provided technical support for the project. We also thank the Global Fund for providing both funding and technical support for this exercise.

Lastly, we extend our sincere thanks to the National Institute for Communicable Diseases (NICD) and the National Health Laboratory Service (NHLS) for their roles in training our fieldwork counsellors and testing the biological samples. Their technical expertise and commitment to quality assurance added a critical layer of scientific rigour to the study.

To all who contributed—whether through leadership, participation, or technical support—this report stands as a testament to your collective efforts and shared vision for a healthier South Africa.

# List of Abbreviations and Acronyms

|             |                                                         |        |                                                    |
|-------------|---------------------------------------------------------|--------|----------------------------------------------------|
| AFSA        | The AIDS Foundation of South Africa                     | PHC    | Primary healthcare centre                          |
| ART         | Antiretroviral therapy                                  | PWID   | People who inject drugs                            |
| ARV         | Antiretroviral                                          | PWUD   | People who use drugs                               |
| BBS         | Biobehavioural survey                                   | PSE    | Population size estimates                          |
| BBS-Lite    | Biobehavioural survey-Lite                              | PLHIV  | People living with HIV                             |
| BZ          | Beyond Zero                                             | PPS    | Probability proportional to size                   |
| CDC         | Centers for Disease Control and Prevention              | POC    | Point of care                                      |
| DBS         | Dried blood spot                                        | PR     | Prevalence ratio                                   |
| DIC         | Drop-in centre                                          | PREP   | Pre-exposure prophylaxis                           |
| FSW         | Female sex worker                                       | PWID   | People who inject drugs                            |
| Global Fund | The Global Fund to Fight AIDS, Tuberculosis and Malaria | RDS    | Respondent-driven sampling                         |
| HIV         | Human Immunodeficiency Virus                            | REC    | Research ethics committee                          |
| HTA         | High transmission area                                  | SOP    | Standard operating procedure                       |
| IBBS        | Integrated biological behavioural surveillance survey   | STI    | Sexually transmitted infection                     |
| IP          | Implementing partner                                    | SW     | Sex worker                                         |
| KP          | Key population                                          | TB     | Tuberculosis                                       |
| MSM         | Men who have sex with men                               | TG     | Transgender                                        |
| NACOSA      | Networking HIV and AIDS Community of Southern Africa    | TGM    | Transgender man                                    |
| NGO         | Non-governmental organisation                           | TGW    | Transgender woman                                  |
| NICD        | National Institute for Communicable Diseases            | TLS    | Time location sampling                             |
| NHLS        | National Health Laboratory Service                      | UNAIDS | Joint United Nations Programme on HIV/AIDS         |
| NSP         | Needle and syringe programme                            | UNDP   | United Nations Development Programme               |
| NSP         | National Strategic Plan                                 | UNFPA  | United Nations Population Fund                     |
| OAT         | Opioid agonist therapy                                  | UNODC  | United Nations Office on Drugs and Crime           |
| ODK         | Open Data Kit                                           | USAID  | United States Agency for International Development |
| OST         | Opioid substitution therapy                             | VLS    | Viral load suppression                             |
| PEPFAR      | President's Emergency Plan for AIDS Relief              | WHO    | World Health Organization                          |

# Definition of Recurring Terms

- **Key population (KP):** defined groups who, due to specific higher-risk behaviours, are at increased risk of HIV, viral hepatitis or STIs irrespective of the epidemic type or local context. Also, they often have legal and social issues related to their behaviours that increase their vulnerability to HIV. Four KPs (listed in the report) were covered in this study.
- **Study districts:** The seven districts in which this study was conducted. They are listed in the report.
- **Programme districts:** These are districts which have HIV prevention and or treatment programmes targeting one of the four KPs in this study. Of the seven districts in the study, four were programme districts, i.e. with Global Fund-supported programmes targeting the KPs, and three were not.
- **Implementation partner (IP):** Non-governmental organisations that implement HIV prevention or treatment programmes. The IP receive funding and technical support from the Global Fund. The IP worked closely with the study team in this project.
- **Programme site:** These are places in the districts where the IPs meet with KPs to provide services to them. While some programme sites were fixed, most were mobile.
- **Outreach location (also venue):** These are places in the districts identified by the study as venues where KPs meet. They include bars, shebeens, and other establishments. Outreach locations were identified in each of the seven districts.

# Table of Contents

Acknowledgments 3

List of Abbreviations and Acronyms 4

Definition of Recurring Terms 5

Table of Contents 6

List of Tables 7

List of Figures 8

Executive Summary 9

Background 9

Methods 10

Population size estimates results 13

BBS results: number of key population participants 14

BBS results: female sex workers 15

BBS results: people who inject drugs 17

BBS results: men who have sex with men 19

BBS results: transgender women 21

Background 23

The HIV epidemic in South Africa 23

Aim and objectives 25

Problems addressed by the study 26

Methods 27

Adaptation of the UNAIDS/WHO BBS-Lite Protocol 27

Phase 1: Consult stakeholders and prepare protocol 29

Phase 2: Mapping programme sites and outreach venues 29

Phase 3 Biobehavioural Survey of key populations 31

Phase 4: Data management and analysis 38

Study Results 42

Mapping Surveys and Population Size Estimates 43

Service delivery mapping 43

Key population venue mapping 44

Population size estimates 47

Number of Participants in the Biobehavioural Survey 52

BBS Results: Female Sex Workers 53

Sociodemographic characteristics 53

HIV Prevalence, HIV treatment cascade and TB 55

Risk behaviours & vulnerabilities 59

Programme coverage 62

BBS Results: People Who Inject Drugs 65

Sociodemographic characteristics 65

Biological markers: HIV, HIV treatment cascade, hepatitis and TB 67

Risk behaviours and vulnerabilities 72

Programme coverage 77

BBS Results: Men Who Have Sex with Men 80

Sociodemographic characteristics 80

Biological markers: HIV, HIV treatment cascade and TB 82

Risk behaviours and vulnerabilities 86

Programme coverage 89

BBS Results: Transgender Women 91

Sociodemographic characteristics 91

Biological markers: HIV, HIV treatment cascade and TB 93

Risk behaviours and vulnerabilities 97

Programme coverage 100

Conclusions 102

Female sex workers 102

People who inject drugs 103

Men who have sex with men 104

Transgender women 105

Overall conclusions 106

References 107

Appendices 1: Population Size Estimates Extrapolations 109

# List of Tables

|                                                                                                                                 |     |
|---------------------------------------------------------------------------------------------------------------------------------|-----|
| Table 1: The seven districts covered in the BBS-Lite, 2025                                                                      | 24  |
| Table 2: Criteria used to define key populations, BBS-Lite 2025                                                                 | 31  |
| Table 3: Sample size formula utilised for the study, BBS-Lite 2025                                                              | 32  |
| Table 4: Sample size targets by district and KP, BBS-Lite 2025                                                                  | 32  |
| Table 5: Biological tests, required samples and post-test activities                                                            | 35  |
| Table 6: Number of service delivery sites provided by IPs in the four districts with programmes                                 | 43  |
| Table 7: Number of key population venues identified in each district by community informants                                    | 44  |
| Table 8: Population size estimate and confidence intervals of female sex workers in the seven districts, BBS-Lite, 2025         | 49  |
| Table 9: Population size estimate and confidence intervals of people who inject drugs in the seven districts, BBS-Lite, 2025    | 49  |
| Table 10: Population size estimate and confidence intervals of men who have sex with men in the seven districts, BBS-Lite, 2025 | 50  |
| Table 11: Population size estimate and confidence intervals of transgender women in the seven districts, BBS-Lite, 2025         | 50  |
| Table 12: Estimates for 47 Districts from Extrapolation                                                                         | 51  |
| Table 13: Number of study participants by district and key population group, BBS-Lite 2025                                      | 52  |
| Table 14: Sociodemographic characteristics of female sex workers in seven districts, BBS-Lite 2025                              | 54  |
| Table 15: Symptomatic TB among female sex workers in seven districts, BBS-Lite 2025                                             | 58  |
| Table 16: Risk behaviours and vulnerabilities among female sex workers, BBS-Lite 2025                                           | 61  |
| Table 17: Coverage of HIV prevention and treatment services among female sex workers, BBS-Lite 2025                             | 63  |
| Table 18: Sociodemographic characteristics of people who inject drugs in six districts, BBS-Lite 2025                           | 66  |
| Table 19: Symptomatic TB among people who inject drugs in six districts, BBS-Lite 2025                                          | 71  |
| Table 20: Risk Behaviours and vulnerabilities among people who inject drugs in six districts, BBS-Lite 2025                     | 75  |
| Table 21: Coverage of HIV prevention and treatment services among people who inject drugs in six districts, BBS-Lite 2025       | 78  |
| Table 22: Sociodemographic characteristics of men who have sex with men in seven districts, BBS-Lite 2025                       | 81  |
| Table 23: Symptomatic TB among men who have sex with men in seven districts, BBS-Lite 2025                                      | 85  |
| Table 24: Risk Behaviours and vulnerabilities among men who have sex with men in seven districts, BBS-Lite 2025                 | 88  |
| Table 25: Coverage of HIV prevention and treatment services among men who have sex with men in seven districts, BBS-Lite 2025   | 89  |
| Table 26: Sociodemographic characteristics of transgender women in seven districts, BBS-Lite 2025                               | 92  |
| Table 27: Symptomatic TB among men who have sex with men in seven districts, BBS-Lite 2025                                      | 96  |
| Table 28: Risk Behaviours and vulnerabilities among transgender women in seven districts, BBS-Lite 2025                         | 99  |
| Table 29: Coverage of HIV prevention and treatment services among men who have sex with men in seven districts, BBS-Lite 2025   | 100 |



# List of Figures

Figure 1: District map of South Africa showing PEPFAR and Global Fund supported districts for female sex worker programmes **23**

Figure 2: Programme issues and problems addressed in the study **26**

Figure 3: Phases of the BBS-Lite **28**

Figure 4: Overview of data collection recruitment for the BBS-Lite **33**

Figure 5: Participant Flow Chart upon arrival at a data collection site **37**

Figure 6: Number of priority areas reported and Community Informants Interviewed **44**

Figure 7: HIV prevention services reported onsite at outreach venues, BBS-Lite 2025 **45**

Figure 8: Support for onsite HIV prevention services in identified venues **46**

Figure 9: The recommended population size estimates (to the nearest 100) for all four KPs in all seven districts **47**

Figure 10: The recommended population size estimates for all four KPs as percentages of the population in the seven districts **48**

Figure 11: HIV prevalence among female sex workers in seven districts, BBS-Lite 2025 **55**

Figure 12: HIV prevalence by age among female sex workers in seven districts, BBS-Lite 2025 **56**

Figure 13: HIV prevalence among females 15-49 in each district and female sex workers 16-49 in the study, BBS-Lite 2025 **56**

Figure 14: HIV treatment cascade (95-95-95) among female sex workers in seven districts, BBS-Lite 2025 **57**

Figure 15: Relationship between PrEP uptake and condom use among HIV negative FSWs, BBS-Lite 2025 **62**

Figure 16: HIV prevalence among people who inject drugs in six districts, BBS-Lite 2025 **67**

Figure 17: IV prevalence by age among people who inject drugs in six districts, BBS-Lite 2025 **68**

Figure 18: HIV prevalence among adult males (15-49) in each district and PWID in the study, BBS-Lite 2025 **68**

Figure 19: HIV treatment cascade (95-95-95) among people who inject drugs in seven districts, BBS-Lite 2025 **69**

Figure 20: Hepatitis B prevalence among people who inject drugs in six districts, BBS-Lite 2025 **70**

Figure 21: hepatitis C prevalence among people who inject drugs in six districts, BBS-Lite 2025 **70**

Figure 22: HIV prevalence among men who have sex with men in seven districts, BBS-Lite 2025 **82**

Figure 24: HIV prevalence among adult males (15-49) in each district and MSM in the study, BBS-Lite 2025 **83**

Figure 23: HIV prevalence by age among men who have sex with men in seven districts, BBS-Lite 2025 **83**

Figure 25: HIV treatment targets (95-95-95) among men who have sex with men in seven districts, BBS-Lite 2025 **84**

Figure 26: HIV prevalence among transgender women in seven districts, BBS-Lite 2025 **93**

Figure 28: HIV prevalence among adult males (15-49) in each district and TGW in the study, BBS-Lite 2025 **94**

Figure 27: HIV prevalence by age among transgender women in seven districts, BBS-Lite 2025 **94**

Figure 29: HIV treatment targets (95-95-95) among transgender women in seven districts, BBS-Lite 2025 **95**



# Executive Summary



## Background

South Africa acknowledges the importance of targeting key populations if it is to end AIDS by 2030. The National Strategic Plan (NSP) identifies female sex workers (FSWs), people who inject drugs (PWID), men who have sex with men (MSM) and transgender women (TGW) as key populations in the HIV epidemic. National estimates of the number of key populations, their HIV prevalence, and their access to treatment have been based on bio-behavioural surveys conducted primarily in metropolitan municipalities in South Africa, but there is scant data outside these areas.

This first BBS-Lite was conducted in seven districts with a focus on four key population (KP) groups: FSWs, PWID, MSM and TGW. The study aimed to provide information on KPs in districts where biobehavioural surveys had not been conducted, in order to help improve the delivery of HIV prevention and treatment programmes for KPs.

The following programme indicators were therefore estimated among the four KPs in the seven districts:

- Population size for the purpose of improving programme targets and coverage estimates
- Prevalence of HIV and TB, and co-infection among FSWs, MSM, TGW and PWID
- Prevalence of Hepatitis B and Hepatitis C among PWID
- HIV treatment cascades and progress against 95-95-95 targets
- Programme coverage, including PrEP use
- Access to testing for HIV and knowledge of HIV status
- Behaviours associated with increased risk of HIV and
- Frequency of experiences of violence, stigma and discrimination.

## Methods

A cross-sectional study was implemented in four phases, as summarised below.

### Phase 1: Consult stakeholders and prepare protocol

#### Stakeholder consultation

The study was described at a national stakeholder consultation during which the National Department of Health (NDoH) provided support for the study implementation. Subsequently, the study team met with implementing partners (IPs) in the districts to introduce the study and make implementation arrangements. The study was conducted in partnership with IPs in the four programme districts. Furthermore, engagements were held with Civil Society.

#### Ethical approval of protocol and strategies to mitigate risks

The University of Witwatersrand Human Research Ethics Committee (Medical) approved the study proposal. The principles of autonomy, discretion and confidentiality were adhered to throughout the study, and all participants provided written informed consent. Anonymous data collection strategies were used to maintain confidentiality. Personal identifying data were collected only for participants who indicated interest in receiving their laboratory results.

### Phase 2: Mapping programme sites and KP outreach venues

#### Mapping service delivery sites in four districts with Global Fund programmes

In four of the seven districts with Global Fund programmes, the locations implementing partners (IPs) provide services to key population members were mapped, and a sample of these sites was visited for the BBS-Lite survey. In these districts, the IPs provided a list of 543 “programme sites” and the respective GPS coordinates.

#### Identification and mapping of key populations outreach venues

The objectives of mapping KP outreach venues (locations) in the seven study districts were:

- To identify priority areas where KPs are likely to congregate.
- To identify public venues (physical venues, events, and social media sites) where FSWs, MSM, PWID and TGW congregate for various reasons.
- To obtain information about the locations for sampling for the BBS-Lite.
- To assess the on-site provision of HIV prevention services.

Individuals familiar with each district identified locations where KPs were known to gather. Between 15 and 23 priority sites were identified per district, resulting in a total of 130 areas. Approximately 120 community informants were interviewed per district, totalling 804 interviews (96% of the target 840). Community informants were individuals knowledgeable about the KPs, including members of the KP community, taxi drivers, bar and guesthouse workers, security guards, students, unemployed men, and traders.

A total of 1,855 venues were identified in the seven districts. This number was adjusted by the number of venues estimated after KP mapping, based on information such as those venues that were closed, and those that were duplicated in the lists

## Phase 3: Biobehavioural survey of key populations

### Study design

This quantitative cross-sectional study comprised interviews and biological testing of KPs.

### Study populations and sample size

The study populations were adult KPs aged 18 years or older, and sexually exploited adolescents who were members of one of the KP groups. The study was powered to detect the percentage of each KP group that had not been tested for HIV in the past year, resulting in a sample size of 8,400 for all four KP groups across the seven districts.

### Sampling design and recruitment of participants

Participants were recruited from programme sites identified by Global Fund programmes in four districts, and from outreach venues identified in the seven districts, in two stages.

For programme sites, the first stage involved selecting sites from the lists provided by the IPs. In the second stage, individuals were selected from the programme sites. A probability sample was not feasible.

For outreach locations, the first stage involved probabilistic sampling of venues identified by community informants; the second stage involved selecting individuals in these venues. Sampling of venues was based on probability proportional to size (PPS) based on estimates of the number of KPs reported for that location.

At both programme sites and outreach locations, survey participants were given coupons to refer other KPs to participate in the study.

### Data collection tool

The data collection tool for the BBS-Lite sought data on the following domains: eligibility and KP group membership, demographic characteristics, risk behaviours, other vulnerabilities, access to HIV prevention and treatment services, HIV prevention methods (condoms, PrEP, circumcision), use of health services and whether KPs were registered with an IP, coverage estimates of HIV prevention standard package of services, knowledge of KP networks, and experiences of stigma and discrimination, general violence and intimate partner violence (IPV).

### Biomedical testing

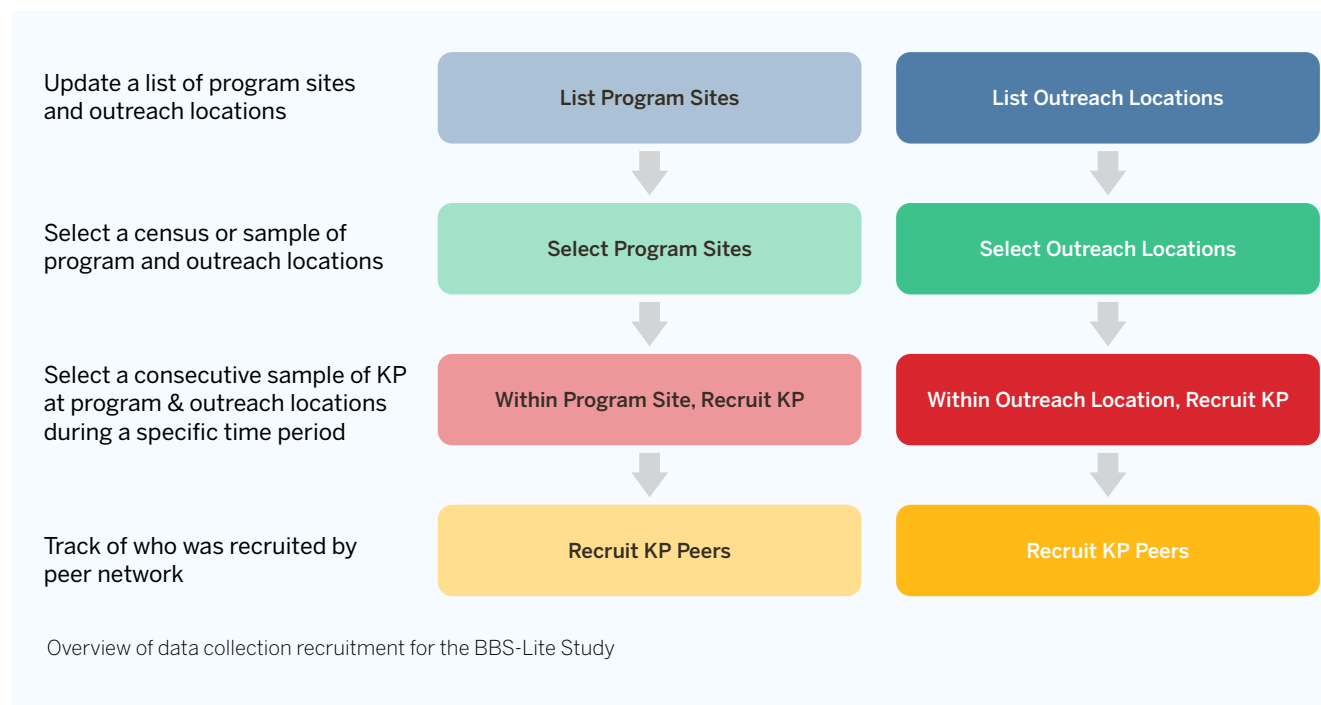
Four biological tests were conducted in this study: HIV test, viral load test for those positive for HIV, hepatitis B and C tests for PWID, and TB test.

### HIV testing

All participants consented to point-of-care HIV testing and received their results. Participants who reported they were already HIV-positive were re-tested. All participants with HIV negative test results were referred for PrEP, and all who tested HIV positive were referred for ART.

### Dried blood spot testing for viral load assessment

Those with positive HIV rapid tests were asked to provide five dried blood spots (DBS) for a viral load test, which were sent to the National Health Laboratory Service. Counsellors referred those with a positive test to a nearby health facility for confirmatory testing and treatment as appropriate.



## Hepatitis B and C

All PWID consented to testing for point-of-care screening tests for Hepatitis B and C. Counsellors referred those with a positive rapid test to a nearby health facility for confirmatory testing and treatment as appropriate.

## TB screening and testing

All KPs were asked four TB symptom screening questions. Those presumptive for TB (positive for any symptom) were asked to provide a TB sputum sample, which were sent to the NHLS laboratory.

## Training of fieldworkers

There were two categories of fieldworkers: interviewers who administered the questionnaire, and counsellors who conducted the biological testing. All fieldworkers were trained for four days. Counsellors were trained to conduct biological testing and specimen collection over two days.

## Data quality assurance

A systematic quality assurance procedure enabled high-quality outputs. Quality assurance checks were applied throughout the design, implementation and finalisation stages of the study, as listed below.

## Phase 4: Data management and analysis

### Data capture

Data collection was by computer-assisted personal interviews (CAPI). The questionnaires were programmed into ONA (an ODK-based platform). The programmer incorporated restrictions and logical skip patterns into the questionnaire to enhance efficiency and accuracy.

### Linkage of biological and behavioural data

The HIV rapid test result for each participant and hepatitis for PWID were entered into the electronic form with a unique identification number barcode. Test results were equally captured and uploaded immediately by counsellors. All specimens sent to the laboratory were labelled with the same identification number and other relevant lab and transport labels. Survey results, test results and laboratory results were linked, using each patient's unique identification number.

### Data cleaning and analysis

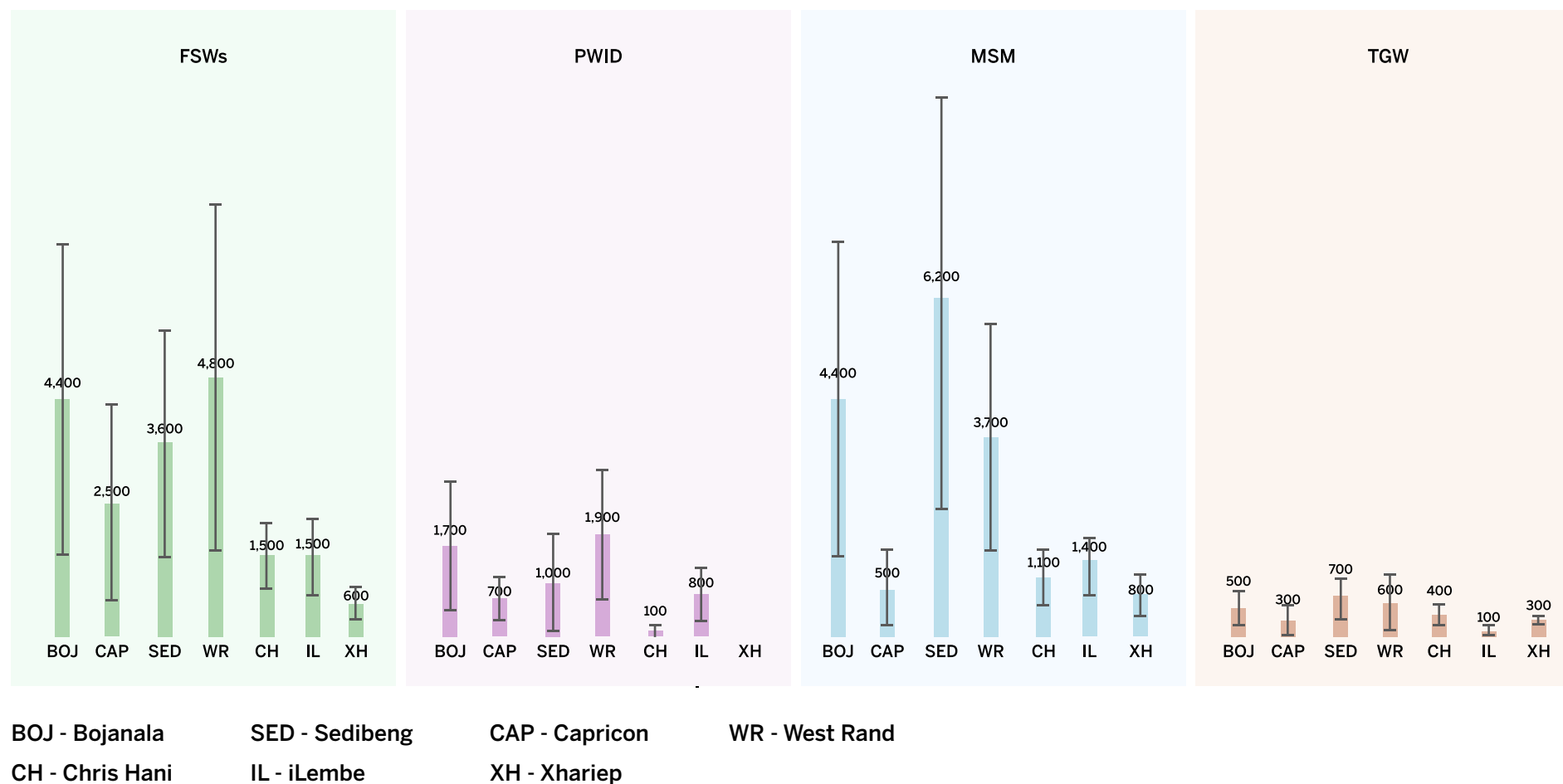
Uploaded survey data were downloaded from ONA in Excel format and imported into Stata version 17 (StataCorp, College Station, TX) and SAS for data management and analysis.

Descriptive analyses provided the characteristics and behavioural outcomes of the different KPs. Categorical variables were described using frequencies and percentages. Numerical data were described using medians and interquartile ranges. All results were stratified by district and type of data collection site (programme versus outreach). Furthermore, 95% confidence intervals were calculated for key outcomes, including HIV prevalence.



## Population size estimates results

The recommended PSEs for the four KP groups in the seven districts are shown in the table below. The PSEs for FSWs ranged from 615 in Xhariep to 4,357 in Bojanala. The PSEs for PWID ranged from 0 in Xhariep to 1,943 in the West Rand. The recommended estimates for MSM ranged from 781 in Xhariep to 6,229 in Sedibeng. The recommended estimates for TGW ranged from 120 in iLembe to 725 in Sedibeng.



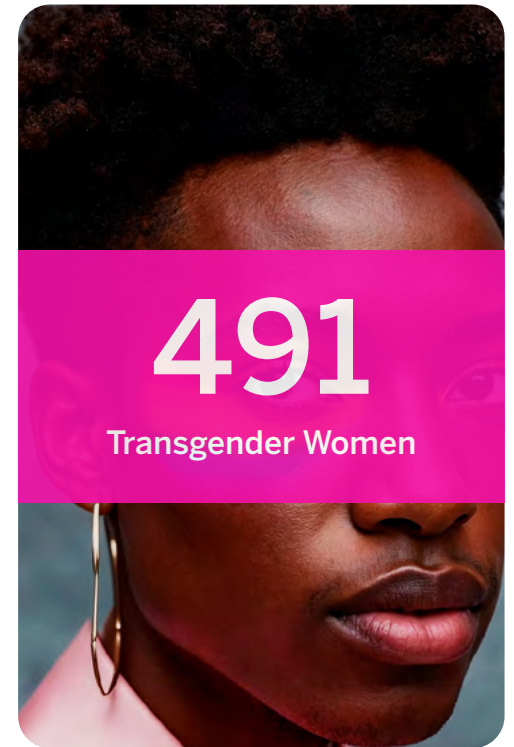
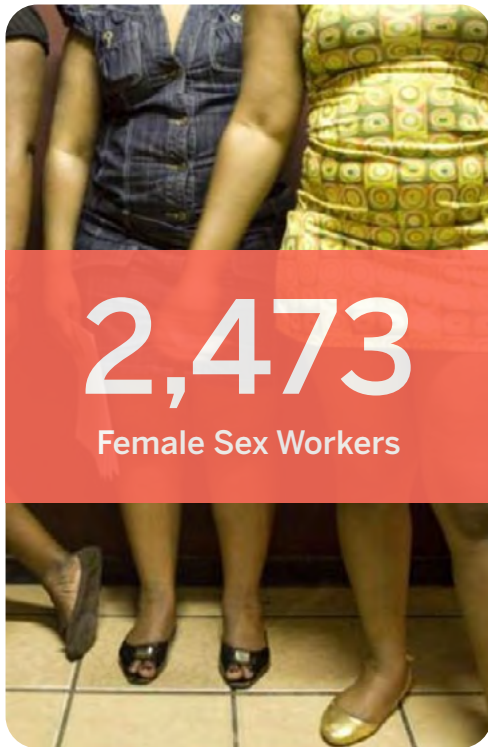
Population size estimates (to the nearest 100) for the four key population groups in the seven districts, BBS-Lite, 2025



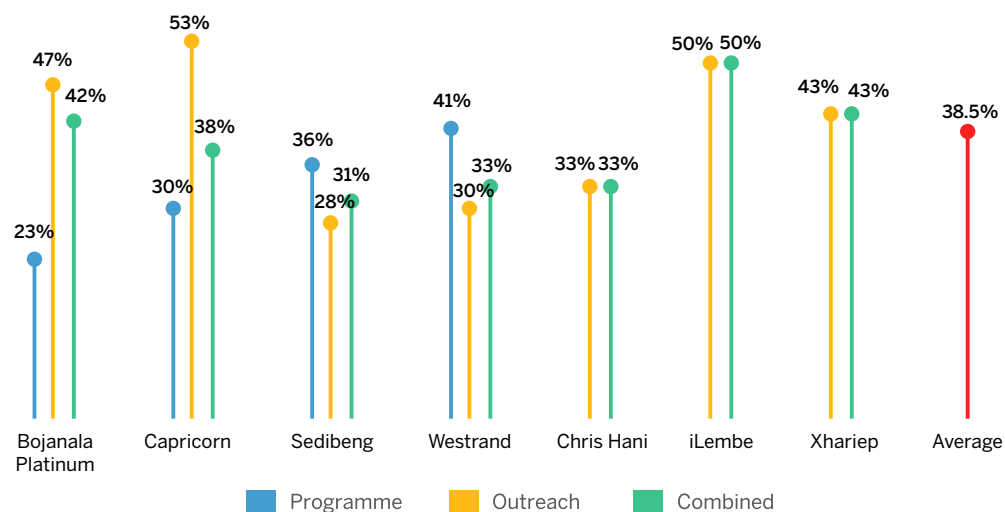
## BBS results: number of key population participants

A total of 6,182 KPs participated in the survey. There was some intersectionality (2%), resulting in 6,288 KPs when summing up the numbers for each KP. There were 2,473 FSWs, 1,667 PWID, 1,651 MSM and 491 TGW participants.

**6,182**  
Study Participants



## BBS results: female sex workers



HIV prevalence among female sex workers in seven districts, BBS-Lite 2025

### Sociodemographic characteristics

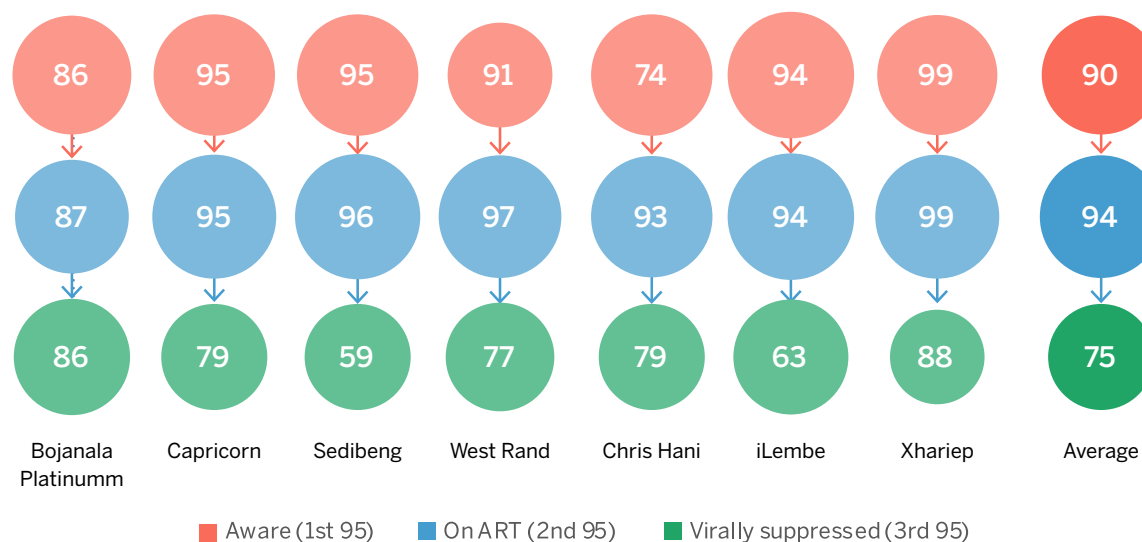
Two thousand four hundred and seventy-three FSWs participated, the majority of whom were aged 25–34 years. The majority were never married, and nearly half had completed secondary education. Half had spent a night outside their districts in the past month.

### HIV prevalence

The average prevalence of HIV among FSWs across all districts was 38.5%, ranging from 31.2% (95% CI: 26.2–37.1%) in Sedibeng to 49.7% (95% CI: 38.6–60.9%) in iLembe.

### HIV treatment cascade (95-95-95 targets)

The percentage of HIV-positive FSWs who knew their status was 90.4% across all districts, 93.8% of whom were on treatment. Viral load suppression (VLS) was 74.8% among FSWs on treatment in all seven districts.



HIV treatment cascade (95-95-95) among female sex workers in seven districts, BBS-Lite 2025



## Risk behaviours and vulnerabilities

### Anal sex

Across all districts, 4.8% of FSWs reported having anal sex six months before the survey; the proportion varied by district.

### Condom use

Overall, 64.9% of FSWs reported using a condom at last sexual intercourse, with considerable variations across districts, ranging from 31.6% to 78.9%. In all four districts with programmes, condom use was higher in outreach venues than in programme sites.



**65%**

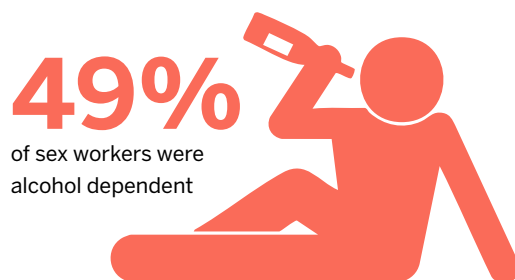
of FSWs used condom at last sexual intercourse

### Injecting drug use

About 2% of FSWs reported injecting drugs in the previous six months, ranging from 0% to 3.6%.

### Alcohol abuse

Almost half (49.2%) of all FSWs across were alcohol dependent, ranging from 13.6% to 87.0%.



**49%**

of sex workers were alcohol dependent

## Experience of violence

Around a third of FSWs reported having experienced violence and/or IPV in the 12 months preceding the survey.



**1 in 3**

FSWs experienced violence in the last year

## Food insecurity

A high proportion of FSWs slept hungry in the 30 days preceding the survey due to lack of food, ranging from 34.5% to 51.7%.



## Programme coverage

### Intervention services coverage

Across all districts, 61% of FSWs reported having received any HIV prevention/treatment services in the last 12 months. Those recruited from programme sites reported much higher percentages for programme exposure than those recruited from outreach locations.



**61%**

of FSWs reported having received any HIV prevention/treatment services in the last 12 months

### PrEP use

At the time of the survey, 53.2% of all FSWs who reported being HIV-negative were on PrEP. Notably, PrEP uptake was lowest in Chris Hani (9.2%) and Xhariep (30.9%), which are districts without IPs. In all four districts with IPs, PrEP uptake was considerably higher in programme sites than at outreach venues.



**53%**

of HIV-negative FSWs used PrEP

## BBS results: people who inject drugs



### Sociodemographic characteristics

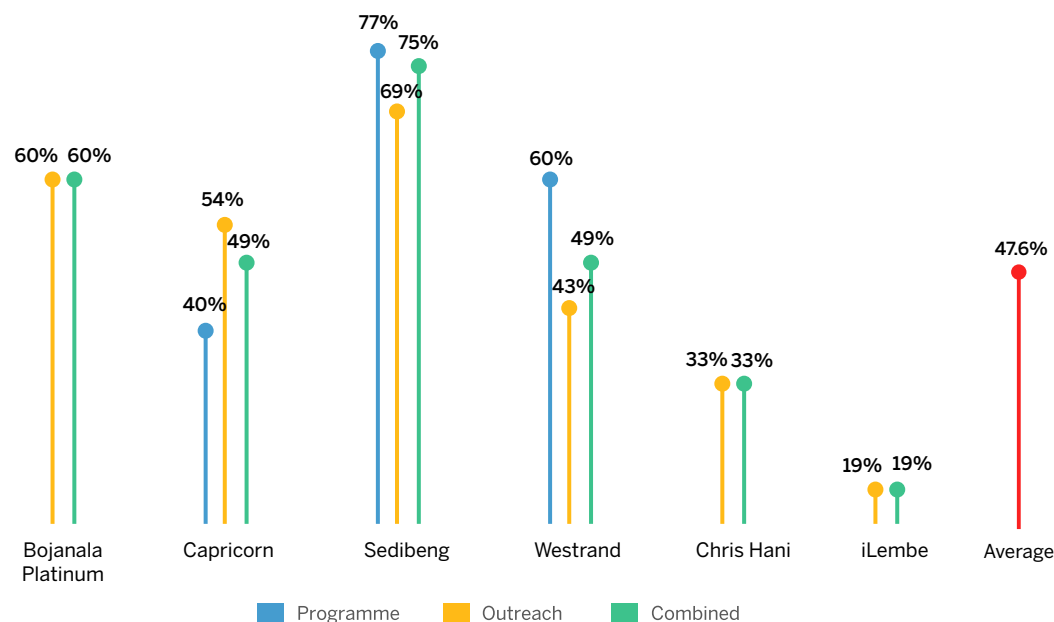
Data collection on PWID was implemented in six districts, as the fieldwork team failed to find any PWID in Xhariep. The majority of PWID were male (94.4%); two-thirds were aged 25 - 34 years. A quarter (24.3%) had spent a night outside their district of residence in the past month. Ninety-five percent had never been married. A third had completed secondary education. The majority (86%) had never used social media, and only 5.6% used it daily.

### HIV prevalence

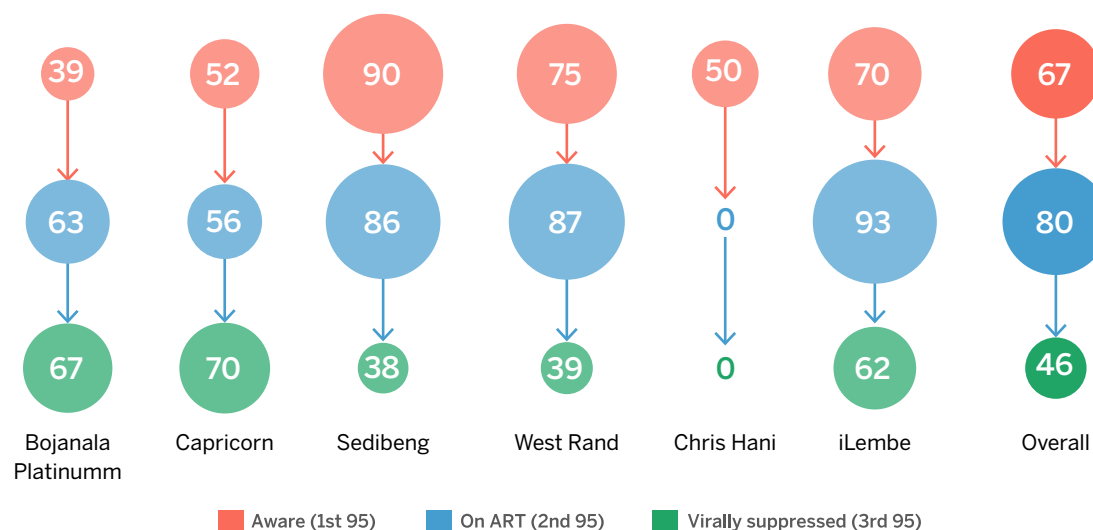
The average prevalence of HIV among PWID in the six districts was 47.6%, ranging from 18.8% to 74.5%.

### HIV treatment cascade (95-95-95 targets)

Across all districts, the treatment cascade achievement was 67-80-46%. The percentage of PWID who knew their HIV status was 66.9%, 79.6% of whom were on treatment. Viral load suppression among those on treatment was 45.6%. All outcomes were higher among PWID recruited at programme sites than those recruited from outreach venues.



HIV prevalence among people who inject drugs in six districts, BBS-Lite 2025

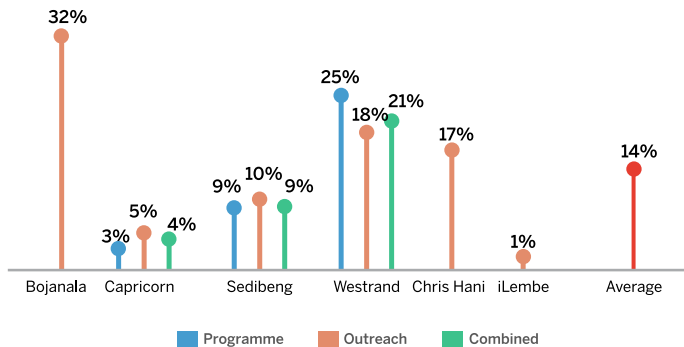


HIV treatment cascade (95-95-95) among people who inject drugs in seven districts, BBS-Lite 2025

## Hepatitis B and C

### Hepatitis B

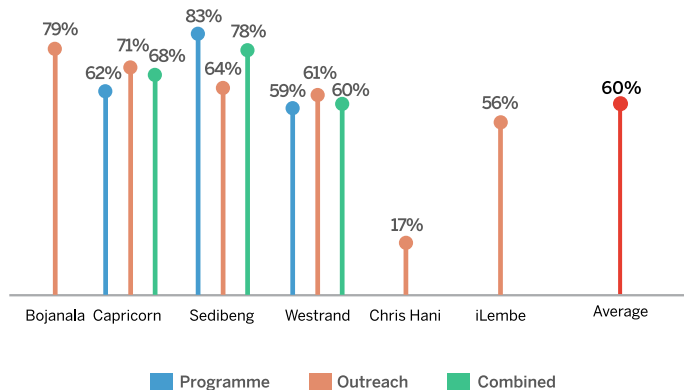
The average prevalence of Hepatitis B among PWID across the six districts was 14.0%, ranging from 1.4% in iLembe to 32.3% in Bojanala.



Hepatitis B prevalence among people who inject drugs in six districts, BBS-Lite 2025

### Hepatitis C

The average prevalence of Hepatitis C was 59.5%, ranging from 16.6% in Chris Hani to 78.3% in Sedibeng.



hepatitis C prevalence among people who inject drugs in six districts, BBS-Lite 2025

## Risk behaviours and vulnerabilities

### Multiple sexual partnerships and transactional sex

A quarter (24.6%) of all PWID in the survey reported having two or more sexual partners in the four weeks before the survey.

### Anal sex

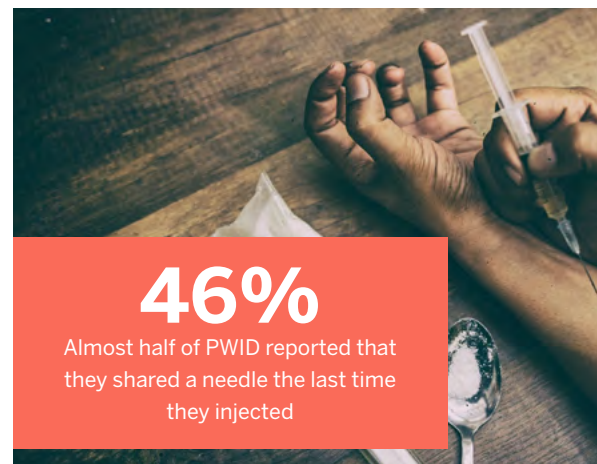
Engagement in anal sex in the past six months among PWID was 2.5% and varied across districts, from 0% to 5.1%.

### Condom use

Condom use at last sexual intercourse was 51.6% among PWID across all districts, varying from 33.3% to 57.0%.

## Injecting practices

The use of a new syringe at the last time of injecting drugs was reported by 59.6%, ranging from 38.5% to 81.9% in Sedibeng. Almost half (46.0%) reported that they shared a needle the last time they injected.



### Alcohol abuse

One in 10 PWID were alcohol dependent (2.3% to 50%).

### Experience of violence

Of the 1,667 PWID surveyed, 50.7% reported that they experienced violence within the 12 months preceding the survey. The proportion was highest in iLembe (80.8%). The incidence of IPV was much lower, at 15.0% across all districts

### Food insecurity

More than seven in every 10 PWID (71.6%) reported sleeping hungry due to lack of food in the 30 days preceding the survey.

## Programme coverage

### Intervention services coverage

Across all districts, slightly less than half (45.5%) of PWID reported having received any HIV prevention and treatment services in the past 12 months, ranging from 0% to 86.5%. Expectedly, the highest percentages were among PWID recruited at programme sites.

### PrEP use

Only 8.6% of all PWID who reported being HIV-negative were on PrEP. This was lowest in Chris Hani (0%) and highest in the West Rand (24.7%).

### Opioid Substitution Therapy (OST)

Almost 8% of all PWID reported having received OST in the past six months, virtually all of whom were from Sedibeng and the West Rand districts.

## BBS results: men who have sex with men



### Sociodemographic characteristics

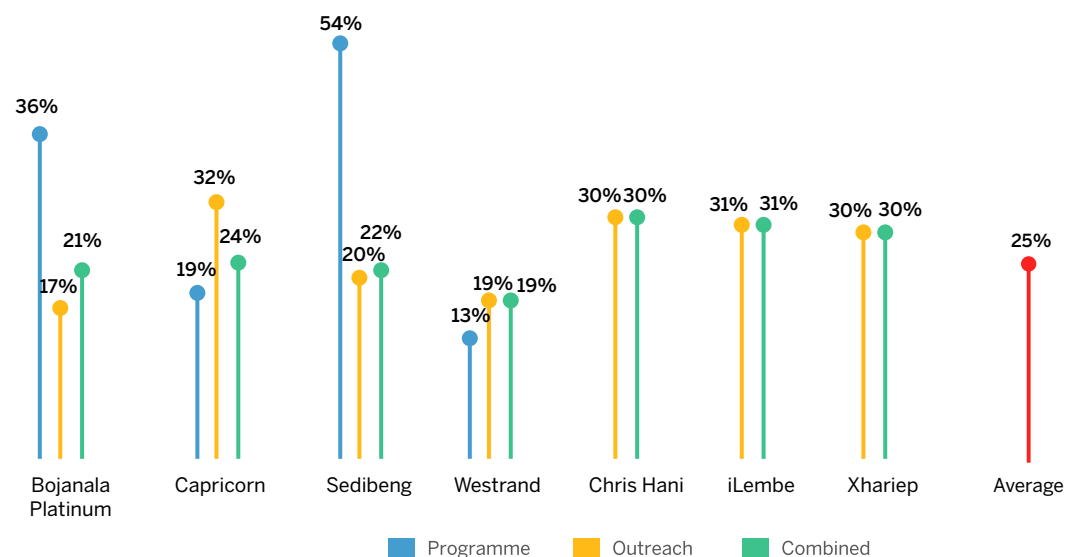
A total of 1,651 MSM participated in the survey, with the majority (89.3%) recruited from outreach locations. Approximately one-third (30.8%) were aged 18 to 24 years. The majority (78.4%) used social media daily. Almost half (46.5%) had spent a night outside their district of residence in the past month.

### HIV prevalence

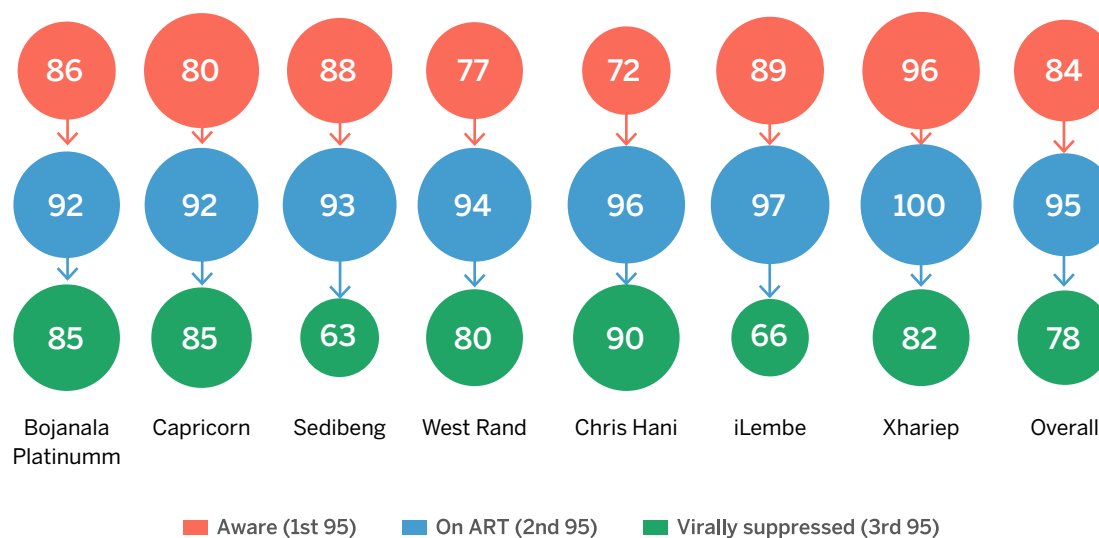
The average prevalence of HIV among MSM in the seven districts was 25%, varying from 18.5% (95% CI: 13.7–24.6) in the West Rand to 31.2% (95% CI: 22.1–41.98) in Chris Hani.

### HIV treatment cascade (95-95-95 targets)

The HIV treatment achievements among MSM across all districts were 84-95-78. The percentage of MSM who knew their HIV status was 83.5%, 94.8% of whom were on treatment and 78.1% of whom were virally suppressed.



HIV prevalence among men who have sex with men in seven districts, BBS-Lite 2025



HIV treatment targets (95-95-95) among men who have sex with men in seven districts, BBS-Lite 2025

## Risk behaviours and vulnerabilities

### Multiple sexual partnerships and transactional sex

One in three MSM (33.3%) had more than two sexual partners in the four weeks preceding the survey. Transactional sex in the past six months among MSM was 24.6%.

### Condom use

Overall, 59.8% of MSM reported using condoms during their last sexual intercourse, ranging from 49.2% in Chris Hani to 73.0% in Sedibeng.



**60%**

of MSM used condom at last sexual intercourse

### Injecting drug use

About 4.6% of the MSM surveyed reported injecting drug use in the previous six months, from 0% to 15.6%.

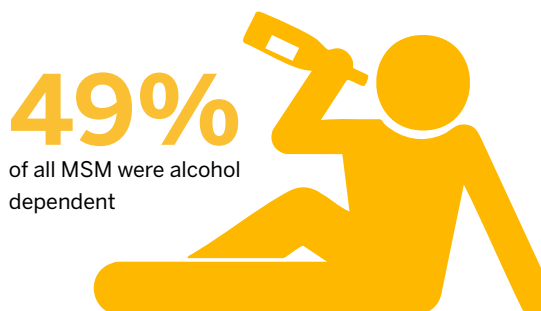


**5%**

of MSM reported injecting drugs in the previous 6 months

### Alcohol abuse

The prevalence of alcohol dependence among MSM, overall, was 48.6%. There were notable differences between districts, ranging from 14.8% in Bojanala to 73.2% in Chris Hani.



**49%**  
of all MSM were alcohol dependent

### Experience of violence

Experience of violence in the 12 months before the survey was reported by 30.8% of MSM. The incidence of IPV was 21.6% across all districts.



**31%**

of MSM experienced violence in the last year

### Food insecurity

A little more than a quarter of MSM (27.8%) reported sleeping hungry due to lack of food in the 30 days preceding the survey. The prevalence of food insecurity was highest among MSM surveyed in Xhariep (41.8%).

## Programme coverage

### Intervention services coverage

Across all districts, slightly less than half (48.6%) of MSM reported having received any HIV prevention and treatment services in the past 12 months, ranging from 7.5% in Chris Hani to 74.9% in Sedibeng.



**49%**

of MSM reported having received any HIV prevention/treatment services in the last 12 months

### PrEP uptake and use

At the time of the survey, about a quarter (23.0%) of all MSM who reported being HIV-negative were on PrEP; uptake was lowest in Xhariep (11.5%) and highest in the West Rand (44.0%).



**23%**

of HIV-negative MSM were on PrEP



## BBS results: transgender women



### Sociodemographic characteristics

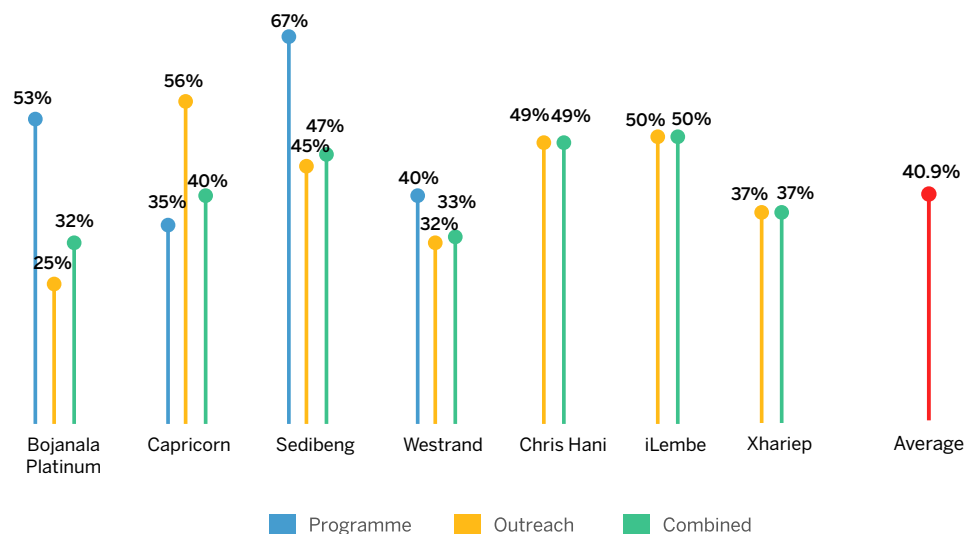
Four hundred and ninety-seven TGW participants took part in the survey, with the majority (83%) recruited from outreach locations. The majority (89.2%) have never been married, and 71.7% had completed secondary education. Half (50.3%) had spent a night outside their district of residence in the past month. The majority (93.8%) used social media daily.

### HIV prevalence

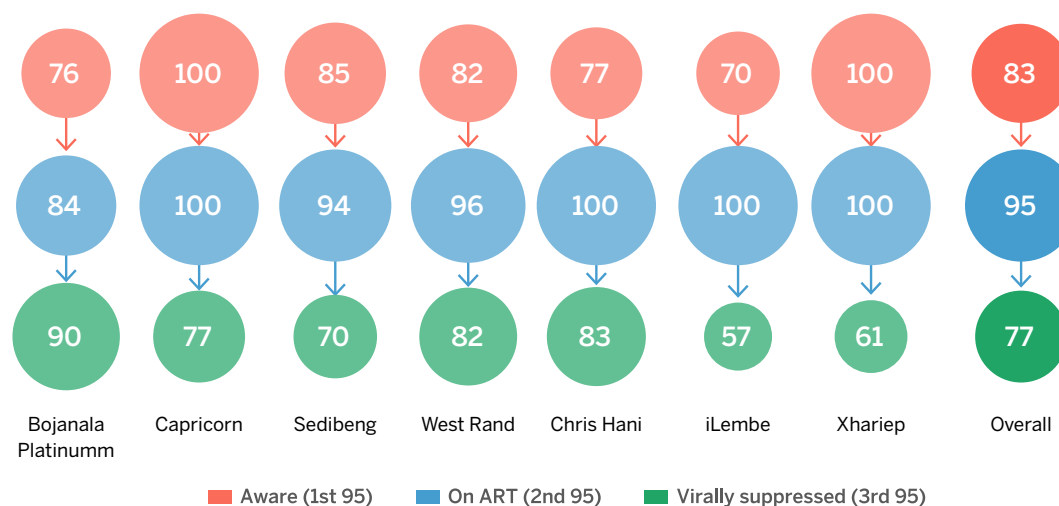
The average prevalence of HIV among TGW in the seven districts was 40.9%, varying from 31.8% (95% CI: 21.4–44.4) in Bojanala to 50% (95% CI: 34.2–64.3) in iLembe.

### HIV treatment cascade (95-95-95 targets)

The HIV treatment targets among TGW were 83-95-77 across all districts. The percentage of TGW who knew their HIV status was 83.2%, 95.0% of whom were on treatment; 76.8% of those on treatment were virally suppressed.



HIV prevalence among transgender women in seven districts, BBS-Lite 2025



HIV treatment targets (95-95-95) among transgender women in seven districts, BBS-Lite 2025

## Risk behaviours and vulnerabilities

### Multiple sexual partnerships

A small fraction of TGW (4.4%) reported multiple sexual partnerships in the previous four weeks.

### Condom use

Overall, 54.3% of TGW reported using condoms during their last sexual intercourse, ranging from 44.3% to 66.3%.



**54%**

of TGW used condom at last sexual intercourse

### Injecting drug use

Only two TGW reported injecting drug use in the past six months (0.4%).



### Experience of violence

Of the TGW surveyed, 29.0% reported experiencing violence in the 12 months before the survey. The incidence of IPV was 22% across all districts.

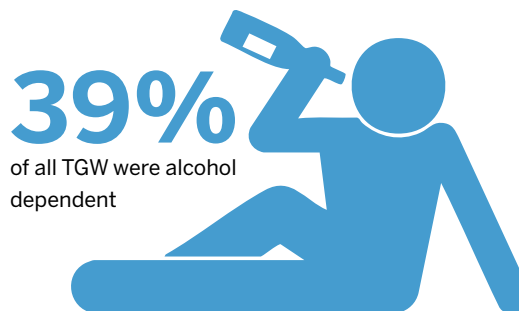


**29%**

of TGW experienced violence in the last year

### Alcohol abuse

The prevalence of alcohol dependency among TGW was 39.1%, ranging from 13.0% to 59.5%.



**39%**

of all TGW were alcohol dependent

### Food insecurity

Almost a quarter (23.3%) of TGW reported sleeping hungry due to lack of food in the 30 days preceding the survey.

## Programme coverage

### Intervention services coverage

Across all districts, less than half (45.1%) of TGW reported having received any HIV prevention/treatment services in the past 12 months, ranging from 14.8% to 77.4%.



**45%**

of TGW reported having received any HIV prevention/treatment services in the last 12 months

### PrEP use

A quarter (24.8%) of TGW who were HIV-negative were on PrEP.



**25%**

of HIV-negative TGW were on PrEP

## Conclusion

This BBS-Lite provide valuable data on the HIV epidemic and other outcomes among four key populations in seven previously unstudied districts of South Africa. The findings highlight the need for urgent evidence-based interventions in these KPs if South Africa is to achieve complete epidemic control. In times of shrinking donor funds for HIV prevention and treatment programmes, governmental support for KP programmes will be pivotal. The data presented in this first BBS-Lite will be critical for planning necessary interventions and will serve as a baseline for monitoring and evaluation in South Africa.

# Background

## The HIV epidemic in South Africa

An estimated 8.1 million people in South Africa were living with HIV in 2025, and 6.4 million were receiving antiretroviral therapy (ART).<sup>1,2</sup> The National Strategic Plan for HIV, TB and STIs, 2023-2028 (referred to as the NSP in this document)<sup>3</sup> identifies sex workers, transgender people, men who have sex with men, and people who inject drugs as key populations (KPs) in the HIV epidemic. A recent model estimated that, in the period 2010 to 2019, the transmission population attributable fraction of commercial sex to the HIV epidemic was 6.9%; the fraction attributable to the clients of female sex workers (FSWs) with their non-commercial female partners was 41.9%; and the fraction attributable to sex among men who have sex with men was 5%.<sup>4</sup>

National estimates of the number of KPs, their HIV prevalence, and their access to treatment have been based on bio-behavioural surveys conducted primarily in metropolitan municipalities in South Africa. Outside these areas, there is scant health district-specific evidence regarding the number of individuals in each KP, their HIV prevalence, or the proportion of each population on treatment that has achieved viral suppression. One reason for conducting this study was to provide local information about KPs in districts where biobehavioural surveys had not been conducted.

## Selection of study districts

The National Department of Health (NDoH) supports the implementation of HIV treatment and prevention services for KPs throughout the country. In addition, the Global Fund and PEPFAR support intervention programmes in selected health districts for FSWs, PWID, MSM and TGW. For example, in the 2021-2024 programme cycle, the Global Fund supported FSWs programmes in 16 of the country's 52 districts, shown in orange on the map: Capricorn, Sekhukhune, Mopani, Amathole, Alfred Nzo, Buffalo City, Nelson Mandela Bay, King Cetshwayo, Ugu, Zululand, Sedibeng, West Rand, Bojanala Platinum, Frances Baard, Lejweleputswa, and Thabo Mofutsanyane (Figure 1).

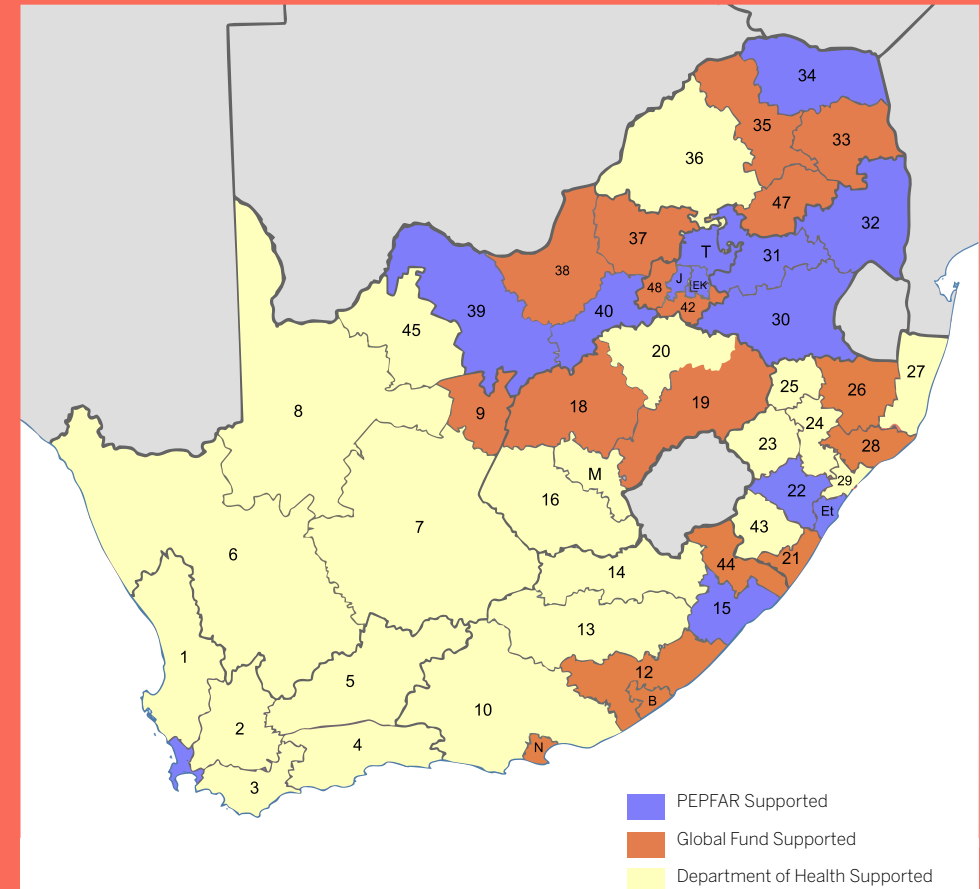


Figure 1: District map of South Africa showing PEPFAR and Global Fund supported districts for female sex worker programmes

## Background

In 2024, PEPFAR supported FSWs programmes in 12 districts, as shown on the map in blue: Vhembe, Oliver Tambo, eThekweni, uMgungundlovu, City of Johannesburg, City of Tshwane, Ekurhuleni, Dr Kenneth Kaunda, Ehlanzeni, Gert Sibande, Nkangala, and City of Cape Town. Funding from PEPFAR was interrupted in January 2025. The districts in yellow currently receive support from the NDoH.

This first BBS-Lite was conducted in seven districts with a focus on four KP groups: FSWs, people who inject drugs (PWID), men who have sex with men (MSM) and transgender women (TGW). The following criteria were considered in the selection of the districts:

- Presence of multiple KPs. The overall mix should include FSWs, MSM, PWID, and TGW.
- Capacity of non-governmental organisations (NGOs) to support implementation.
- Mix of districts to include those with and without Global Fund support
- Districts with urban and rural areas.
- Districts in multiple provinces
- Districts without a recent or upcoming planned IBBS.
- Recommendations from the NDoH based on information regarding the prevalence of sexually transmitted infections (STIs) and districts currently without services funded by Global Fund or PEPFAR.

Three implementing partners (AFSA, BZ, and NACOSA) funded by the Global Fund supported programmes for KPs in four districts. Consultations with stakeholders led to the selection of seven districts (Table 1). Four of the seven districts had KP programmes supported by the Global Fund. Three districts that did not receive Global Fund or PEPFAR support were selected based on input from the NDoH regarding the high STI prevalence in those districts.

Table 1: The seven districts covered in the BBS-Lite, 2025

| Province      | District Name     | District total Population | Global Fund Implementing Partners |        |      |      | Rationale for selection                                         |
|---------------|-------------------|---------------------------|-----------------------------------|--------|------|------|-----------------------------------------------------------------|
|               |                   |                           | SW                                | PWUD   | MSM  | TGW  |                                                                 |
| Limpopo       | Capricorn         | 1,361,655                 | AFSA                              | None   | BZ   | BZ   | Three Global Fund-supported programmes in one district          |
| North West    | Bojanala Platinum | 2,058,231                 | AFSA                              | None   | BZ   | BZ   | Three Global Fund-supported programmes in one district          |
| Gauteng       | West Rand         | 996,636                   | AFSA                              | NACOSA | None | None | Two Global Fund-supported programmes in one district            |
| Gauteng       | Sedibeng          | 972,188                   | AFSA                              | NACOSA | None | None | Two Global Fund-supported programmes in one district            |
| KwaZulu-Natal | iLembe            | 703,372                   | No Global Fund partner            |        |      |      | NDoH priority due to high STI prevalence and no partner support |
| Eastern Cape  | Chris Hani        | 702,218                   |                                   |        |      |      |                                                                 |
| Free State    | Xhariep           | 127,471                   |                                   |        |      |      |                                                                 |

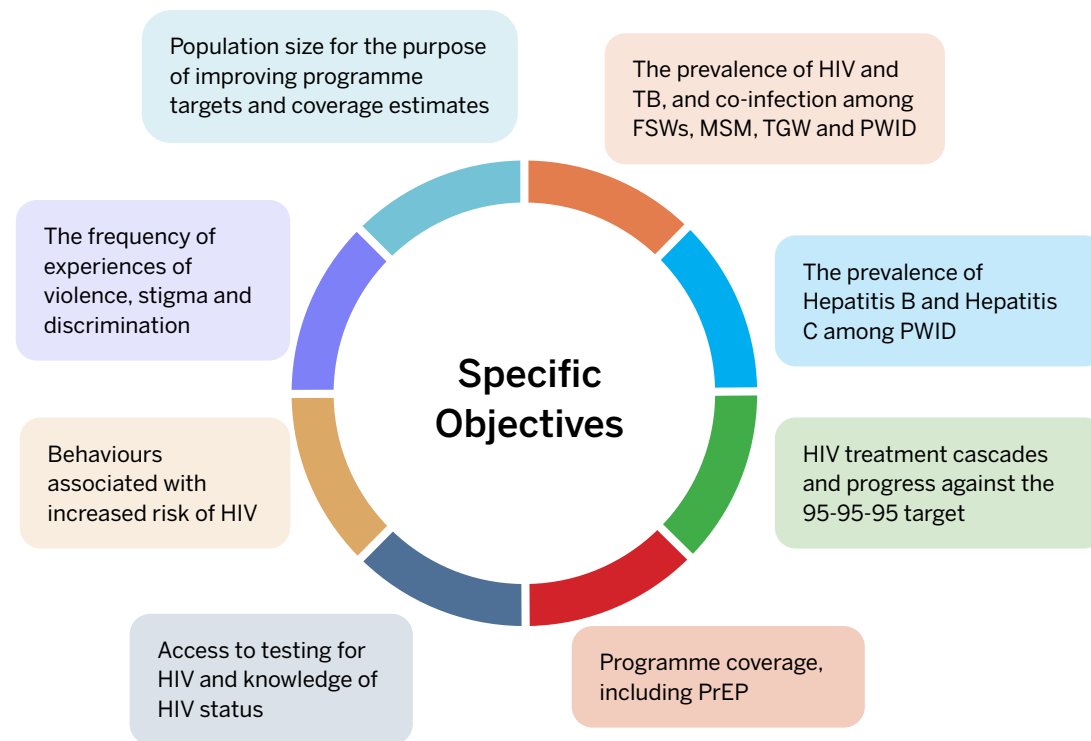
## Aim and objectives

### Aim

The aim of the BBS-Lite was to obtain information unavailable from programme data to improve the delivery of HIV prevention and treatment programmes for KPs.

### Specific Objectives

The specific objectives of the BBS-lite were to estimate the following programme indicators in seven districts for FSWs, MSM, PWID and TGW.



In addition, the population size estimates (PSEs) from these seven districts were extrapolated to estimate the number of KPs in other non-metro districts in South Africa.



## Problems addressed by the study

A stakeholder meeting with programme implementors was held in November 2023 to identify problems, including information gaps, that could be addressed with the BBS-Lite. The issues identified and how they were addressed in the study are described in Figure 2.

| Problem Identified                                                                                                                                                        | How it was addressed in the study                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Outdated population size estimates (PSEs) used as denominators for coverage                                                                                               | The study estimated PSEs that can be used for targets and denominators for coverage                                                                   |
| Lack of data for baseline indicators and target setting                                                                                                                   | The study provided data for selected baseline outcomes and coverage indicators                                                                        |
| Lack of information on who is missed by the programme and how they could be reached                                                                                       | Addressed by rigorous mapping and peer recruitment                                                                                                    |
| Lack of information on progress toward 95-95-95 treatment cascade targets                                                                                                 | The treatment cascade targets were estimated for KPs                                                                                                  |
| Lack of information about the number of KPs in districts where services are not provided                                                                                  | Addressed by covering the entire districts where services were provided and including three districts that did not have Global Fund-funded programmes |
| Lack of information on risk behaviours and access to services among KP                                                                                                    | Information on risk behaviours and access to services was provided for each KP                                                                        |
| Problems with estimating coverage arising from people accessing services at multiple locations (lack of live integrated health information systems – to avoid duplicates) | The study provided coverage estimates but did not untangle the issue of people accessing services at multiple locations                               |

Figure 2: Programme issues and problems addressed in the study

# Methods



## Adaptation of the UNAIDS/WHO BBS-Lite Protocol

This study was based on the UNAIDS/WHO BBS-Lite protocol, with some changes made to accomplish the objectives requested by country stakeholders.

The protocol is aligned with the UNAIDS/WHO protocol in the following ways:

- Stakeholder engagement
- Definition of KPs, and eligibility criteria and screening
- Training of interviewers
- Consecutive recruitment from service delivery sites and snowball recruitment. Note that, in South Africa, participants were recruited consecutively from a sample of known service delivery sites. The schedule for where and when to provide services to the KPs was set by the IP prior to data collection. The sampling of KPs at service delivery sites was not probabilistic. Rather, consecutive programme clients were recruited at multiple sites chosen without manipulation by the study team or service providers, thereby reducing selection bias relative to an outright convenience sample.
- Informed consent, compensation
- Testing considerations

Areas where the South Africa protocol differed from the UNAIDS/WHO protocol:

- Questionnaire: The South African questionnaire included specific questions related to where services were received (government, NGO or private healthcare facilities) to compare the number of participants reporting services as computed from the survey with the number reported in routine data.
- Additional recruitment path: In addition to the recruitment at service delivery sites and via referral coupons, separate probability samples of KPs were recruited from venues identified during mapping. Two days were spent in each district to identify a sampling frame of venues. These venues included those unknown to the programme IPs. A probability sample using probability proportional to size (PPS) sampling of these venues was selected for the BBS-Lite based on measures of size from venue informants who reported the number of KPs at the venue, and a cluster size of 20. Population size estimates were based on these venue-based probability samples.
- Population size estimates: In addition to the BBS-Lite, PSEs were based on the venue mapping and interviews with the probability sampling of KP venues.
- Implementation: The South African protocol was implemented by a reputable organisation in collaboration with IPs rather than entirely by IPs. The interviewers were hired and paid by the organisation. Interviewers lived in the study districts and included KP members and people with survey experience. Programme staff reported that they urgently needed the data but did not have time to implement the survey.

The study was implemented in four phases (Figure 3). Each phase is described below. Phase 5 involves in the use of the data for action.

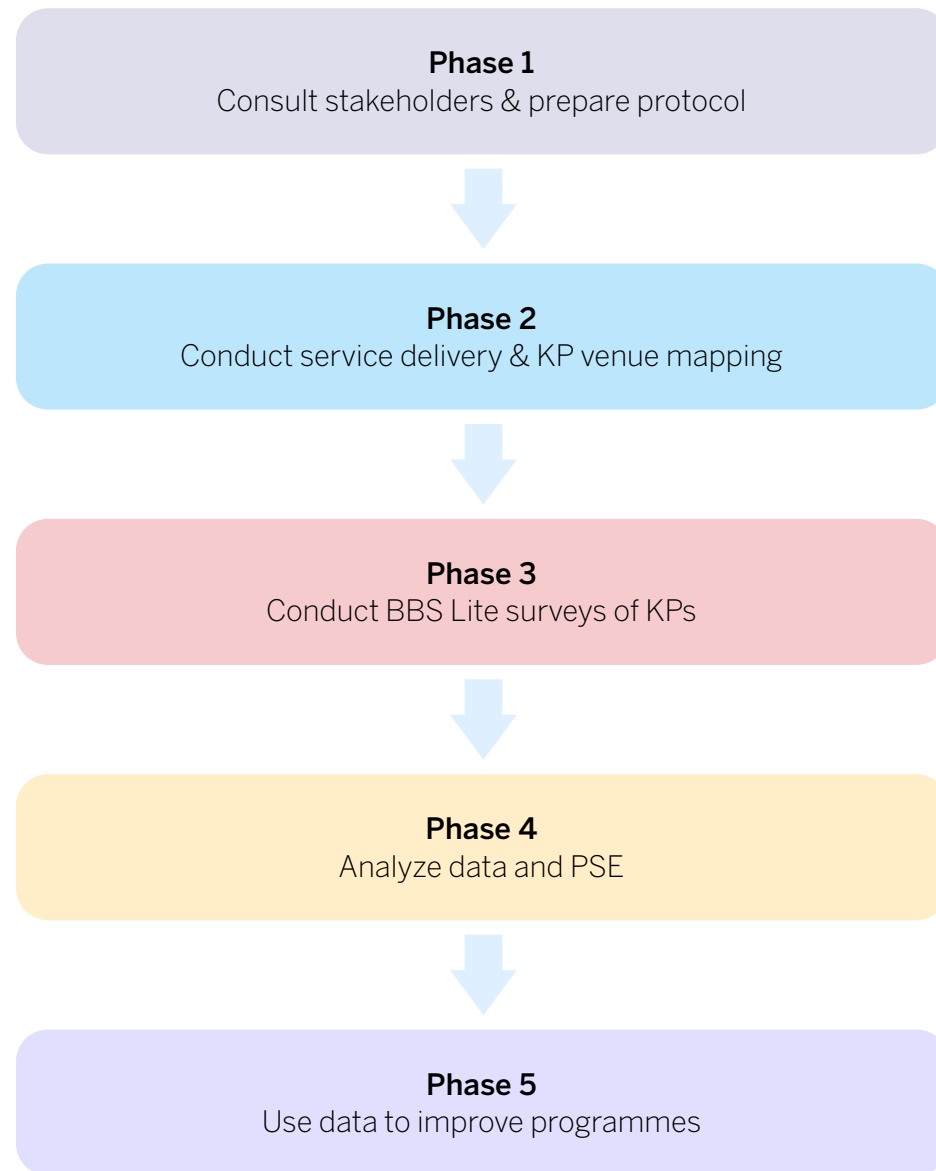


Figure 3: Phases of the BBS-Lite

## Phase 1: Consult stakeholders and prepare protocol

### Stakeholder consultation

The study plan was presented at a national stakeholder consultation during which the NDoH provided support for the study implementation. Additional engagements were held with Civil Society who supported the survey implementation. Subsequently, the study team met with the IPs in the districts to explain the study and plan its implementation. The study was conducted in partnership with IPs in the four programme districts.

### Ethical approval of protocol and strategies to mitigate risks

The study team received unconditional ethical approval from the University of Witwatersrand Human Research Ethics Committee (Medical), clearance certificate no: M240520. The ethical principles of autonomy, discretion and confidentiality were adhered to throughout the study. The POPI Act<sup>5</sup> was also adhered to. The study aim, objectives and expected roles of participants were explained to all potential participants before seeking informed consent. All participants provided written informed consent before data collection began. Anonymous data collection strategies were put in place to maintain confidentiality. No personal identifying data were collected except for those participants who indicated interest in receiving their laboratory results.

The Ethics Committee provided guidance on compensation. Accordingly, community informants asked to identify venues received R50, venue informants asked about the characteristics of venues received R150, and BBS-Lite

participants received R250 if they were recruited on site and R350 if they were referred to the site using coupons (an additional R100 was provided to cover transport costs).

This study was designed so that the risk to participants was minimal. Participants were contacted only once; no identifying information was recorded by the study team; and risks from the finger prick used for testing were low. Anxiety about HIV testing was reduced by pre-test counselling by trained counsellors in accordance with the national guidelines. Emotional distress occurred among some participants who tested positive for HIV and Hepatitis B and C. All participants were given post-test counselling and were referred to the nearest appropriate health facility for care by trained local health facility staff.

## Phase 2: Mapping programme sites and outreach venues

### Mapping service delivery sites in four districts with Global Fund programs

The objectives of the service delivery mapping were:

- To identify and map locations where Global Fund implementing partners provide services to KPs.
- To coordinate the implementation of the survey at a sample of these locations.

In the districts with Global Fund-funded services, the IPs provided a list of 543 programme delivery sites (with GPS coordinates) where they offered services to KPs.

### Identification and mapping of KP outreach venues

The objectives of mapping KP outreach venues in the seven study districts were:

- To identify priority areas in each district where KPs were likely to congregate, based on insights and information from knowledgeable people in the district.
- Within priority areas, to identify all public venues (physical venues, events, and social media sites) where FSWs, MSM, PWID and TGW congregate, socialise, inject drugs, or meet new sex partners.
- To obtain information about the name and characteristics of each of these locations and to summarise the data in a master list of venues for subsequent sampling for the BBS-Lite.
- To assess the on-site provision of HIV prevention services.

### Identification of priority areas

People knowledgeable about the districts were asked to identify local geographic areas where KPs were known to congregate. The goal was to identify all the areas in each district where KPs could be found.

### Identification of venues

To identify venues where KPs meet, the survey team interviewed knowledgeable community informants in each district. Each community informant could name up to 10 locations. Information was collected using the survey instrument (tagged Form A), which included questions to identify the names and locations of places where KPs socialise, meet new sexual partners, or inject drugs. Informants did not share any personal identifying information.



### Characteristics of venues (venue mapping)

A random sample of venues identified by community informants was selected for visit. At each venue that was found to be operational, a venue informant was interviewed. A venue informant needed to be aged 18 or older, knowledgeable about the venue, and present at the venue when the fieldwork team collected information. Venue informants included patrons, KP members, security guards, venue owners, venue managers, etc. They provided information about what occurs at the venue, the people who visit the venue, and on-site HIV prevention activities.

Venues included physical venues, events, and websites. Venue data were collected using a survey instrument tagged Form B. The venue informant was asked if KPs visited the venue and the number of KPs who visited at a busy time.



## Phase 3 Biobehavioural Survey of key populations

### Study design

Phase 3 was a quantitative cross-sectional study, which comprised interviews and biological testing of KPs.

### Study populations: inclusion criteria

The criteria used to define the study populations (KPs) are shown in Table 2. There was no requirement that BBS-Lite participants lived or worked in the district where the interview was conducted. All were adults aged 18 and older. Although the age of consent to participate in research in South Africa is typically 18 years and older, the Ethics Committee approved the inclusion of minors aged 16 and 17 years of age who reported exchanging sex for money or gifts; these are sexually exploited adolescents. Stakeholders requested to include them in the study because it was important to collect behavioural and epidemiological data from them to understand the HIV and social welfare needs of this particularly vulnerable population. In a BBS-Lite protocol planning workshop, it was found that participants shared this view. Additionally, research shows that targeted age-specific programmes can facilitate behaviour change to lower HIV incidence, which may, in turn, help to shift the trajectory of the HIV epidemic in the country.

Table 2: Criteria used to define key populations, BBS-Lite 2025

| Key Population Group                | Criteria                                                                                                               | Whether Included in BBS Lite Study |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Men who have sex with men (MSM)     | Born male and does not identify as a woman or TGW<br>Reports anal sex with a man in the past 6 months<br>Age 18+ years | Yes                                |
| Transgender Woman (TGW)             | Born Male<br>Self-identifies as a Woman or as Transgender<br>Age 18+                                                   | Yes                                |
| Female Sex Worker (FSW)             | Born female<br>Age 18+ years<br>Received gifts or favours or cash in exchange for sex in the past 6 months             | Yes                                |
| Male Sex Worker                     | Born Male<br>Age 18+<br>Received gifts or favours or cash in exchange for sex in the past 6 months                     | No                                 |
| Sexually Exploited Adolescent (SEA) | Age 16-17<br>Received gifts or favours or cash in exchange for sex in the past 6 months                                | Yes                                |
| Person who Injects Drugs (Female)   | Self-Identifies as woman<br>Injected drugs in the past 6 months<br>Age 18+ years                                       | Yes                                |
| Person who Injects Drugs (Male)     | Self-Identifies as a Man<br>Injected drugs in the past 6 months                                                        | Yes                                |



## Sample size and power

The study was powered to measure the percentage of each KP group that had not been tested for HIV in the past year. It was estimated that this proportion would be 10%, based on previous surveys and the recent focus on testing in South Africa. Table 3 shows the sample size calculation formula using normal approximation to the hypergeometric.<sup>6</sup>

The calculated sample sizes were inflated by 5% to account for non-response. Target sample sizes are displayed in Table 4. They are higher than other BBS-Lite surveys because the study included a wider range of KP groups.

## Sampling design, recruitment of participants, and survey weights

As depicted in Figure 4, participants were recruited at programme sites identified by Global Fund IPs in four districts and at outreach venues identified by community informants in all seven districts. These participants were selected based on a two-stage sampling design.

For programme sites, the first stage was the selection of sites from the list provided by the IPs. The second stage was the selection of individuals within each programme site. A probability sample was not feasible. Rather, the survey team worked with the specific KP IPs in the district and accompanied them from one site to another based on their usual programme visits. Within a site, interviews were conducted with consecutive KPs at the number of venues necessary to reach the sample size for that district.

For outreach locations (venues), the first stage was to select a probabilistic sample of venues identified by community informants. The second stage was selection of individuals within each venue. Sampling of venues was based on PPS, based on estimates of the number of KPs reported for each venue by venue informants. For data collection at selected outreach venues, consecutive KPs were recruited until the sample size for that district was achieved.

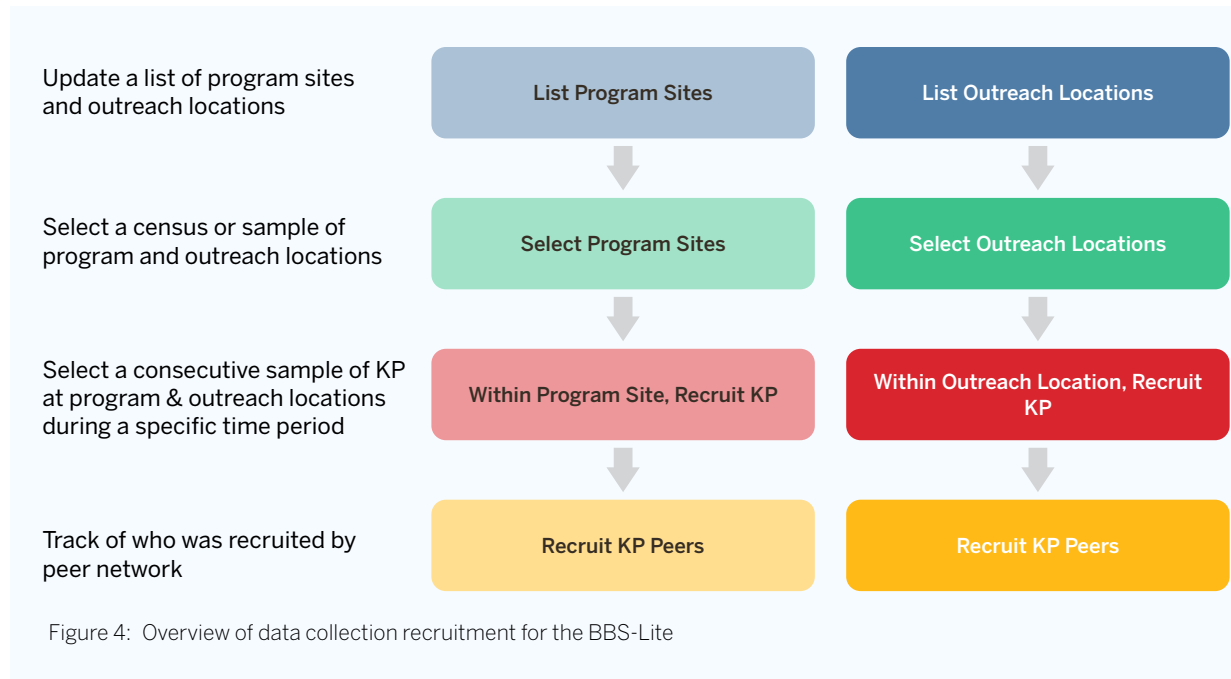
At both programme sites and outreach locations, survey participants were given coupons to refer other KPs to participate in the study. Referred KPs who returned with coupons were screened at the programme site or outreach location, in the same way as the other participants, to ensure their eligibility. Those who did not qualify or had already participated in the survey were rejected.

Table 3: Sample size formula utilised for the study, BBS-Lite 2025

| Sample Size Calculation Using Normal approximation to the hypergeometric (Fosgate 2009) |                                       |                                                                   |                     |
|-----------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------------|---------------------|
| N (population size)                                                                     | Example: 300                          | Required sample size = 169                                        |                     |
| z (confidence level)                                                                    | 1.96                                  | Use the following values of z for different levels of confidence: |                     |
| E (+- error)                                                                            | 0.03                                  | Z                                                                 | level of confidence |
| P (proportion)                                                                          | 0.1                                   | 2.58                                                              | 99%                 |
| Q                                                                                       | 0.9                                   | 1.96                                                              | 95%                 |
|                                                                                         |                                       | 1.645                                                             | 90%                 |
| Formula used                                                                            | $n = \frac{Nz^2pq}{E^2(N-1) + z^2pq}$ |                                                                   |                     |

Table 4: Sample size targets by district and KP, BBS-Lite 2025

| Province      | District name | Sample size targets |       |       |       |       |
|---------------|---------------|---------------------|-------|-------|-------|-------|
|               |               | MSM                 | FSWs  | TGW   | PWID  | Total |
| Limpopo       | Capricorn     | 347                 | 345   | 235   | 334   | 1,283 |
| North West    | Bojanala      | 359                 | 357   | 270   | 349   | 1,350 |
|               | Platinum      |                     |       |       |       |       |
| Gauteng       | West Rand     | 335                 | 332   | 197   | 317   | 1,209 |
| Gauteng       | Sedibeng      | 334                 | 330   | 197   | 314   | 1,204 |
| KwaZulu-Natal | iLembe        | 317                 | 314   | 169   | 297   | 1,135 |
| Eastern Cape  | Chris Hani    | 317                 | 314   | 169   | 297   | 1,135 |
| Free State    | Xhariep       | 169                 | 169   | 80    | 132   | 641   |
| Sum           |               | 2,178               | 2,161 | 1,317 | 2,040 | 7,957 |
| Total         |               | 2,287               | 2,269 | 1,383 | 2,142 | 8,355 |



## Data collection questionnaires

The data collection tool for the BBS-Lite (tagged Form C) sought data from eligible KPs on the following domains.



0 ONN

**FORM C: BBS Lite**

**Questionnaire for KP 1**

**17\_Dec\_2024**

**A. INTRODUCTORY SECTION COMPLETED PRIOR TO INTERVIEW**

**\* 1. Date:**

**\* 2. Time of day:**

*24hr clock*

**\* 3. District name:**

☐ Bojanala Platinum

☐ Capricorn

☐ Chris Hani

## Biomedical testing

Four biological tests were administered: HIV test, viral load test for those positive for HIV, hepatitis B and C tests for PWID and TB test (summarised in Table 5). The decision about which tests to use was based on stakeholder input, cost, and relevance for monitoring the epidemics.

### HIV testing

To participate in the study, all KPs consented to point-of-care HIV testing and received their results. Participants who reported they were HIV-positive were retested using a confirmatory test. All participants with HIV negative test results were referred to the nearest clinics for PrEP, and those who tested HIV positive were referred for ART.

### Dried blood spot testing for viral load assessment

Everyone with a positive HIV rapid test was asked to provide five dried blood spots (DBS) from a finger prick for a viral load test. The DBS samples from each HIV-positive participant were appropriately labelled with the study participant's identification number and transported to the National Institute for Communicable Diseases (NICD), Johannesburg, in pre-packed biohazard bags by a courier company. Counsellors referred those with a positive test to a nearby health facility for confirmatory testing and treatment as appropriate. No whole blood was drawn.

### Hepatitis B and C testing

People who inject drugs were offered point-of-care screening tests for hepatitis B and C. Counsellors referred those with positive rapid tests to a nearby health facility for confirmatory testing and treatment as appropriate.

### TB screening and testing

All KPs were asked four screening symptom questions about TB symptoms. Those presumptive for TB (positive for any of the four symptoms) were asked to provide a sputum sample, which was appropriately labelled with the study participant's identification number and transported to the National Health Laboratory Service (NHLS), Johannesburg, in biohazard boxes at 2 to 8 oC. Participants were given the option of receiving the TB results from the survey. Those who wanted their results provided their contact details.



Table 5: Biological tests, required samples and post-test activities

| Test           | Test                                                                          | Sample type                                                                                            | Time (minutes) | Post-test activities                                                                                                                                                                                                                                                    |
|----------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HIV            | HIV rapid test using ABON and First Response following the National Algorithm | Blood: finger prick                                                                                    | 15             | Test results were returned to participants on-site. HIV-positive participants not on ART were referred to local healthcare facilities for care. Those who tested HIV-negative were referred for PrEP.                                                                   |
| HIV Viral Load | HIV viral load test                                                           | One finger prick: 5 drops of blood from single finger prick: those with a positive HIV rapid test only | 10             | Those with an HIV+ rapid test were asked to provide blood for viral load assessment. Dried blood spots were taken to the NICD for analysis. Results were provided to the study team to link to survey results. No personal identifiers were shared with the study team. |
| Hepatitis B    | Abbott Determine HBsAG2 following national protocol                           | Blood: finger prick                                                                                    | 15             | Test results were returned to participants on-site. Participants with reactive results were referred for confirmatory testing and management in accordance with programme and national protocols.                                                                       |
| Hepatitis C    | Abbott Bioline Rapid Diagnostic Test following national protocol              | Blood: finger prick                                                                                    | 15             | Test results were returned to participants on-site. Participants with reactive results were referred for confirmatory testing and management in accordance with programme and national protocols.                                                                       |
| TB             | Screening questions                                                           | Sputum : those with a positive test on screening only                                                  | 2              | Those presumptive for TB were asked to provide a sputum sample for testing by NHLS. Participants were given the option of receiving the TB results from the survey. Those who wanted their results provided their contact details.                                      |



## Training of fieldworkers

There were two categories of fieldworkers: interviewers who administered the questionnaire, and counsellors who conducted the biological testing. They were proficient in English and one language spoken in the district in which they worked. Although already experienced in data collection, all fieldworkers were trained for four days. Training covered the study tool, protocol for data collection, ethical considerations, fieldwork management, and logistical arrangements. All interviewers were assessed for competency; only those who met minimum requirements were used in the field.

Counsellors were trained to conduct biological testing and specimen collection over two days. The NHLS provided the training for DBS sample and sputum collection. Training included quality control guidance to ensure that the tests were conducted correctly and that the blood spots were dried and transported appropriately.





## Data collection process

Figure 5 illustrates the data flow process at both the service delivery sites and outreach locations.

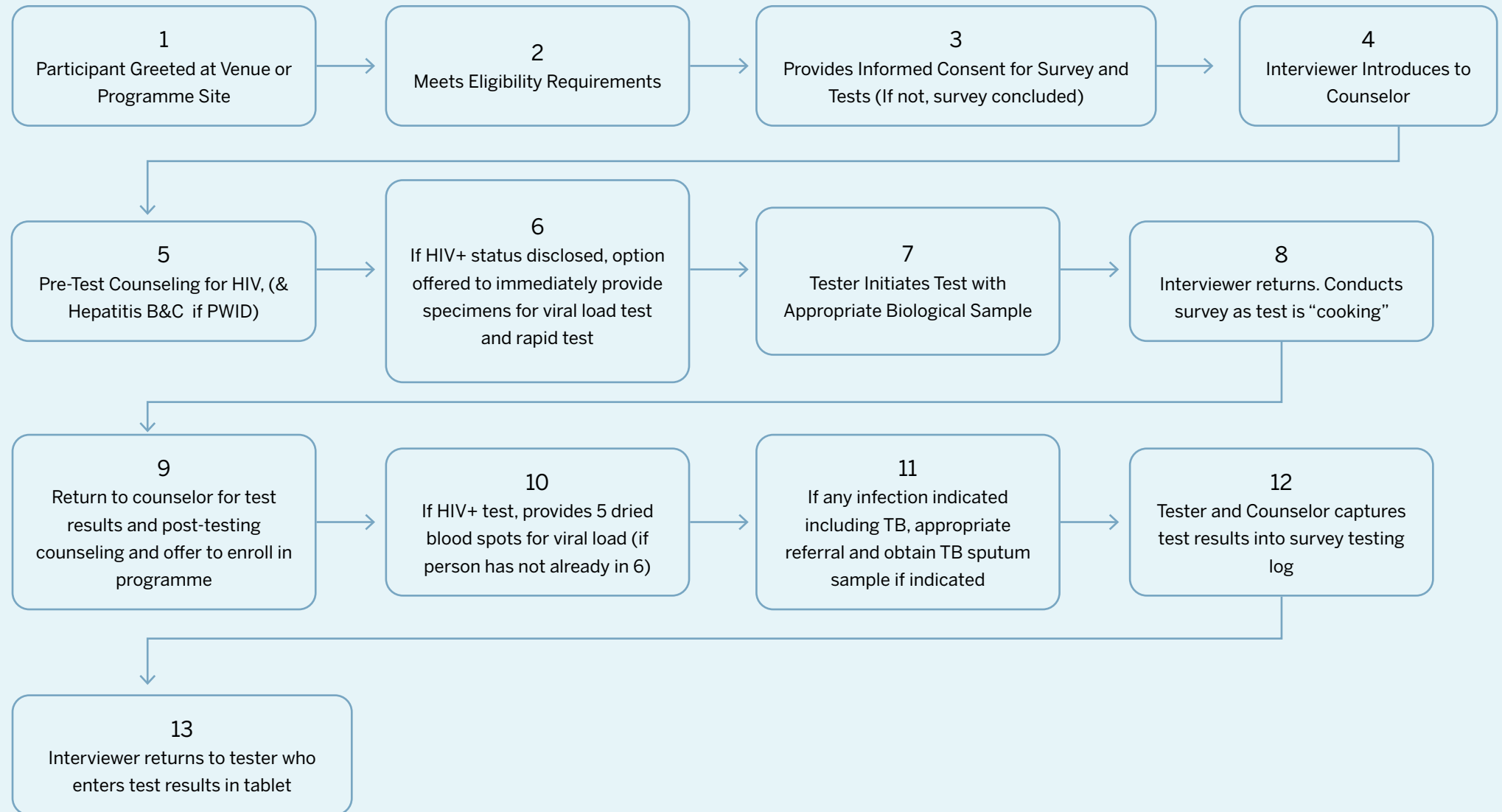


Figure 5: Participant Flow Chart upon arrival at a data collection site

## Data quality assurance

A systematic quality assurance procedure was followed to ensure high-quality outputs. Quality assurance checks were applied throughout the design and implementation stages, as listed below.

### Data quality checks before data collection

- Interviewers possessed at least a matric qualification, and most possessed tertiary qualifications and data collection experience.
- A considerable fraction of fieldworkers were members of the four KP groups.
- Fieldwork supervisors had tertiary qualifications and relevant experience
- Research managers and data analysts had master's degrees in research-related fields.
- Fieldworkers were sufficiently trained for the project.
- Testing of the survey tools was carried out before fieldwork implementation. Feedback from testing informed changes to the tools, as necessary.
- The database designer incorporated checks into the electronic form on ONA for efficiency and accuracy.

### Data quality checks during data collection

- Research managers and supervisors closely supervised the survey daily.
- Research managers and supervisors kept a daily record of the number of participants interviewed and other relevant data.
- The principal investigator and co-investigators paid unannounced spot visits to the data collection sites.
- The project technical lead and data analyst assessed

selected interviews uploaded daily for data quality.

- The project product manager received periodic feedback from the NHLS on the quality of samples received.
- Fieldworkers were retrained at intervals based on feedback from the field.

## Phase 4: Data management and analysis

### Data system and data capturing

Data collection was conducted as computer-assisted personal interviews (CAPI). The survey questionnaires were programmed into ONA (an ODK-based platform). The survey programmer incorporated restrictions and logical skip patterns into the tool to enhance efficiency and accuracy. After each interview, the captured data were submitted and uploaded in real time. Questions were read and participant responses were recorded by the interviewer.

### Linkage of biological and behavioural data

The HIV rapid test result for each participant and hepatitis test results for PWID were entered into the electronic form with a unique identification number barcode. All specimens sent to the laboratory were labelled with the same study participant identification number and other relevant laboratory and transport labels. Survey results, test results, and laboratory results were linked using each participant's identification number.

### Data cleaning

Built-in checks reduced the amount of data cleaning required. Data cleaning mainly involved confirming

participant unique identifier numbers and checking for inconsistent data across variables. All data management and analyses were conducted in Stata version 17 (StataCorp, College Station, TX). Uploaded survey data were downloaded from ONA to MS Excel format and imported into Stata and SAS for data management and analysis.

### Definition of variables

In addition to variables directed measured by the questionnaire, some study outcomes were constructed from the data.

### Multiple sexual partnerships

Multiple sexual partnerships was defined as having two or more sexual partners in the last four weeks.

### Alcohol dependence

Alcohol abuse was assessed using the CAGE questionnaire, a validated screening tool that identifies potential alcohol abuse and dependence.<sup>7</sup> The CAGE questionnaire consists of four questions that relate to alcohol use.

- Have you ever felt you needed to **C**ut down on your drinking?
- Have people **A**nnoyed you by criticising your drinking?
- Do you ever feel **G**uilty about your drinking?
- Have you ever felt you needed a drink first thing in the morning (**E**ye-opener) to steady your nerves or to get rid of a hangover?

A score of 2 or more on the CAGE questionnaire is a positive screening result for alcohol abuse and dependence.

## Treatment cascade

The UNAIDS 95-95-95 aims to achieve epidemic control of HIV infection by achieving the following:

- First 95%: 95% of people living with HIV are diagnosed, i.e. they know they have the virus.
- Second 95%: 95% of people diagnosed with HIV are receiving antiretroviral therapy (ART).
- Third 95%: 95% of PLHIV on ART have achieved viral suppression, meaning the virus is at undetectable levels in their blood.

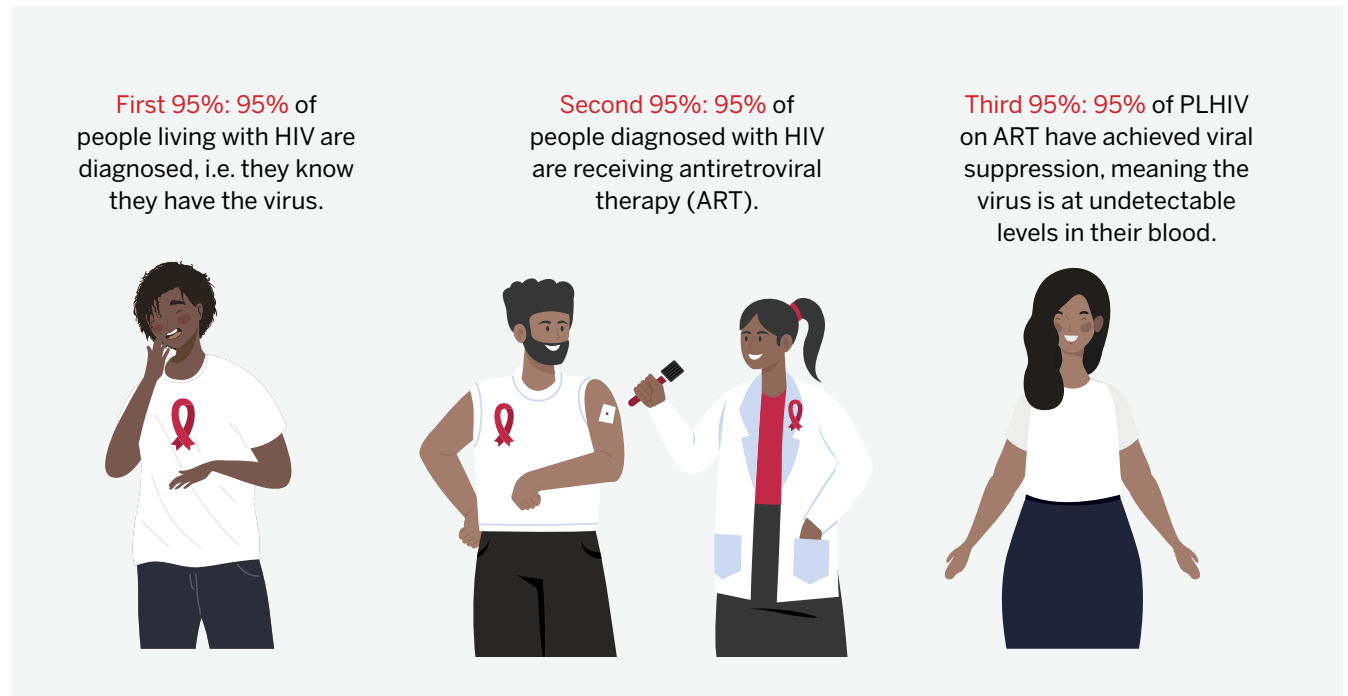
The first 95% (awareness of status) was defined as people living with HIV who disclosed a prior HIV diagnosis based on any of the three relevant questions, reported they were on treatment and/or had a suppressed viral load result. The second 95% was assessed through a question that asked if they were on ART. The third 95% was measured using a viral load test.

## Descriptive analysis

Descriptive analyses were central to meeting the study objectives. The goal of the descriptive analyses were to provide the profiles of the different KPs in terms of their characteristics and to describe bio-behavioural outcomes. Categorical variables were described using frequencies and percentages. Numerical data were described using medians and interquartile ranges.

## Stratified analysis and inferential statistics

All results were stratified by district and type of data collection site (programme versus outreach). Furthermore,



95% confidence intervals were calculated for key outcomes, including HIV prevalence. The estimation of confidence intervals adjusted for intraclass correlation using the Taylor-linearised method, with the site of data collection as the cluster variable.

## Methods for population size estimation in seven study districts

One objective of the BBS-Lite was to estimate the population size of the four KPs in the seven districts that participated in the BBS-Lite. Multiple methods were explored for the estimation based on the following: the number of venues identified by community informants; the number of KPs reported by the venue informants

during venue mapping; the number of KPs reported by the programs; the estimates from the interviewers in the district; and data from the BBS of KPs.

We compared the calculated estimates to estimates prepared by Johns Hopkins University and provincial estimates from the Thembisa Model Version 4.8.<sup>1</sup> A consensus was reached by the study team on a “best” estimate. The “best” estimate was based on data from the probability sample of KPs interviewed at venues. Survey data from KPs, collected at service delivery sites, were excluded because they were only available in four of the seven districts and because the sample from the service delivery site was not a probability sample with a known sampling fraction.

The method used for the direct estimates was a multi-step calculation that took into account the fact that the sampling frame of venues used to select the KPs for the survey was itself a random sample of the venues identified by the community informants.

Population size estimates in each district were based on extrapolation from the number of KP interviewed and the sampling fractions used at each sampling stage. First, a sample of venues identified by community informants was selected for mapping, and on-site venue informant interviews were conducted at these venues. Next, a sub-sample of these venues was selected for the recruitment of KP to interview and test. The steps to calculate PSE are described below:

1. After all interviews were completed, we counted the number of KP interviewed in each district. The interviews were conducted in a two-stage probability sample of venues identified by community informants, visited, and mapped. The target number of interviews at a particular venue was based on the mapping report.

For example, assume 600 venues were identified by community informants.

- Of these 600, assume 60 were randomly sampled for venue mapping.
- Of these 60, assume 30 were sampled (using PPS sampling) as locations to interview and biological testing of FSW.
- At these 30 venues, assume 300 FSW were interviewed and tested.

2. Next, we estimated the number of FSW that would have been expected had all the venues been visited where the venue informant reported KP. This estimate is

based on the proportion of KP at the selected venues in the PPS sampling documentation.

Continuing the above example:

- Based on the PPS sampling documentation, the 30 selected venues were expected to include 60% of the FSW reported at the 60 venues.
  - Estimate the number expected at 60 venues if 300 FSW were interviewed at 30 venues representing 60% of the FSW. Estimate: 500 ( $300/60\% = 500$ ).
3. Finally, we increased the estimate to reflect all the venues identified by community informants and not just the random sample of the venues that were mapped. (In some cases, the number of venues was further increased based on information about additional venues).

Continuing the above example:

- The total number of venues identified by community informants was 600.
  - 60 (10%) were randomly sampled for venue mapping.
  - If the estimated number at 60 venues was 500, then the total PSE at 600 venues is 5000 ( $500 / 10\% = 5000$ ).
4. Confidence intervals around the estimate were estimated taking into account venue strata, clustering by venue and sample size.

Ideally, data used for the calculations would meet the following assumptions:

- The venue list is complete
- The definition of venue is sufficiently broad to cover all locations where KPs congregate in the district
- People self-identify correctly as KPs to the interviewers so that eligibility is known and correct
- The probability of a venue being selected for the survey is known and non-zero
- All KPs have an equal chance of being interviewed.

It is unlikely that these assumptions were fully met.

Strategies to address likely bias included:

- To address the issue that the lists of FSWs and MSM venues were incomplete, we used a crudely adjusted higher estimate of the number of venues for FSWs and MSM that were more reasonable based on the size of the general population. (see venue mapping methods and results).
- To address the issue that MSM and FSWs do not necessarily only visit known hotspots, a broader definition of venues was used. Venues included homes, parties, events, streets, open areas in addition to more typical hotspots such as bars and clubs. Consequently, MSM and FSWs who did not go to traditional venues were at least partially included.
- To address issues of eligibility, the study team included KP members who were trained to exclude people who were not eligible and to provide the privacy and assurance of confidentiality necessary to elicit informed consent from those eligible.
- To address the issue of representativeness, the samples selected were intended to be self-weighted samples based on sampling with probability proportional to size.

### Additional Considerations Regarding Bias

Venue-based estimates do not capture individuals who do not attend venues. Efforts were made in this study to include non-traditional venues, but some people would have undoubtedly been missed. Further analyses of the data could be done to determine what proportion of each population that used social networking apps or sought sex partners online. These findings could be used to increase the estimates.

While mobility among KPs is recognised, the estimates are cross-sectional. The survey collected some data on mobility, but this analysis did not account for mobility. A mobile population can affect size estimates in several ways. Even if the number of sex workers or MSM does not change from week to week, the number of unique people may be significantly higher. Also, we know that the number of KPs has a seasonal component.

- These estimates do not take into account the number of people who visit venues irregularly. Some sex workers may visit a venue only on paydays or weekends. If the survey was conducted at a time when the venue was not busy, the indicators may not give a complete picture of the population. Other events, such as police crackdowns or adverse weather conditions, can affect the number of people who receive services or attend a venue.
- When these factors, as well as insights from stakeholders, are taken into account, the estimates could increase or decrease.

### Methods for extrapolation of population size estimates to other districts

A secondary analysis used these PSEs from the seven districts to estimate population size in other districts. For this analysis, we excluded the five largest metropolitan municipalities with a population of more than two million men and women aged 18-49 because they differ from the more rural districts included in the study and because they have been surveyed more frequently. The five excluded metros were: City of Johannesburg Metropolitan Municipality, City of Cape Town Metropolitan Municipality, Ekurhuleni Metropolitan Municipality, City of Tshwane Metropolitan Municipality, eThekweni Metropolitan Municipality.

We used multiple imputation methods to extrapolate from the seven districts to the remaining 40 districts. The multiple imputation approach involved fitting a model of the relationship between KP size and contextual variables, then applying multiple drawn regression coefficients and locality-specific values for the contextual variables to produce size estimates for localities outside the study area. Multiple imputation has been used to extrapolate direct size estimates in Uganda, the Dominican Republic, and Malawi.<sup>8,9</sup> For each district, we first modelled the number of KP members as a function of district characteristics.

The FSWs PSE extrapolation model included:

- Population density
- Sex ratio in the general population
- Number of national roads in the district
- Whether there was a border crossing in the district

The PWID PSE extrapolation model included:

- Population density
- Sex ratio in the general population
- Number of national roads
- Whether the district shared a border with Durban, Cape Town, Johannesburg or Port Elizabeth

The MSM PSE extrapolation model included:

- Population density
- Sex ratio in the general population
- Whether the district shared a border with Durban, Cape Town, Johannesburg or Port Elizabeth

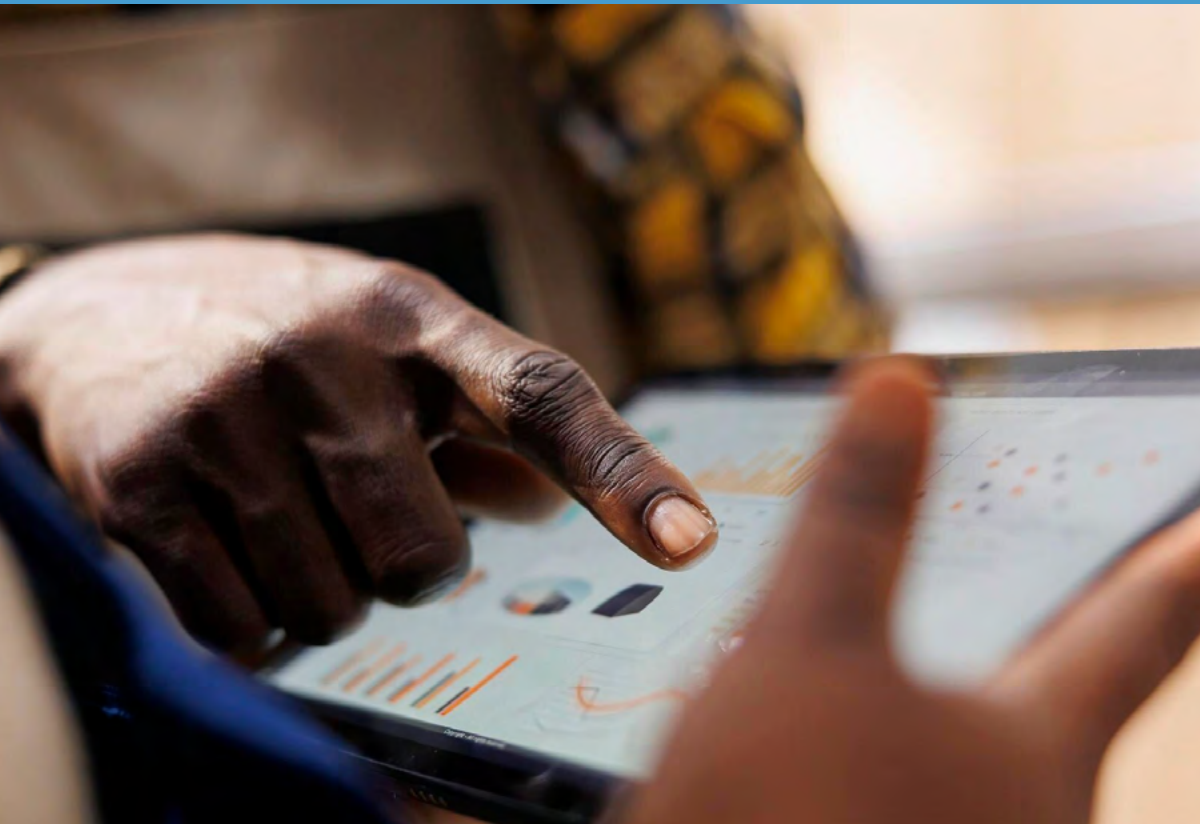
The TGW PSE extrapolation model included:

- Population density
- Area of the district in square km
- Number of National roads

For each KP, after fitting the district size estimates model, we drew 100 sets of regression coefficients based on the observed relationships between area characteristics and available size estimates. For each of the 100 imputations, the drawn set of regression coefficients and known characteristics of the district were used to produce a predicted count of KP members for every district without a direct size estimate. Results were summarised across imputations to produce rounded estimates of the number of KPs and associated confidence intervals. Analyses were performed in SAS 9.4 (Cary, North Carolina, US).



# Study Results



The study results of the BBS-Lite are presented in six parts.

**1. Mapping surveys and population size estimates**

**2. BBS Results: Overall number of KP participants**

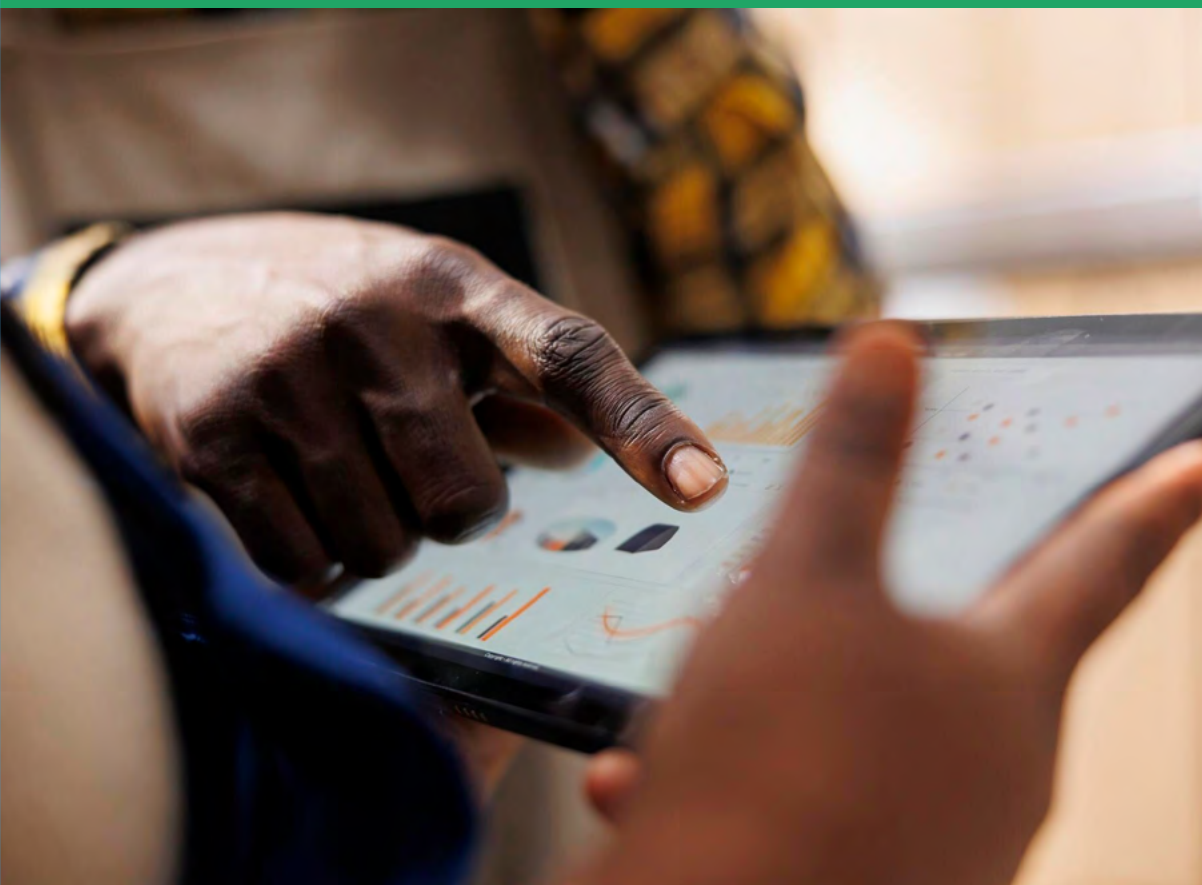
**3. BBS results: Female sex workers**

**4. BBS results: People who inject drugs**

**5. BBS results: Men who have sex with men**

**6. BBS results: Transgender women**

# Mapping Surveys and Population Size Estimates



## Service delivery mapping

Implementing partners in the four Global Fund-supported districts provided a list of 543 service delivery sites (Table 6). Teams from the implementing partners visited the sites on a rotating basis to provide services to clients.

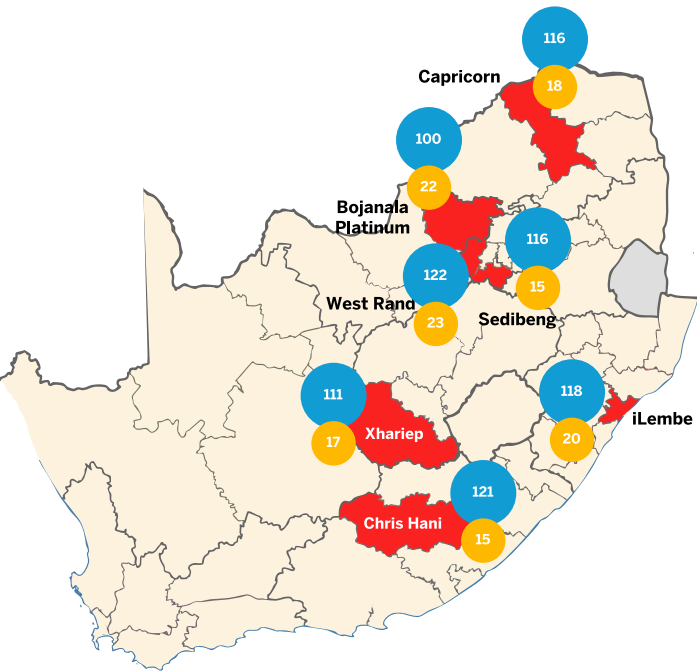
Table 6: Number of service delivery sites provided by IPs in the four districts with programmes

| District and KP          | Number of sites |
|--------------------------|-----------------|
| <b>Bojanala Platinum</b> | <b>187</b>      |
| MSM                      | 113             |
| FSWs                     | 71              |
| TGW                      | 3               |
| <b>Capricorn</b>         | <b>150</b>      |
| MSM                      | 34              |
| FSWs                     | 89              |
| TGW                      | 27              |
| <b>Sedibeng</b>          | <b>128</b>      |
| PWUD                     | 33              |
| FSWs                     | 95              |
| <b>Westrand</b>          | <b>78</b>       |
| PWUD                     | 9               |
| FSWs                     | 69              |
| <b>Grand Total</b>       | <b>543</b>      |

## Key population venue mapping

### Identification of priority areas

Between 15 and 23 priority areas were identified in each district (Figure 6). These included areas where sex workers solicit clients, with a higher male-to-female ratio, urban hot-spots, along truck routes and where one or more of the key populations congregate.



● Priority Areas ● Community Informants

Figure 6: Number of priority areas reported and Community Informants Interviewed

### Community informant interviews for outreach venue identification

The target number of community informant interviews to identify KP venues was 120 per district. It was initially higher than 120 but was subsequently reduced due to cost considerations. Approximately 115 community informants were interviewed per district (in the priority areas), translating to a response rate of 96% (Figure 6). Community informants were people likely to be knowledgeable about the typology and locations of KPs, given their familiarity with the community. They included members of the KP community, taxi drivers, bar and guesthouse workers, security guards, students, unemployed men, traders, and other adults.

### Number of venues

A total of 1,855 venues were identified by community informants in the seven districts. Table 7 below shows the initial number of venues in each district identified by community informants for each key population and the adjusted number of venues estimated after KP mapping. The adjusted number accounts for the percentage of venues sampled for a mapping visit, the percentage that were closed or duplicate venues, and information from the venue informant about which key populations visit the venue. During the analysis phase, the estimated numbers were reviewed to determine if they were reasonable based on experience and other available information. It became clear that in the largest districts, the number of venues was too low. Either 120 community informants were insufficient for identifying all MSM and FSWs venues or some priority areas were missed. See the PSE Section for more details.

Table 7: Number of key population venues identified in each district by community informants

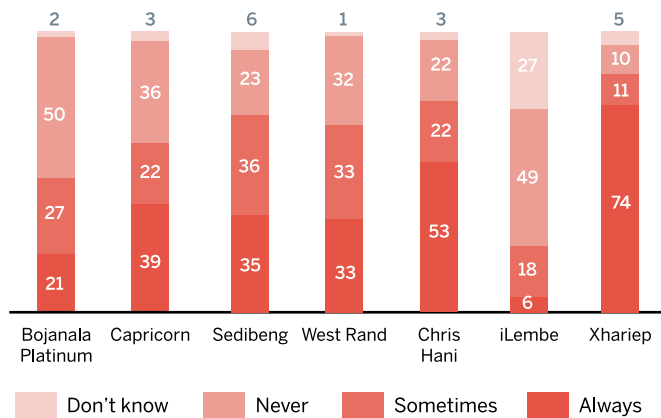
|                                                                        | Bojanala Platinum | Capricorn | Chris Hani | Sedibeng | West Rand | Xhariep | iLembe |
|------------------------------------------------------------------------|-------------------|-----------|------------|----------|-----------|---------|--------|
| Number of Venues Initially Identified by Community Informants          |                   |           |            |          |           |         |        |
| FSWs Venues                                                            | 54                | 121       | 153        | 112      | 100       | 102     | 74     |
| PWID Venues                                                            | 65                | 73        | 44         | 109      | 84        | 73      | 47     |
| MSM Venues                                                             | 18                | 43        | 72         | 89       | 58        | 73      | 31     |
| TGW Venues                                                             | 5                 | 24        | 50         | 51       | 38        | 85      | 7      |
| Number of Venues After KP Mapping                                      |                   |           |            |          |           |         |        |
| FSWs Venues                                                            | 69                | 142       | 143        | 161      | 128       | 140     | 92     |
| PWID Venues                                                            | 101               | 129       | 121        | 174      | 144       | 132     | 82     |
| MSM Venues                                                             | 70                | 114       | 124        | 147      | 123       | 133     | 76     |
| TGW Venues                                                             | 60                | 110       | 119        | 142      | 114       | 135     | 60     |
| Adjusted Number of FSWs & MSM Venues After Adjusting for District Size |                   |           |            |          |           |         |        |
| FSWs Venues                                                            | 319               | 366       | 147        | 301      | 278       | 140     | 137    |
| MSM Venues                                                             | 418               | 280       | 138        | 330      | 285       | 133     | 106    |

## Profiles of venues

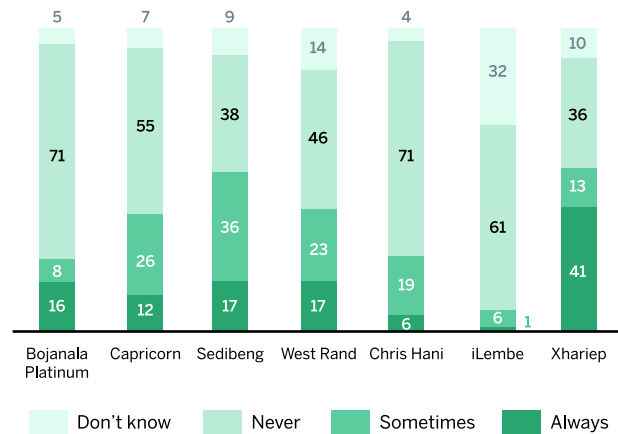
### HIV prevention services at venues

Figure 7 shows the percentage of venue informants reporting the availability of HIV prevention services onsite.

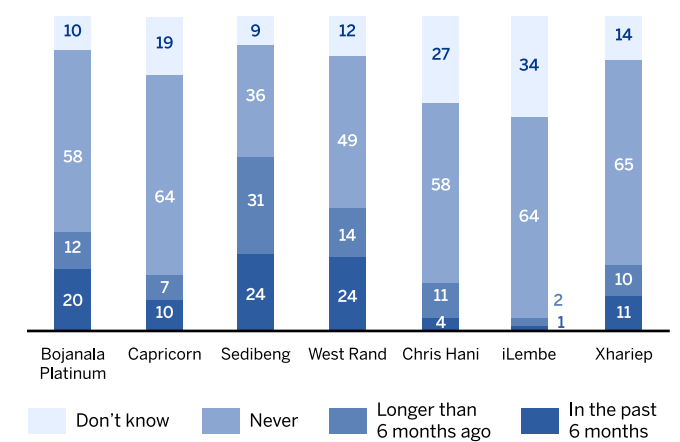
How often have condoms been available here in the past 6 months?



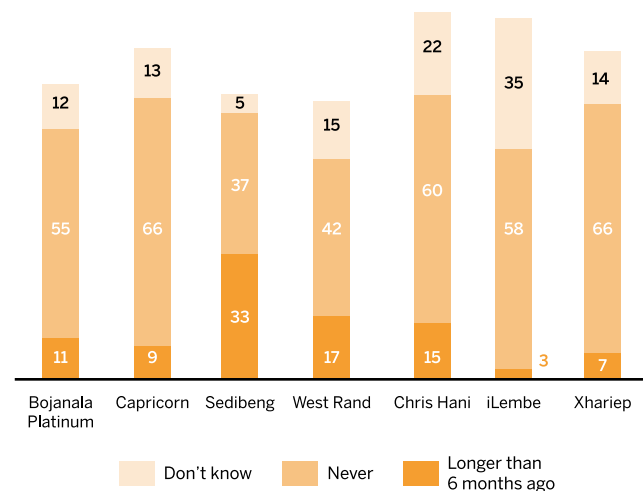
How often have lubricants been available here in the past 6 months?



When was anyone tested here for HIV?



When did peer educators last come here?



Has there been a needle exchange programme nearby?

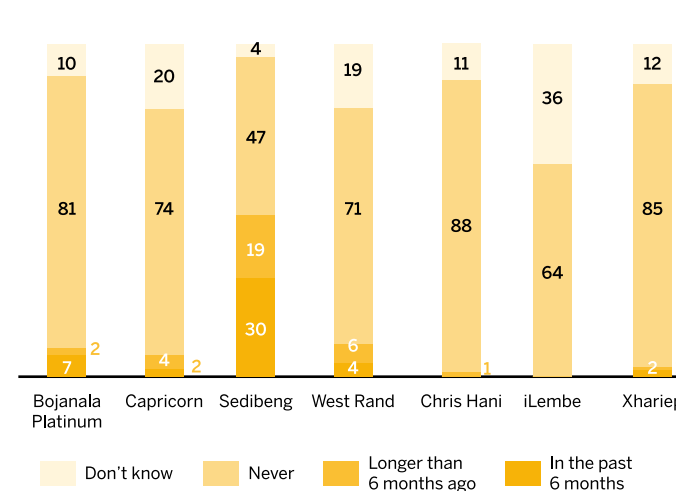


Figure 7: HIV prevention services reported onsite at outreach venues, BBS-Lite 2025

Support for onsite HIV prevention services

Figure 8 describes the support for HIV prevention efforts at these venues. The figure below combines all KP sites identified in the district. The data shows that the majority of venues across all districts were supportive of having condoms on-site, with fewer venues showing support for HIV testing and education.

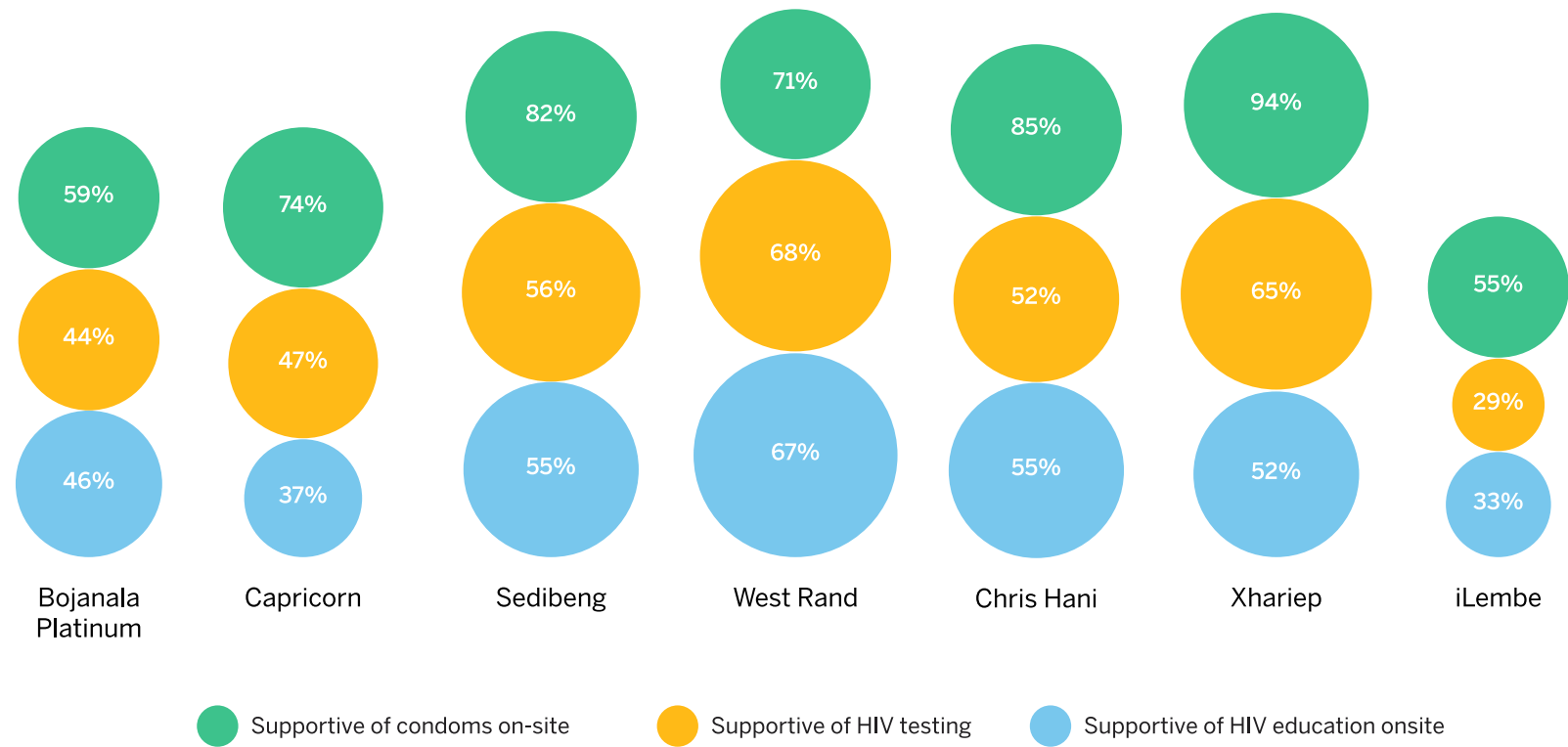


Figure 8: Support for onsite HIV prevention services in identified venues



## Population size estimates

The PSEs for all KPs in the seven districts are summarised in Figures 9 and 10. They are detailed in the sections that follow by KP.

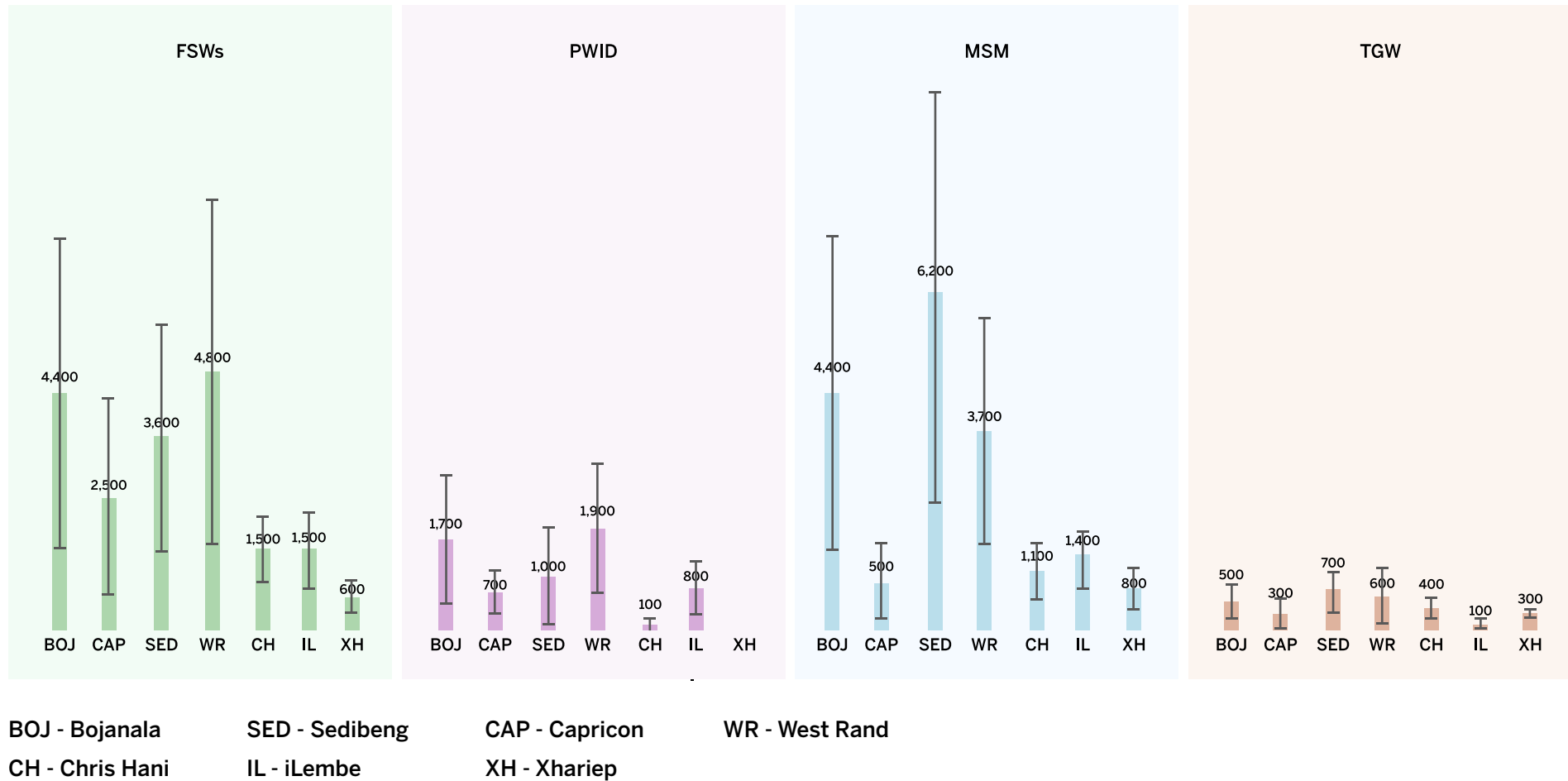


Figure 9: The recommended population size estimates (to the nearest 100) for all four KPs in all seven districts



Figure 10: The recommended population size estimates for all four KPs as percentages of the population in the seven districts

## Female sex workers

The recommended PSEs for FSWs in the seven districts, along with the respective proportion of the female population, are shown in Table 8, ranging from 615 in Xhariep to 4,357 in Bojanala. The percentage of FSWs in the adult population aged 18 to 49 years ranged from 0.8% to 2.2%.

Table 8: Population size estimate and confidence intervals of female sex workers in the seven districts, BBS-Lite, 2025

| District   | PSE   | 95%<br>Lower CL | 95%<br>Upper CL | Female pop<br>18-49 | % of population |
|------------|-------|-----------------|-----------------|---------------------|-----------------|
| Bojanala   | 4,357 | 1,435           | 7,290           | 462,549             | 0.90%           |
| Capricorn  | 2,517 | 696             | 4,338           | 298,632             | 0.80%           |
| Sedibeng   | 3,630 | 1,523           | 5,736           | 220,488             | 1.60%           |
| West Rand  | 4,827 | 1,607           | 8,047           | 251,993             | 1.90%           |
| Chris Hani | 1,508 | 901             | 2,115           | 123,609             | 1.20%           |
| iLembe     | 1,511 | 782             | 2,241           | 164,737             | 0.90%           |
| Xhariep    | 615   | 338             | 891             | 27,696              | 2.20%           |

CL: Confidence limit

## People who inject drugs

The recommended PSE for PWID ranged from 0 in Xhariep to 1,943 in the West Rand (Table 9). The respective percentages of PWID ranged from 0% to 0.4% of the male and female population aged 18-49. The survey team devoted additional time and effort to finding PWID in Xhariep, but was unable to find any to interview.

Table 9: Population size estimate and confidence intervals of people who inject drugs in the seven districts, BBS-Lite, 2025

| District   | PSE   | 95%<br>Lower CL | 95%<br>Upper CL | Female pop<br>18-49 | % of population |
|------------|-------|-----------------|-----------------|---------------------|-----------------|
| Bojanala   | 1,710 | 502             | 2,918           | 1,056,691           | 0.20%           |
| Capricorn  | 742   | 384             | 1,100           | 584,713             | 0.10%           |
| Sedibeng   | 1,017 | 138             | 1,896           | 485,126             | 0.20%           |
| West Rand  | 1,943 | 752             | 3,134           | 521,822             | 0.40%           |
| Chris Hani | 107   | 9               | 205             | 258,395             | 0.04%           |
| iLembe     | 796   | 290             | 1,302           | 320,072             | 0.20%           |
| Xhariep    | 0     | Not available   | Not available   | 56,915              | 0               |

## Men who have sex with men

The recommended estimate for MSM ranged from 781 in Xhariep to 6,229 in Sedibeng (Table 10). The percentage of MSM in the adult male population aged 18 to 49 years ranged from 0.4 to 2.9%.

Table 10: Population size estimate and confidence intervals of men who have sex with men in the seven districts, BBS-Lite, 2025

| District   | PSE   | 95%<br>Lower CL | 95%<br>Upper CL | Male pop<br>18-49 | % of population |
|------------|-------|-----------------|-----------------|-------------------|-----------------|
| Bojanala   | 4,439 | 1,581           | 7,297           | 594,142           | 1.20%           |
| Capricorn  | 950   | 260             | 1,639           | 286,081           | 0.37%           |
| Sedibeng   | 6,229 | 2,385           | 10,073          | 264,638           | 2.87%           |
| West Rand  | 3,695 | 1,613           | 5,776           | 269,829           | 1.49%           |
| Chris Hani | 1,061 | 561             | 1,562           | 134,786           | 0.94%           |
| iLembe     | 1,359 | 738             | 1,979           | 155,335           | 0.99%           |
| Xhariep    | 781   | 402             | 1,160           | 29,219            | 2.70%           |

## Transgender women

The recommended estimate for TGW ranges from 120 in iLembe to 725 in Sedibeng and ranged from 0.1 to 1.1% of the male population aged 18-49 (Table 11).

Table 11: Population size estimate and confidence intervals of transgender women in the seven districts, BBS-Lite, 2025

| District   | PSE | 95%<br>Lower CL | 95%<br>Upper CL | Male pop<br>18-49 | % of population |
|------------|-----|-----------------|-----------------|-------------------|-----------------|
| Bojanala   | 492 | 172             | 812             | 594,142           | 0.08%           |
| Capricorn  | 331 | 0               | 720             | 286,081           | 0.12%           |
| Sedibeng   | 725 | 268             | 1182            | 264,638           | 0.27%           |
| West Rand  | 576 | 108             | 1044            | 269,829           | 0.21%           |
| Chris Hani | 363 | 160             | 566             | 134,786           | 0.27%           |
| iLembe     | 120 | 21              | 219             | 155,335           | 0.08%           |
| Xhariep    | 331 | 183             | 479             | 29,219            | 1.13%           |

## Extrapolation of PSEs

Table 12 shows the sum of the estimates for each KP for the 47 districts. As previously stated, the five largest metro areas were excluded from the extrapolation. The PSEs of 40 other South African districts, as developed through extrapolation, are presented in Appendix 1.

Table 12: Estimates for 47 Districts from Extrapolation

| KP Group | Estimate | 95% CI Low | 95% CI High | Percent           | 95% CI % |     |
|----------|----------|------------|-------------|-------------------|----------|-----|
| FSW      | 128,100  | 124,200    | 132,800     | 1.4% of F 18-49   | 1.4      | 1.5 |
| PWID     | 27,600   | 26,600     | 28,700      | 0.2% of M&F 18-49 | 0.1      | 0.2 |
| MSM      | 66,900   | 65,500     | 68,300      | 0.7% of M 18-49   | 0.7      | 0.8 |
| TGW      | 14,000   | 13,500     | 14,500      | 0.2% of M 18-49   | 0.2      | 0.2 |



# Number of Participants in the Biobehavioural Survey

A total of 6,182 KPs participated in the survey. There was some intersectionality (2%), resulting in 6,288 KPs when summing up the numbers for each KP (Table 13). There were 2,473 FSWs, 1,667 PWID, 1,651 MSM and 491 TGW participants. It is noteworthy that the HIV prevalence and other outcomes in this report are presented separately for participants recruited at programme sites and at outreach locations. We combined both groups for an overall district estimate. Nevertheless, the district estimates are unweighted and may be biased, depending on the extent to which the number of KPs recruited at each site represents the actual population split.

Table 13: Number of study participants by district and key population group, BBS-Lite 2025

| KP      | Site         | Bojanala    | Capricorn  | Sedibeng    | West Rand   | Chris Hani | iLembe     | Xhariep    | Total       | %           |
|---------|--------------|-------------|------------|-------------|-------------|------------|------------|------------|-------------|-------------|
| FSWs    | PGR          | 97          | 247        | 160         | 122         | 0          | 0          | 0          | 626         | 25%         |
|         | OUT          | 329         | 133        | 225         | 258         | 354        | 362        | 186        | 1,847       | 75%         |
|         | TOTAL        | 426         | 380        | 385         | 380         | 354        | 362        | 186        | 2,473       | 100%        |
| PWID    | PGR          | 0           | 78         | 303         | 140         | 0          | 0          | 0          | 521         | 31%         |
|         | OUT          | 392         | 179        | 105         | 251         | 6          | 213        | 0          | 1,146       | 69%         |
|         | TOTAL        | 392         | 257        | 408         | 391         | 6          | 213        |            | 1,667       | 100%        |
| MSM     | PGR          | 39          | 116        | 13          | 8           | 0          | 0          | 0          | 176         | 11%         |
|         | OUT          | 170         | 70         | 358         | 324         | 254        | 141        | 158        | 1,475       | 89%         |
|         | TOTAL        | 209         | 186        | 371         | 332         | 254        | 141        | 158        | 1,651       | 100%        |
| TGW     | PGR          | 40          | 34         | 5           | 5           | 0          | 0          | 0          | 84          | 17%         |
|         | OUT          | 114         | 9          | 79          | 81          | 61         | 20         | 49         | 413         | 83%         |
|         | TOTAL        | 154         | 43         | 84          | 86          | 61         | 20         | 49         | 497         | 100%        |
| Overall | PGR          | 176         | 475        | 481         | 275         | 0          | 0          | 0          | 1407        | 22%         |
|         | OUT          | 1005        | 391        | 767         | 914         | 675        | 736        | 393        | 4881        | 78%         |
|         | <b>TOTAL</b> | <b>1181</b> | <b>866</b> | <b>1248</b> | <b>1189</b> | <b>675</b> | <b>736</b> | <b>393</b> | <b>6288</b> | <b>100%</b> |

KP: Key population, PGR: programme sites, OUT: outreach locations

# BBS Results: Female Sex Workers



This section presents the BBS-Lite results among FSWs. Specifically, data are presented on sociodemographic characteristics, risk behaviours and social and structural vulnerabilities, including condom use, multiple sexual partners, practice of anal sex, alcohol abuse, injecting practices, and experience of violence and stigma among FSWs.

## Sociodemographic characteristics

Table 14 describes the sociodemographic characteristics of the 2,474 FSWs participants. Those aged 25 to 34 comprised the majority of participants. Xhariep and iLembe had the highest proportion of participants younger than 25 years, viz. 25.3% and 24.9% respectively. Female sex workers recruited from programme sites were generally younger than those recruited from outreach locations.

The majority of the FSWs were never married, ranging from 77.4% in the West Rand to 94% in iLembe and Xhariep. About half (46.3%) of FSWs had secondary educations, ranging from 35.8% in the West Rand to 54.7% in iLembe. The proportion of participants who completed secondary education was higher among FSWs recruited at programme sites than at outreach locations in Bojanala and Capricorn. However, the converse was true in Sedibeng and the West Rand. The data showed that there was considerable mobility among FSWs, with 50.8% having spent a night outside their districts in the past month, ranging from 30.1% in Capricorn to 66.3% in iLembe.

Understanding the characteristics of FSWs is crucial for designing effective interventions. For example, the high mobility observed among FSWs highlights the need for an individual tracking system (through a national unique identifier code) among KPs.

Table 14: Sociodemographic characteristics of female sex workers in seven districts, BBS-Lite 2025

| Characteristic                                                                  | Bojanala |         |          | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Xhariep | Overall (%) |
|---------------------------------------------------------------------------------|----------|---------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|---------|-------------|
|                                                                                 | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) | OUT (%) |             |
| n (number of KPs)                                                               | 97       | 329     | 426      | 247       | 133     | 380      | 161      | 225     | 386      | 127       | 253     | 380      | 354        | 362     | 186     | 2,474       |
| <b>Site of interview</b>                                                        |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Service delivery site                                                           |          |         | 22.8     |           |         | 65.0     |          |         | 41.6     |           |         | 32.1     | 0.0        | 0.0     | 0.0     | 25.3        |
| Outreach venues                                                                 |          |         | 77.2     |           |         | 35.0     |          |         | 58.4     |           |         | 67.9     | 100.0      | 100.0   | 100.0   | 74.7        |
| <b>Age group (years)</b>                                                        |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| 16-24                                                                           | 27.8     | 15.8    | 18.5     | 21.9      | 15.0    | 19.5     | 25.0     | 15.6    | 19.5     | 12.3      | 4.7     | 7.1      | 24.9       | 14.9    | 25.3    | 18.0        |
| 25-34                                                                           | 48.5     | 48.9    | 48.8     | 42.5      | 33.8    | 39.5     | 38.8     | 44.9    | 42.3     | 45.9      | 57.4    | 53.7     | 47.7       | 59.1    | 41.9    | 48.0        |
| 35 and above                                                                    | 23.7     | 35.3    | 32.6     | 35.6      | 51.1    | 41.1     | 36.2     | 39.6    | 38.2     | 41.8      | 38.0    | 39.2     | 27.4       | 26.0    | 32.8    | 34.1        |
| <b>Marital Status</b>                                                           |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Never married                                                                   | 96.9     | 88.1    | 90.1     | 91.1      | 85.7    | 89.2     | 88.8     | 84.9    | 86.5     | 79.5      | 76.3    | 77.4     | 92.4       | 94.2    | 94.1    | 88.7        |
| Married/living with a partner                                                   | 3.1      | 7.6     | 6.6      | 2.0       | 2.3     | 2.1      | 5.0      | 8.9     | 7.3      | 12.6      | 9.1     | 10.3     | 4.8        | 2.8     | 3.2     | 5.5         |
| Divorced/separated or widowed                                                   | 0.0      | 4.3     | 3.3      | 6.9       | 12.0    | 8.7      | 6.2      | 6.2     | 6.2      | 7.9       | 14.6    | 12.4     | 2.8        | 3.0     | 2.7     | 5.8         |
| <b>Highest educational qualification</b>                                        |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Primary or less                                                                 | 1.0      | 11.2    | 8.9      | 4.0       | 9.0     | 5.8      | 3.7      | 4.9     | 4.4      | 20.5      | 17.4    | 18.4     | 11.0       | 6.9     | 10.2    | 9.3         |
| Some secondary                                                                  | 46.4     | 47.1    | 46.9     | 48.6      | 51.9    | 49.7     | 52.8     | 36.0    | 43.0     | 54.3      | 41.5    | 45.8     | 41.5       | 38.4    | 45.2    | 44.4        |
| Completed secondary                                                             | 52.6     | 41.6    | 44.1     | 47.4      | 39.1    | 44.5     | 43.5     | 59.1    | 52.6     | 25.2      | 41.1    | 35.8     | 47.5       | 54.7    | 44.6    | 46.3        |
| <b>Mobility (spent a night outside district of residence in the past month)</b> |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                                             | 47.4     | 61.5    | 58.0     | 31.5      | 27.4    | 30.1     | 44.1     | 61.8    | 54.4     | 42.5      | 53.8    | 50.0     | 39.0       | 66.3    | 61.3    | 50.8        |
| <b>Frequency of social media use</b>                                            |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Daily                                                                           | 80.4     | 72.9    | 74.60    | 77.3      | 63.2    | 72.40    | 69.4     | 84.9    | 78.40    | 67.2      | 84.9    | 79.20    | 65.0       | 67.1    | 58.1    | 71.9        |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts combined

## HIV Prevalence, HIV treatment cascade and TB

### HIV prevalence among female sex workers

#### HIV prevalence in each district

The average prevalence of HIV among FSWs across all seven districts was 38.5%, with considerable variation across districts, ranging from 31.4% (95% CI: 26.2–37.1%) in Sedibeng to 49.7% (95% CI: 38.6–60.9%) in iLembe (Figure 11). HIV prevalence was significantly higher in outreach locations than in programme sites in Bojanala and Capricorn districts. In Sedibeng and the West Rand, HIV prevalence was higher in programme sites than in outreach locations, although confidence intervals overlapped. This variation in HIV prevalence may be due, in part, to hotspot mapping and the selection of the sites for Global Fund programming, which may have been based on HIV prevalence.

The average HIV prevalence among FSWs reported in the seven districts (38.2%) was lower than the 57.8% reported among FSWs by the Thembisa Model Version 4.8.<sup>1</sup> However, the Thembisa Model utilised prevalence data from previous BBS, which focused on FSWs in the key metros, Johannesburg, Cape Town and Durban. The Thembisa Model also acknowledges that its fitted HIV prevalence is high when compared to the available BBS data. The 2018 South African Health Monitoring Survey (SAHMS) reported the HIV prevalence among FSWs in Johannesburg, Cape Town and eThekweni as 58.3%, 42.5%, and 77.7%, respectively.<sup>10</sup> The HIV prevalence in this BBS-Lite, which ranged from 31.2% in Sedibeng to 49.7% in iLembe, captures the current status of the HIV burden among FSWs in seven previously unstudied non-metro districts.

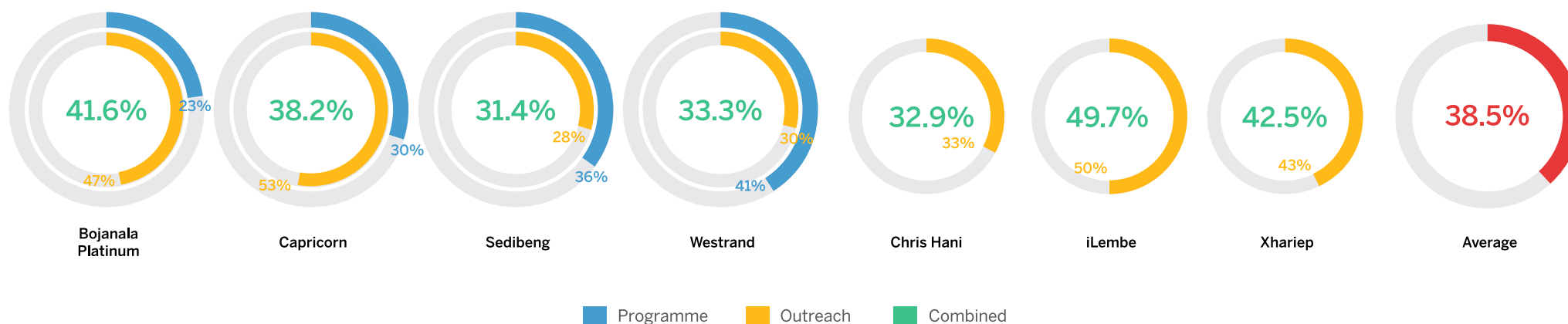


Figure 11: HIV prevalence among female sex workers in seven districts, BBS-Lite 2025

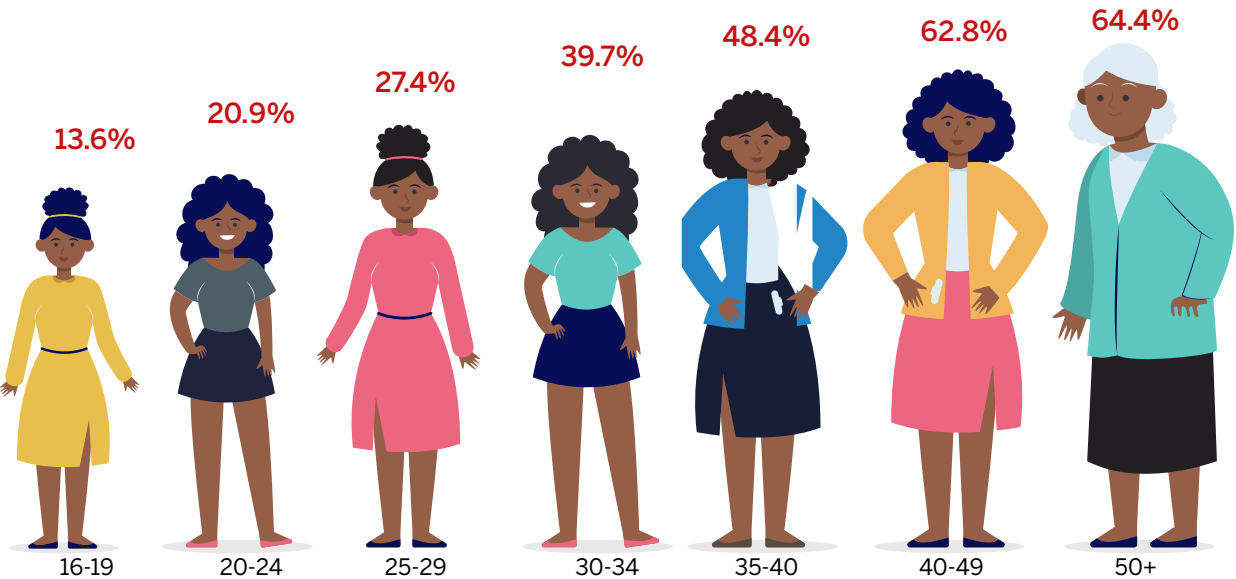


Figure 12: HIV prevalence by age among female sex workers in seven districts, BBS-Lite 2025

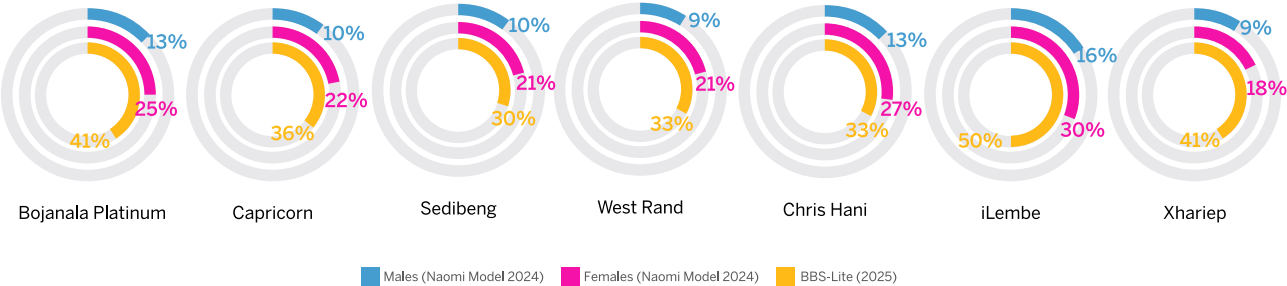


Figure 13: HIV prevalence among females 15-49 in each district and female sex workers 16-49 in the study, BBS-Lite 2025

### HIV prevalence among female sex workers by age

There was an expected dose-response relationship between overall HIV prevalence and age, among FSWs (Figure 12). The HIV prevalence in FSWs aged 16–19 years (13.6%) and 20–24 years (20.9%) is too high, especially when considering the country’s goal of an HIV-free generation. The dose-response relationship between HIV prevalence and age can be explained by the accumulated risk of infection as people grow older, and PLHIV living longer due to improving access to ART. Additionally, recent data have shown high HIV incidence in older adults, contributing to high prevalence.<sup>11,12</sup> These BBS-Lite data showed that programme participation decreased with age, highlighting the need to continue to target older FSWs in HIV prevention programming.

### 7.2.1.3 HIV prevalence among female sex workers compared to the general population

The 38.2% HIV prevalence among FSWs is three times higher than the national prevalence of 11.5% among males aged 15–49 years and almost twice as high as the national prevalence of 23.5% among females aged 15–49 years.<sup>1</sup> In a further analysis (Figure 13), we compared the HIV prevalence among females aged 16 to 49 years in our sample to females aged 15 to 49 years in the respective districts, using the general population data from the Naomi Model.<sup>13</sup> In all districts, HIV prevalence was about twice as high among FSWs as among females of the same age (more than three times higher than that for men of the same age group). This confirms the role of FSWs as a KP in these districts and the need for heightened interventions to prevent HIV in FSWs. A recent study on HIV transmission showed that, from 2010 and 2019, sex between FSWs and their paying clients, and between the clients and their non-paying partners, contributed 6.9% and 41.9%, respectively, of new HIV infections in South Africa.<sup>4</sup>

## HIV treatment cascade (95-95-95 targets)

The levels of the HIV treatment cascade outcomes among FSWs were generally high (Figure 14). The percentage of HIV-positive FSWs who knew their HIV status was 90.4% across all districts, ranging from 74.1% in Chris Hani to 98.7% in Xhariep. Among FSWs living with HIV who knew their status, 93.8% were on treatment across all districts, ranging from 86.8% in Bojanala to 98.7% in Xhariep. Viral load suppression (VLS) was 74.8% among FSWs on treatment in all seven districts: lowest in iLembe (62.9%) and highest in Xhariep (88.3%). There were minor differences between programme sites and outreach locations for this outcome, but they were not consistent.

The percentage of FSWs across all districts who knew their HIV status (89%) was higher than the percentages (73.4 to 87.8%) reported in the three metros in the 2018 SAHMS, but lower than the 2025 95% country target.<sup>10</sup> Overall, Chris Hani and Bojanala districts performed the worst in terms of the three indicators. Although three districts (Capricorn, Sedibeng and Xhariep) achieved the first and second 95% target, none of the seven districts had achieved the UNAIDS 95-95-95 targets.

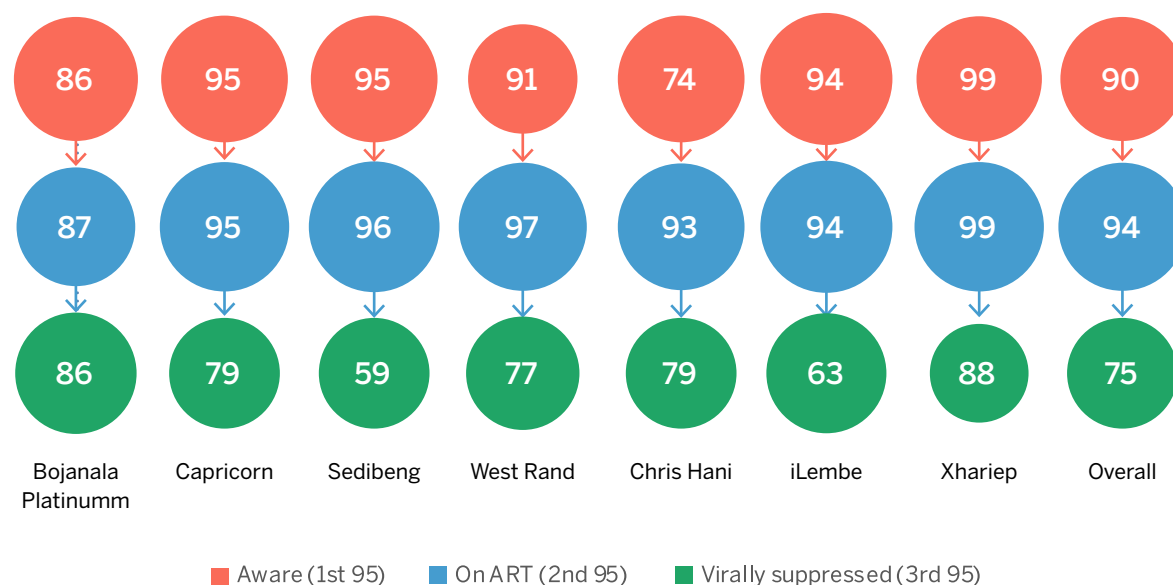
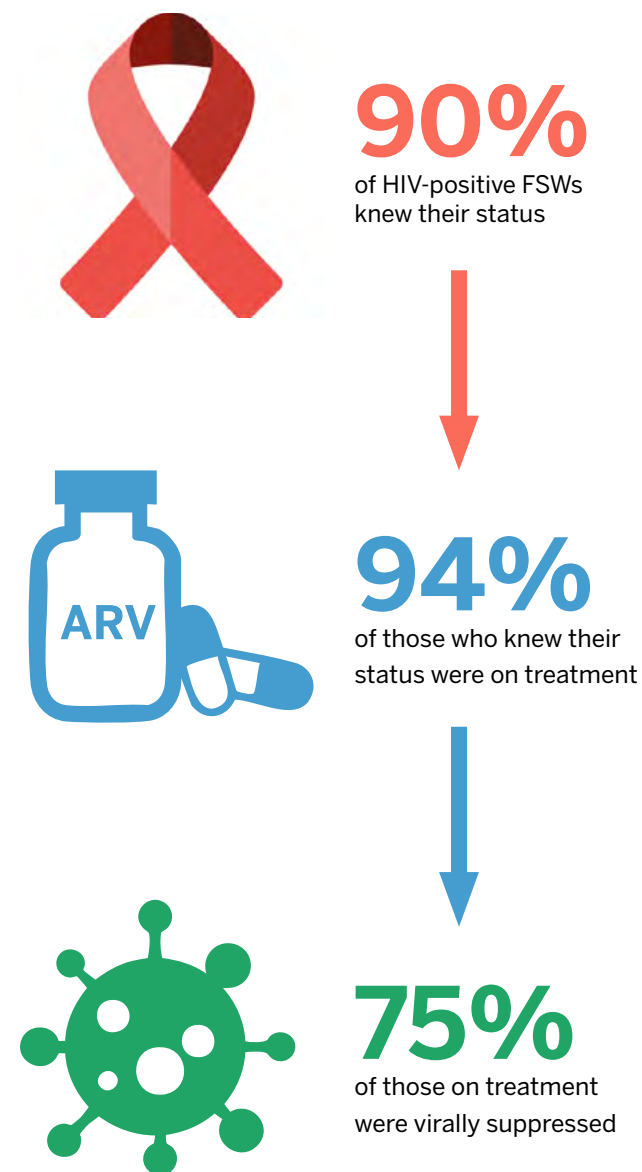


Figure 14: HIV treatment cascade (95-95-95) among female sex workers in seven districts, BBS-Lite 2025



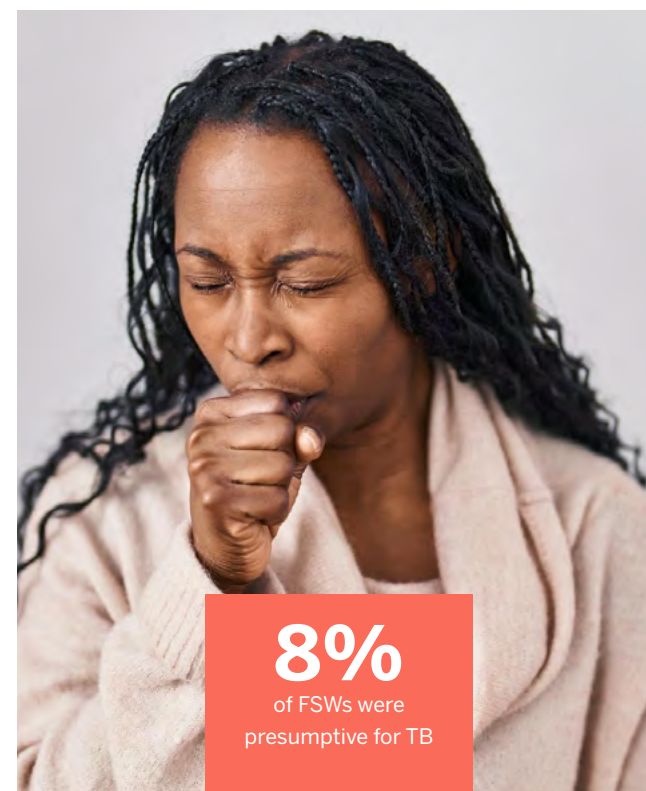


## Symptomatic TB

Night sweats was the most common TB symptom among FSWs (4.7%), followed by weight loss (4.2%), while coughing was the least common (3%). Approximately 8% (196) of FSWs were presumptive for TB, i.e. they exhibited at least one of the four assessed TB symptoms. Of the symptomatic cases, 50.5% were positive for HIV, which is considerably higher than the 38.5% overall prevalence.

Table 15: Symptomatic TB among female sex workers in seven districts, BBS-Lite 2025

|                                                | Bojanala      | Capricorn     | Sedibeng     | West Rand     | Chris Hani   | iLembe        | Xhariep       | Total         |
|------------------------------------------------|---------------|---------------|--------------|---------------|--------------|---------------|---------------|---------------|
| N (number of KPs)                              | 426           | 380           | 385          | 380           | 354          | 362           | 186           | 2,473         |
| <b>TB symptoms</b>                             |               |               |              |               |              |               |               |               |
| Coughing                                       | 2.3%          | 2.9%          | 1.0%         | 3.4%          | 1.7%         | 5.5%          | 5.9%          | 3.0%          |
| Fever in the past two weeks                    | 2.8%          | 3.2%          | 2.3%         | 3.7%          | 1.1%         | 5.0%          | 6.5%          | 3.3%          |
| Weight loss in the past month                  | 5.2%          | 2.6%          | 3.4%         | 4.5%          | 2.3%         | 4.1%          | 10.8%         | 4.2%          |
| Night sweats                                   | 7.5%          | 3.4%          | 1.8%         | 5.0%          | 2.0%         | 6.4%          | 8.1%          | 4.7%          |
| Presumptive TB (any TB symptom)                | 45<br>(10.6%) | 29 (7.6%)     | 19 (4.9%)    | 35 (9.2%)     | 9 (2.5%)     | 32 (8.8%)     | 27 (14.5%)    | 196<br>(7.9%) |
| HIV prevalence among those with presumptive TB | 21<br>(46.7%) | 11<br>(37.9%) | 4<br>(44.4%) | 21<br>(65.6%) | 8<br>(42.1%) | 18<br>(51.4%) | 16<br>(59.3%) | 99<br>(50.5%) |



## Risk behaviours & vulnerabilities

In this section, data are presented on risk behaviours and social and structural vulnerabilities of FSWs, including condom use, alcohol abuse, injecting practices, and experience of violence and stigma. The survey documented other vulnerabilities among FSWs that increase the risk of HIV infection and other negative health outcomes.

### Number of sexual partners

The median number of sexual partners in the four weeks preceding the survey among all FSWs was 12 (IQR: 6-22). During this period, 54.5% reported having more than 10 sexual partners. This proportion was highest in the West Rand (76.8%) and Sedibeng (70.4%) and lowest in Xhariep (3.8%). In Bojanala and Capricorn, the percentage of FSWs who had more than 10 sexual partners was slightly higher among those recruited at programme sites than at outreach venues. In contrast, the percentage was considerably higher among those recruited at outreach venues than at programme sites in Sedibeng (82.7% vs. 53.1%) and the West Rand (89.2% vs. 50.4%).



### Anal sex

Across all districts, 4.8% of FSWs reported having anal sex six months before the survey. The proportion varied by district, from 1.3% in Capricorn to 8.4% in Xhariep.

### Condom use

Overall, 64.9% of FSWs across all districts reported using a condom at last sexual intercourse, with considerable variations across districts, ranging from 31.6% in Chris Hani to 78.9% in the West Rand (Table 16). In all four districts with programmes, condom use was higher in outreach venues than in programme sites.



**65%**

of FSWs used condom at last sexual intercourse

The frequency of condom use in the six months preceding the survey was also variable across districts. Overall, slightly over a third (37.4%) of participants reported using condoms every time they had sexual encounters, ranging from 9.5% in iLembe to 50.4% in Bojanala. A comparison between data collection sites showed higher rates of consistent condom use in outreach locations, except in Sedibeng, where it was higher in programme sites (59.5%) than in outreach venues (44.1%). Overall, 70.2% of FSWs in all seven districts reported using a condom the last time they had sex with a paying client, ranging from 28.2% in Chris Hani to 89.2% in the West Rand. Outreach venues generally reported higher rates of condom use with paying clients than programme sites, except in Sedibeng.

This BBS-Lite showed that condom use among FSWs remains suboptimal and warrants attention from FSWs programmes, including the NDoH high transmission area (HTA) programme. The data showed only 65% condom use at last sex among FSWs, which, although higher than the general population, is much lower than the 90% target set for the financial year 2024/25 in the current NSP.<sup>3</sup> Seven out of 10 FSWs reported condom use at last sex with a paying client, which is below the eight out of 10 reported in the 2018 SAHMS.<sup>10</sup> This low rate of condom use by FSWs is within the broader context of low and declining condom use in the general population. According to the SABSSM VI of 2022, only 29.9% of female respondents aged 15 years and older used a condom during their most recent sexual encounter, a decline from 35.7% in 2017.<sup>2</sup>

### Injecting drug use

About 2% of the FSWs surveyed reported injecting drug use in the previous six months, lowest in Xhariep (0.0%) and highest in iLembe (3.6%).

### Alcohol abuse

Close to half (49.2%) of FSWs across all districts were alcohol dependent, ranging from 13.6% in Bojanala to as high as 87.0% in Chris Hani (Table 16). Bojanala and Capricorn were the only districts where the prevalence of alcohol abuse was below 50%. There was no consistent pattern in alcohol dependence when comparing programme sites and outreach locations.

The high levels of alcohol dependence observed among FSWs in the various districts is worrying for several reasons. First, alcohol abuse is a risk factor for sexual risk behaviours like low condom use.<sup>14</sup> Second, alcohol abuse affects other outcomes like retention on ART and viral load suppression.<sup>15</sup> Therefore, prevention programmes targeting FSWs should



consider bolting on alcohol intervention programmes to their existing services.

## Experience of violence

More than a third of FSWs (37.6%) reported having experienced violence in the 12 months preceding the survey, with notable differences between districts. iLembe had the highest incidence of FSWs who experienced violence (58.3%), while Bojanala had the lowest incidence (21.6%). In all four districts with IPs, the experience of violence was more common among FSWs at outreach venues than at programme sites.

The prevalence of IPV among FSWs in the survey was only slightly lower than that of general violence. Overall, 33.7% of FSWs reported experiencing IPV in the 12 months preceding



the survey. Similar to general violence, Bojanala district had the lowest incidence of IPV, at 17.1%, while iLembe had the highest, at 63.3%. The incidence of IPV was generally higher among FSWs surveyed at outreach venues than at programme sites.

Experience of general violence and IPV were rife, with worrying levels in some districts like iLembe, Sedibeng and Chris Hani districts. It is noteworthy that most experiences of violence by FSWs were perpetrated by their intimate partners. This finding is crucial for human rights advocacy on behalf of FSWs. The levels of general and intimate partner violence reported by FSWs in this survey are higher than those reported in the recently published "First South African National Gender-based Violence Study".<sup>16</sup> The relationship between the experience of violence and HIV acquisition is well established,<sup>17</sup> and is another area that needs intervention. The data illustrate the need for government, KP programme implementers and communities to intensify efforts to reduce GBV and general violence.

## Experience of stigma

Overall, 18.2% of FSWs avoided seeking healthcare in the last six months because of stigma. There were notable variations between districts: 26.8% in Chris Hani compared to 11.0% in Bojanala. The avoidance of healthcare due to stigma was more prevalent among FSWs surveyed at outreach venues than at programme sites, with the difference being most pronounced in the Sedibeng district, where it was 10.6% for programme sites and 17.8% for outreach venues.

Although the 18% of healthcare avoidance due to stigma across all districts is higher than the 10% target set for HIV-related discrimination in healthcare settings in the current NSP<sup>3</sup>, some districts have levels that were close to 10%.

## Imprisonment

Overall, 7.6% of FSWs had been jailed/imprisoned at least once in the six months before the survey, ranging from 2.8% in Chris Hani to 11.6% in iLembe. In the four districts with IPs, the prevalence was much higher among FSWs surveyed at outreach venues than at programme sites, except in Sedibeng. Why the study did not collect data on the reason they were jailed, previous reports highlight high levels of police harassment of FSWs.<sup>18</sup> More work is needed in police and law enforcement training in this regard.

## Homelessness

Homelessness was 9.6% across all the districts and ranged from 3.7% in the West Rand to 16.1% in Chris Hani. Although there were differences between programme sites and outreach venues, no consistent pattern was observed. In Bojanala and Sedibeng, homelessness was slightly more common among FSWs interviewed at outreach venues. Conversely, in Capricorn and the West Rand, homelessness was more common among FSWs surveyed at programme sites than at outreach venues.

## Food insecurity

Many FSWs (40.5% across all districts) slept hungry in the 30 days preceding the survey due to lack of food, ranging from 34.5% in the West Rand to 51.7% in Chris Hani. The prevalence of food insecurity was higher among FSWs recruited at programme sites, except in Capricorn. For example, in the West Rand, 52.0% of FSWs recruited at programme sites reported sleeping hungry during this period compared to 25.7% of those recruited at outreach locations.

Table 16: Risk behaviours and vulnerabilities among female sex workers, BBS-Lite 2025

| Outcome measure                                             | Bojanala |         |          | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Xhariep | Overall (%) |
|-------------------------------------------------------------|----------|---------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|---------|-------------|
|                                                             | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) | OUT (%) |             |
| N (Number of KPs)                                           | 97       | 329     | 426      | 247       | 133     | 380      | 160      | 225     | 385      | 121       | 259     | 380      | 354        | 362     | 186     | 2,473       |
| <b>Condom use during last sexual intercourse</b>            |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 59.8     | 70.8    | 68.3     | 75.7      | 80.5    | 77.4     | 75.0     | 79.1    | 77.4     | 65.3      | 85.3    | 78.9     | 31.6       | 61.9    | 46.2    | 64.9        |
| <b>Frequency of condom use in the past 6 months</b>         |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Every time                                                  | 30.2     | 56.4    | 50.4     | 42.7      | 56.7    | 47.6     | 59.5     | 44.1    | 50.4     | 21.8      | 39.1    | 33.6     | 23.2       | 9.5     | 44.4    | 37.4        |
| Most times                                                  | 37.2     | 25.4    | 28.1     | 23.1      | 21.3    | 22.4     | 22.3     | 36.5    | 30.6     | 44.5      | 42.2    | 42.9     | 35.4       | 37.1    | 28.7    | 32.4        |
| Less frequent                                               | 32.5     | 18.3    | 21.5     | 33.7      | 22.1    | 29.7     | 17.5     | 19.4    | 18.6     | 33.6      | 18.4    | 23.2     | 37.4       | 52.3    | 25.9    | 29.5        |
| <b>Condom use with last paying client</b>                   |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 69.9     | 79.9    | 77.7     | 80.5      | 87.1    | 82.8     | 84.9     | 80.1    | 82.1     | 86.4      | 90.5    | 89.2     | 28.2       | 66.5    | 50.5    | 70.2        |
| <b>Number of multiple sexual partners (past 4 weeks)</b>    |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| > 10 partners                                               | 70.1     | 67.8    | 68.3     | 67.6      | 63.2    | 66.1     | 53.1     | 82.7    | 70.4     | 50.4      | 89.2    | 76.8     | 29.4       | 36.5    | 3.8     | 54.5        |
| <b>Had anal sex in the past 6 months</b>                    |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 0.0      | 9.7     | 7.5      | 1.6       | 0.8     | 1.3      | 4.8      | 5.0     | 4.9      | 8.1       | 7.5     | 7.7      | 2.1        | 3.7     | 8.4     | 4.8         |
| <b>Injected drugs in the last six months</b>                |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 0.0      | 2.4     | 1.9      | 0.4       | 0.8     | 0.5      | 5.6      | 0.9     | 2.9      | 3.3       | 2.3     | 2.6      | 0.3        | 3.6     | 0.0     | 1.8         |
| <b>Alcohol dependence (CAGE)</b>                            |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 9.3      | 14.9    | 13.6     | 28.3      | 27.1    | 27.9     | 60.6     | 61.8    | 61.3     | 57.9      | 49.0    | 51.8     | 87.0       | 52.5    | 65.6    | 49.2        |
| <b>Experienced violence in past 12 months</b>               |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 14.4     | 23.7    | 21.6     | 32.0      | 37.6    | 33.9     | 32.5     | 56.4    | 46.5     | 39.7      | 41.3    | 40.8     | 31.1       | 58.3    | 28.5    | 37.6        |
| <b>Experienced IPV in past 12 months</b>                    |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 12.4     | 18.5    | 17.1     | 17.0      | 30.1    | 21.6     | 35.0     | 54.7    | 46.5     | 29.8      | 26.6    | 27.6     | 34.5       | 63.3    | 23.7    | 33.7        |
| <b>Avoided seeking healthcare because of stigma</b>         |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 10.3     | 11.2    | 11.0     | 12.1      | 15.0    | 13.2     | 10.6     | 17.8    | 14.8     | 19.8      | 23.2    | 22.1     | 26.8       | 25.7    | 12.9    | 18.2        |
| <b>Been in jail/prison within past 6 months</b>             |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 3.1      | 10.0    | 8.5      | 6.5       | 20.3    | 11.3     | 6.2      | 4.9     | 5.5      | 2.5       | 10.8    | 8.2      | 2.8        | 11.6    | 3.2     | 7.6         |
| <b>Currently homeless</b>                                   |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 4.1      | 4.3     | 4.2      | 8.1       | 6.8     | 7.6      | 9.4      | 12.0    | 10.9     | 5.8       | 2.7     | 3.7      | 16.1       | 15.7    | 10.8    | 9.6         |
| <b>Slept hungry because of lack of food in past 30 days</b> |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 43.3     | 36.2    | 37.8     | 36.0      | 54.1    | 42.4     | 48.8     | 33.8    | 40.0     | 52.1      | 26.3    | 34.5     | 51.7       | 35.1    | 45.7    | 40.5        |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts combined

Programme coverage

Intervention services coverage

Across all districts, 61% of FSWs reported having received any HIV prevention/treatment services in the last 12 months, ranging from 33.1% in Bojanala to 84.9% in Sedibeng. Expectedly, FSWs recruited from programme sites reported much higher percentages for this indicator than those recruited from outreach locations (Table 17).

The fact that only six out of ten FSWs had received HIV prevention or treatment services from anywhere (public, private or NGOs) in the past year clearly indicates the need for broader coverage by these programmes. Overall, access to intervention services is low since three districts have no implementing partners. Intervention services coverage was lowest in Bojana, partly because it had the lowest programme-outreach recruitment ratio of the four districts with IPs.



61%

of FSWs reported having received any HIV prevention/treatment services in the last 12 months

PrEP uptake and use

PrEP use

At the time of the survey, 53.2% of all FSWs who reported being HIV-negative were on PrEP. Notably, PrEP uptake was lowest in Chris Hani (9.2%) and Xhariep (30.9%), which are districts without IPs. In all four districts with IPs, PrEP uptake was considerably higher at programme sites than at outreach venues. Of the FSWs on PrEP, 63.3% had been using it for more than a year, from 30% in Xhariep to 84.9% in Capricorn.

PrEP use with last paying client mirrored current PrEP use and showed notable variations across districts and between programme sites and outreach locations. Overall, the usage of PrEP with the last paying client across all seven districts was 52.1%, with the highest use in the West Rand (78.1%), followed by Capricorn (76.1%). Female sex workers in Chris Hani (7.5%) and Xhariep (29.9%) had the lowest levels of PrEP use with the last paying client. The fact that PrEP usage was lowest in districts with IPs should be noteworthy to the National Department of Health for its HTA programming.



53%

of HIV-negative FSWs used PrEP

PrEP disinhibition

We conducted additional analysis to explore patterns between PrEP use and condom use among FSWs and explore the occurrence of PrEP disinhibition among FSWs. PrEP disinhibition refers to the potential reduction in condom use among people who feel protected by PrEP.<sup>19,20</sup>

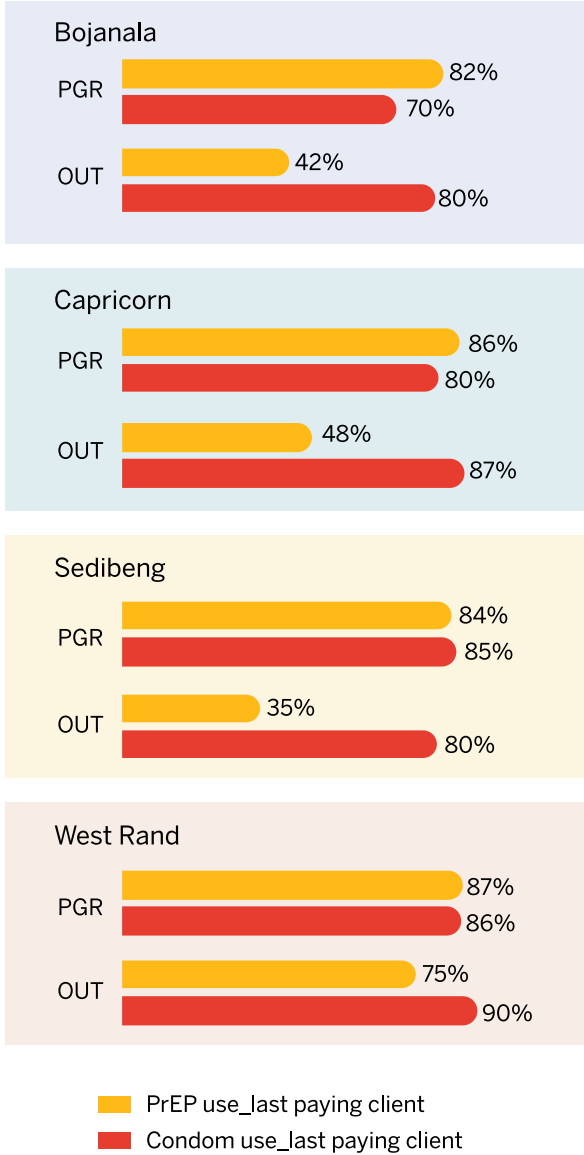


Figure 15: Relationship between PrEP uptake and condom use among HIV negative FSWs, BBS-Lite 2025

Table 17: Coverage of HIV prevention and treatment services among female sex workers, BBS-Lite 2025

| Characteristic                                                              | Bojanala |         |          | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Xhariep | Overall (%) |
|-----------------------------------------------------------------------------|----------|---------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|---------|-------------|
|                                                                             | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) | OUT (%) |             |
| N (number of KPs)                                                           | 97       | 313     | 410      | 247       | 133     | 380      | 160      | 221     | 381      | 127       | 251     | 378      | 350        | 360     | 186     | 2,445       |
| <b>Received any HIV prevention/treatment services in the past 12 months</b> |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                                         | 56.7     | 26.1    | 33.1     | 88.3      | 68.4    | 81.3     | 92.5     | 79.6    | 84.9     | 95.1      | 74.4    | 81.1     | 11.6       | 76.5    | 56.5    | 61.0        |
| <b>Currently on PrEP</b>                                                    |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                                         | 86.1     | 40.2    | 52.6     | 88.4      | 53.2    | 79.1     | 92.9     | 39.4    | 59.8     | 82.4      | 71.6    | 74.5     | 9.2        | 49.2    | 30.9    | 53.2        |
| <b>If currently on PrEP, duration on PrEP</b>                               |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| <6 months                                                                   | 32.3     | 33.8    | 33.1     | 6.6       | 15.2    | 8.1      | 9.8      | 19.0    | 13.5     | 8.9       | 22.9    | 18.7     | 23.8       | 5.7     | 30.0    | 16.9        |
| 6–12 months                                                                 | 17.7     | 16.9    | 17.3     | 5.3       | 15.2    | 7.0      | 13.0     | 19.0    | 15.5     | 25.0      | 28.2    | 27.3     | 28.6       | 33.3    | 40.0    | 19.8        |
| >1 year                                                                     | 50.0     | 49.4    | 49.6     | 88.2      | 69.7    | 84.9     | 77.2     | 61.9    | 71.0     | 66.1      | 48.9    | 54.0     | 47.6       | 60.9    | 30.0    | 63.3        |
| <b>PrEP use with last paying client</b>                                     |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                                         | 81.9     | 42.3    | 53.0     | 86.0      | 48.4    | 76.1     | 83.8     | 35.0    | 53.7     | 86.8      | 74.9    | 78.1     | 7.5        | 49.7    | 29.9    | 52.1        |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts combine

As illustrated in Figure 15, the data support possible PrEP disinhibition, as condom use was lower in districts where PrEP use was higher, and vice versa. Because our cross-sectional design precludes establishing temporality, this pattern cannot be taken as evidence of behavioural risk compensation. To better understand these dynamics, future analyses could examine behaviours at the individual level using temporal quantitative data and qualitative data.

Also, the finding of potential PrEP disinhibition warrants a more nuanced interpretation. An alternative and equally plausible explanation is that PrEP programmes are effectively reaching FSWs who face barriers to consistent condom use—precisely the populations for whom PrEP was designed as an additional prevention option. In this view, the observed inverse relationship may reflect programme targeting and user choice rather than behavioural disinhibition. Many FSWs who experience client-driven limitations on condom negotiation may adopt PrEP as an adaptive protection strategy.

Overall, the low rate of condom use in a population with high sexual exposure underscores the need for robust combination-prevention approaches. PrEP and condom programming should be integrated and strengthened, with clear, repeated messaging that PrEP protects against HIV but not STIs or viral hepatitis. Tailoring prevention strategies to the realities of sex workers' choices, constraints, and contexts will be essential for effective HIV prevention.



## Impact of Global Fund programmes

This BBS-Lite provides insights into the potential impact of Global Fund programmes in the four districts with IPs. Two types of analyses were conducted: between-district and within-district comparisons. It is noteworthy that these comparisons are only proxies for programme performance. To properly evaluate the programmes, quasi-experimental designs with detailed and specific exposure measurements are needed to control for potential bias and confounding. Nevertheless, much of the observed differences may be due to programme services. Significantly more FSWs recruited at programme sites than at outreach locations reported that they had received HIV prevention or treatment services in the past 12 months.

### Between-district comparisons

Programme indicators in the three districts without Global Fund support, particularly Chris Hani district, reflected poorer health outcomes than those with Global Fund programme. For example, Chris Hani district had the lowest percentage of FSWs that knew their HIV status, the lowest level of condom use, the highest percentage of alcohol dependence, the highest percentage of FSWs who avoided seeking healthcare because of stigma, the highest percentage of homelessness, and the highest levels of food insecurity. While these differences between Global Fund and non-Global Fund districts may be explained by other factors (confounding), they at least shed light on the need for KP programmes in more districts.

### Within-district comparisons

FSWs recruited at programme sites were closer to achieving the 95-95-95 targets than those recruited at outreach locations. Specifically, programme site participants were more likely to know their HIV status than those recruited from outreach venues, with FSWs recruited at programme sites in all four programme districts achieving the 95% target for this indicator. Furthermore, experiences of general violence, IPV and avoidance of healthcare due to stigma were less common at programme sites than at outreach locations. Expectedly, PrEP uptake was significantly higher at programme sites than at outreach venues.

Several outcomes were either worse at programme sites or not significantly different from those at outreach locations, suggesting the need for tailored messaging in HIV programming. One such example is the disinhibition due to PrEP. Additionally, the fact that HIV prevalence was not consistently different between programme sites and outreach locations reflects the difficulty in attributing health outcomes, such as HIV prevalence, to any one programme in a country that is saturated with multiple HIV programmes, including the availability of HIV information and services at primary healthcare centres (PHCs) and communities.

In summary, the findings of this and similar surveys should be used to improve and tailor current HIV programming, including strengthening the linkages to complementary social and other services that address the structural and other vulnerabilities to HIV. As epidemiology changes, so should intervention services.

# BBS Results: People Who Inject Drugs



In this section, the BBS-Lite results among PWID are presented, specifically, data on sociodemographic characteristics, risk behaviours and social and structural vulnerabilities, including condom use, multiple sexual partners, practice of anal sex, alcohol abuse, injecting practices, and experience of violence and stigma among PWID.

## Sociodemographic characteristics

One thousand six hundred and sixty-seven (1,667) PWID participated in the survey, the majority (69%) of whom were recruited from outreach locations (Table 18). The BBS-Lite among PWID was completed in six districts: two districts with Global Fund PWID programmes (Sedibeng and the West Rand), two with other KP programmes (Bojanala and Capricorn) and two without Global Fund programmes (Chris Hani and iLembe). Although the results show that some PWID were recruited at programme sites in Capricorn, those programmes are for other KPs and not PWID.

Only six PWID could be recruited from Chris Hani, and none from Xhariep, despite the survey team's best efforts, including trying snowball sampling in Chris Hani. Many community members in multiple priority areas in all local municipalities in these two districts confirmed the low numbers or absence of PWID in their communities. This finding shows that the existence of PWID in communities depends on factors such as accessibility to drug markets, social networks that accept drug use, sources of livelihood, etc., which are understandably limited in districts like Xhariep and Chris Hani.

Table 18: Sociodemographic characteristics of people who inject drugs in six districts, BBS-Lite 2025

| Characteristic                                                                                                                                                     | Bojanala | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Overall (%) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|-------------|
|                                                                                                                                                                    | OUT (%)  | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) |             |
| <b>Number of participants</b>                                                                                                                                      | 392      | 78        | 179     | 257      | 303      | 105     | 408      | 140       | 251     | 391      | 6          | 213     | 1667        |
| <b>Site of interview</b>                                                                                                                                           |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Service Delivery Site                                                                                                                                              | 0        |           |         | 30       |          |         | 74       |           |         | 36       | 0          | 0       | 31          |
| KP Outreach Venue                                                                                                                                                  | 100      |           |         | 70       |          |         | 26       |           |         | 64       | 100        | 100     | 69          |
| <b>Sex</b>                                                                                                                                                         |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Female                                                                                                                                                             | 5.1      | 5.1       | 0.6     | 1.9      | 6.6      | 2.9     | 5.6      | 10.7      | 6.0     | 7.7      | 16.7       | 7.0     | 5.6         |
| Male                                                                                                                                                               | 94.9     | 94.9      | 99.4    | 98.1     | 93.4     | 97.1    | 94.4     | 89.3      | 94.0    | 92.3     | 83.3       | 93.0    | 94.4        |
| <b>Age group</b>                                                                                                                                                   |          |           |         |          |          |         |          |           |         |          |            |         |             |
| 16-24 yrs                                                                                                                                                          | 9.7      | 23.1      | 9.5     | 13.6     | 8.9      | 13.3    | 10.0     | 7.1       | 8.4     | 7.9      | 16.7       | 11.7    | 10.3        |
| 25-34 yrs                                                                                                                                                          | 64.8     | 64.1      | 77.1    | 73.2     | 70.3     | 66.7    | 69.4     | 67.9      | 69.7    | 69.1     | 50.0       | 71.4    | 69.0        |
| 35 and above                                                                                                                                                       | 25.5     | 12.8      | 13.4    | 13.2     | 20.8     | 20.0    | 20.6     | 25.0      | 21.9    | 23.0     | 33.3       | 16.9    | 20.8        |
| <b>Marital Status</b>                                                                                                                                              |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Never married                                                                                                                                                      | 96.2     | 97.4      | 93.9    | 94.9     | 90.4     | 98.1    | 92.4     | 94.3      | 92.4    | 93.1     | 100.0      | 98.6    | 94.7        |
| Married or living with partner                                                                                                                                     | 2.0      | 2.6       | 4.5     | 3.9      | 6.3      | 1.0     | 4.9      | 5.0       | 5.6     | 5.4      | 0.0        | 0.9     | 3.7         |
| Divorced/separated/widowed                                                                                                                                         | 1.8      | 0.0       | 1.1     | 0.8      | 3.3      | 1.0     | 2.7      | 0.7       | 1.6     | 1.3      | 0.0        | 0.5     | 1.6         |
| <b>Highest educational qualification</b>                                                                                                                           |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Primary or less                                                                                                                                                    | 10.2     | 2.6       | 3.9     | 3.5      | 4.3      | 7.6     | 5.1      | 19.3      | 17.9    | 18.4     | 16.7       | 15.5    | 10.6        |
| Some secondary                                                                                                                                                     | 54.8     | 60.3      | 65.9    | 64.2     | 63.4     | 66.7    | 64.2     | 52.1      | 53.8    | 53.2     | 33.3       | 49.8    | 57.5        |
| Completed secondary                                                                                                                                                | 34.9     | 37.2      | 30.2    | 32.3     | 32.3     | 25.7    | 30.6     | 28.6      | 28.3    | 28.4     | 50.0       | 34.7    | 32.0        |
| <b>Mobility (spent a night outside the district of residence in the past month)</b>                                                                                |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                                                                                                                                | 39.9     | 7.7       | 5.0     | 5.8      | 18.5     | 29.5    | 21.3     | 26.4      | 17.1    | 20.5     | 50.0       | 30.0    | 24.3        |
| <b>Frequency of social media use</b>                                                                                                                               |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Daily                                                                                                                                                              | 1.3      | 7.7       | 7.3     | 7.4      | 16.7     | 4.7     | 6.9      | 10.5      | 7.8     | 5.7      | 7.6        | 6.9     | 5.6         |
| Never                                                                                                                                                              | 97.2     | 80.8      | 86.6    | 84.8     | 83.8     | 80.0    | 82.8     | 79.3      | 78.9    | 79.0     | 33.3       | 85.0    | 85.7        |
| PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts combine |          |           |         |          |          |         |          |           |         |          |            |         |             |

The majority of participants were male (94.4%), with the highest percentage of females in the West Rand (7.7%) and Chris Hani<sup>1</sup> (16.7%). Two-thirds were aged 25 to 34 years. About a fifth of all PWID were 35 years or older: 33% and 26% in Chris Hani and Bojanala, respectively. PWID recruited at programme sites were, on average, younger than those recruited from outreach locations.

A quarter (24.3%) of PWID had spent a night outside their district of residence in the month prior to the survey. Ninety-five percent had never been married. The percentage of PWID who completed secondary school was 32%: highest in Chris Hani (50%) and Bojanala (35%). The majority (86%) of PWID had never used social media, and only 5.6% used it daily.

## Biological markers: HIV, HIV treatment cascade, hepatitis and TB

### HIV prevalence

#### HIV prevalence in each district

The average prevalence of HIV among PWID across the six districts was 47.6%, ranging from 18.8% (95% CI: 11.7–28.8) in iLembe to 74.5% (95% CI: 68.8–79.5) in Sedibeng. The HIV prevalence was slightly higher in outreach locations than in programme sites in Capricorn, but this pattern was reversed in Sedibeng and the West Rand, albeit with overlapping confidence intervals (Figure 16).

The HIV prevalence among PWID reported in this survey was very high—more than five out of 10 PWID in the studied districts were living with HIV. The fact that the prevalence exceeds 60% in some districts is worrying. A bio-behavioural survey and population size estimation among PWID conducted in three districts in 2023 showed the HIV prevalence in four sites to range from 30.3% in Mbombela to 72.1% in Tshwane,<sup>21</sup> which is similar to the range of prevalences reported in this BBS-Lite.

<sup>1</sup>The percentages from Chris Hani should be interpreted with caution since the denominator is only six PWID.

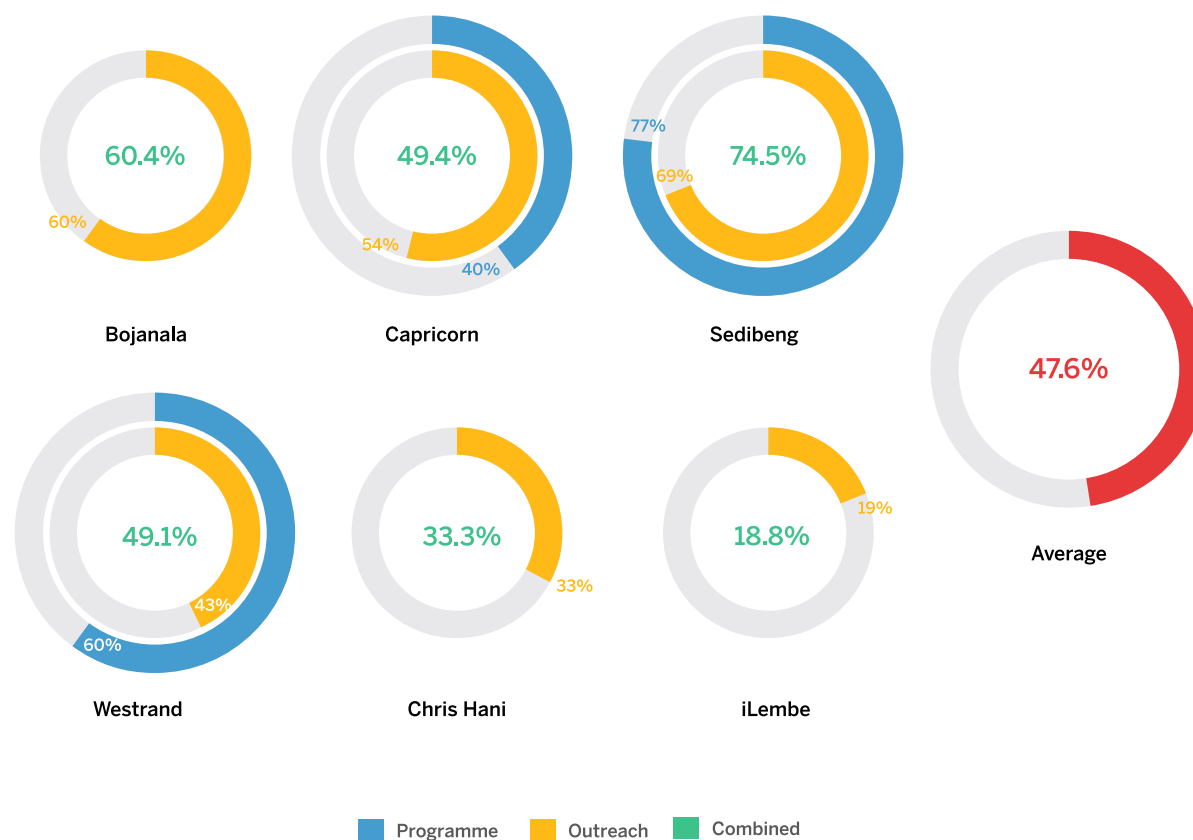


Figure 16: HIV prevalence among people who inject drugs in six districts, BBS-Lite 2025

HIV prevalence among PWID by age

The HIV prevalence by age among PWID showed a common pattern where prevalence increases with age, reaches a peak and starts to decline (Figure 17). HIV prevalence was highest among those aged 35 to 40 years (62.7%).

HIV prevalence in the younger age group (16 to 24 years) can serve as a proxy for incidence (UNAIDS).<sup>22</sup> The disaggregation of HIV prevalence by age shows a disturbing finding that HIV prevalence in those aged 20 to 24 years was 41.8%. By the time PWID are in their mid-20s, half of them are already infected. Urgent work is needed to curb the high HIV incidence in this KP. Also noteworthy is that, unlike in FSWs, where HIV prevalence increased consistently with age, in PWID, it peaked at 35-40 years and then declined. This decline may be attributed to HIV-related mortality, which also increases with age, and sharply in the absence of access to ART.

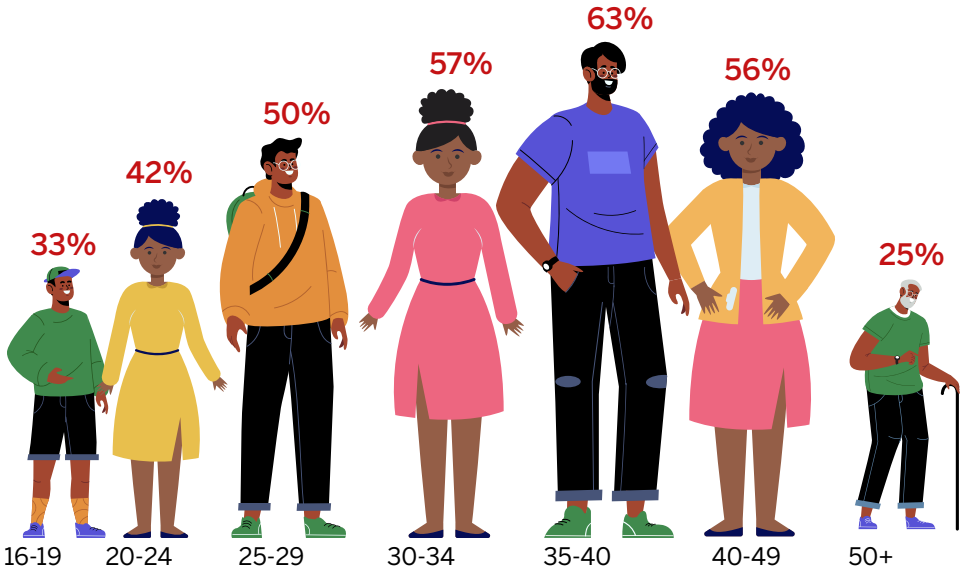


Figure 17: IV prevalence by age among people who inject drugs in six districts, BBS-Lite 2025

HIV prevalence in PWID compared to district prevalence

Almost all PWID in our survey were aged 18 to 49 years (99.8%) and male (94.4%). Figure 18 compares the HIV prevalence among PWID in the study with the adult male (15 to 49 years) prevalence in the respective districts, using data from the Naomi Model.<sup>13</sup> The ratio of HIV prevalence in PWID relative to the adult male population ranged from 1.16 in iLembe to 7.4 in Sedibeng. This means that PWID were considerably more likely to be infected with HIV in comparison to their male counterparts in the general population. This disparity highlights the role of PWID in HIV transmission in South Africa and emphasises the need for continued expansion of services for this population.

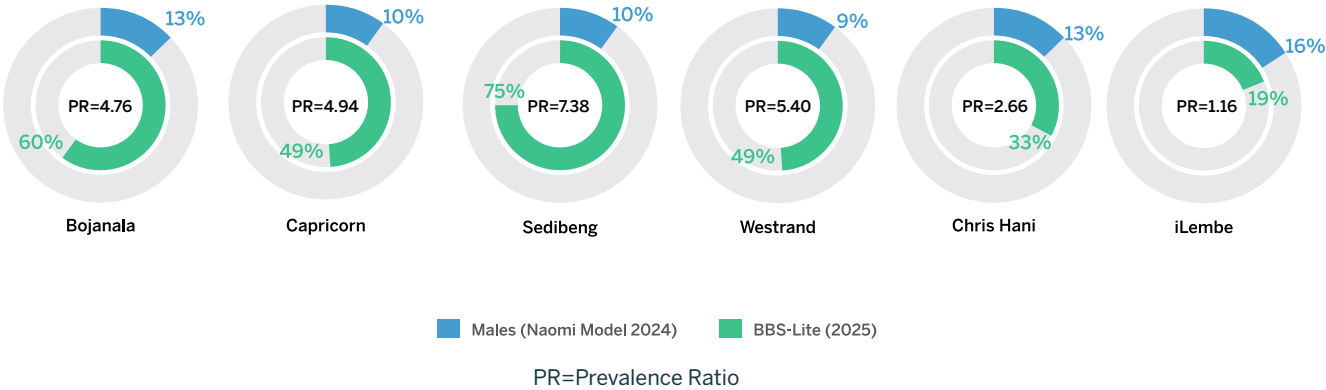


Figure 18: HIV prevalence among adult males (15-49) in each district and PWID in the study, BBS-Lite 2025

## HIV treatment cascade (95-95-95 targets)

The treatment cascade outcomes among PWID were generally low. Across all districts, the achievements were 67-80-46% (Figure 19). The percentage of PWID who knew their HIV status was 66.9%, lowest in Bojanala (38.6%) and highest in Sedibeng (90.1%). Among those who knew their status, 79.6% were on treatment across all districts, ranging from 62.6% in Bojanala to 92.9% in iLembe. Viral load suppression among those on treatment was even lower, viz. 45.6% overall. All three outcomes were higher among PWID recruited at programme sites than those recruited at outreach venues.

The results of the BBS-Lite are similar to those reported in the 2023 IBBS, which were 76-74-63 for eThekweni, 78-92-42 for Mashishing and 64-98-60 for Mbombela. Collectively, these data point to the need to get more PWID living with HIV to know their HIV status and to enrol in care.<sup>21</sup> Similarly challenging is ART adherence, with treatment interruption reported by unhoused PWID due to forced relocation, confiscation of belongings (including ART), or incarceration. As the data in this BBS-Lite show, homelessness, mobility and imprisonment are rife among PWID.

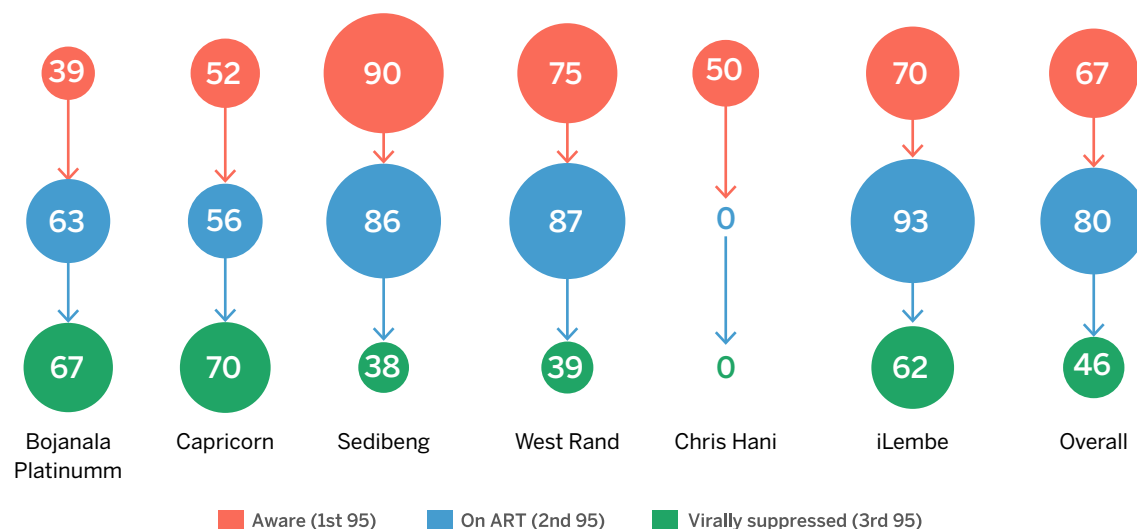
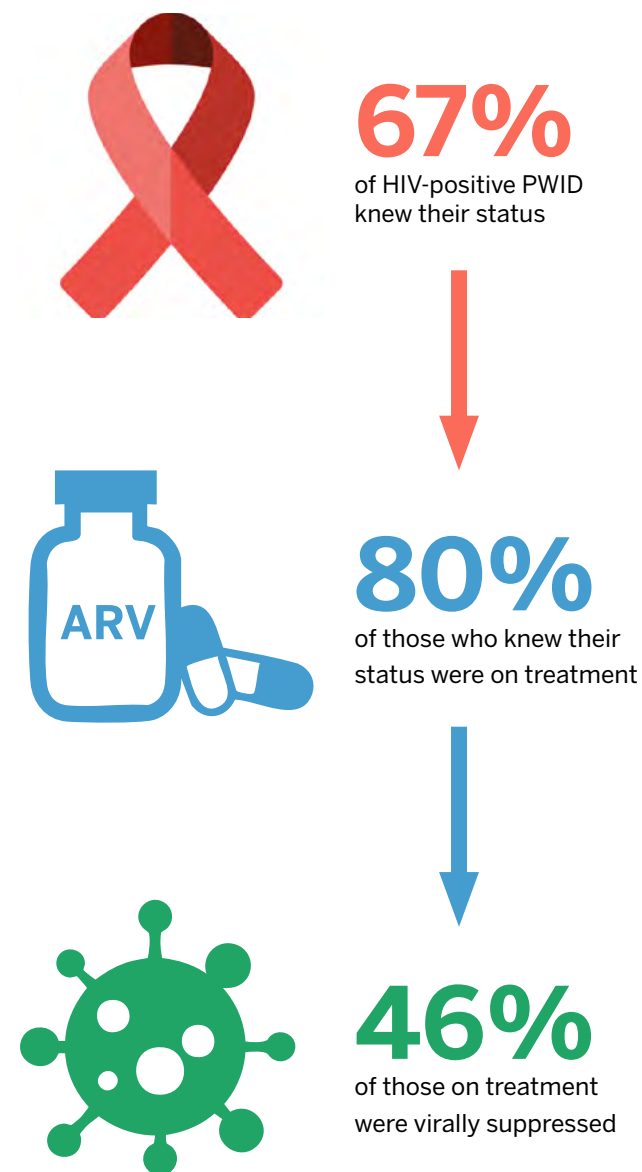


Figure 19: HIV treatment cascade (95-95-95) among people who inject drugs in seven districts, BBS-Lite 2025





Hepatitis B and C

Hepatitis B

The average prevalence of Hepatitis B among PWID across the six districts was 14.0%, ranging from 1.4% in iLembe to 32.3% in Bojanala. The prevalences at programme sites and outreach locations were similar (Figure 20).

Hepatitis C

The average prevalence of Hepatitis C was 59.5%, ranging from 16.6% in Chris Hani to 78.3% in Sedibeng. The prevalence by site of interview did not show a discernible pattern, as it was high at programme sites in Sedibeng but not in the West Rand and Capricorn (Figure 21).

Similar to the high HIV prevalence found in this population, there was also a high prevalence of Hepatitis B and C. The prevalence of Hepatitis B, ranging from 1.4% to 32%, and the prevalence of Hep C, which exceeded 60% in four of the six districts, underscore the urgent need for interventions in these areas. The aforementioned 2023 BBS among PWID in four sites in three districts reported similar data: Hepatitis B prevalence ranged from 0.9% to 5.8%, and Hepatitis C prevalence ranged from 40.8% to 90.5%.

The high prevalence of HIV and both hepatitis infections can be linked to the risky sexual behaviours and injecting practices documented in this study. Concerted prevention efforts are needed to address the triple epidemics in PWID. Although the survey did not include questions about access to direct-acting antivirals (DAAs) treatment, the high prevalence observed in this study shows that DAAs, which are highly effective medications for treating Hepatitis C, are urgently needed to arrest this crisis in PWID.

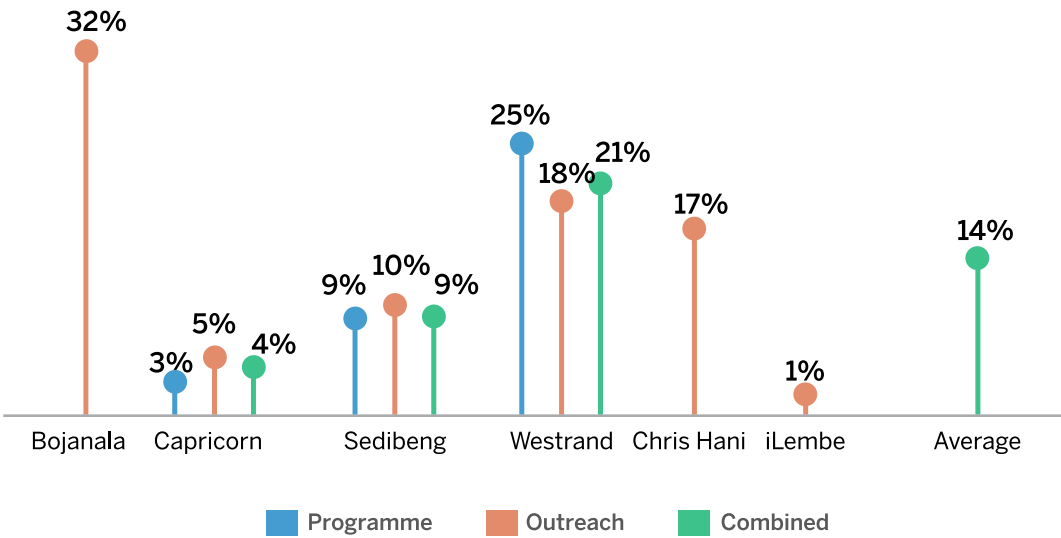


Figure 20: Hepatitis B prevalence among people who inject drugs in six districts, BBS-Lite 2025

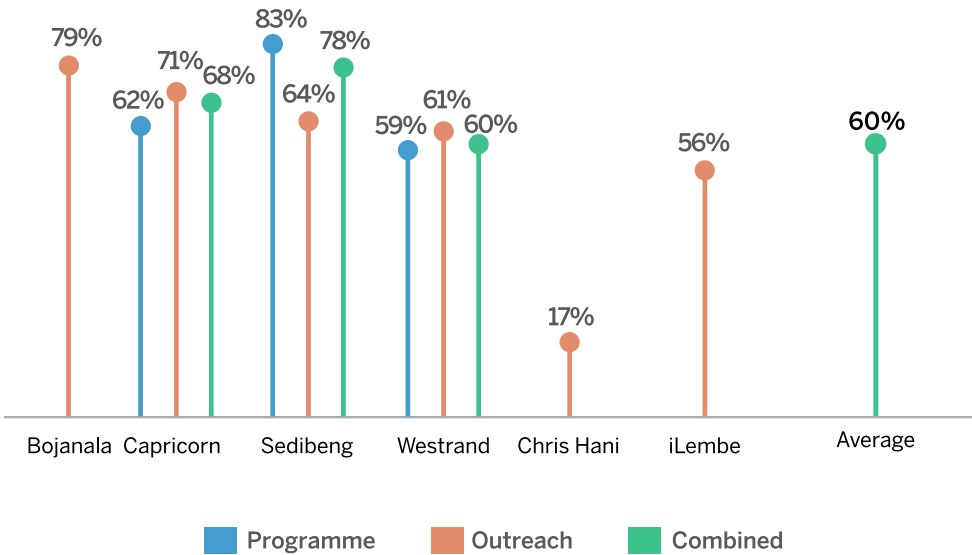


Figure 21: hepatitis C prevalence among people who inject drugs in six districts, BBS-Lite 2025

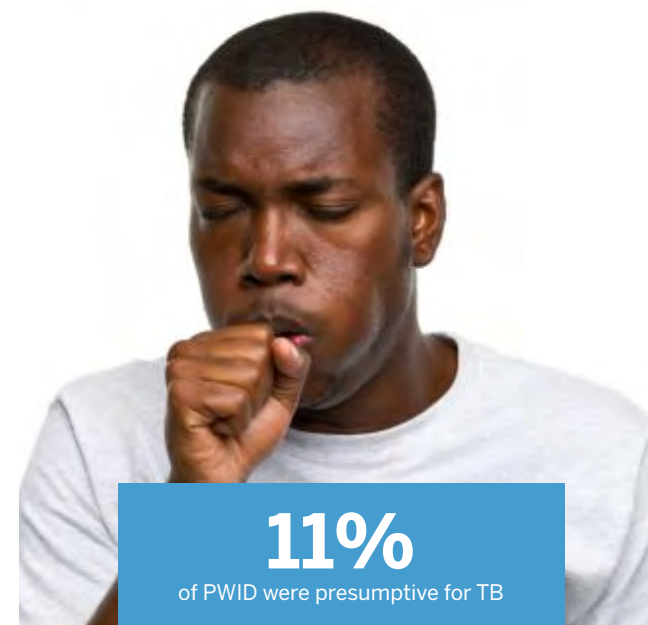
## Symptomatic TB

Table 19 shows that weight loss was the most common TB symptom among PWID (7.1%), while fever was the least (3.6%). Almost 11% (10.7%) of the PWID were presumptive for TB. Sputum samples were collected from only 27.5% (49) of the presumptive cases, with an overall positivity rate of 12.2%, resulting in six confirmed diagnoses. The prevalence of HIV among those with one or more TB symptoms was 66.9%, which is higher than the 47.6% average among all PWID.

About one in 10 PWID was presumptive for TB. The overall positivity rate was 12% (ranging from 20% to 25%), which is high. This highlights the need to consider appropriate TB interventions among PWID, including TB screening using advanced technologies that do not rely on sputum production, such as the computer-aided digital x-ray.

Table 19: Symptomatic TB among people who inject drugs in six districts, BBS-Lite 2025

| Characteristic                                   | Bojanala      | Capricorn     | Sedibeng      | West Rand     | Chris Hani  | iLembe       | TOTAL          |
|--------------------------------------------------|---------------|---------------|---------------|---------------|-------------|--------------|----------------|
| N (number of KPs)                                | 392           | 257           | 408           | 391           | 6           | 213          | 1,667          |
| Coughing                                         | 3.6%          | 7.4%          | 1.2%          | 5.6%          | 0.0%        | 1.9%         | 3.8%           |
| Fever in the past two weeks                      | 2.8%          | 6.6%          | 1.5%          | 5.6%          | 0.0%        | 1.9%         | 3.6%           |
| Weight loss in the past month                    | 9.2%          | 11.3%         | 3.4%          | 8.4%          | 0.0%        | 2.8%         | 7.1%           |
| Night sweats                                     | 10.2%         | 10.1%         | 2.7%          | 8.7%          | 0.0%        | 1.9%         | 6.9%           |
| Presumptive TB (any TB symptom)                  | 61<br>(15.6%) | 36<br>(14.0%) | 21<br>(5.1%)  | 54<br>(13.8%) | 0<br>(0.0%) | 6<br>(2.8%)  | 178<br>(10.7%) |
| Of those with any symptoms,<br>number and % HIV+ | 44<br>(72.1%) | 22<br>(61.1%) | 17<br>(81.0%) | 33<br>(61.1%) | -           | 3<br>(50.0%) | 119<br>(66.9%) |



## Risk behaviours and vulnerabilities

Two-thirds of PWID reported a sexual activity (vaginal or anal sex) in the past six months. Although this percentage was considerably lower than the 99 to 100% sexual activity observed in other KPs, high levels of sexual risk behaviours were recorded among PWID.

### Multiple sexual partnerships and transactional sex

A quarter (24.6%) of all PWID in the survey reported having multiple sexual partners in the four weeks before the survey, but the proportion varied by district. Bojanala had the lowest level of multiple sexual partnerships (17.6%) while the West Rand reported the highest (38.1%). The distribution also differed between sites in the two districts with PWID programs, with higher levels of multiple sexual partnerships reported in outreach locations than in programme sites.

Seven percent of all PWID reported having received gifts or favours or cash in exchange for sex: the percentages were as high as 17.4% in iLembe and 33.3% in Chris Hani.



**25%**

of all PWID reported having two or more sexual partners in the past four weeks

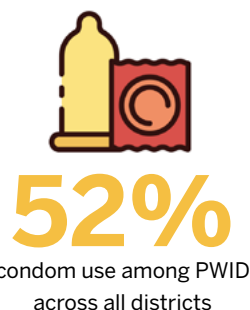
### Anal sex

The percentage of PWID who engaged in anal sex in the past six months was 2.5% and varied across districts, ranging from 0% in Chris Hani to 5.1% in Bojanala. In districts with

both programme and outreach venues, the percentage of PWID engaging in anal sex was higher in programme sites than in outreach locations.

### Condom use

Overall, condom use was 51.6% among PWID across all districts, varying from 33.3% in Chris Hani to 57.0% in the West Rand (Table 20). Condom use varied only slightly between programme sites and outreach locations. In Sedibeng, condom use was lower at programme sites (46.9%) than at outreach locations (54.3%). However, this pattern was reversed in Capricorn and the West Rand districts.



In the six months leading up to the survey, 28.6% of participants reported using condoms every time they engaged in sexual activity, although this rate differed by district, ranging from 3.1% in iLembe to 49.4% in Sedibeng. The pattern of consistent condom use was similar to that of condom use at last sexual intercourse; percentages were slightly higher in outreach locations than programme sites only in Sedibeng, and not in Capricorn and the West Rand.

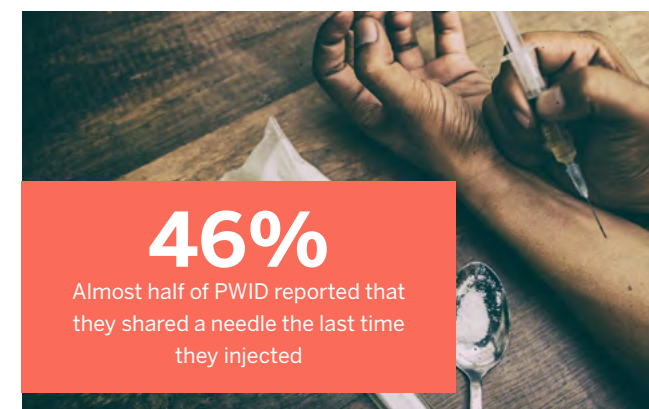
Within the context of high levels of multiple sexual partnerships and transactional sex, there were low levels of condom use among PWID. Only half of PWID (ranging from 33% to 57%) used a condom at last sexual intercourse,

which is much lower than the 90% target set in the current NSP. Less than a third of PWID reported using condoms consistently in the last six months. The previously-referenced BBS and population size estimation among PWID conducted in three districts in 2023 showed that condom use at last sex ranged from 50.0% in Mashishing to 78.2% in Mbombela.<sup>21</sup>

### Injecting practices

Current estimates indicate that a minimum 80% coverage rate for needle and syringe programmes (NSPs) is necessary for significant impact, including reducing Hepatitis C incidence by over 40% among PWID. The use of a new needle and syringe at the last time of injecting drugs was reported by 59.6%, ranging from 38.5% of PWID in Capricorn to 81.9% in Sedibeng. The use of a new needle and syringe for last injection was more prevalent at programme sites than at outreach venues in Capricorn and the West Rand, but not in Sedibeng.

Almost half of PWID (46.0%) reported that they shared a needle the last time they injected. The practice of needle sharing was highest in iLembe, at 72.8%, and lowest in Sedibeng, at 27.5%.



In Sedibeng and the West Rand, sharing a needle was more common among PWID recruited at outreach venues than among those recruited at programme delivery sites. Of all PWID, 45.6% injected one to three times a day and 39.8% injected four to six times a day. Although the survey did not directly ask about overdosing, PWID were asked how many people they knew who had overdosed on drugs in the past six months. Almost half (47.8%) of PWID reported knowing more than three people who had overdosed during the reference period. Twenty-two percent knew more than six people who had overdosed.

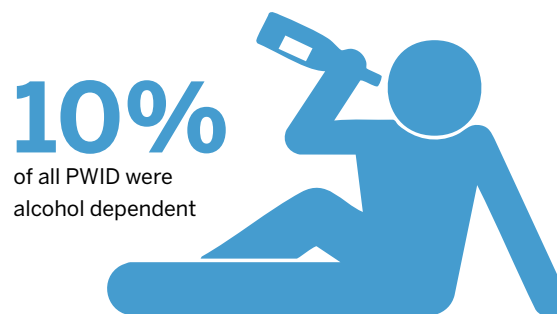
Comparing the BBS-Lite data on injecting practices with historical data shows an improvement in among PWID. The TipVal Study showed that, when asked whether they had used a new (unused) needle the last time they injected, 50.4% of PWID in Tshwane and 79.0% in Cape Town responded affirmatively.<sup>23</sup> In the BBS survey conducted in 2023, the percentage of PWID who used a sterile needle the last time they injected drugs ranged from 65% in Mashishing to 88% in Mbombela.<sup>21</sup> This BBS-Lite reported a 60% use of sterile needles. Although less than the target 90% in the current NSP,<sup>3</sup> this is an encouraging and commendable trend, especially when considering the West Rand and Sedibeng programme sites, where it reached as high as 73% and 82%, respectively. Access to sterile needles is linked to the programme interventions, as needle distribution occurs within donor-funded implementation, which was previously reported to be limited to key metropolitan areas of South Africa.<sup>24</sup> Nevertheless, needle sharing remains common (45%).

Although not directly asked in the survey, the data on drug overdose in the past six months show that it is a frequently occurring event, since 22% of all PWID said they knew

more than six people who had experienced drug overdose during this period. The data indicate that interventions are also needed in this area, and highlight the need for further research, using direct questions to estimate the frequency of drug overdose and assess how PWID manage overdose.

### Alcohol abuse

Overall, a tenth (9.9%) of all PWID were alcohol dependent, but this ranged from as low as 2.3% in Bojanala to 50% in Chris Hani (Table 20). In both Sedibeng and the West Rand districts, alcohol abuse was less prevalent among PWID recruited from programme sites than from outreach venues.

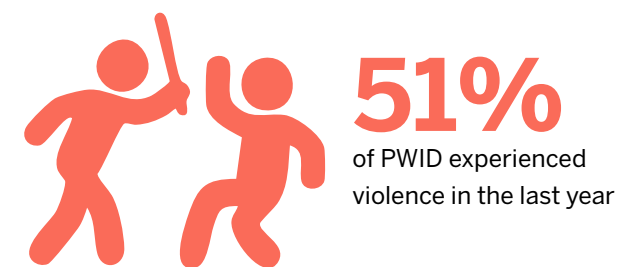


Unlike previous BBS, this BBS-Lite measured alcohol abuse among all KPs. One in 10 PWID are dependent on alcohol, highlighting the need for alcohol programmes, especially in the districts with higher levels of abuse. Alcohol abuse is a risk factor for both HIV infection and HIV treatment default.<sup>14,15</sup>

### Experience of violence

Of the 1,667 PWID surveyed, 50.7% reported that they experienced violence in the 12 months preceding the survey. The proportion of PWID reporting violence was highest in iLembe (80.8%) and lowest in Bojanala (39.0%). There were greater proportions of the PWID who experienced

violence among those surveyed at outreach venues in Sedibeng and the West Rand than among those surveyed at programme sites in the two districts. The incidence of IPV was much lower, at 15.0% across all districts, ranging from 3.8% in Bojanala to 23.9% in iLembe. In Sedibeng, the incidence of IPV was higher at programme sites (22.1%) than at outreach venues (15.2%). In Sedibeng, it was reversed: 10.7% at programme sites and to 16.7% at outreach venues.



High levels of general violence against PWID were documented in the survey more than 50% overall and as high as 81% in iLembe. Further studies and human rights violation data collected by NACOSA can help unpack the types and sources of these acts of violence experienced by PWID, but the high levels of homelessness and mobility may be partially responsible. Intimate partner violence among PWID was lower than general violence but still higher than the 10% national and international targets. The lower IPV reflects the low percentage of females in this population. Generally, women experience gender-based violence more than men,<sup>23</sup> compounding the risk of infection for both parties.

### Experience of stigma

Twenty-three percent of PWID reported that they had avoided seeking healthcare in the past six months because of stigma. There were notable differences between districts.

In iLembe, 32.9% of PWID avoided seeking healthcare due to stigma, the highest of all districts, followed by 30.7% in the West Rand. Bojanala had the lowest percentage of PWID who reported avoidance of healthcare due to stigma (17.9%). This outcome was more common among PWID surveyed at outreach venues than at programme sites. Stigma is high in this population, but perhaps not as high as many would imagine. One in five PWID avoided seeking healthcare because of stigma, which is higher than the target of 10% in the current NSP.<sup>3</sup>

## Imprisonment

A third of PWID (32.8%) reported that they had been in jail/prison in the six months before the survey. The frequency of imprisonment varied notably between districts, ranging from 18.4% in Sedibeng to 56.3% in iLembe. In the two districts with programmes, PWID recruited at outreach locations were more likely to have experienced imprisonment in the last six months than those from programme sites. These data provide a rationale for starting opioid agonist therapy (OAT) advocacy in prison settings.

## Homelessness

Across all the districts, 37.6% of PWID were homeless at the time of the survey, ranging from 22.4% in Bojanala to 64.8% in iLembe. In Capricorn and the West Rand, homelessness was more prevalent among PWID surveyed at outreach venues than among those at programme sites, while the reverse was the case in Sedibeng.

## Food insecurity

More than seven in every 10 PWID (71.6%) reported sleeping hungry due to lack of food in the 30 days preceding the survey. There were observable differences between districts, with iLembe (81.2%) having the highest and Chris Hani (66.7%) having the lowest proportion. In the three districts with IPs, sleeping hungry due to a lack of food was more prevalent among PWID surveyed at outreach venues than among those from programme sites; the difference was most pronounced in the West Rand. Notably, there is a very high level of food insecurity, which is a risk factor for HIV infection and a structural barrier to HIV care.<sup>25</sup> The high percentage of homelessness and food insecurity among PWID calls for an intervention programme that goes beyond just providing HIV prevention services, such as adding food provision to the existing services offered.



Table 20: Risk Behaviours and vulnerabilities among people who inject drugs in six districts, BBS-Lite 2025

| Characteristic                                          | Bojanala | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Overall (%) |
|---------------------------------------------------------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|-------------|
|                                                         | OUT (%)  | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) |             |
| <b>Number of participants</b>                           | 392      | 78        | 179     | 257      | 303      | 105     | 408      | 140       | 251     | 391      | 6          | 213     | 1667        |
| <b>Sexual activity (had sex in the past six months)</b> |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                     | 62.8     | 67.9      | 65.9    | 66.5     | 63.4     | 72.4    | 65.7     | 74.3      | 73.3    | 73.7     | 100.0      | 59.2    | 66.3        |
| <b>Multiple sexual partnerships (past four weeks)</b>   |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                     | 17.6     | 21.8      | 17.3    | 18.7     | 22.1     | 30.5    | 24.3     | 35.7      | 39.4    | 38.1     | 50.0       | 19.7    | 24.6        |
| <b>Exchanged money</b>                                  |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                     | 2.6      | 1.3       | 3.4     | 2.7      | 5.6      | 7.6     | 6.1      | 5.0       | 11.2    | 9.0      | 33.3       | 17.4    | 7.0         |
| <b>Had anal sex in the past 6 months</b>                |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                     | 5.1      | 1.4       | 0.0     | 0.4      | 1.0      | 0.0     | 0.8      | 6.8       | 1.8     | 3.6      | 0.0        | 1.1     | 2.5         |
| <b>Condom use during last sexual intercourse</b>        |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                     | 49.2     | 48.6      | 47.0    | 47.5     | 46.9     | 54.3    | 48.8     | 60.0      | 55.4    | 57.0     | 33.3       | 56.8    | 51.6        |
| <b>Frequency of condom use in the last 6 months</b>     |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Every time                                              | 36.1     | 33.3      | 30.9    | 31.7     | 47.9     | 53.3    | 49.4     | 27.6      | 21.5    | 23.8     | 25.0       | 3.1     | 28.6        |
| Most times                                              | 27.9     | 19.0      | 12.4    | 14.4     | 24.8     | 24.4    | 24.7     | 24.8      | 27.1    | 26.2     | 25.0       | 24.5    | 24.3        |
| Less frequent                                           | 36.1     | 47.6      | 56.7    | 54.0     | 27.3     | 22.2    | 25.9     | 47.6      | 51.4    | 50.0     | 50.0       | 72.3    | 47.1        |
| <b>Used a sterile needle last time injected</b>         |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                     | 46.9     | 48.7      | 34.1    | 38.5     | 80.5     | 85.7    | 81.9     | 80.7      | 67.7    | 72.4     | 100.0      | 40.8    | 59.6        |
| <b>Shared a sterile needle last time injected</b>       |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                     | 54.6     | 50.0      | 46.4    | 47.5     | 24.8     | 35.2    | 27.5     | 35.0      | 44.2    | 40.9     | 50.0       | 72.8    | 46.0        |
| <b>Number of times injected yesterday</b>               |          |           |         |          |          |         |          |           |         |          |            |         |             |
| None                                                    | 0.0      | 15.4      | 0.6     | 5.1      | 0.3      | 1.0     | 0.5      | 4.3       | 2.0     | 2.8      | 16.7       | 18.8    | 4.0         |
| 1-3 times                                               | 39.0     | 33.3      | 45.3    | 41.6     | 54.8     | 53.3    | 54.4     | 40.3      | 44.8    | 43.2     | 66.7       | 49.3    | 45.6        |
| 4-6 times                                               | 43.6     | 33.3      | 39.1    | 37.4     | 39.6     | 41.9    | 40.2     | 40.3      | 44.8    | 43.2     | 16.7       | 29.1    | 39.8        |
| > 6 times                                               | 17.3     | 17.9      | 15.1    | 16.0     | 5.3      | 3.8     | 4.9      | 15.1      | 8.4     | 10.8     | 0.0        | 2.8     | 10.6        |



| Characteristic                                               | Bojanala | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Overall (%) |
|--------------------------------------------------------------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|-------------|
|                                                              | OUT (%)  | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) |             |
| Number of PWID who had a drug overdose in the past 6 months? |          |           |         |          |          |         |          |           |         |          |            |         |             |
| None                                                         | 18.1     | 5.1       | 10.1    | 8.6      | 11.2     | 11.4    | 11.3     | 15.1      | 13.2    | 13.9     | 33.3       | 20.7    | 14.4        |
| 1 to 3 people                                                | 40.6     | 23.1      | 29.6    | 27.6     | 39.6     | 38.1    | 39.2     | 38.1      | 34.4    | 35.7     | 16.7       | 46.9    | 37.8        |
| 4 to 6 people                                                | 24.5     | 41.0      | 27.4    | 31.5     | 21.8     | 33.3    | 24.8     | 26.6      | 28.0    | 27.5     | 33.3       | 17.8    | 25.5        |
| > 6 people                                                   | 16.8     | 30.8      | 33.0    | 32.3     | 27.4     | 17.1    | 24.8     | 20.1      | 24.4    | 22.9     | 16.7       | 14.6    | 22.3        |
| Alcohol dependence (CAGE)                                    |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                          | 2.3      | 12.2      | 9.8     | 10.5     | 8.9      | 12.4    | 9.8      | 9.3       | 19.1    | 15.6     | 50.0       | 11.7    | 9.9         |
| Experienced violence in the past 12 months                   |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                          | 39.0     | 60.8      | 51.9    | 54.5     | 46.9     | 49.5    | 47.5     | 42.1      | 50.6    | 47.6     | 16.7       | 80.8    | 50.7        |
| Experienced IPV in the past 12 months                        |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                          | 3.8      | 17.6      | 16.9    | 17.1     | 22.1     | 15.2    | 20.3     | 10.7      | 16.7    | 14.6     | 0.0        | 23.9    | 15.0        |
| Avoided seeking healthcare because of stigma                 |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                          | 17.9     | 8.1       | 23.5    | 19.1     | 17.2     | 22.9    | 18.6     | 29.3      | 30.7    | 30.2     | 0.0        | 32.9    | 23.0        |
| Been in jail/prison in the past 6 months                     |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                          | 38.5     | 27.0      | 35.5    | 33.1     | 16.8     | 22.9    | 18.4     | 27.1      | 30.3    | 29.2     | 16.7       | 56.3    | 32.8        |
| Currently homeless                                           |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                          | 22.4     | 32.4      | 34.4    | 33.9     | 41.9     | 21.0    | 36.5     | 37.1      | 43.4    | 41.2     | 50.0       | 64.8    | 37.6        |
| Slept hungry because of lack of food in the past 30 days     |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                          | 74.2     | 66.2      | 71.6    | 70.0     | 68.0     | 71.4    | 68.9     | 57.9      | 72.9    | 67.5     | 66.7       | 81.2    | 71.6        |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts

## Programme coverage

### Intervention services coverage

Across all districts, slightly less than half (45.5%) of PWID reported having received any HIV prevention/treatment services in the past 12 months, ranging from 0% in Chris Hani and 4.6% in Bojanala to 86.5% in Sedibeng (Table 21). Expectedly, the highest percentages were among PWID recruited at IP sites.

Less than half of all PWID interviewed had received HIV prevention or treatment services (from public, private or NGO services) in the past year. First, this explains the poor health outcomes reported among PWID. As stated, the reduced HIV prevalence in older age groups probably reflects HIV-related deaths in the absence of ART. Second, it highlights the need for improved targeting and coverage of HIV prevention and treatment programmes among PWID, while bearing in mind their socioeconomic context, including the high levels of homelessness and migration. In times of shrinking donor funds for community HIV prevention programmes, innovative programming and

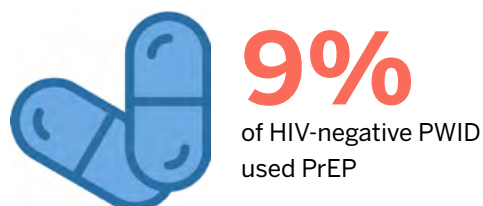


**46%**  
of PWID reported  
having received any HIV  
prevention/treatment  
services in the last 12  
months

funding mechanisms are pivotal. The survey provided further evidence to support stronger advocacy for policy development in this population, and the changing financial landscape underscores the need for the country to shift towards greater domestic investment.

### PrEP uptake and use

At the time of the survey, only 8.6% of all PWID who reported being HIV-negative were on PrEP. Notably, PrEP uptake was lowest in Chris Hani (0%) and Bojanala (1.7%) and highest in the West Rand (24.7%) and Sedibeng (20.7%). Of the PWID on PrEP, most (44.9%) had been using it for more than a year.



PrEP use in this population is very low, with four districts showing no to negligible use of PrEP. Low PrEP uptake among PWID was also reported in the 2023 BBS: from 4.1% in Tshwane to 7.1% in eThekweni.<sup>21</sup> The low use of PrEP among PWID despite the high levels of high-risk sexual encounters calls for urgent intervention if the documented high burden of HIV in the population is to be reversed. The 2023 BBS showed the willingness of PWID to take up PrEP if and when provided. This is evidenced in the high proportions of PWID using PrEP in Sedibeng and the West Rand, which are two districts with PWID programmes. Cross-tabulating PrEP and condom use data side-by-side did not reveal any evidence of disinhibition observed among PWID.

## Opioid substitution therapy (OST)

Opioid Substitution Therapy (OST), more recently called Opioid Agonist Therapy (OAT), is an essential evidence-based treatment for opioid dependence, using medications like methadone or buprenorphine to reduce harm and promote recovery. This BBS-Lite survey sought data on the coverage of OST (methadone). Less than one in 10 (7.9%) of all PWID reported having received OST in the past six months. Virtually all PWID who reported receiving OST were from Sedibeng and the West Rand districts.



Table 21: Coverage of HIV prevention and treatment services among people who inject drugs in six districts, BBS-Lite 2025

| Characteristic                                                              | Bojanala | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Overall (%) |
|-----------------------------------------------------------------------------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|-------------|
|                                                                             | OUT (%)  | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) |             |
| <b>Number of participants</b>                                               | 392      | 78        | 179     | 257      | 303      | 105     | 408      | 140       | 251     | 391      | 6          | 213     | 1667        |
| <b>Received any HIV prevention/treatment services in the past 12 months</b> |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                                         | 4.6      | 35.9      | 33.0    | 33.9     | 88.1     | 81.9    | 86.5     | 77.9      | 53.0    | 61.9     | 0.0        | 27.2    | 45.5        |
| <b>Currently on PrEP</b>                                                    |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                                         | 1.7      | 3.0       | 0.7     | 1.4      | 23.9     | 12.8    | 20.5     | 18.2      | 28.0    | 24.7     | 0.0        | 0.0     | 8.6         |
| <b>If currently on PrEP, duration on PrEP</b>                               |          |           |         |          |          |         |          |           |         |          |            |         |             |
| <6 months                                                                   | 60.0     | 0.0       | .       | 0.0      | 23.8     | 40.0    | 26.9     | 50.0      | 11.9    | 21.4     | -          | -       | 24.7        |
| 6–12 months                                                                 | 0.0      | 0.0       | .       | 0.0      | 33.3     | 20.0    | 30.8     | 28.6      | 35.7    | 33.9     | -          | -       | 30.3        |
| >1 year                                                                     | 40.0     | 100.0     | .       | 100.0    | 42.9     | 40.0    | 42.3     | 21.4      | 52.4    | 44.6     | -          | -       | 44.9        |
| <b>Received opioid substitution therapy (OST) in the past six months</b>    |          |           |         |          |          |         |          |           |         |          |            |         |             |
| Yes                                                                         | 0.0      | 1.3       | 0.0     | 0.4      | 17.2     | 23.8    | 18.9     | 17.9      | 11.2    | 13.6     | 0.0        | 0.0     | 7.9         |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts

## Impact of Global Fund Programmes

This BBS-Lite survey provides insights into the reach and potential impact of Global Fund programmes in the two districts with IPs. Although not intended to be a comprehensive impact evaluation, two types of analyses were conducted: between-district comparisons and within-district comparisons. It is noteworthy that these comparisons are only proxies for programme performance. To comprehensively evaluate the programmes, quasi-experimental designs with detailed and specific exposure measurements are needed to control potential bias and confounding. Nevertheless, much of the observed differences may be due to programme services. Significantly, more PWID recruited at programme sites than those recruited at outreach locations reported that they had received HIV prevention and harm reduction services in the past 12 months.

### Between-district comparisons

The BBS-Lite was implemented among PWID in two districts with programmes (Sedibeng and the West Rand) and in four districts without Global Fund PWID programmes (Bojanala, Capricorn, Chris Hani, and iLembe). Almost all the outcomes in this study were poorer in the districts without Global Fund programmes. PWID in Bojanala had the highest prevalence of symptomatic TB and anal sex, and the second lowest level of intervention coverage. Chris Hani had the highest level of alcohol dependence and the lowest level of programme coverage. iLembe showed the highest levels of homelessness, food insecurity, violence and imprisonment.

### Within-district comparisons

The analyses showed that PWID recruited at programme sites were better off than those recruited at outreach locations in terms of many of the studied outcomes. Specifically, programme site participants were more likely to be reached by HIV prevention and treatment programmes and were more likely to use PrEP than those recruited at outreach locations. They were also more likely to have received OST. Furthermore, outreach location participants were also more likely to have experienced food insecurity, shared needles and avoided seeking healthcare due to stigma. Also, levels of alcohol dependence and multiple sexual partnerships were higher in outreach locations than in programme sites. The higher prevalence of HIV and hepatitis seen in programme sites than in outreach locations may reflect PWID seeking treatment and care in those programmes.

While the above comparisons only serve as proxies for programme performance, the stark differences point to the urgent need for efficient and effective programmes for PWID in more districts. The fact that the majority of PWID had never used social media means that interventions should possibly be implanted using traditional media.





# BBS Results: Men Who Have Sex with Men



In this section, data on the following are presented: sociodemographic characteristics, HIV prevalence, HIV treatment cascade, symptomatic TB, risk behaviours and social and structural vulnerabilities, including condom use, multiple sexual partnerships, practice of anal sex, alcohol abuse, experience of violence and stigma among men who have sex with men (MSM).

## Sociodemographic characteristics

The BBS-Lite among MSM was completed in all seven districts: two districts with Global Fund MSM programmes (Bojanala and Capricorn), two districts with other KP programmes (Sedibeng and the West Rand), and three with no programmes (Chris Hani, iLembe and Xhariep). Although the analyses show that some MSM were recruited at programme sites in Sedibeng and the West Rand, those programmes are for other KPs and not MSM. Table 22 shows the basic characteristics of the MSM recruited into the study by district. A total of 1,651 MSM participated in the survey, with the majority (89%) recruited from outreach locations.

Across districts, Sedibeng accounted for the most MSM recruited ( $n = 371$ , 22%), while iLembe accounted for the least ( $n = 141$ , 9%). A third (31%) of MSM were aged 18 to 24 years, with those recruited from Chris Hani district being the youngest (46 % were aged 18 to 24 years). Excluding Capricorn district, MSM recruited at programme sites appeared to be younger than those recruited from outreach locations (Table 22).

As shown in Table 22, the majority of MSM (90.9%) had never been married, and 70% had completed secondary education. The percentage of individuals with secondary education was lowest in Xhariep (55.1%) and highest in Capricorn (75.3%). Almost half (46.5%) had spent a night outside their district of residence in the past month. The majority (78.4%) of MSM used social media daily, with the highest percentages in the West Rand (83.4%) and Sedibeng (81.9%), and the lowest in Xhariep (59.5%).

Table 22: Sociodemographic characteristics of men who have sex with men in seven districts, BBS-Lite 2025

| Characteristic                                                                  | Bojanala |         |          | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Xhariep | Overall (%) |
|---------------------------------------------------------------------------------|----------|---------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|---------|-------------|
|                                                                                 | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) | OUT (%) |             |
| <b>N (number of KPs)</b>                                                        | 39       | 170     | 209      | 116       | 70      | 186      | 13       | 358     | 371      | 8         | 324     | 332      | 254        | 141     | 158     | 1651        |
| <b>Site of interview</b>                                                        |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Service delivery site                                                           | 100.0    |         | 18.7     | 100.0     |         | 62.4     | 100.0    |         | 3.5      | 100.0     |         | 2.4      |            |         |         | 10.7        |
| Outreach venues                                                                 |          | 100.0   | 81.3     |           | 100.0   | 37.6     |          | 100.0   | 96.5     |           | 100.0   | 97.6     | 100.0      | 100.0   | 100.0   | 89.3        |
| <b>Age group</b>                                                                |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| 16-24 yrs                                                                       | 30.8     | 35.3    | 34.4     | 39.7      | 38.6    | 39.2     | 23.1     | 22.9    | 22.9     | 0.0       | 31.5    | 30.7     | 45.7       | 14.9    | 24.7    | 30.8        |
| 25-34 yrs                                                                       | 41.0     | 38.2    | 38.8     | 42.2      | 41.4    | 41.9     | 30.8     | 42.5    | 42.0     | 75.0      | 54.3    | 54.8     | 32.7       | 59.6    | 48.1    | 44.8        |
| 35 and above                                                                    | 28.2     | 26.5    | 26.8     | 18.1      | 20.0    | 18.8     | 46.2     | 34.6    | 35.0     | 25.0      | 14.2    | 14.5     | 21.7       | 25.5    | 27.2    | 24.4        |
| <b>Marital Status</b>                                                           |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Never married                                                                   | 94.9     | 90.0    | 90.9     | 94.0      | 94.3    | 94.1     | 92.3     | 87.2    | 87.3     | 100.0     | 86.7    | 87.0     | 96.9       | 90.8    | 94.3    | 90.9        |
| Married/living with a partner                                                   | 5.1      | 8.8     | 8.1      | 2.6       | 1.4     | 2.2      | 0.0      | 9.8     | 9.4      | 0.0       | 10.5    | 10.2     | 2.0        | 7.8     | 3.2     | 6.7         |
| Divorced/separated or widowed                                                   | 0.0      | 1.2     | 1.0      | 3.4       | 4.3     | 3.8      | 7.7      | 3.1     | 3.2      | 0.0       | 2.8     | 2.7      | 1.2        | 1.4     | 2.5     | 2.4         |
| <b>Highest educational qualification</b>                                        |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Primary or less                                                                 | 0.0      | 1.8     | 1.4      | 0.9       | 4.3     | 2.2      | 7.7      | 1.1     | 1.3      | 12.5      | 7.7     | 7.8      | 4.3        | 5.0     | 8.9     | 4.2         |
| Some secondary                                                                  | 28.2     | 28.8    | 28.7     | 20.7      | 25.7    | 22.6     | 53.8     | 25.4    | 26.4     | 25.0      | 25.0    | 25.0     | 22.0       | 24.8    | 36.1    | 26.1        |
| Completed secondary                                                             | 71.8     | 69.4    | 69.9     | 78.4      | 70.0    | 75.3     | 38.5     | 73.5    | 72.2     | 62.5      | 67.3    | 67.2     | 73.6       | 70.2    | 55.1    | 69.7        |
| <b>Mobility (spent a night outside district of residence in the past month)</b> |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                                             | 30.8     | 47.3    | 44.2     | 49.1      | 31.4    | 42.5     | 38.5     | 47.8    | 47.4     | 37.5      | 46.0    | 45.8     | 40.6       | 62.4    | 49.4    | 46.5        |
| <b>Frequency of social media use</b>                                            |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Daily                                                                           | 92.3     | 76.5    | 79.4     | 87.1      | 68.6    | 80.1     | 46.2     | 83.2    | 81.9     | 50.0      | 84.3    | 83.4     | 82.7       | 66.7    | 59.5    | 78.4        |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined district statistics when PGR and OUT are combined; Overall: statistics across all districts



# Biological markers: HIV, HIV treatment cascade and TB

## HIV prevalence among MSM

### HIV prevalence in each district

The average prevalence of HIV among MSM in the seven districts was 25%, varying from 18.5% (95% CI: 13.7–24.6) in the West Rand to 31.2% (95% CI: 22.1–42.0) in iLembe (Figure 22). HIV prevalence was significantly higher in programme sites than in outreach locations in Bojanala and Sedibeng, as indicated by the non-overlapping confidence intervals. There were no statistically significant differences in prevalence between programme sites and outreach locations in Capricorn and the West Rand.

The 25% average HIV prevalence reported in this study is similar to the 27.5% estimated by the Thembisa Model 4.8 for 2024.<sup>1</sup> Furthermore, the last reported SAMHMS conducted in 2019 reported the prevalence among MSM in Mahikeng, Johannesburg and Cape Town to be 16.7%, 26.8% and 44.3%, respectively.<sup>26</sup> The significantly higher HIV prevalence observed in programme sites than in outreach locations in Bojanala and Sedibeng could be because hotspot mapping and the selection of sites for the Global Fund programme in the district were based on HIV prevalence.

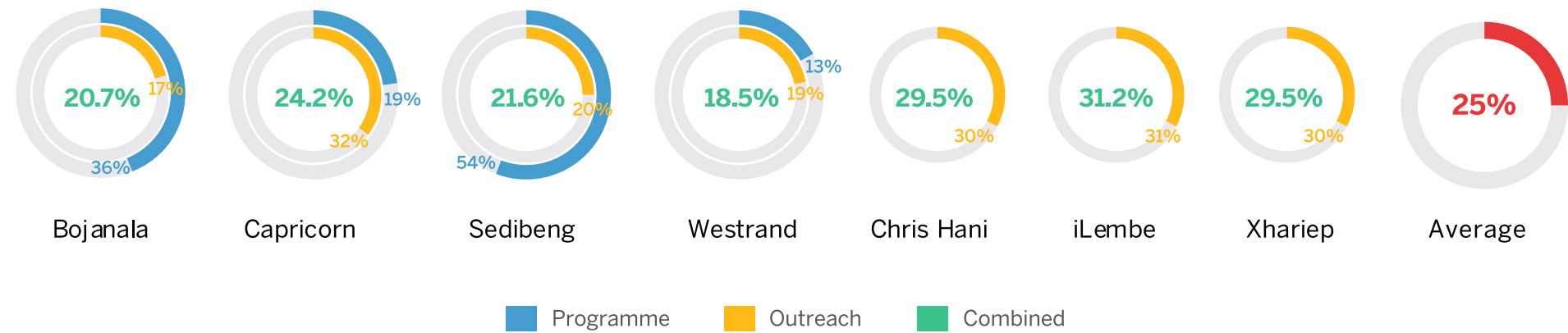


Figure 22: HIV prevalence among men who have sex with men in seven districts, BBS-Lite 2025

### HIV prevalence among MSM by age

The HIV prevalence among MSM increased consistently with age from 7.5% among MSM younger than 20 years to 47.1% among those aged 50 years and older (Figure 23). HIV prevalence in the younger age group can serve as a proxy for incidence.<sup>22</sup> This disaggregation of HIV prevalence by age shows a worryingly high prevalence in the young age groups of 18 to 19 and 20 to 24 years. By the time MSM reach their mid-20s, 20% are already infected. As seen with PWID, urgent work is needed to curb the high HIV incidence in this KP.

Also noteworthy is that the increasing HIV prevalence with age suggests reduced HIV-related mortality and increased longevity in the older age groups due to access to ART. Recent data have also highlighted high HIV incidence in older adults.<sup>11</sup>

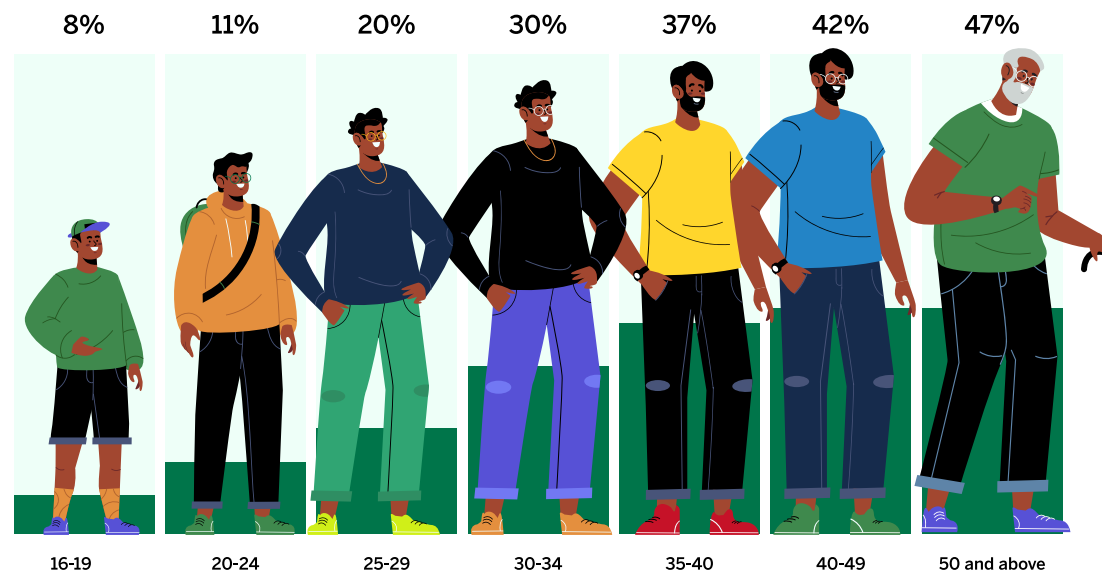


Figure 23: HIV prevalence by age among men who have sex with men in seven districts, BBS-Lite 2025

### HIV prevalence in MSM compared to district prevalence

Almost all MSM in the BBS-Lite were aged 18 to 49 years (98.3%). Figure 24 shows the comparison of the HIV prevalence among MSM in the BBS-Lite to the adult male (15 to 49 years) prevalence in the respective districts, using data from the Naomi Model.<sup>13</sup> The ratio of HIV prevalence in MSM relative to the general adult population ranged from 1.63 in Bojanala to 3.16 in Xhariep. This means that MSM were two to three times more likely to be infected with HIV than their male counterparts in the general population. This vast disparity highlights the role of MSM as a KP in the studied districts and emphasises the need for appropriate interventions. A study that examined the roles of KPs in HIV transmission in South Africa found that, from 2010 to 2019, sex between MSM contributed 5.3% to new infections, while sex between MSM and their female partners contributed 3.7% to new infections.<sup>4</sup>

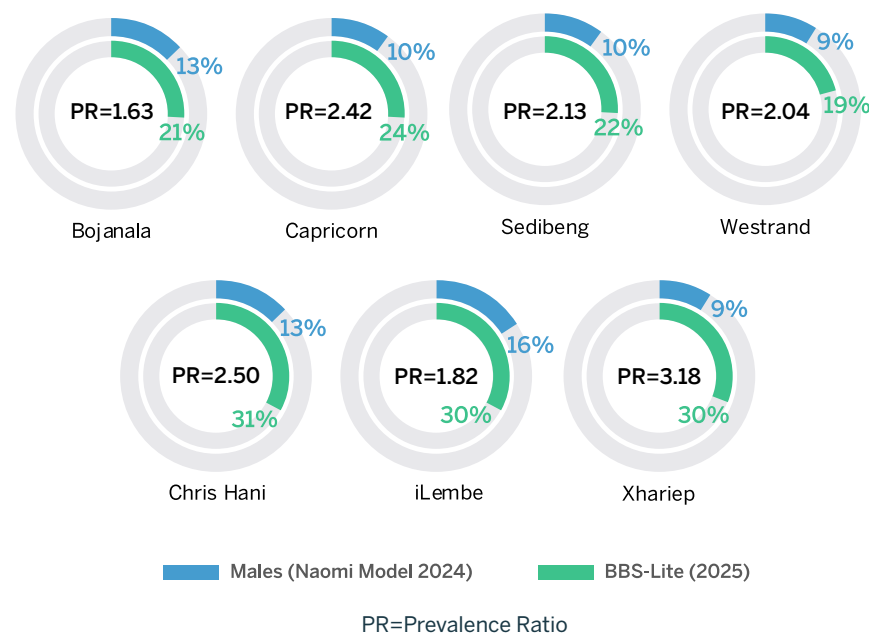


Figure 24: HIV prevalence among adult males (15-49) in each district and MSM in the study, BBS-Lite 2025

HIV treatment cascade (95-95-95 targets)

The HIV treatment achievements among MSM across all districts were 84-95-78. The percentage of MSM who knew their HIV status was 83.5%: lowest in Chris Hani (72.0%) and highest in Xhariep (95.7%). Among those who knew their status, 94.8% were on treatment, and 77.7% of those on treatment were virally suppressed (Figure 25).

Although none of the districts have achieved the UNAIDS 95-95-95 targets, they were relatively high in most districts. The SAMHMS-2 in 2019 reported 68-61-80 for Cape Town, 67-83-92 for Johannesburg, and 63-73-93 for Mahikeng, which were significant improvements from the SAMHMS-1 numbers.<sup>26</sup> This BBS-Lite showed continuous improvements towards these targets. The biggest gap is in the first 95. Apart from Xhariep, none of the districts achieved up to 90% in the percentage of PLHIV who know their HIV status. This emphasises the need for more awareness and testing campaigns among MSM. Among those on treatment, there is also a need for treatment support to achieve viral suppression.

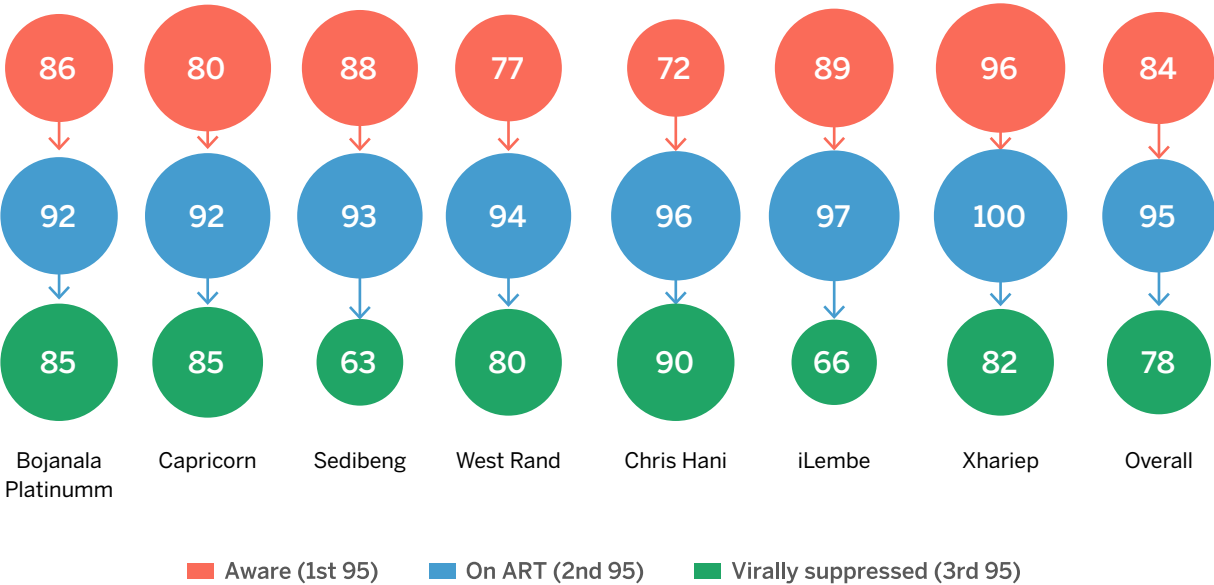
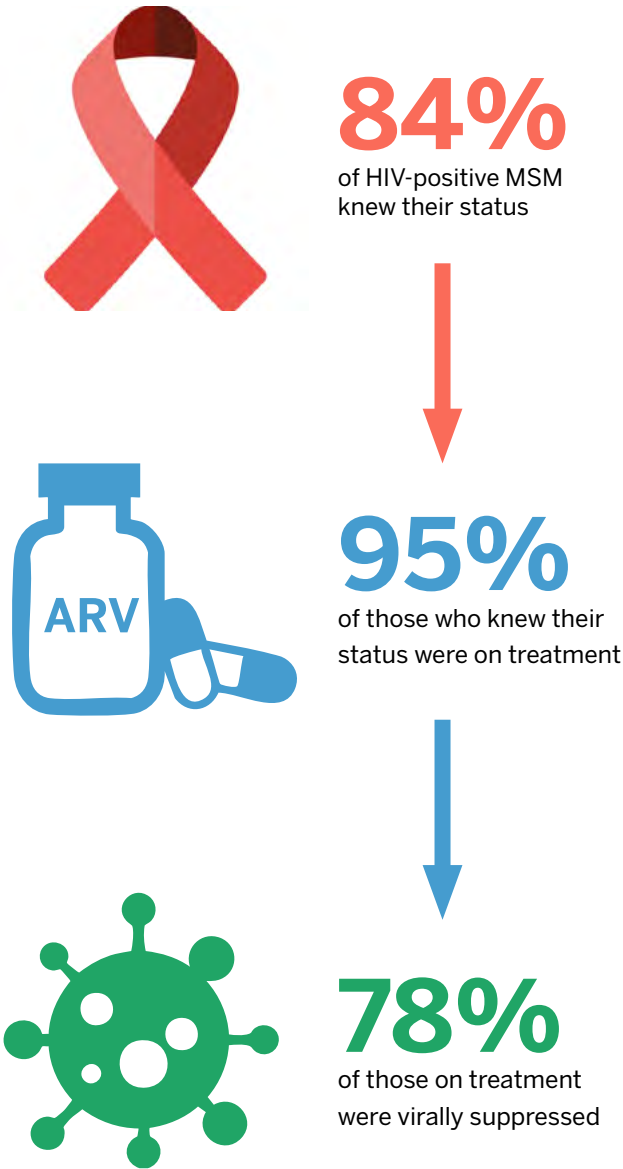


Figure 25: HIV treatment targets (95-95-95) among men who have sex with men in seven districts, BBS-Lite 2025

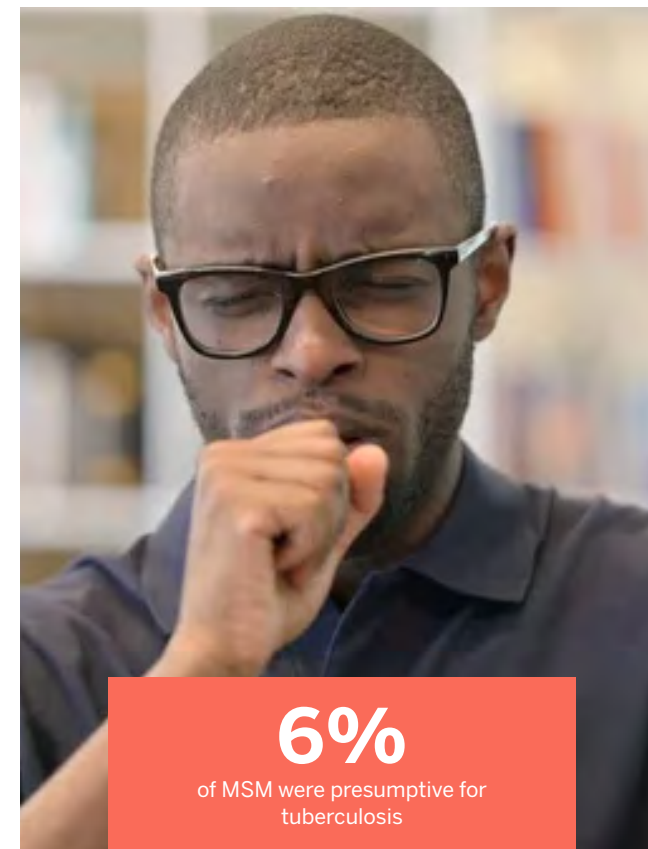


## Symptomatic TB

Sweating at night was the most common TB symptom among MSM (3.3%), while coughing was the least common (1.5%). Overall, 93 MSM (5.6%) were presumptive for TB (Table 23). The HIV prevalence was slightly elevated among symptomatic TB participants (28%).

Table 23: Symptomatic TB among men who have sex with men in seven districts, BBS-Lite 2025

|                                               | Bojanala      | Capricorn    | Sedibeng     | West Rand    | Chris Hani   | iLembe       | Xhariep       | Overall       |
|-----------------------------------------------|---------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|
| N (number of KPs)                             | 209           | 186          | 371          | 332          | 254          | 141          | 158           | 1651          |
| Coughing                                      | 0.5%          | 1.1%         | 0.3%         | 1.5%         | 2.0%         | 0.7%         | 5.7%          | 1.5%          |
| Fever in the past two weeks                   | 6.2%          | 0.5%         | 0.0%         | 3.0%         | 0.8%         | 0.0%         | 7.6%          | 2.3%          |
| Weight loss in the past month                 | 6.7%          | 1.6%         | 0.8%         | 2.4%         | 1.6%         | 0.7%         | 4.4%          | 2.4%          |
| Night sweats                                  | 8.6%          | 1.6%         | 1.3%         | 4.2%         | 1.6%         | 1.4%         | 5.7%          | 3.3%          |
| Presumptive TB (any TB symptom)               | 28<br>(13.4%) | 6<br>(3.2%)  | 9<br>(2.4%)  | 23<br>(6.9%) | 7<br>(2.8%)  | 3<br>(2.1%)  | 17<br>(10.8%) | 93<br>(5.6%)  |
| Of those with any symptoms, number and % HIV+ | 4<br>(14.3%)  | 2<br>(33.3%) | 1<br>(11.1%) | 9<br>(39.1%) | 2<br>(28.6%) | 1<br>(33.3%) | 7<br>(41.2%)  | 26<br>(28.0%) |



**6%**

of MSM were presumptive for tuberculosis

## Risk behaviours and vulnerabilities

### Multiple sexual partnerships and transactional sex

This BBS-Lite showed high levels of sexual risk behaviours and vulnerability among MSM. A scripting bug in the electronic tool resulted in an incorrect skip pattern, which omitted MSM from providing this data. The data was eventually collected for only 33 MSM. Of those 33, the evidence points towards a common practice of multiple sexual partnerships: one in three MSM (33.3%) had had more than two sexual partners in the past four weeks alone. Transactional sex in the past six months among MSM was 24.6%.

### Condom use

Condom use at any last sexual intercourse was low. Overall, 59.8% of MSM reported using condoms during their last sexual intercourse, ranging from 49.2% in Chris Hani to 73.0% in Sedibeng (Table 24). The results were not consistent across data collection sites. Except in the West Rand district, condom use was higher in outreach locations than in programme sites.

The levels of condom use reported in this survey are lower than those reported in the 2019 SAMHMS, which ranged from 72.1% to 76.2%.<sup>26</sup> While these BBS-lite data suggest a decline in condom use among MSM, it is impossible to be conclusive without having previous data in the same districts. Nevertheless, the BBS-Lite data serve as baseline data and emphasise the need for interventions to curtail HIV sexual risk behaviours. The analysis of condom use and PrEP use data did not reveal any evidence of PrEP disinhibition, i.e. risk compensation due to PrEP use.



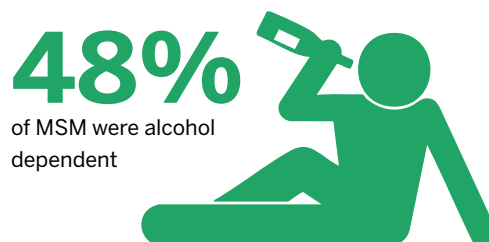
# 60%

of MSM reported using condoms during their last sexual intercourse

### Alcohol abuse

The prevalence of alcohol dependence among MSM was 48.4%. There were notable differences between districts, ranging from 14.8% in Bojanala to 73.2% in Chris Hani. By site of data collection, alcoholism was mostly higher in outreach locations.

This BBS-Lite data provide evidence of very high levels of alcohol dependence among MSM; as many as one in two MSM is alcohol dependent. Previous studies corroborate this finding. A study published in 2017 showed that more than half of the Black MSM in a survey conducted in Tshwane screened positive as hazardous drinkers.<sup>27</sup> The 2019 SAMHMS reported hazardous drinking among MSM, as defined by the Audit-C tool, to range from 63.% in Cape Town to 89.7% in Johannesburg.<sup>26</sup> Alcohol abuse is a risk factor for HIV acquisition and HIV treatment default. It triggers disinhibition, a reduced perception of one's risk for acquiring HIV, leading to sexual risk behaviours. The high levels of alcohol dependence in virtually all districts call for appropriate interventions if the HIV epidemic in MSM is to be controlled.



# 48%

of MSM were alcohol dependent

### Experience of violence

Experience of violence in the 12 months before the survey was reported by 30.8% of MSM. It was highest in the West Rand (40.4%) and iLembe (36.9%), and lowest in Chris Hani (16.1%). In the two districts with MSM programmes - Bojanala and Capricorn - the experience of violence was more prevalent among MSM surveyed at outreach venues than at programme sites (Table 24). The incidence of IPV was 21.6% across all districts, ranging from 12.6% in Chris Hani to 30.5% in Sedibeng. There was a similar pattern by site of data collection, with IPV higher in outreach locations than programme sites. In Bojanala, IPV was reported by 7.7% of MSM surveyed at programme sites and by 17.6% at outreach venues. The respective incidences in Capricorn were 9.5% at programme sites and 18.6% at outreach venues.



# 31%

of MSM experienced violence in the last year

Further research to identify the forms and nature of this violence can inform the design of appropriate interventions. Intimate partner violence is equally high at 22%, much higher than the local and international 10% target. A meta-analysis of 52 studies with 32,048 MSM participants showed a pooled prevalence of any violence of 33%, with the pooled prevalence of emotional violence significantly greater than that of physical and sexual violence.<sup>28</sup> Generally, community awareness programmes that reduce hostility against MSM are needed. Programme services that address gender-based violence may prove valuable.

## Experience of stigma

The percentage of MSM who reported that they had avoided seeking healthcare due to stigma was 14.8%, ranging from 5.7% in Bojanala to 26.2% in the West Rand. In the districts with programmes, avoidance of seeking healthcare due to stigma was more common among MSM surveyed at outreach venues in three districts - Bojanala, Sedibeng, and the West Rand – than among those surveyed at programme sites.

It is desirable that across all seven districts, the avoidance of healthcare due to stigma was low, at 15%, and commendable that two districts (Bojanala, Chris Hani and Sedibeng) were at or below the 10% target in the current NSP. Other districts can work towards achieving the same target.

## Imprisonment

The proportion of MSM who had been in jail/prison in the six months before the survey was 9.6%. The imprisonment rate was highest in iLembe (25.5%) and lowest in Chris Hani (4.3%). In the two districts with MSM programmes, imprisonment was more common among MSM surveyed at outreach venues than at programme sites.

## Homelessness

Homelessness among MSM was 8.2% across all districts, lowest in Bojanala (1.4%) and highest in iLembe (17.0%). The rate of homelessness was higher among MSM surveyed at outreach venues than at programme sites in Bojanala and Capricorn. The fact that vulnerabilities like homelessness and sleeping in jail were uncommon (less than 10% for both) suggests that MSM have better socioeconomic status than PWID and FSWs.

## Sleeping hungry because of a lack of food

More than a quarter of MSM (27.8%) reported sleeping hungry due to lack of food in the 30 days preceding the survey. The prevalence of food insecurity was highest among MSM surveyed in Xhariep (41.8%) and lowest among those in Chris Hani (23.2%).



Table 24: Risk Behaviours and vulnerabilities among men who have sex with men in seven districts, BBS-Lite 2025

| Characteristic                                                        | Bojanala |         |          | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Xhariep | Overall |
|-----------------------------------------------------------------------|----------|---------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|---------|---------|
|                                                                       | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) | OUT (%) |         |
| <b>N (Number of KPs)</b>                                              | 39       | 170     | 209      | 116       | 70      | 186      | 13       | 358     | 371      | 8         | 324     | 332      | 254        | 141     | 158     | 1651    |
| <b>Condom use during last sexual intercourse</b>                      |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| Yes                                                                   | 56.4     | 58.2    | 57.9     | 51.7      | 62.9    | 55.9     | 53.8     | 73.7    | 73.0     | 75.0      | 60.2    | 60.5     | 49.2       | 61.7    | 50.0    | 59.8    |
| <b>Multiple sexual partners (past 4 weeks)</b>                        |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| 2 or more partners                                                    | .        | .       | .        | 100.0     | 50.0    | 60.0     | .        | 42.9    | 42.9     | .         | 0.0     | 0.0      | 16.7       | 0.0     | 50.0    | 33.3    |
| Received gifts or favours or cash in exchange for sex (past 6 months) | 22.7     | 41.8    | 38.1     | 8.8       | 17.4    | 12.3     | 46.9     | 43.7    | 60.0     | 24.2      | 25.6    | 40.0     | 27.3       | 27.6    | 23.2    | 30.3    |
| Yes                                                                   | 7.7      | 1.8     | 2.9      | 24.1      | 25.7    | 24.7     | 30.8     | 16.5    | 17.0     | 12.5      | 31.8    | 31.3     | 27.6       | 41.8    | 36.7    | 24.6    |
| <b>Alcohol dependence (CAGE)</b>                                      |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| Yes                                                                   | 20.5     | 13.5    | 14.8     | 26.7      | 34.3    | 29.6     | 38.5     | 55.6    | 55.0     | 50.0      | 46.9    | 47.0     | 73.2       | 40.4    | 69.6    | 48.4    |
| <b>Experienced violence in past 12 months</b>                         |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| Yes                                                                   | 10.3     | 29.4    | 25.8     | 23.3      | 35.7    | 28.0     | 53.8     | 34.6    | 35.3     | 75.0      | 39.5    | 40.4     | 16.1       | 36.9    | 27.8    | 30.8    |
| <b>Experienced IPV in past 12 months</b>                              |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| Yes                                                                   | 7.7      | 17.6    | 15.8     | 9.5       | 18.6    | 12.9     | 46.2     | 29.9    | 30.5     | 25.0      | 25.3    | 25.3     | 12.6       | 25.5    | 21.5    | 21.6    |
| <b>Avoided seeking healthcare because of stigma</b>                   |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| Yes                                                                   | 12.8     | 4.1     | 5.7      | 12.1      | 17.1    | 14.0     | 15.4     | 10.3    | 10.5     | 25.0      | 26.2    | 26.2     | 10.2       | 19.9    | 16.5    | 14.8    |
| <b>Been in jail/prison within past 6 months</b>                       |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| Yes                                                                   | 0.0      | 8.8     | 7.2      | 4.3       | 15.7    | 8.6      | 23.1     | 4.7     | 5.4      | 0.0       | 9.0     | 8.7      | 4.3        | 25.5    | 19.6    | 9.6     |
| <b>Currently homeless</b>                                             |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| Yes                                                                   | 0.0      | 1.8     | 1.4      | 6.0       | 8.6     | 7.0      | 15.4     | 7.0     | 7.3      | 12.5      | 4.0     | 4.2      | 13.4       | 17.0    | 12.7    | 8.2     |
| <b>Slept hungry because of lack of food in past 30 days</b>           |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| Yes                                                                   | 15.4     | 26.5    | 24.4     | 24.1      | 28.6    | 25.8     | 53.8     | 28.5    | 29.4     | 37.5      | 24.4    | 24.7     | 23.2       | 31.2    | 41.8    | 27.8    |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts

## Programme coverage

### Intervention services coverage

Across all districts, slightly less than half (46.3%) of MSM reported having received HIV prevention and treatment services from anywhere in the past 12 months, ranging from 7.5% in Chris Hani to 74.9% in Sedibeng (Table 25). In all four programme districts, there were minimal differences between MSM recruited at programme sites and those recruited at outreach locations.



**49%**  
of MSM reported  
having received any HIV  
prevention/treatment  
services in the last 12  
months

### PrEP uptake and use

At the time of the survey, about a quarter (23.0%) of all MSM who reported being HIV-negative were on PrEP. Notably, PrEP uptake was lowest in Xhariep (11.5%) and highest in the West Rand (44.0%). Of the MSM on PrEP, most (55.6%) had been using it for more than a year.



**23%**  
of HIV-negative MSM used PrEP

As was the case with PWID, less than half of all MSM interviewed had received HIV prevention or treatment services from anywhere (public, private or NGO services) in the past year. The percentage of MSM who were on PrEP at the time of the survey varied widely between districts. The same wide variation was observed in the 2019 SAMHM, which reported ever-PrEP use of 1% in Mahikeng and 21% in Cape Town.<sup>26</sup> First, the low coverage of HIV services explains the poor health outcomes reported among MSM. Second, it reflects the very few programmes targeting MSM. In the seven districts where this survey was conducted, MSM programmes were present in only two districts, as opposed to four districts for FSWs. These realities highlight the need for improved targeting and coverage of HIV prevention and treatment programmes for MSM.

Table 25: Coverage of HIV prevention and treatment services among men who have sex with men in seven districts, BBS-Lite 2025

| Characteristic                                                              | Bojanala |         |          | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Xhariep | Overall |
|-----------------------------------------------------------------------------|----------|---------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|---------|---------|
|                                                                             | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) | OUT (%) |         |
| <b>N (number of KPs)</b>                                                    | 39       | 170     | 209      | 116       | 70      | 186      | 13       | 358     | 371      | 8         | 324     | 332      | 254        | 141     | 158     | 1651    |
| <b>Received any HIV prevention/treatment services in the past 12 months</b> |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| Yes                                                                         | 10.3     | 11.8    | 11.5     | 58.6      | 58.6    | 58.6     | 69.2     | 75.1    | 74.9     | 50.0      | 54.6    | 54.5     | 7.5        | 51.1    | 51.9    | 46.3    |
| <b>Currently on PrEP</b>                                                    |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| Yes                                                                         | 4.0      | 11.7    | 10.6     | 25.5      | 20.0    | 23.6     | 37.5     | 17.6    | 18.2     | 57.1      | 43.6    | 44.0     | 15.4       | 24.0    | 11.5    | 23.0    |
| <b>If currently on PrEP, duration on PrEP</b>                               |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |         |
| <6 months                                                                   | 0.0      | 17.6    | 16.7     | 28.0      | 10.0    | 22.9     | 0.0      | 22.4    | 21.2     | 25.0      | 21.0    | 21.1     | 17.2       | 16.7    | 41.7    | 21.2    |
| 6–12 months                                                                 | 0.0      | 23.5    | 22.2     | 4.0       | 20.0    | 8.6      | 0.0      | 20.4    | 19.2     | 0.0       | 22.7    | 22.0     | 41.4       | 29.2    | 41.7    | 23.2    |
| >1 year                                                                     | 100.0    | 58.8    | 61.1     | 68.0      | 70.0    | 68.6     | 100.0    | 57.1    | 59.6     | 75.0      | 56.3    | 56.9     | 41.4       | 54.2    | 16.7    | 55.6    |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts

## Impact of Global Fund Programs

This BBS-Lite survey provides insights into the reach and potential impact of Global Fund programmes in the two districts with IPs. Although not meant to be a comprehensive impact evaluation, two types of analysis were conducted: between-district comparisons and within-district comparisons. It is noteworthy that these comparisons are only proxies for programme performance. To properly evaluate the programmes, quasi-experimental designs with detailed and specific exposure measurements are needed to control potential bias and confounding. Nevertheless, much of the observed differences may be due to programme services.

### Between-district comparisons

Although four of the seven districts in this survey had Global Fund programmes, only two of those four districts (Bojanala and Capricorn) had MSM programmes. There was no evidence that MSM in programme districts were better than non-programme districts for the studied outcome, except for alcohol dependence.

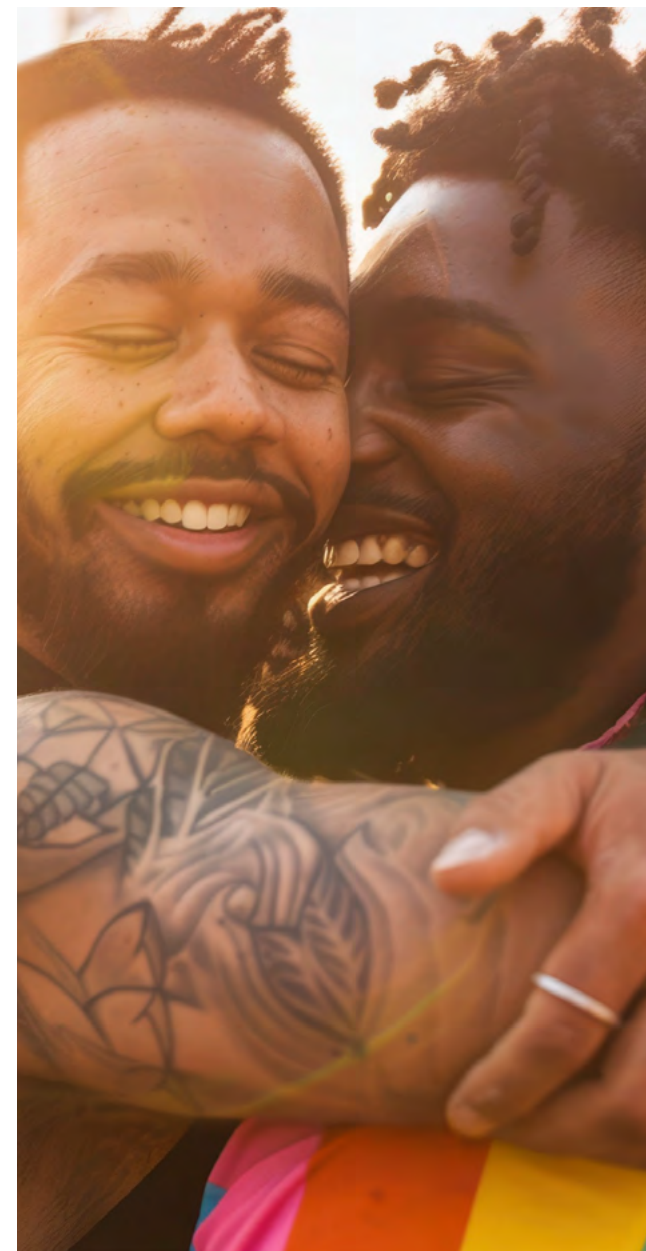
### Within-district comparisons

The comparison between MSM recruited at programme sites and those recruited from outreach locations showed that MSM recruited at programme sites were better off than

those recruited from outreach locations regarding many of the studied outcomes, especially in the two districts with MSM programmes (Bojanala and Capricorn). Although there were no meaningful differences between programme sites and outreach locations in the percentage of MSM who have received any HIV prevention or treatment services in the past year, the likelihood of PrEP use was higher among those recruited at programme sites.

Furthermore, in the two MSM programme districts, MSM recruited at programme sites were less likely to experience general violence and IPV. MSM recruited at programme sites were also better off than those recruited at outreach locations in terms of experiences of homelessness and imprisonment. Furthermore, the avoidance of healthcare due to stigma was generally higher among MSM recruited at outreach locations. Lastly, in two districts with MSM programmes, Bojanala and Capricorn, the experience of violence was more prevalent among MSM surveyed at outreach venues.

These differences in these crude analyses highlight the urgent need for efficient and effective interventions for MSM in these districts. The fact that the majority of MSM use social media daily means that such digital platforms can be effectively used to reach them.



# BBS Results: Transgender Women



In this section, data on the following are presented: sociodemographic characteristics, HIV prevalence, HIV treatment cascade, symptomatic TB, risk behaviours and social and structural vulnerabilities, including condom use, multiple sexual partnerships, practice of anal sex, alcohol abuse, experience of violence and stigma among transgender women (TGW).

## Sociodemographic characteristics

Table 26 shows the basic characteristics of the TGW recruited into the study by district. Four hundred and ninety-seven (497) TGW participants took part in the survey, with the majority (83%) recruited from outreach locations. Only two districts (Bojanala and Capricorn) had TGW programmes. Across districts, Bojanala accounted for most (31%) of the TGW recruited ( $n = 154$ ), while iLembe accounted for the least ( $n = 20$ , 4%). Over a third (37%) of the participants were aged 18 to 24 years, with those recruited from Chris Hani district being the youngest (54% aged 18 to 24). Transgender women recruited at programme sites in Bojanala and Chris Hani were younger than those recruited from outreach locations.

Half (50.1%) of TGW had spent a night outside their district of residence in the past month. As shown in Table 26, the majority of TGW (89.2%) had never been married, and 71.7% had completed secondary education. The percentage of individuals who completed secondary education was lowest in Chris Hani (62.3%) and highest in the West Rand (86.0%). The majority (84.3%) of TGW used social media daily, with this percentage highest in the West Rand (94.2%) and lowest in Xhariep (67.3%).

The sociodemographic profile of the 497 TGW who participated in this study suggests a mobile and educated KP group. The percentage of TGW who had completed secondary education (72%) was the highest among all KPs. This is higher than the percentage reported in the Botshelo Ba Trans study, the first HIV BBS conducted among TGW in the southern African region.<sup>29</sup> Similar to the BBS-Lite, the Botshelo Ba Trans study reported that 78.0% to 95.5% TGW were single (unmarried).

Table 26: Sociodemographic characteristics of transgender women in seven districts, BBS-Lite 2025

| Characteristic                                                                  | Bojanala |         |          | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Xhariep | Overall (%) |
|---------------------------------------------------------------------------------|----------|---------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|---------|-------------|
|                                                                                 | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) | OUT (%) |             |
| <b>N (number of KPs)</b>                                                        | 40       | 114     | 154      | 34        | 9       | 43       | 5        | 79      | 84       | 5         | 81      | 86       | 61         | 20      | 49      | 497         |
| <b>Site of interview</b>                                                        |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Service delivery site                                                           | 100      | 0       | 26       | 100       | 0       | 79       | 100      | 0       | 6        | 100       | 0       | 6        | 0          | 0       | 0       | 17          |
| Outreach venues                                                                 | 0        | 100     | 74       | 0         | 100     | 21       | 0        | 100     | 94       | 0         | 100     | 94       | 100        | 100     | 100     | 83          |
| <b>Age group</b>                                                                |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| 16-24 yrs                                                                       | 52.5     | 25.4    | 32.5     | 44.1      | 11.1    | 37.2     | 40.0     | 24.1    | 25.0     | 40.0      | 40.7    | 40.7     | 54.1       | 25.0    | 51.0    | 37.2        |
| 25-34 yrs                                                                       | 25.0     | 52.6    | 45.5     | 38.2      | 55.6    | 41.9     | 20.0     | 45.6    | 44.0     | 40.0      | 48.1    | 47.7     | 31.1       | 55.0    | 32.7    | 42.7        |
| 35 and above                                                                    | 22.5     | 21.9    | 22.1     | 17.6      | 33.3    | 20.9     | 40.0     | 30.4    | 31.0     | 20.0      | 11.1    | 11.6     | 14.8       | 20.0    | 16.3    | 20.1        |
| <b>Marital Status</b>                                                           |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Never married                                                                   | 95.0     | 93.0    | 93.5     | 91.2      | 77.8    | 88.4     | 100.0    | 81.7    | 83.0     | 100.0     | 81.5    | 82.6     | 95.1       | 85.0    | 93.9    | 89.2        |
| Married/living with a partner                                                   | 5.0      | 7.0     | 6.5      | 5.9       | 22.2    | 9.3      | 0.0      | 15.9    | 14.8     | 0.0       | 16.0    | 15.1     | 1.6        | 10.0    | 2.0     | 8.8         |
| Divorced/separated or widowed                                                   | 0.0      | 0.0     | 0.0      | 2.9       | 0.0     | 2.3      | 0.0      | 2.4     | 2.3      | 0.0       | 2.5     | 2.3      | 1.6        | 5.0     | 4.1     | 1.8         |
| <b>Highest educational qualification</b>                                        |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Primary or less                                                                 | 0.0      | 2.6     | 1.9      | 0.0       | 0.0     | 0.0      | 0.0      | 2.5     | 2.4      | 20.0      | 2.5     | 3.5      | 1.6        | 0.0     | 4.1     | 2.2         |
| Some secondary                                                                  | 37.5     | 30.7    | 32.5     | 20.6      | 22.2    | 20.9     | 100.0    | 21.5    | 26.2     | 0.0       | 11.1    | 10.5     | 36.1       | 25.0    | 24.5    | 26.1        |
| Completed secondary                                                             | 62.5     | 66.7    | 65.6     | 79.4      | 77.8    | 79.1     | 0.0      | 75.9    | 71.4     | 80.0      | 86.4    | 86.0     | 62.3       | 75.0    | 71.4    | 71.7        |
| <b>Mobility (spent a night outside district of residence in the past month)</b> |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                                             | 32.5     | 56.1    | 50.0     | 26.5      | 33.3    | 27.9     | 60.0     | 62.0    | 61.9     | 60.0      | 60.5    | 60.5     | 29.5       | 70.0    | 49.0    | 50.1        |
| <b>Frequency of social media use</b>                                            |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Daily                                                                           | 85.0     | 86.0    | 85.7     | 85.3      | 88.9    | 86.0     | 100.0    | 84.8    | 85.7     | 80.0      | 95.1    | 94.2     | 78.7       | 80.0    | 67.3    | 84.3        |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts

## Biological markers: HIV, HIV treatment cascade and TB

### HIV prevalence among transgender women

#### HIV prevalence in each district

The average prevalence of HIV among TGW in the seven districts was 40.9%, varying from 31.8% (95% CI: 21.4–44.4) in Bojanala to 50% (95% CI: 34.2–64.3) in iLembe (Figure 26). HIV prevalence was considerably higher in programme sites than in outreach locations in three districts: Bojanala, Sedibeng and the West Rand.

The range of HIV prevalences reported in this study is similar to that reported for three metropolitan municipalities in the Botshelo Ba Trans study: 46.1% in Buffalo City, 45.5% in Cape Town and 63.4% in Johannesburg.<sup>29</sup> The higher HIV prevalence in programme sites in three of the four programme districts may, in part, be due to hotspot mapping and the selection of sites for Global Fund programming, which may have been based on HIV prevalence.

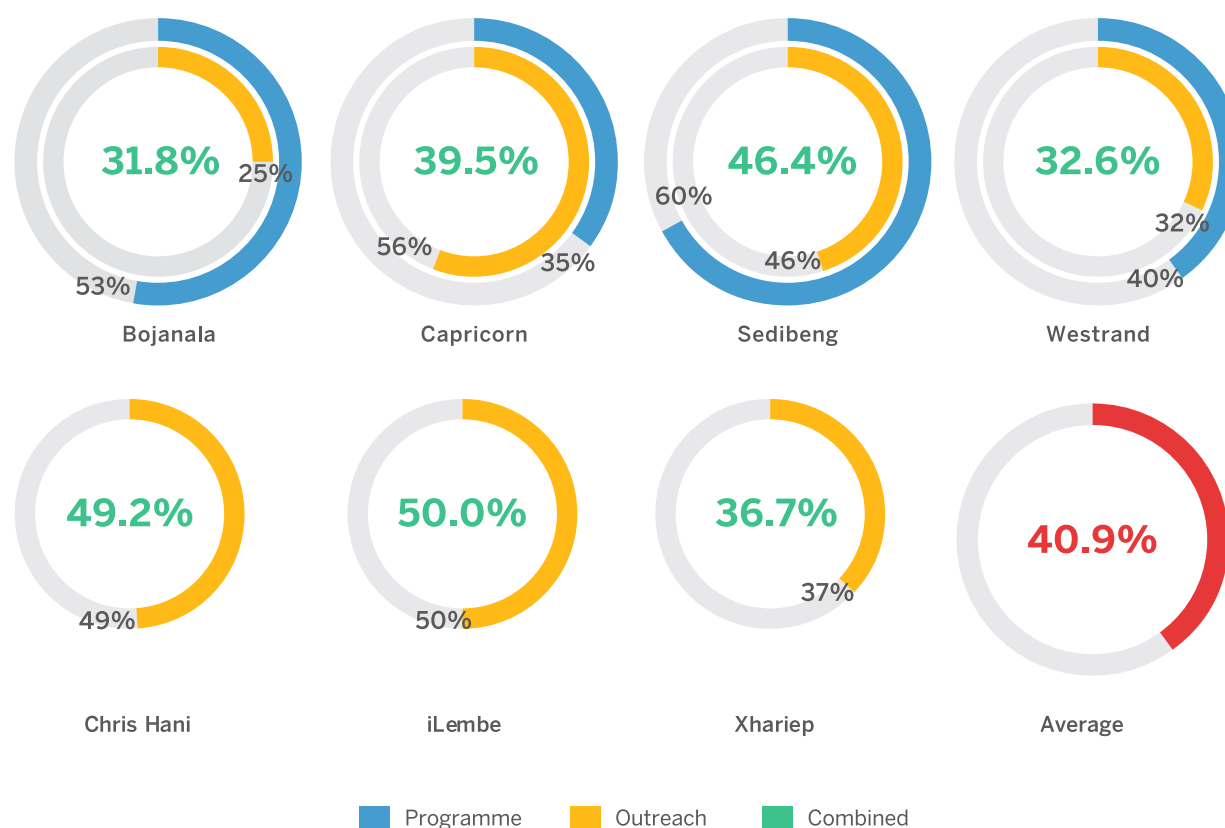


Figure 26: HIV prevalence among transgender women in seven districts, BBS-Lite 2025



HIV prevalence among transgender women by age

HIV prevalence in younger age groups (16 to 24 years) can serve as a proxy for incidence.<sup>22</sup> The disaggregation of HIV prevalence by age shows that HIV prevalence increased consistently with age from 10.9% among TGW aged 18 to 24 years to 73.9% among those aged 40 years and above (Figure 27). By the time TGW reach their mid-20s, a third of them are already infected. The increasing HIV prevalence with age in this population is likely due to reduced HIV-related mortality and increased longevity in the older age groups due to access to ART. However, recent data have also highlighted increasing HIV incidence in older adults.<sup>11</sup> The data underpins the need for scaled, evidence-based interventions to arrest the high HIV incidence in all age groups of TGW and to continue to put those living with the virus on treatment.

HIV prevalence in transgender women compared to district prevalence

Almost all TGW in the BBS-Lite were aged 18 to 49 years (99.6%). Figure 28 compares HIV prevalence among TGW in the BBS-Lite and adult female (15-49 years) prevalence in the respective districts, using data from the Naomi Model.<sup>13</sup> The data showed that the ratio of HIV prevalence in TGW relative to the general adult population ranged from 1.27 to 2.20. This means that TGW were about two times more likely to be infected with HIV in comparison to females in the general population. This huge disparity confirms the disproportionate burden of HIV borne by TGW in South Africa and the need for appropriate intervention programmes in the studied districts.

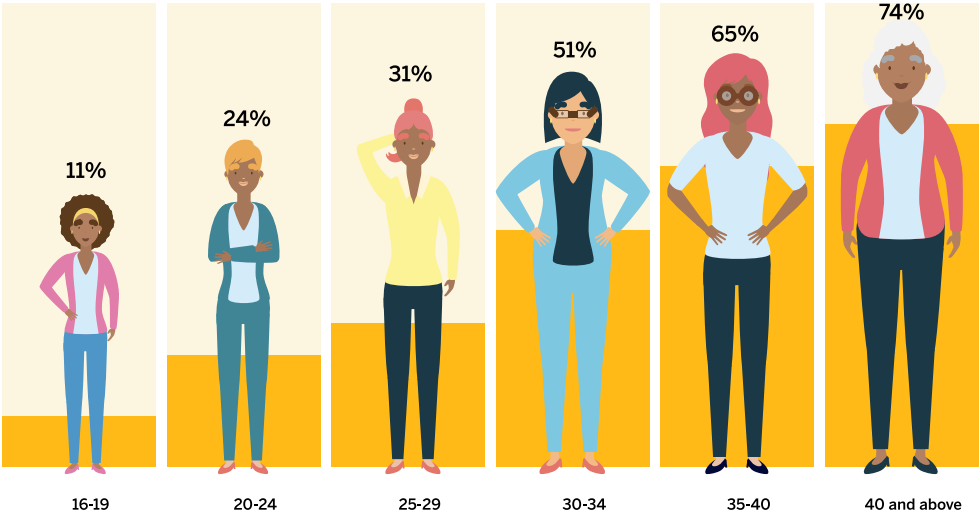
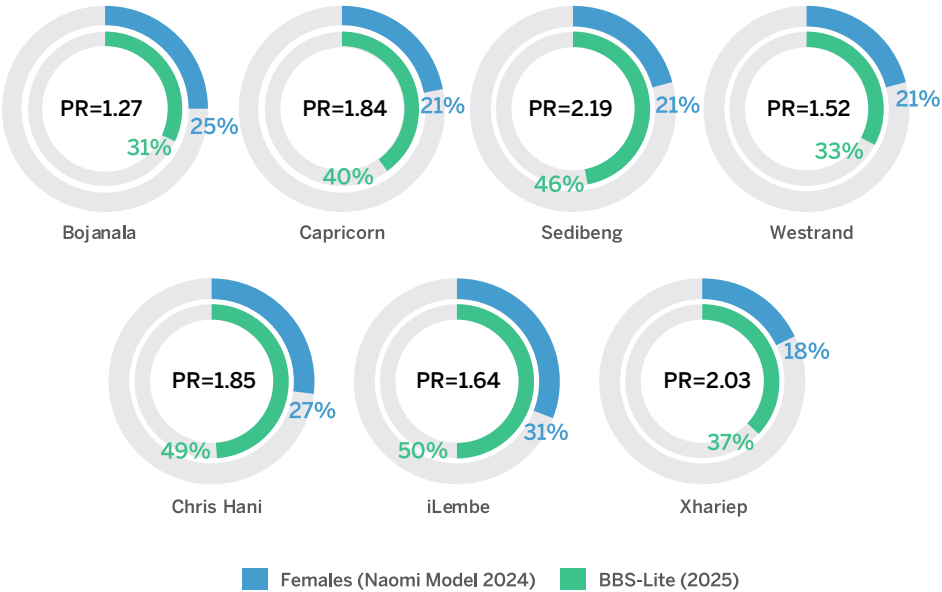


Figure 27: HIV prevalence by age among transgender women in seven districts, BBS-Lite 2025



Females (Naomi Model 2024) BBS-Lite (2025)

PR=Prevalence Ratio

Figure 28: HIV prevalence among adult males (15-49) in each district and TGW in the study, BBS-Lite 2025

## HIV treatment cascade (95-95-95 targets)

The HIV treatment targets among TGW were 83-95-77 across all districts. The percentage of TGW who knew their HIV status was 83.2%, lowest in Bojanala (75.5%) and highest in Capricorn and Xhariep (100%). Among those who knew their status, 95.0% were on treatment, and 76.8% of those on treatment were virally suppressed (Figure 27). The TGW treatment cascade, much like the one for MSM, shows low levels of awareness of HIV status among those living with HIV. Both data highlight the need for heightened and targeted HIV testing programmes.

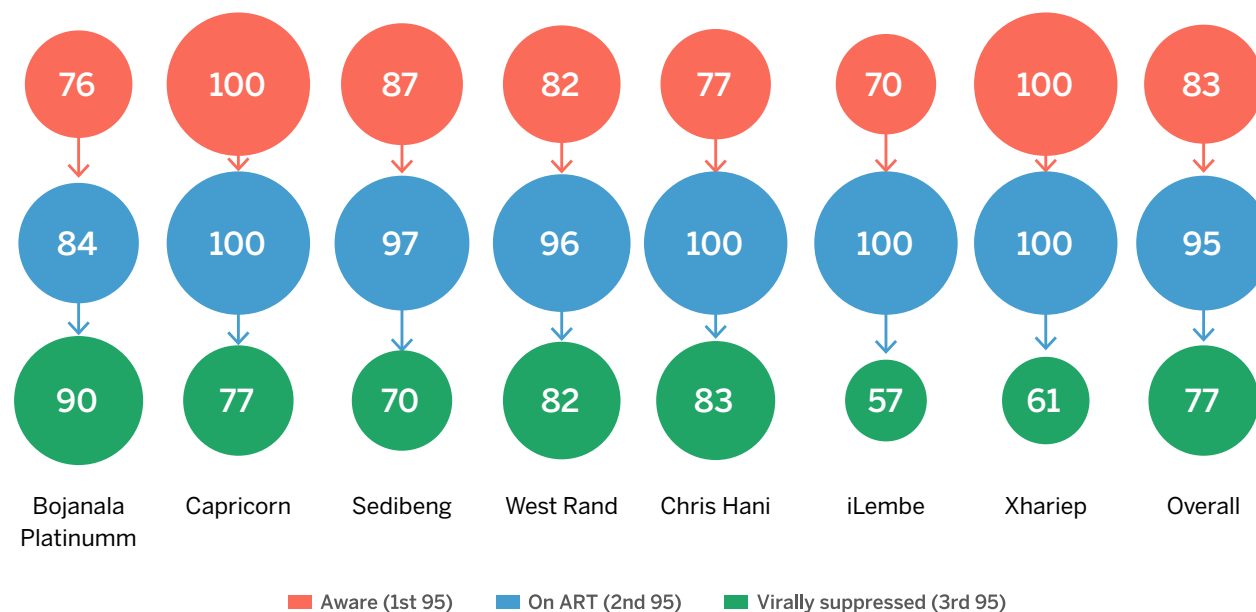
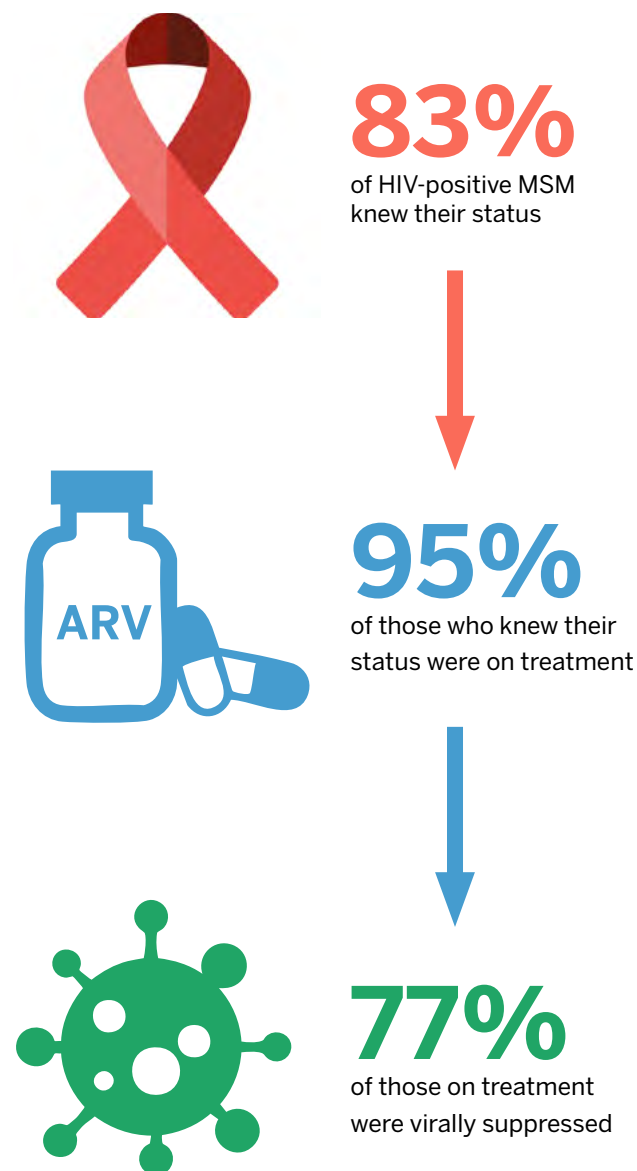


Figure 29: HIV treatment targets (95-95-95) among transgender women in seven districts, BBS-Lite 2025

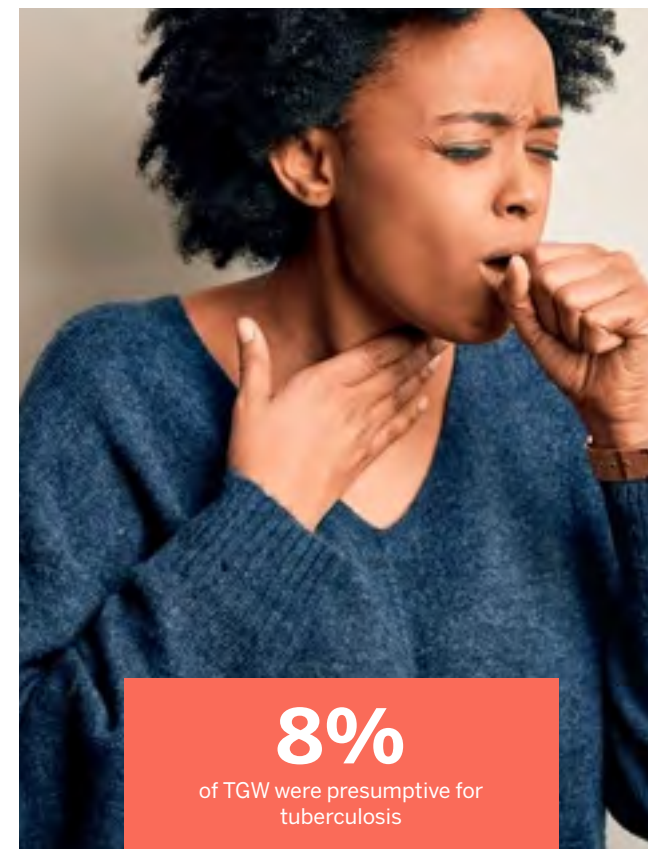


## Symptomatic TB

Table 27 shows that weight loss (4.8%) and night sweats (4.6%) were the most common symptoms of TB among TGW, while coughing was the least common (1.2%). Overall, 39 TGW (7.8%) were presumptive for TB. As seen with all other KP groups, the prevalence of HIV was elevated among those symptomatic for TB, 46.2%.

Table 27: Symptomatic TB among men who have sex with men in seven districts, BBS-Lite 2025

|                                               | Bojanala      | Capricorn    | Sedibeng     | West Rand    | Chris Hani  | iLembe       | Xhariep      | Total         |
|-----------------------------------------------|---------------|--------------|--------------|--------------|-------------|--------------|--------------|---------------|
| N (number of KPs)                             | 154           | 43           | 84           | 86           | 61          | 20           | 49           | 497           |
| Coughing                                      | 0.0%          | 4.7%         | 0.0%         | 5.0%         | 0.0%        | 5.0%         | 2.0%         | 1.2%          |
| Fever in the past two weeks                   | 3.2%          | 4.7%         | 1.2%         | 0.0%         | 0.0%        | 0.0%         | 2.0%         | 2.6%          |
| Weight loss in the past month                 | 9.1%          | 4.7%         | 1.2%         | 5.0%         | 0.0%        | 5.0%         | 8.2%         | 4.8%          |
| Night sweats                                  | 8.4%          | 4.7%         | 2.4%         | 5.0%         | 0.0%        | 5.0%         | 2.0%         | 4.6%          |
| Presumptive TB (any TB symptom)               | 16<br>(10.4%) | 4<br>(9.3%)  | 3<br>(3.4%)  | 7<br>(8.1%)  | 0<br>(0.0%) | 2<br>(10.0%) | 7<br>(14.3%) | 39<br>(7.8%)  |
| Of those with any symptoms, number and % HIV+ | 7<br>(43.8%)  | 2<br>(50.0%) | 1<br>(33.3%) | 6<br>(85.7%) | 0<br>(.%)   | 0<br>(0.0%)  | 2<br>(28.6%) | 18<br>(46.2%) |



## Risk behaviours and vulnerabilities

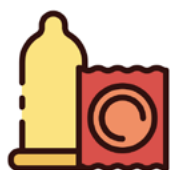
This section presents data on risk behaviours and social and structural vulnerabilities of TGW, including condom use, alcohol abuse, injecting practices, and experience of violence and stigma. The survey documented other vulnerabilities among TGW that increase the risk of HIV infection and other negative health outcomes.

### Multiple sexual partnerships

A small fraction of TGW (4.4%) reported multiple sexual partnerships in the previous four weeks. It was highest in the West Rand (7.0%). In the two programme districts (Bojana and Capricorn), multiple sexual partnerships was at least twice as high among TGW recruited at outreach locations as those recruited at programme sites.

### Condom use

Overall, 54.3% of TGW reported using condoms during their last sexual intercourse, ranging from 44.3% in Chris Hani to 66.3% in the West Rand. Condom use was higher in programme sites than in outreach locations in Bojanala but not in Capricorn (Table 28). The assessment of condom use in the six months before the survey showed that 40.0% of participants reported using condoms every time they engaged in sexual activity. Consistent condom use varied significantly by district, from 0% in iLembe and Chris Hani to 83.3% in Xhariep. This low level of condom use should



**54%**

of TGW used condom at last sexual intercourse

be interpreted within the context that the majority (89%) of TGW are unmarried, highlighting the need for evidence-based strategies to increase condom use among TGW.

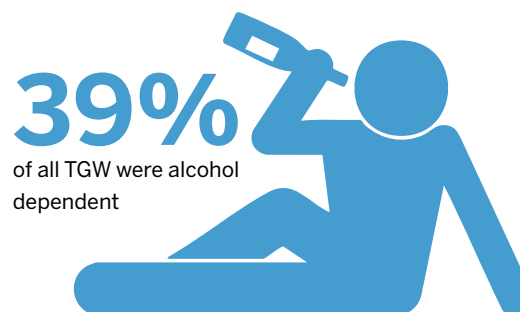
### Injecting drug use

Only two TGW reported injecting drugs in the past six months, translating to 0.4%.

### Alcohol abuse



The prevalence of alcohol dependency among TGW was 38.8%, ranging from 13.0% in Bojanala to 59.5% in Sedibeng. Of the districts with programmes (Bojanala and Capricorn), alcohol abuse was higher among TGW recruited at programme sites than in those recruited at outreach locations.



### Experience of violence

Of the TGW surveyed, 29.0% reported experiencing violence in the 12 months before the survey. In the two districts with programmes, the experience of violence was higher in outreach location participants than in programme sites. For example, in Bojanala, 15% of TGW recruited at programme sites reported experiencing violence, while 23.7% of those at outreach locations did. The incidence of IPV was 22.1% across all districts, ranging from 11.5% in Chris Hani to 38.1% in Sedibeng. A similar pattern by site of data collection was observed in the two programme districts.



Much like alcohol dependence, the experience of violence, including IPV, was rife. These are two common enablers of HIV acquisition and poor HIV care outcomes. The high levels of both factors indicate the need for the relevant interventions for TGW, including psychosocial support.

### Experience of stigma

Of the 497 TGW surveyed, 13.9% reported that they had avoided seeking healthcare in the past six months due to stigma. iLembe (30.0%) had the highest percentage of TGW who reported avoiding seeking healthcare due to stigma, while Chris Hani district (4.9%) had the lowest. There was no discernible pattern in this indicator by site of data collection. Similar to MSM, the avoidance of healthcare due to stigma was low, but slightly higher than the current NSP target of 10%. Nevertheless, three of the seven study districts achieved the 10% target.

## Imprisonment

The proportion of TGW who had been in jail/prison in the six months before the survey was 5.2%. The rate of imprisonment was lowest in iLembe (0%) and highest in the West Rand (7.0%). There was no discernible pattern in this indicator by site of data collection. Although this is the lowest imprisonment rate of the four KPs, it is worth exploring the reasons for imprisonment in future studies.

## Homelessness

The prevalence of current homelessness among TGW was 4.0% and ranged from 0% in Bojanala to 15% in iLembe. None of the TGW surveyed at programme sites in Bojanala were homeless.

## Food insecurity

Almost a quarter (23.3%) of TGW reported sleeping hungry due to a lack of food in the past 30 days. There were observable differences between districts, with Sedibeng (39.3%) having the highest prevalence of food insecurity among TGW and Chris Hani (8.2%) having the lowest. Food insecurity affected more TGW surveyed at programme sites than those at outreach venues.

Homelessness, imprisonment and food insecurity were less common among TGW compared to other KPs, suggesting that TGW have better socioeconomic status than the other KP groups.

Table 28: Risk Behaviours and vulnerabilities among transgender women in seven districts, BBS-Lite 2025

| Outcome Measure                                             | Bojanala |         |          | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Xhariep | Overall (%) |
|-------------------------------------------------------------|----------|---------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|---------|-------------|
|                                                             | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) | OUT (%) |             |
| <b>N (Number of KPs)</b>                                    | 40       | 114     | 154      | 34        | 9       | 43       | 5        | 79      | 84       | 5         | 81      | 86       | 61         | 20      | 49      | 497         |
| <b>Condom use during last sexual intercourse</b>            |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 60.0%    | 47.4%   | 50.6%    | 47.1%     | 55.6%   | 48.8%    | 40.0%    | 59.5%   | 58.3%    | 60.0%     | 66.7%   | 66.3%    | 44.3%      | 45.0%   | 59.2%   | 54.3%       |
| <b>Frequency of condom use in the past 6 months</b>         |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Every time                                                  | 50.0%    | 41.2%   | 43.5%    | 50.0%     | 0.0%    | 25.0%    | .%       | 50.0%   | 50.0%    | .%        | 33.3%   | 33.3%    | 0.0%       | 0.0%    | 83.3%   | 40.0%       |
| Most times                                                  | 0.0%     | 35.3%   | 26.1%    | 0.0%      | 0.0%    | 0.0%     | .%       | 50.0%   | 50.0%    | .%        | 28.6%   | 28.6%    | 0.0%       | 50.0%   | 0.0%    | 26.2%       |
| Less frequent                                               | 50.0%    | 23.5%   | 30.4%    | 50.0%     | 100.0%  | 75.0%    | .%       | 0.0%    | 0.0%     | .%        | 38.1%   | 38.1%    | 100.0%     | 50.0%   | 16.7%   | 33.8%       |
| <b>Multiple sexual partners (past 4 weeks)</b>              |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| 2 or more partners                                          | 2.5%     | 5.3%    | 4.5%     | 2.9%      | 11.1%   | 4.7%     | 20.0%    | 3.8%    | 4.8%     | 20.0%     | 6.2%    | 7.0%     | 0.0%       | 5.0%    | 4.1%    | 4.4%        |
| <b>Injected drugs in the past six months</b>                |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 0.0%     | 0.0%    | 0.0%     | 0.0%      | 0.0%    | 0.0%     | 0.0%     | 1.3%    | 1.2%     | 20.0%     | 0.0%    | 1.2%     | 0.0%       | 0.0%    | 0.0%    | 0.4%        |
| <b>Alcohol dependence (CAGE)</b>                            |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 10.0%    | 14.0%   | 13.0%    | 29.4%     | 11.1%   | 25.6%    | 60.0%    | 59.5%   | 59.5%    | 20.0%     | 50.6%   | 48.8%    | 59.0%      | 50.0%   | 49.0%   | 38.8%       |
| <b>Experienced violence in past 12 months</b>               |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 15.0%    | 23.7%   | 21.4%    | 32.4%     | 55.6%   | 37.2%    | 40.0%    | 41.8%   | 41.7%    | 20.0%     | 34.6%   | 33.7%    | 18.0%      | 45.0%   | 22.4%   | 29.0%       |
| <b>Experienced IPV in past 12 months</b>                    |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 5.0%     | 15.8%   | 13.0%    | 29.4%     | 33.3%   | 30.2%    | 20.0%    | 39.2%   | 38.1%    | 60.0%     | 25.9%   | 27.9%    | 11.5%      | 30.0%   | 16.3%   | 22.1%       |
| <b>Avoided seeking healthcare because of stigma</b>         |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 12.5%    | 9.6%    | 10.4%    | 11.8%     | 22.2%   | 14.0%    | 20.0%    | 19.0%   | 19.0%    | 0.0%      | 23.5%   | 22.1%    | 4.9%       | 30.0%   | 6.1%    | 13.9%       |
| <b>Been in jail/prison within past 6 months</b>             |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 5.0%     | 7.0%    | 6.5%     | 2.9%      | 11.1%   | 4.7%     | 0.0%     | 3.8%    | 3.6%     | 0.0%      | 7.4%    | 7.0%     | 4.9%       | 0.0%    | 4.1%    | 5.2%        |
| <b>Currently homeless</b>                                   |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 0.0%     | 0.0%    | 0.0%     | 8.8%      | 11.1%   | 9.3%     | 0.0%     | 10.1%   | 9.5%     | 0.0%      | 1.2%    | 1.2%     | 4.9%       | 15.0%   | 2.0%    | 4.0%        |
| <b>Slept hungry because of lack of food in past 30 days</b> |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                         | 25.0%    | 21.9%   | 22.7%    | 35.3%     | 11.1%   | 30.2%    | 60.0%    | 38.0%   | 39.3%    | 0.0%      | 19.8%   | 18.6%    | 8.2%       | 25.0%   | 18.4%   | 23.3%       |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts



## Programme coverage

### Intervention services coverage

Across all districts, less than half (45.1%) of TGW reported having received any HIV prevention/treatment services in the past 12 months, ranging from 14.8% in Chris Hani to 77.4% in Sedibeng. Across all districts, TGW recruited at programme sites reported higher percentages of programme coverage than those recruited from outreach locations (Table 29).



**45%**  
of TGW reported having received any HIV prevention/treatment services in the last 12 months

### PrEP uptake and use

A quarter (24.8%) of TGW who were HIV-negative were on PrEP. Notably, PrEP uptake was lowest in Xhariep (11.1%) and highest in Capricorn (58.3%). Of the TGW on PrEP, most (56.2%) had been using it for more than a year.

Access to HIV prevention and treatment services was low among TGW. The low coverage of HIV services explains the poor health outcomes reported among TGW, reflecting the few programmes targeting TGW. In the seven districts where this survey was conducted, TGW programmes were present in only two districts, compared with four for FSWs. These realities highlight the need for more HIV prevention and treatment programmes targeting TGW.



**25%**  
of HIV-negative TGW were on PrEP

Table 29: Coverage of HIV prevention and treatment services among men who have sex with men in seven districts, BBS-Lite 2025

| Characteristic                                                              | Bojanala |         |          | Capricorn |         |          | Sedibeng |         |          | West Rand |         |          | Chris Hani | iLembe  | Xhariep | Overall (%) |
|-----------------------------------------------------------------------------|----------|---------|----------|-----------|---------|----------|----------|---------|----------|-----------|---------|----------|------------|---------|---------|-------------|
|                                                                             | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | PGR (%)  | OUT (%) | COMB (%) | PGR (%)   | OUT (%) | COMB (%) | OUT (%)    | OUT (%) | OUT (%) |             |
| <b>N (number of KPs)</b>                                                    | 40       | 114     | 154      | 34        | 9       | 43       | 6        | 82      | 88       | 5         | 81      | 86       | 61         | 20      | 49      | 501         |
| <b>Received any HIV prevention/treatment services in the past 12 months</b> |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                                         | 20.0%    | 14.0%   | 15.6%    | 64.7%     | 55.6%   | 62.8%    | 100.0%   | 75.9%   | 77.4%    | 80.0%     | 63.0%   | 64.0%    | 14.8%      | 50.0%   | 69.4%   | 45.1%       |
| <b>Currently on PrEP</b>                                                    |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| Yes                                                                         | 26.1%    | 14.0%   | 16.4%    | 57.1%     | 66.7%   | 58.3%    | 50.0%    | 20.9%   | 22.2%    | 50.0%     | 42.4%   | 42.9%    | 15.8%      | 15.4%   | 11.1%   | 24.8%       |
| <b>If currently on PrEP, duration on PrEP</b>                               |          |         |          |           |         |          |          |         |          |           |         |          |            |         |         |             |
| <6 months                                                                   | 50.0%    | 23.1%   | 31.6%    | 33.3%     | 0.0%    | 28.6%    | 0.0%     | 22.2%   | 20.0%    | 0.0%      | 8.3%    | 7.7%     | 16.7%      | 0.0%    | 0.0%    | 18.8%       |
| 6–12 months                                                                 | 16.7%    | 53.8%   | 42.1%    | 8.3%      | 0.0%    | 7.1%     | 100.0%   | 22.2%   | 30.0%    | 0.0%      | 16.7%   | 15.4%    | 33.3%      | 0.0%    | 66.7%   | 25.0%       |
| >1 year                                                                     | 33.3%    | 23.1%   | 26.3%    | 58.3%     | 100.0%  | 64.3%    | 0.0%     | 55.6%   | 50.0%    | 100.0%    | 75.0%   | 76.9%    | 50.0%      | 100.0%  | 33.3%   | 56.2%       |

PGR: Programme sites; OUT: Outreach locations; COMB: Combined, district statistics when PGR and OUT are combined; Overall: statistics across all districts

## Impact of Global Fund Programs

This BBS-Lite survey provides insights into the reach and potential impact of Global Fund programmes in the two districts with IPs. Although not intended to be a comprehensive impact evaluation, two types of analyses were conducted: between-district comparisons and within-district comparisons. It is noteworthy that these comparisons are only proxies for programme performance. To comprehensively evaluate the programmes, quasi-experimental designs with detailed and specific exposure measurements are needed to control potential bias and confounding. For example, it is noteworthy that TGW recruited at programme sites were younger than those recruited from outreach locations and slightly more likely to use social media. Nevertheless, much of the observed differences may be due to programme services. Significantly more TGW recruited at programme sites than those recruited at outreach locations reported that they have received HIV prevention and treatment services in the past 12 months.

### Between-district comparisons

Four of the seven districts in this survey had Global Fund programmes, but only two of those four districts (Bojanala and Capricorn) had TGW programmes. Although some TGW were recruited at programme sites in Sedibeng and the West Rand, those programmes were for other KPs and not TGW. A crude analysis comparing the programme districts to the non-programme districts did not show any systematic differences between both groups, although programme districts appeared to have lower levels of alcohol dependence and stigma.

### Within-district comparisons

The comparison between TGW recruited at programme sites and those recruited from outreach locations showed that TGW recruited at programme sites were better off than those recruited from outreach locations regarding many of the studied outcomes, especially in the two districts with MSM programs (Bojanala and Capricorn). Specifically, programme site participants were more likely to be reached by programmes and to use PrEP. In the two TGW districts, TGW recruited at programme sites were less likely to experience general violence and IPV. Furthermore, TGW recruited at programme sites were better off than those recruited at outreach locations in terms of experiences of homelessness and imprisonment. They were also less likely to report multiple sexual partnerships.

These differences in these crude analyses highlight the urgent need for efficient and effective interventions for TGW in these districts. The fact that the majority of TGW use social media daily means that digital platforms can be explored to reach them.



# Conclusions

## Female sex workers

### Conclusions

- The study included 2,474 FSW participants from seven districts. There were sociodemographic differences between the FSWs recruited at programme sites and those recruited from outreach locations.
- The average HIV prevalence across all seven districts was 38.5%, ranging from 31.2% in Sedibeng to 49.7% in iLembe.
- Relative to females of the same age group, HIV prevalence was 2 to 3 times higher among FSWs.
- HIV prevalence increased consistently with age, peaking at 64.4% among FSWs aged 50 years and above. The increased prevalence in the older age groups of FSWs may be due to FSWs living with HIV living longer due to access to antiretroviral treatment and/or high HIV incidence in older adults.
- Condom use at last sexual intercourse among FSWs was unacceptably low at 65%, which is lower than the current NSP target of 90%.
- PrEP use among those who reported being HIV negative was an encouraging 53.2% and much higher at programme sites.
- The data suggest PrEP disinhibition—the potential reduction in condom use among people who feel protected by PrEP.
- The prevalence of alcohol abuse was high (49.2%), ranging from 13.6% in Bojanala to 87.0% in Chris Hani. Bojanala and Capricorn were the only districts where the prevalence of alcohol abuse was below 50%.
- The majority of FSWs have been reached with HIV prevention and treatment services in the past 12 months in districts where programmes exist. Unfortunately, in districts without FSW programmes, the majority of FSWs (e.g., 68% in Chris Hani) have not received any HIV prevention or treatment services in the past 12 months.
- The 33.7% of FSWs who reported experiencing IPV in the 12 months preceding the survey is very high.
- The level of food insecurity was also high, affecting 50% of FSWs.
- Stigma levels were somewhat low, as seen in the 18% FSWs who avoided seeking healthcare because of stigma.
- The levels of homelessness and imprisonment were low (<10%).

### Recommendations

- The high mobility observed among FSWs highlights the need for an individual tracking system (using the national Unit Identification Code) among KPs.
- HIV prevention and treatment programmes should expand into areas where they are lacking while strengthening specific areas based on available evidence. This BBS-Lite data showed that programme participation decreased with age, and HIV prevalence increased with HIV, highlighting the need to also target older FSWs in HIV prevention programming.
- The contextual and structural vulnerabilities that increase HIV risk among FSWs should be acknowledged when planning intervention programmes and addressed where possible.
- Implementation partners should incorporate research into their programmes to address questions that can enhance programme efficiency and effectiveness.
- Qualitative research should also be conducted to unpack some specific findings from the study. An example is the observed PrEP disinhibition. It is important to understand its mechanism to design appropriate interventions. In the meantime, HIV combination prevention strategy should be strengthened, with clearly crafted messaging.
- Building on this baseline data, future rounds of the BBS-Lite or similar data collection endeavours in the studied districts are needed to evaluate progress and improve intervention programmes.

## People who inject drugs

### Conclusions

- PWID in the studied districts are under the heavy burden of three epidemics: HIV, Hepatitis B and Hepatitis C.
- The average HIV prevalence among PWID in the six districts was very high, 47.6%, varying from 19% in iLembe to 74.5% in Sedibeng. The HIV prevalence was highest (62.7%) among those aged 35 to 40 years. The prevalence in young PWID is unacceptably high: 33% in those under 20 years and 42% in the 20-24 year olds.
- The hepatitis B prevalence, 15.5% was higher than previously reported in metropolitan districts.
- The overall prevalence of Hepatitis C was 69.5%, ranging from 16.6% in Chris Hani to 78.3% in Sedibeng.
- Three out of ten PWID living with HIV did not know that they were infected.
- Access to new needles appears to be decent (60%), but needle sharing remains common. Almost half of PWID (46.0%) reported sharing an injecting needle the last time they injected. Most PWID inject many times daily.
- In addition to risky injecting practices, there was evidence of sexual risk behaviour. Multiple sexual partnerships were common (25%), with some PWID (7%) reporting transactional sex. Condom use at last sex was only 52%.
- The majority of PWID (55%) did not receive HIV prevention or treatment services from anywhere (public, private or NGOs) in the past year, with less than 10% of HIV-negative PWID on PrEP.
- The PWID data from this BBS-Lite is a reminder that health does not occur in isolation. The survey documented many social and structural factors, as well as risk behaviours, that explain the high prevalence of HIV, hepatitis and other negative health outcomes observed.
- There was a very high level of food insecurity, 71.6%, which is a risk factor for HIV infection and a structural barrier to HIV care. There was also a high level of violence – 50.7% reported that they experienced violence within the 12 months preceding the survey. A third of PWID (32.8%) reported that they had been in jail/prison in the six months before the survey.
- The fact that the majority (86%) of PWID have never used social media reflects their vulnerabilities and highlights how interventions should be designed for them.

### Recommendations

- Concerted prevention efforts are needed for HIV, Hepatitis B and Hepatitis C infections epidemics among PWID. Programme services should be urgently expanded to areas where they currently do not exist. Government interventions are needed to support current donor-funded programmes.
- Direct-acting antivirals (DAAs), which are highly effective medications for treating Hepatitis C, should be urgently considered for those infected.
- Planned interventions should target biomedical factors and social and structural determinants.
- TB screening among PWID using advanced technologies that do not rely on sputum production, such as the computer-aided digital x-ray, should be considered.

## Men who have sex with men

### Conclusions

- The socioeconomic profile of MSM was higher than that of PWID and FSWs. The majority of MSM (90.9%) have never been married, and 69.7% have completed secondary education. Most MSM use social media daily.
- The average prevalence of HIV among MSM in the seven districts was 25%, varying from 18.5% in the West Rand to 31.2% in iLembe. HIV prevalence is high in younger MSM and continues to increase with age. By the time MSM reach their mid-twenties, one in five of them is already infected with HIV. MSM in the seven districts bear a disproportionately high burden of HIV when compared to the adult male population in the respective districts.
- None of the districts have achieved the UNAIDS 95-95-95 targets; however, achievements were good in most districts. The biggest gap was in awareness, the first 95.
- Sexual risk behaviours were rife among MSM. One in three MSM had more than two sexual partners in the past four weeks. Condom use at last sexual intercourse was low, and consistent condom use was lower.
- The study revealed high levels of alcohol abuse among MSM, with as high as 48.4% being alcohol dependent.
- The study reported high levels of general violence against MSM, with 30.8% having experienced violence and 21.6% having experienced IPV in the last year.
- Avoiding seeking healthcare due to stigma was desirable at 14.8%.
- Other vulnerabilities, like homelessness and having slept in jail, were less common, less than 10% for both.
- Access to HIV prevention and treatment services was low. Only two of the seven districts studied have Global Fund programmes targeting MSM.

### Recommendation

- HIV prevention and treatment programmes should expand into areas where they are lacking while strengthening specific areas based on available evidence.
- As the nation gears towards achieving 95-95-95 by 2028, awareness and testing campaigns among MSM are urgently needed. Among those on treatment, there is also a need for treatment support to achieve viral load suppression.
- MSM interventions should focus on increasing PrEP use and reducing risk behaviours, especially among the younger males.
- Underlying factors that portend HIV risks, such as alcohol abuse and the experience of violence, should be addressed.
- Digital media technologies can be employed to reach MSM, considering their educational profile and use of social media.

## Transgender women

### Conclusions

- Much like MSM, TGW had a high socioeconomic profile; 71.7% had completed secondary education, and 84.3% used social media daily.
- The average prevalence of HIV among TGW across the seven districts was very high, 40.9% overall and higher in some districts. Even more worrying is the high prevalence in young adults: 11% in those under 20 years and 25% in the 20-24 age group. TGW in the seven districts bear a disproportionately high burden of HIV when compared to the adult female population in the respective districts, with a prevalence ratio of about 2.
- None of the districts achieve the 95-95-95 UNAIDS targets, with similar treatment cascade achievements as MSM, but some districts perform very well for the first two indicators. The percentage of TGW who know their HIV status was lower than 90% in five of the seven districts.
- The prevalence of multiple sexual partnerships in the past four weeks was low, 4.8%, but unprotected sexual intercourse was high. PrEP use was low.
- The prevalence of alcohol dependence was high, 38.8% overall and as high as 59.5% in Sedibeng. Similar to other KP groups, the experience of overall violence and IPV were high.
- Only 13.9% reported that they had avoided seeking healthcare in the past six months due to stigma, which is just above the NSP target of 10%.
- Other vulnerabilities, like homelessness and sleeping in jail, were less common among TGW, less than 6% overall for each outcome.

### Recommendation

- HIV prevention and treatment programmes should expand into areas where they are lacking while strengthening existing services based on available evidence from this survey.
- As the nation gears towards achieving 95-95-95 by 2028, awareness and testing campaigns among TGW are urgently needed. Among those on treatment, there is also a need for treatment support to improve viral load suppression, which is currently very low.
- Although the prevalence of multiple sexual partnerships was low, interventions promoting PrEP use and condom use are needed.
- Interventions that address underlying determinants of HIV infection and care, including alcohol abuse and experience of IPV, are needed.
- Implementing partners should consider innovative interventions that leverage digital media technologies to reach and engage TGW, considering their educational profile and daily use of social media.



## Overall conclusions

- This study serves as proof of concept that the BBS-Lite can be conducted in South Africa with efficient utilisation of resources.
- The BBS-Lite collected data on 6,182 individuals in four KPs across seven districts, with data collection completed within three months.
- There were many lessons learnt in the implementation of this BBS-Lite, which are being documented in a different report.
- All KPs in all seven districts bear a disproportionate burden of HIV in comparison to the general district population, with HIV prevalence ratios ranging from 2 to 7.
- Of all four KPs, PWID bear the biggest burden of the HIV epidemic, having the highest HIV prevalence overall and in those aged 18 to 24 years.
- The high HIV prevalence in the younger age groups suggests that the country is not turning the tide on the HIV epidemic in KPs in the studied districts.
- HIV risk behaviours were common in all KPs, with low condom use evident in all groups.
- PrEP use was highest among FSWs. There is some evidence of PrEP disinhibition among FSWs, but it was not observed in other KPs.
- PWID had the worst profile in terms of social and structural enablers of HIV due to their living conditions. They had the highest rates of homelessness and imprisonment. On the other hand, TGW and MSM had the better socioeconomic profiles.
- Food insecurity was very high among all KPs and highest among PWID.
- Experience of violence was very high among all KPs and very high among PWID.
- HIV prevention and treatment services coverage was suboptimal in all KPs (less than 65%) and lowest in TGW and PWID. In districts where programmes exist, HIV services coverage was generally high, over 90% among KPs recruited from programme sites in some districts.
- Apart from PWID, all other KP groups showed excessive dependence on alcohol.
- Some districts showed consistent patterns for some indicators. For example, iLembe generally had the highest levels of violence, while Chris Hani had the highest levels of alcohol abuse.

This BBS-Lite provided valuable data on the HIV epidemic and other outcomes among four KPs in seven previously unstudied districts of South Africa. The data confirmed that the KPs are underserved regarding HIV prevention and treatment services, highlighting the need for urgent evidence-based interventions for KPs if South Africa is to achieve complete epidemic control. In times of shrinking donor funds for HIV prevention and treatment programmes, governmental support for KP programmes will be pivotal. The data presented in this first BBS-Lite in South Africa will be critical for planning necessary interventions and will serve as a baseline for monitoring and evaluation.

# References

1. Johnson LF, May MT, Dorrington RE, Cornell M, Boulle A, Egger M, et al. Estimating the impact of antiretroviral treatment on adult mortality trends in South Africa: A mathematical modelling study. Suthar AB, editor. PLoS Med. 2017 Dec 12;14(12):e1002468.
2. Zuma K, Zungu NP, Moyo S, Marinda E, Simbayi LC, Jooste SE, Mabaso M, Ramlagan S, Makola L, van Zyl J, Naidoo I and the SABSSMVI team. The Sixth South African National HIV Prevalence, Incidence and Behaviour Survey, 2022: A Summary Report. Cape Town; 2024.
3. SANAC. National Strategic Plan for HIV, TB and STIs 2023-2028 [Internet]. [cited 2024 Jan 8]. Available from: <https://sanac.org.za/national-strategic-plan-2023-2028/>
4. Stone J, Mukandavire C, Boily MC, Fraser H, Mishra S, Schwartz S, et al. Estimating the contribution of key populations towards HIV transmission in South Africa. J Int AIDS Soc. 2021 Jan;24(1):e25650.
5. Protection of Personal Information Act (POPI Act) [Internet]. POPIA. 2024 [cited 2024 Jan 11]. Available from: <https://popia.co.za/>
6. Fosgate GT. Practical sample size calculations for surveillance and diagnostic investigations. J Vet Diagn Invest. 2009 Jan;21(1):3–14.
7. Aertgeerts B, Buntinx F, Kester A. The value of the CAGE in screening for alcohol abuse and alcohol dependence in general clinical populations: a diagnostic meta-analysis. J Clin Epidemiol. 2004 Jan;57(1):30–9.
8. Edwards JK, Mulholland G, Weir S. Size Estimation of Key Populations in Uganda. Prepared for Makerere University School of Public Health. 2018.
9. Edwards JK, Hileman S, Donastorg Y, Zadrozny S, Baral S, Hargreaves JR, et al. Estimating Sizes of Key Populations at the National Level: Considerations for Study Design and Analysis. Epidemiology. 2018 Nov;29(6):795–803.
10. The Aurum Institute, Anova Health Institute & UCSF 2020. The Second South African Health Monitoring Survey SAHMS2, Final Report: A Biological and Behavioural Survey Among Female Sex Workers, South Africa 2017–2018. Johannesburg. 2018.
11. Olubayo LAI, Mathema T, Kabudula C, Micklesfield LK, Mohamed SF, Kisiangani I, et al. The prevalence, incidence, and sociodemographic risk factors of HIV among older adults in sub-Saharan Africa (AWI-Gen): a multicentre, longitudinal cohort study. The Lancet Healthy Longevity [Internet]. 2025 Mar 1 [cited 2025 June 29];6(3). Available from: [https://www.thelancet.com/journals/lanhl/article/PIIS2666-7568\(25\)00009-1/fulltext](https://www.thelancet.com/journals/lanhl/article/PIIS2666-7568(25)00009-1/fulltext)
12. Gómez-Olivé FX, Houle B, Rosenberg M, Kabudula C, Mojola S, Rohr JK, et al. Brief Report: HIV Incidence Among Older Adults in a Rural South African Setting: 2010–2015. J Acquir Immune Defic Syndr. 2020 Sept 1;85(1):18–22.
13. South Africa District HIV Estimates: September 2020 [Internet]. [cited 2021 Oct 25]. Available from: <https://www.hivdata.org.za/>
14. Bello B, Moultrie H, Somji A, Chersich MF, Watts C, Delany-Moretlwe S. Alcohol use and sexual risk behaviour among men and women in inner-city Johannesburg, South Africa. BMC Public Health. 2017 July 4;17(Suppl 3):65–75.
15. Myers B, Lombard C, Joska JA, Abdullah F, Naledi T, Lund C, et al. Associations Between Patterns of Alcohol Use and Viral Load Suppression Amongst Women Living with HIV in South Africa. AIDS Behav. 2021;25(11):3758–69.
16. Zungu NP., Petersen Z., Parker W., Dukhi N., Sewpaul, R., Abdelatif N., Naidoo I., Moolman B., Isaacs D., Makusha T., Mabaso M., Reddy T., Zuma, K. and The SANSHEF Team. The First South African National Gender-Based Violence Study: A Baseline Survey on Victimisation and Perpetration [Internet]. Cape Town: Human Sciences Research Council; 2024. Available from: <https://hsr.ac.za/media-pack-first-south-african-national-gender-based-violence-study-2022/>
17. Leddy AM, Weiss E, Yam E, Pulerwitz J. Gender-based violence and engagement in biomedical HIV prevention, care and treatment: a scoping review. BMC Public Health. 2019 July 8;19(1):897.

## References

18. Women's Legal Centre. Police abuse of sex workers [Internet]. 2016 [cited 2025 Sept 1]. Available from: <https://wlce.co.za/police-abuse-of-sex-workers/>
19. Zimmermann HML, Jongen VW, Boyd A, Hoornenborg E, Prins M, de Vries HJC, et al. Decision-making regarding condom use among daily and event-driven users of preexposure prophylaxis in the Netherlands. *AIDS*. 2020 Dec 1;34(15):2295.
20. Ssemata AS, Muhumuza ,Richard, Stranix-Chibanda ,Lynda, Nematadzira ,Teacler, Ahmed ,Nadia, Hornschuh ,Stefanie, et al. The potential effect of pre-exposure prophylaxis (PrEP) roll-out on sexual-risk behaviour among adolescents and young people in East and southern Africa. *African Journal of AIDS Research*. 2022 Jan 2;21(1):1–7.
21. TB-HIV Care. South African Bio-Behavioral Survey and Population Size Estimation among People Who Inject Drugs, 2023 [Internet]. 2024. Available from: [https://tbhivcare.org/wp-content/uploads/2024/09/Press-Release-Bio-behavioural-study\\_final.pdf](https://tbhivcare.org/wp-content/uploads/2024/09/Press-Release-Bio-behavioural-study_final.pdf)
22. UNAIDS. HIV prevention among adolescent girls and young women [Internet]. 2016. Available from: [https://www.unaids.org/sites/default/files/media\\_asset/UNAIDS\\_HIV\\_prevention\\_among\\_adolescent\\_girls\\_and\\_young\\_women.pdf](https://www.unaids.org/sites/default/files/media_asset/UNAIDS_HIV_prevention_among_adolescent_girls_and_young_women.pdf)
23. University of California San Francisco, Anova Health Institute, National Institute for Communicable Disease. Brief Report of the TipVal Study: An Integrated Bio-Behavioral Surveillance Survey among People who Inject Drugs [Internet]. 2018. Available from: <https://stacks.cdc.gov/view/cdc/164287>
24. Scheibe A, Young K, Versfeld A, Spearman CW, Sonderup MW, Prabdhial-Sing N, et al. Hepatitis B, hepatitis C and HIV prevalence and related sexual and substance use risk practices among key populations who access HIV prevention, treatment and related services in South Africa: findings from a seven-city cross-sectional survey (2017). *BMC Infectious Diseases*. 2020 Sept 7;20(1):655.
25. Hiv TL. The syndemic threat of food insecurity and HIV. *The Lancet HIV*. 2020 Feb 1;7(2):e75.
26. The Aurum Institute, Anova Health Institute. South African Men's Health Monitoring Survey: A Bio-Behavioural Survey Among Men Who Have Sex with Men In South Africa (SAMHMS 2019): Final Report [Internet]. 2020. Available from: [https://stacks.cdc.gov/view/cdc/164289/cdc\\_164289\\_DS1.pdf](https://stacks.cdc.gov/view/cdc/164289/cdc_164289_DS1.pdf)
27. Knox J, Reddy V, Lane T, Lovasi G, Hasin D, Sandfort T. Determinants of hazardous drinking among black South African men who have sex with men. *Drug Alcohol Depend*. 2017 Nov 1;180:14–21.
28. Liu M, Cai X, Hao G, Li W, Chen Q, Chen Y, et al. Prevalence of Intimate Partner Violence Among Men Who Have Sex With Men: An Updated Systematic Review and Meta-Analysis. *Sexual Medicine*. 2021 Dec 1;9(6):100433.
29. Cloete, A; Wabiri, N; Savva, H; Van der Merwe, L; Simbayi, L. The Botshelo Ba Trans Study - Results of the first HIV prevalence survey conducted with transgender women (TGW) in South Africa.pdf.

# Appendices 1: Population Size Estimates Extrapolations

The recommended estimates from the previous section were used as the direct estimates in the models. Based on these estimates, extrapolations were made. This method follows the methods developed by Dr Jess Edwards and Dr Grace Mulholland (University of North Carolina). The methods were used to estimate the number of FSWs in Malawi based on a model developed under the guidance of Dr. Jess Edwards, also at UNC. The extrapolation methods were used to compute size estimates for areas where the survey was not implemented.

We employed a multiple imputation approach to impute counts and proportions of key populations in districts with a male or female population under 1 million. Multiple imputation is a modern statistical method used to account for missing data; in the case of population size estimates, the “missing” data are size estimates in areas where direct size estimates are not available. Multiple imputation is an appropriate method for extrapolating size estimates to be produced for localities outside the study implementation area, based on contextual variables measured across all localities of interest.

Briefly, the multiple imputation approach involves fitting a model of the relationship between key population size and contextual variables, then applying multiply drawn regression coefficients and locality-specific values for

the contextual variables to produce size estimates for localities outside the study area. The process of iteratively drawing regression coefficients enables uncertainty in the parameter estimates to propagate through to the final confidence intervals around the imputed size estimates. Multiple imputation has been used to extrapolate direct size estimates in other settings, including Uganda and the Dominican Republic and Malawi.

Table 1: Total population size estimates for 47 districts

| KP Group | Estimate | 95% CI Low | 95% CI High | Percent           | 95% CI % |     |
|----------|----------|------------|-------------|-------------------|----------|-----|
| FSW      | 128,100  | 124,200    | 132,800     | 1.4% of F 18-49   | 1.4      | 1.5 |
| PWID     | 27,600   | 26,600     | 28,700      | 0.2% of M&F 18-49 | 0.1      | 0.2 |
| MSM      | 66,900   | 65,500     | 68,300      | 0.7% of M 18-49   | 0.7      | 0.8 |
| TGW      | 14,000   | 13,500     | 14,500      | 0.2% of M 18-49   | 0.2      | 0.2 |

Table 2: Population size estimates of female sex workers for 47 districts

| FSWs                                     |     |         |         |            |          |          |          |
|------------------------------------------|-----|---------|---------|------------|----------|----------|----------|
| Name of district                         | %   | % Lower | % Upper | F 18-49    | N        | N Lower  | N Upper  |
| Alfred Nzo District Municipality         | 2.3 | 2.1     | 2.6     | 185,540.00 | 4,300.00 | 3,900.00 | 4,800.00 |
| Amathole District Municipality           | 0.8 | 0.8     | 0.9     | 141,565.00 | 1,200.00 | 1,100.00 | 1,300.00 |
| Buffalo City Metropolitan Municipality   | 1.2 | 1.2     | 1.3     | 174,362.00 | 2,100.00 | 2,000.00 | 2,300.00 |
| Chris Hani District Municipality         | 1.2 | .       | .       | 123,609.00 | 1,500.00 | .        | .        |
| Joe Gqabi District Municipality          | 2.3 | 2       | 2.5     | 67,228.00  | 1,500.00 | 1,300.00 | 1,700.00 |
| Nelson Mandela Bay Municipality          | 2.6 | 2.5     | 2.7     | 279,389.00 | 7,300.00 | 6,800.00 | 7,700.00 |
| Oliver Tambo District Municipality       | 0.9 | 0.9     | 1       | 339,735.00 | 3,100.00 | 2,900.00 | 3,300.00 |
| Sarah Baartman District Municipality     | 3.5 | 3.2     | 3.9     | 107,766.00 | 3,800.00 | 3,400.00 | 4,200.00 |
| Fezile Dabi District Municipality        | 0.9 | 0.8     | 0.9     | 117,965.00 | 1,000.00 | 900.00   | 1,200.00 |
| Lejweleputswa District Municipality      | 0.9 | 0.8     | 0.9     | 150,397.00 | 1,300.00 | 1,200.00 | 1,400.00 |
| Mangaung Metropolitan Municipality       | 1.6 | 1.6     | 1.7     | 217,247.00 | 3,600.00 | 3,300.00 | 3,800.00 |
| Thabo Mofutsanyana District Municipality | 0.9 | 0.8     | 0.9     | 188,461.00 | 1,700.00 | 1,500.00 | 1,800.00 |
| Xhariep District Municipality            | 2.2 | .       | .       | 27,696.00  | 600.00   | .        | .        |
| Sedibeng District Municipality           | 1.6 | .       | .       | 220,488.00 | 3,600.00 | .        | .        |
| West Rand District Municipality          | 1.9 | .       | .       | 251,993.00 | 4,800.00 | .        | .        |
| Amajuba District Municipality            | 0.9 | 0.9     | 1       | 138,902.00 | 1,300.00 | 1,200.00 | 1,400.00 |
| Harry Gwala District Municipality        | 0.9 | 0.8     | 1       | 119,424.00 | 1,100.00 | 900.00   | 1,200.00 |
| Ilembe District Municipality             | 0.9 | .       | .       | 164,737.00 | 1,500.00 | .        | .        |
| King Cetshwayo District Municipality     | 1   | 0.9     | 1       | 231,938.00 | 2,200.00 | 2,100.00 | 2,400.00 |
| Ugu District Municipality                | 1   | 0.9     | 1       | 201,305.00 | 1,900.00 | 1,800.00 | 2,100.00 |
| Umgungundlovu District Municipality      | 1   | 0.9     | 1       | 302,504.00 | 3,000.00 | 2,800.00 | 3,100.00 |
| Umkhanyakude District Municipality       | 0.9 | 0.8     | 0.9     | 168,137.00 | 1,500.00 | 1,300.00 | 1,600.00 |
| Umzinyathi District Municipality         | 0.9 | 0.8     | 0.9     | 141,193.00 | 1,200.00 | 1,100.00 | 1,400.00 |
| Uthukela District Municipality           | 0.9 | 0.8     | 1       | 157,370.00 | 1,400.00 | 1,300.00 | 1,600.00 |
| Zululand District Municipality           | 0.9 | 0.8     | 0.9     | 197,665.00 | 1,700.00 | 1,600.00 | 1,900.00 |
| Capricorn District Municipality          | 0.8 | .       | .       | 298,632.00 | 2,500.00 | .        | .        |

| FSWs                                             |     |         |         |            |           |           |           |
|--------------------------------------------------|-----|---------|---------|------------|-----------|-----------|-----------|
| Name of district                                 | %   | % Lower | % Upper | F 18-49    | N         | N Lower   | N Upper   |
| Mopani District Municipality                     | 0.6 | 0.5     | 0.6     | 284,625.00 | 1,600.00  | 1,500.00  | 1,800.00  |
| Sekhukhune District Municipality                 | 0.9 | 0.9     | 1       | 294,406.00 | 2,700.00  | 2,500.00  | 2,900.00  |
| Vhembe District Municipality                     | 2.6 | 2.4     | 2.8     | 354,057.00 | 9,100.00  | 8,300.00  | 10,000.00 |
| Waterberg District Municipality                  | 1.4 | 1.3     | 1.4     | 168,208.00 | 2,300.00  | 2,100.00  | 2,500.00  |
| Ehlanzeni District Municipality                  | 2.5 | 2.3     | 2.7     | 439,474.00 | 11,100.00 | 10,100.00 | 12,100.00 |
| Gert Sibande District Municipality               | 2.4 | 2.2     | 2.6     | 314,731.00 | 7,400.00  | 6,800.00  | 8,100.00  |
| Nkangala District Municipality                   | 1.5 | 1.4     | 1.5     | 418,510.00 | 6,100.00  | 5,800.00  | 6,400.00  |
| Frances Baard District Municipality              | 0.9 | 0.9     | 1       | 93,210.00  | 900.00    | 800.00    | 1,000.00  |
| John Taolo Gaetsewe District Municipality        | 1.4 | 1.3     | 1.6     | 67,512.00  | 1,000.00  | 800.00    | 1,100.00  |
| Namakwa District Municipality                    | 0.8 | 0.7     | 0.9     | 26,698.00  | 200.00    | 100.00    | 300.00    |
| Pixley Ka Seme District Municipality             | 0.8 | 0.7     | 0.9     | 44,884.00  | 400.00    | 300.00    | 500.00    |
| Zwelentlanga Fatman Mgcawu District Municipality | 3.5 | 3.2     | 3.9     | 70,935.00  | 2,500.00  | 2,200.00  | 2,800.00  |
| Bojanala Platinum District Municipality          | 0.9 | .       | .       | 462,549.00 | 4,400.00  | .         | .         |
| Dr Kenneth Kaunda District Municipality          | 1.4 | 1.4     | 1.5     | 203,112.00 | 2,900.00  | 2,700.00  | 3,100.00  |
| Dr Ruth Segomotsi Mompati District Municipality  | 1.3 | 1.2     | 1.4     | 102,785.00 | 1,300.00  | 1,200.00  | 1,500.00  |
| Ngaka Modiri Molema District Municipality        | 2.4 | 2.2     | 2.7     | 211,345.00 | 5,100.00  | 4,700.00  | 5,700.00  |
| Cape Winelands District Municipality             | 1.4 | 1.4     | 1.5     | 248,661.00 | 3,500.00  | 3,300.00  | 3,800.00  |
| Central Karoo District Municipality              | 0.8 | 0.7     | 1       | 16,861.00  | 100.00    | 100.00    | 200.00    |
| Garden Route District Municipality               | 0.9 | 0.8     | 0.9     | 147,408.00 | 1,300.00  | 1,100.00  | 1,400.00  |
| Overberg District Municipality                   | 0.9 | 0.8     | 0.9     | 75,325.00  | 700.00    | 600.00    | 800.00    |
| West Coast District Municipality                 | 2.3 | 2.1     | 2.5     | 121,981.00 | 2,800.00  | 2,500.00  | 3,100.00  |



Table 3: Population size estimates of people who inject drugs for 47 districts

| PWID                                     |     |         |         |         |      |         |         |
|------------------------------------------|-----|---------|---------|---------|------|---------|---------|
| Name of district                         | %   | % Lower | % Upper | F 18-49 | N    | N Lower | N Upper |
| Alfred Nzo District Municipality         | 0.1 | 0.1     | 0.1     | 310521  | 200  | 100     | 300     |
| Amathole District Municipality           | 0.3 | 0.2     | 0.3     | 297940  | 900  | 700     | 1100    |
| Buffalo City Metropolitan Municipality   | 0.2 | 0.2     | 0.2     | 355892  | 800  | 600     | 900     |
| Chris Hani District Municipality         | 0   | .       | .       | 258395  | 100  | .       | .       |
| Joe Gqabi District Municipality          | 0.1 | 0.1     | 0.1     | 136471  | 100  | 100     | 200     |
| Nelson Mandela Bay Municipality          | 0.1 | 0.1     | 0.1     | 557820  | 400  | 300     | 600     |
| Oliver Tambo District Municipality       | 0.1 | 0.1     | 0.1     | 664256  | 600  | 500     | 700     |
| Sarah Baartman District Municipality     | 0.2 | 0.1     | 0.2     | 228810  | 400  | 300     | 500     |
| Fezile Dabi District Municipality        | 0.1 | 0.1     | 0.1     | 241958  | 300  | 200     | 400     |
| Lejweleputswa District Municipality      | 0.1 | 0.1     | 0.1     | 308781  | 400  | 300     | 500     |
| Mangaung Metropolitan Municipality       | 0.1 | 0.1     | 0.1     | 433718  | 500  | 400     | 700     |
| Thabo Mofutsanyana District Municipality | 0.1 | 0.1     | 0.1     | 360188  | 400  | 300     | 400     |
| Xhariep District Municipality            | 0   | .       | .       | 56915   | 0    | .       | .       |
| Sedibeng District Municipality           | 0.2 | .       | .       | 485126  | 1000 | .       | .       |
| West Rand District Municipality          | 0.4 | .       | .       | 521822  | 1900 | .       | .       |
| Amajuba District Municipality            | 0.1 | 0.1     | 0.1     | 273798  | 300  | 200     | 400     |
| Harry Gwala District Municipality        | 0.1 | 0.1     | 0.1     | 222656  | 200  | 100     | 300     |
| Ilembe District Municipality             | 0.2 | .       | .       | 320072  | 800  | .       | .       |
| King Cetshwayo District Municipality     | 0.1 | 0.1     | 0.1     | 436246  | 400  | 300     | 500     |
| Ugu District Municipality                | 0.3 | 0.2     | 0.3     | 403838  | 1100 | 900     | 1300    |
| Umgungundlovu District Municipality      | 0.3 | 0.2     | 0.3     | 592475  | 1500 | 1300    | 1800    |
| Umkhanyakude District Municipality       | 0.1 | 0.1     | 0.1     | 302827  | 300  | 200     | 400     |
| Umzinyathi District Municipality         | 0.1 | 0.1     | 0.1     | 255198  | 200  | 100     | 300     |
| Uthukela District Municipality           | 0.1 | 0.1     | 0.1     | 308556  | 300  | 200     | 400     |
| Zululand District Municipality           | 0.1 | 0.1     | 0.1     | 368681  | 300  | 300     | 400     |
| Capricorn District Municipality          | 0.1 | .       | .       | 584713  | 700  | .       | .       |

| PWID                                             |     |         |         |         |      |         |         |
|--------------------------------------------------|-----|---------|---------|---------|------|---------|---------|
| Name of district                                 | %   | % Lower | % Upper | F 18-49 | N    | N Lower | N Upper |
| Mopani District Municipality                     | 0.1 | 0.1     | 0.1     | 550609  | 400  | 300     | 500     |
| Sekhukhune District Municipality                 | 0.1 | 0.1     | 0.1     | 583461  | 600  | 500     | 700     |
| Vhembe District Municipality                     | 0.1 | 0.1     | 0.1     | 678853  | 600  | 500     | 700     |
| Waterberg District Municipality                  | 0.2 | 0.2     | 0.2     | 368624  | 700  | 500     | 800     |
| Ehlanzeni District Municipality                  | 0.1 | 0.1     | 0.1     | 854502  | 800  | 700     | 1000    |
| Gert Sibande District Municipality               | 0.1 | 0.1     | 0.1     | 658189  | 900  | 700     | 1000    |
| Nkangala District Municipality                   | 0.2 | 0.2     | 0.2     | 906542  | 1600 | 1400    | 1800    |
| Frances Baard District Municipality              | 0.1 | 0.1     | 0.1     | 198171  | 200  | 200     | 300     |
| John Taolo Gaetsewe District Municipality        | 0.1 | 0.1     | 0.1     | 135717  | 100  | 100     | 200     |
| Namakwa District Municipality                    | 0.1 | 0.1     | 0.2     | 53789   | 100  | 0       | 100     |
| Pixley Ka Seme District Municipality             | 0.1 | 0.1     | 0.2     | 93727   | 100  | 100     | 200     |
| Zwelentlanga Fatman Mgcawu District Municipality | 0.2 | 0.2     | 0.2     | 149628  | 300  | 200     | 400     |
| Bojanala Platinum District Municipality          | 0.2 | .       | .       | 1056691 | 1700 | .       | .       |
| Dr Kenneth Kaunda District Municipality          | 0.1 | 0.1     | 0.2     | 404781  | 600  | 500     | 700     |
| Dr Ruth Segomotsi Mompati District Municipality  | 0.1 | 0.1     | 0.2     | 197138  | 300  | 200     | 400     |
| Ngaka Modiri Molema District Municipality        | 0.1 | 0.1     | 0.1     | 425560  | 500  | 400     | 600     |
| Cape Winelands District Municipality             | 0.4 | 0.4     | 0.5     | 511064  | 2200 | 1900    | 2400    |
| Central Karoo District Municipality              | 0.1 | 0.1     | 0.2     | 32916   | 0    | 0       | 100     |
| Garden Route District Municipality               | 0.1 | 0.1     | 0.1     | 292065  | 300  | 200     | 400     |
| Overberg District Municipality                   | 0.4 | 0.3     | 0.4     | 157365  | 600  | 400     | 700     |
| West Coast District Municipality                 | 0.4 | 0.3     | 0.4     | 249584  | 900  | 700     | 1100    |

Table 4: Population size estimates of men who have sex with men for 47 districts

| MSM                                      |     |         |         |         |       |         |         |
|------------------------------------------|-----|---------|---------|---------|-------|---------|---------|
| Name of district                         | %   | % Lower | % Upper | M 18-49 | N     | N Lower | N Upper |
| Alfred Nzo District Municipality         | 0.5 | 0.4     | 0.5     | 124,981 | 600   | 500     | 700     |
| Amathole District Municipality           | 0.6 | 0.5     | 0.6     | 156,375 | 900   | 800     | 1,100   |
| Buffalo City Metropolitan Municipality   | 1.3 | 1.2     | 1.4     | 181,530 | 2,400 | 2,200   | 2,500   |
| Chris Hani District Municipality         | 0.9 | .       | .       | 134,786 | 1,300 | .       | .       |
| Joe Gqabi District Municipality          | 0.6 | 0.5     | 0.7     | 69,243  | 400   | 300     | 500     |
| Nelson Mandela Bay Municipality          | 2.3 | 2.1     | 2.5     | 278,431 | 6,400 | 5,900   | 7,000   |
| Oliver Tambo District Municipality       | 0.7 | 0.7     | 0.7     | 324,521 | 2,300 | 2,100   | 2,400   |
| Sarah Baartman District Municipality     | 0.7 | 0.7     | 0.8     | 121,044 | 900   | 700     | 1,000   |
| Fezile Dabi District Municipality        | 0.8 | 0.7     | 0.8     | 123,993 | 1,000 | 800     | 1,100   |
| Lejweleputswa District Municipality      | 0.8 | 0.7     | 0.8     | 158,384 | 1,200 | 1,100   | 1,300   |
| Mangaung Metropolitan Municipality       | 1   | 0.9     | 1       | 216,471 | 2,100 | 1,900   | 2,300   |
| Thabo Mofutsanyana District Municipality | 0.6 | 0.6     | 0.7     | 171,727 | 1,100 | 1,000   | 1,200   |
| Xhariep District Municipality            | 3.2 | .       | .       | 29,219  | 900   | .       | .       |
| Sedibeng District Municipality           | 2.9 | .       | .       | 264,638 | 7,600 | .       | .       |
| West Rand District Municipality          | 1.5 | .       | .       | 269,829 | 4,000 | .       | .       |
| Amajuba District Municipality            | 0.8 | 0.7     | 0.8     | 134,896 | 1,000 | 900     | 1,100   |
| Harry Gwala District Municipality        | 0.6 | 0.6     | 0.7     | 103,232 | 600   | 500     | 700     |
| Ilembe District Municipality             | 1   | .       | .       | 155,335 | 1,500 | .       | .       |
| King Cetshwayo District Municipality     | 0.7 | 0.7     | 0.8     | 204,308 | 1,500 | 1,300   | 1,600   |
| Ugu District Municipality                | 0.8 | 0.7     | 0.8     | 202,533 | 1,600 | 1,400   | 1,800   |
| Umgungundlovu District Municipality      | 0.8 | 0.8     | 0.9     | 289,971 | 2,400 | 2,200   | 2,500   |
| Umkhanyakude District Municipality       | 0.6 | 0.5     | 0.6     | 134,690 | 700   | 600     | 900     |
| Umzinyathi District Municipality         | 0.5 | 0.5     | 0.6     | 114,005 | 600   | 500     | 700     |
| Uthukela District Municipality           | 0.7 | 0.6     | 0.7     | 151,186 | 1,000 | 900     | 1,100   |
| Zululand District Municipality           | 0.6 | 0.6     | 0.6     | 171,016 | 1,000 | 900     | 1,200   |
| Capricorn District Municipality          | 0.4 | .       | .       | 286,081 | 1,100 | .       | .       |

| MSM                                              |     |         |         |         |       |         |         |
|--------------------------------------------------|-----|---------|---------|---------|-------|---------|---------|
| Name of district                                 | %   | % Lower | % Upper | M 18-49 | N     | N Lower | N Upper |
| Mopani District Municipality                     | 0.7 | 0.6     | 0.7     | 265,984 | 1,800 | 1,700   | 2,000   |
| Sekhukhune District Municipality                 | 0.7 | 0.7     | 0.8     | 289,055 | 2,100 | 1,900   | 2,200   |
| Vhembe District Municipality                     | 0.7 | 0.7     | 0.8     | 324,796 | 2,400 | 2,200   | 2,600   |
| Waterberg District Municipality                  | 0.8 | 0.8     | 0.9     | 200,416 | 1,700 | 1,500   | 1,800   |
| Ehlanzeni District Municipality                  | 0.7 | 0.7     | 0.8     | 415,028 | 3,100 | 2,900   | 3,300   |
| Gert Sibande District Municipality               | 0.8 | 0.8     | 0.8     | 343,458 | 2,700 | 2,600   | 2,900   |
| Nkangala District Municipality                   | 1   | 0.9     | 1       | 488,032 | 4,800 | 4,600   | 5,000   |
| Frances Baard District Municipality              | 0.9 | 0.8     | 1       | 104,961 | 900   | 800     | 1,100   |
| John Taolo Gaetsewe District Municipality        | 0.7 | 0.6     | 0.7     | 68,205  | 500   | 400     | 500     |
| Namakwa District Municipality                    | 0.7 | 0.6     | 0.8     | 27,091  | 200   | 100     | 300     |
| Pixley Ka Seme District Municipality             | 0.7 | 0.6     | 0.8     | 48,843  | 300   | 300     | 400     |
| Zwelentlanga Fatman Mgcawu District Municipality | 0.7 | 0.7     | 0.8     | 78,693  | 600   | 500     | 700     |
| Bojanala Platinum District Municipality          | 1.2 | .       | .       | 594,142 | 7,200 | .       | .       |
| Dr Kenneth Kaunda District Municipality          | 0.8 | 0.8     | 0.8     | 201,669 | 1,600 | 1,500   | 1,700   |
| Dr Ruth Segomotsi Mompati District Municipality  | 0.6 | 0.5     | 0.6     | 94,353  | 500   | 500     | 700     |
| Ngaka Modiri Molema District Municipality        | 0.8 | 0.7     | 0.8     | 214,215 | 1,600 | 1,500   | 1,800   |
| Cape Winelands District Municipality             | 0.8 | 0.8     | 0.9     | 262,403 | 2,100 | 1,900   | 2,300   |
| Central Karoo District Municipality              | 0.6 | 0.5     | 0.7     | 16,055  | 100   | -       | 200     |
| Garden Route District Municipality               | 0.7 | 0.6     | 0.7     | 144,657 | 1,000 | 900     | 1,100   |
| Overberg District Municipality                   | 0.8 | 0.7     | 0.9     | 82,040  | 700   | 500     | 800     |
| West Coast District Municipality                 | 0.7 | 0.7     | 0.8     | 127,603 | 900   | 800     | 1,100   |

Table 5: Population size estimates of transgender women for 47 districts

| TGW                                      |     |         |         |         |     |         |         |
|------------------------------------------|-----|---------|---------|---------|-----|---------|---------|
| Name of district                         | %   | % Lower | % Upper | M 18-49 | N   | N Lower | N Upper |
| Alfred Nzo District Municipality         | 0.1 | 0.1     | 0.2     | 124,981 | 200 | 100     | 300     |
| Amathole District Municipality           | 0.2 | 0.1     | 0.2     | 156,375 | 300 | 200     | 400     |
| Buffalo City Metropolitan Municipality   | 0.2 | 0.2     | 0.2     | 181,530 | 400 | 300     | 500     |
| Chris Hani District Municipality         | 0.3 | .       | .       | 134,786 | 400 | .       | .       |
| Joe Gqabi District Municipality          | 0.1 | 0.1     | 0.2     | 69,243  | 100 | 0       | 200     |
| Nelson Mandela Bay Municipality          | 0.2 | 0.1     | 0.2     | 278,431 | 500 | 300     | 700     |
| Oliver Tambo District Municipality       | 0.1 | 0.1     | 0.2     | 324,521 | 500 | 400     | 600     |
| Sarah Baartman District Municipality     | 0.1 | 0.1     | 0.2     | 121,044 | 200 | 100     | 200     |
| Fezile Dabi District Municipality        | 0.1 | 0.1     | 0.2     | 123,993 | 200 | 100     | 300     |
| Lejweleputswa District Municipality      | 0.1 | 0.1     | 0.2     | 158,384 | 200 | 100     | 300     |
| Mangaung Metropolitan Municipality       | 0.2 | 0.1     | 0.2     | 216,471 | 300 | 200     | 400     |
| Thabo Mofutsanyana District Municipality | 0.1 | 0.1     | 0.2     | 171,727 | 200 | 200     | 300     |
| Xhariep District Municipality            | 1.1 | .       | .       | 29,219  | 300 | .       | .       |
| Sedibeng District Municipality           | 0.3 | .       | .       | 264,638 | 700 | .       | .       |
| West Rand District Municipality          | 0.2 | .       | .       | 269,829 | 600 | .       | .       |
| Amajuba District Municipality            | 0.1 | 0.1     | 0.2     | 134,896 | 200 | 100     | 300     |
| Harry Gwala District Municipality        | 0.1 | 0.1     | 0.2     | 103,232 | 100 | 100     | 200     |
| Ilembe District Municipality             | 0.1 | .       | .       | 155,335 | 100 | .       | .       |
| King Cetshwayo District Municipality     | 0.1 | 0.1     | 0.2     | 204,308 | 300 | 200     | 400     |
| Ugu District Municipality                | 0.2 | 0.2     | 0.2     | 202,533 | 400 | 300     | 500     |
| Umgungundlovu District Municipality      | 0.2 | 0.2     | 0.2     | 289,971 | 500 | 400     | 700     |
| Umkhanyakude District Municipality       | 0.1 | 0.1     | 0.2     | 134,690 | 200 | 100     | 300     |
| Umzinyathi District Municipality         | 0.1 | 0.1     | 0.2     | 114,005 | 200 | 100     | 200     |
| Uthukela District Municipality           | 0.1 | 0.1     | 0.2     | 151,186 | 200 | 100     | 300     |
| Zululand District Municipality           | 0.1 | 0.1     | 0.2     | 171,016 | 200 | 200     | 300     |
| Capricorn District Municipality          | 0.1 | .       | .       | 286,081 | 300 | .       | .       |

| TGW                                              |     |         |         |         |     |         |         |
|--------------------------------------------------|-----|---------|---------|---------|-----|---------|---------|
| Name of district                                 | %   | % Lower | % Upper | M 18-49 | N   | N Lower | N Upper |
| Mopani District Municipality                     | 0.1 | 0.1     | 0.2     | 265,984 | 400 | 300     | 500     |
| Sekhukhune District Municipality                 | 0.1 | 0.1     | 0.2     | 289,055 | 400 | 300     | 500     |
| Vhembe District Municipality                     | 0.1 | 0.1     | 0.2     | 324,796 | 500 | 400     | 600     |
| Waterberg District Municipality                  | 0.1 | 0.1     | 0.2     | 200,416 | 300 | 200     | 400     |
| Ehlanzeni District Municipality                  | 0.1 | 0.1     | 0.2     | 415,028 | 600 | 500     | 700     |
| Gert Sibande District Municipality               | 0.1 | 0.1     | 0.2     | 343,458 | 500 | 400     | 600     |
| Nkangala District Municipality                   | 0.1 | 0.1     | 0.2     | 488,032 | 700 | 600     | 800     |
| Frances Baard District Municipality              | 0.1 | 0.1     | 0.2     | 104,961 | 200 | 100     | 200     |
| John Taolo Gaetsewe District Municipality        | 0.1 | 0.1     | 0.2     | 68,205  | 100 | 0       | 200     |
| Namakwa District Municipality                    | 0.1 | 0.1     | 0.2     | 27,091  | 0   | 0       | 100     |
| Pixley Ka Seme District Municipality             | 0.1 | 0.1     | 0.2     | 48,843  | 100 | 0       | 100     |
| Zwelentlanga Fatman Mgcawu District Municipality | 0.1 | 0.1     | 0.2     | 78,693  | 100 | 0       | 200     |
| Bojanala Platinum District Municipality          | 0.1 | .       | .       | 594,142 | 500 | .       | .       |
| Dr Kenneth Kaunda District Municipality          | 0.1 | 0.1     | 0.2     | 201,669 | 300 | 200     | 400     |
| Dr Ruth Segomotsi Mompati District Municipality  | 0.1 | 0.1     | 0.2     | 94,353  | 100 | 100     | 200     |
| Ngaka Modiri Molema District Municipality        | 0.1 | 0.1     | 0.2     | 214,215 | 300 | 200     | 400     |
| Cape Winelands District Municipality             | 0.2 | 0.2     | 0.2     | 262,403 | 500 | 300     | 600     |
| Central Karoo District Municipality              | 0.1 | 0.1     | 0.2     | 16,055  | 0   | 0       | 100     |
| Garden Route District Municipality               | 0.1 | 0.1     | 0.2     | 144,657 | 200 | 100     | 300     |
| Overberg District Municipality                   | 0.2 | 0.1     | 0.2     | 82,040  | 100 | 100     | 200     |
| West Coast District Municipality                 | 0.2 | 0.1     | 0.2     | 127,603 | 200 | 100     | 300     |