GOVERNMENT OF MONGOLIA

MINISTRY OF HEALTH

HIV AND SYPHILIS SURVEILLANCE SURVEY

REPORT, 2019

Ulaanbaatar

This survey has been conducted by National Centre for Communicable Disease (NCCD) with financial support from the Global Fund Supported project on AIDS.

Report written by: Ts.Enkh-Oyun
Reviewed by: N.Tsogzolmaa
J.Davaalkham
B.Gansukh
Ch.Byambaa

Edited by: T.Khulan
P.Otgonjargal

STEARING COMMITTEE:

Name	Occupation
T.Enkhzaya	Director of Public Health Division, Ministry of Health
J.Davaalkham	Head of HIV/STI Surveillance Unit, NCCD
E.Oyunsuren	Officer in charge for health sector technology, innovation, MOH
S.Enkhjin	Specialist in charge of AIDS and Tuberculosis
A.Amarbal	Director of Population and Social Statistics Department, NSO
D.Nyamkhuu	General Director, NCCD
N.Erdenebayar	General Director, National Blood Center
S. Unursaikhan	Scientific Secretary, Public Health Institute
D.Enkhmandakh	Head of TB Surveillance Unit, NCCD
V.Narantsetseg	Chairman of the STI, HIV Professional Sub Council, MOH
N.Tsogzolmaa	Coordinator, Global Fund-Supported Project on AIDS and TB
D.Davaalkham	Dean, School of Public Health, MNUMS
P.Anuzaya	National Program officer for HIV and AIDS, WHO
A.Iliza	National Program officer for HIV and AIDS, UNFPA
D.Bolorchimeg	National Program officer for HIV and AIDS, UNICEF
D.Nyam-Ulzii	Executive director, Perfect Lady NGO
D.Myagmardorj	Executive Director, Youth for Health NGO

NCCD TENDER EVALUATION COMMITTEE:

D.Dolgormaa	Vice director, Director of Evaluation Committee
B.Oyunbeleg	Head of HIV and AIDS Treatment Division, HIV/STI Surveillance and Research Unit, NCCD, Secretary
G.Khunzaya	Head of Financial Department, member
A.Shinekhuu	Economist, member
D.Oyunnomin	Internal auditor, member
B.Bayartsetseg	Head of Pharmaceutical Department, Member
B.Jugderjav	Head of HIV and AIDS Treatment Division, HIV/STI Surveillance and Research Unit, NCCD, member

SURVEY TEAM:

Lead researchers

- Ts.Enkh-Oyun, PhD in Medical Science, Lecturer of Department, School of Public Health, MNUMS

Consultants

- D.Davaalkham, PhD in Medical Science Prof., Director of Department, School of Public Health, MNUMS
- Lisa Johnson, Senior Consultant

Logistics coordinators:

– P.Unenchimeg, PhD in Medical Science, Doctor, HIV/STI Surveillance and Research Unit, NCCD

ULAANBAATAR CITY

Ch.Byambaa	Officer, Global Fund-Supported Project on AIDS
B.Gansukh	Officer, Global Fund-Supported Project on AIDS
B.Oyunbileg	Head of HIV and AIDS Treatment Division, HIV/STI Surveillance and Research Unit, NCCD
B.Jugderjav	PhD in Medical Science, Head of HIV and AIDS Treatment Division, HIV/STI Surveillance and Research Unit, NCCD
B.Solongo	Doctor, HIV/STI Surveillance and Research Unit, NCCD
N.Ganbold	Doctor, HIV/STI Surveillance and Research Unit, NCCD
O.Enkhjargal	Doctor, HIV/STI Surveillance and Research Unit, NCCD
B.Purevdavga	Doctor, HIV/STI Surveillance and Research Unit, NCCD
P.Narantuya	Doctor, HIV/STI Surveillance and Research Unit, NCCD
S.Zolzaya	Doctor, HIV/STI Surveillance and Research Unit, NCCD
D.Baigalmaa	Epidemiologist, HIV/STI Surveillance and Research Unit, NCCD
E.Erdenetungalag	Epidemiologist, HIV/STI Surveillance and Research Unit, NCCD
P.Tumendemberel	Epidemiologist, HIV/STI Surveillance and Research Unit, NCCD
O.Mandal	Statistics doctor, HIV/STI Surveillance and Research Unit, NCCD
B.Odontuya	Doctor, HIV/STI Surveillance and Research Unit, NCCD
B.Bayandalai	Nurse, HIV/STI Surveillance and Research Unit, NCCD
N.Tsetsegsuren	Nurse, HIV/STI Surveillance and Research Unit, NCCD
B.Uyanga	Pharmacist, HIV/STI Surveillance and Research Unit, NCCD
G.Gantuya	Pharmacist, NCCD
D.Tungalag	Senior feldsher, HIV/STI Surveillance and Research Unit, NCCD
B.Purevsuren	Feldsher, HIV/STI Surveillance and Research Unit, NCCD
S.Ulambayar	Nurse, HIV/STI Surveillance and Research Unit, NCCD
A.Ganchimeg	Nurse, HIV/STI Surveillance and Research Unit, NCCD
Ts.Ganbaatar	Nurse, HIV/STI Surveillance and Research Unit, NCCD
Sh.Myagmarsuren	Head, AIDS/STI laboratory, Integrated Laboratory Unit, NCCD
B.Saikhankhuu	Manager, AIDS/STI laboratory, Integrated Laboratory Unit, NCCD
S.Solongo	Biomedical researcher, AIDS/STI laboratory, Integrated Laboratory Unit, NCCD
B.Oyungerel	Clinical pathologist, STI laboratory, Integrated Laboratory Unit, NCCD
S.Sarangerel	Clinical pathologist,STI laboratory, Integrated Laboratory Unit, NCCD

D.Daariimaa	Laboratory technician,STI laboratory, Integrated Laboratory Unit, NCCD
B.Khulan	Laboratory technician, STI laboratory, Integrated Laboratory Unit, NCCD
J.Soyolmunkh	Laboratory technician, STI laboratory, Integrated Laboratory Unit, NCCD
L.Uranchimeg	Laboratory technician, STI laboratory, Integrated Laboratory Unit, NCCD
D.Gantsetseg	Doctor,TB clinic,NCCD
Ts.Khishigsuren	Doctor, STI Cabinet, Chingeltei District Health Center
D.Nergui	Laboratory assistant, STI Cabinet, Chingeltei District Health Center
G.Solongo	Doctor, STI Cabinet, Nalaikh District Health Center
Yu.Tuyatsetseg	Laboratory assistant, STI Cabinet, Nalaikh District Health Center
S.Ganchimeg	Laboratory assistant, Blood center
G.Tsendbayar	Doctor, Blood center
Kh.Myadagmaa	Doctor, Blood center
Kh. Nyam-Ulzii	Executive director, “Perfect Ladies” NGO
J.Khaliun	Accountant, “Perfect Ladies” NGO
O.Khaliun	Case manager, “Perfect Ladies” NGO
B. Bayarmaa	Monitoring and Evaluation specialist, “Perfect Ladies” NGO
S.Tumenjargal	Project manager, “Perfect Ladies” NGO
E.Undaraa	Case manager, “Perfect Ladies” NGO
Ch. Erdenechimeg	Doctor, “Perfect Ladies” NGO
B.Munkhtsetseg	Executive director, “Timeless knowledge” NGO
Ch.Tsengel	Former nurse, NCCD
O.Baatarkhuu	Lecturer, School of Medicine, MNUMS
V.Narantsetseg	Lecturer, School of Medicine, MNUMS
V.Nyamtsengel	Lecturer, School of Medicine, MNUMS
D.Shinebileg	Lecturer, School of Medicine, MNUMS
Kh.Ser-Od	Lecturer, School of Public Health, MNUMS
B.Nyamsuren	Lecturer, School of Public Health, MNUMS
Sh.Oyu-Erdene	Lecturer, School of Public Health, MNUMS
B.Tuul	MPH student, School of Public Health, MNUMS
L.Munkhtuya	MPH student, School of Public Health, MNUMS
T.Sumiyabeis	Student, School of Nurse, MNUMS
B.Nomin-Erdene	Resident, HIV/STI Surveillance and Research Unit, NCCD
B.Munkhdulguun	Resident, HIV/STI Surveillance and Research Unit, NCCD

B.Solongo	Resident, HIV/STI Surveillance and Research Unit, NCCD
G.Khishigdelger	Master student, School of Medicine, MNUMS
Kh.Dulamsuren	Resdent, School of Medicine, MNUMS
D.Bolormaa	Nurse, The First Central Hospital of Mongolia
B.Khorolgarav	Nurse, NCCD
D.Myagmardorj	Executive director, “Youth for Health” NGO
G.Nyampurev	Outreach and rural project manager, “Youth for Health” NGO
G.Erdenetuya	Project manager, “Youth for Health” NGO
P.Nyamjargal	ORW, “Youth for Health” NGO
N.Bilguun	Doctor, “Youth for Health” NGO
B.Bilguun	Lawyer, “Youth for Health” NGO
Sh.Galbadrakh	Mongolian Family Well-Being Society,
B.Purevdulam	Financial officer, Youth for Health” NGO
E.Yanjinlkham	Psychologist, “Youth for Health” NGO
Z.Setsen	Program manager, “Youth for Health” NGO
B.Undarmaa	Doctor, STI Cabinet, Khan-Uul District Health Center
B.Nurmaa	Doctor, AIDS/STI Cabinet, Bayangol District Health Center
S.Minjin	Doctor, STI Cabinet, Sukhbaatar District Health Center
B.Odtsetseg	Social worker, AIDS/STI Cabinet, Sukhbaatar District Health Center
A.Zagdsambar	Doctor, STI Cabinet, Bayanzurkh District Health Center
KH.Tsatsalmaa	Зохицуулагч, STI Cabinet, Bayanzurkh District Health Center
B.Tsolmon	Laboratory assistant, Bayanzurkh District Health Center
D.Damdintseren	Vice Chairman, General Executive Agency of Court Decision
Ch.Tsengelbayar	Head of the Training Socio-Psychological Division, GEACD
N.Bolormaa	Officer of the Training Socio-Psychological Division, GEACD
S.Batsaikhan	Chairman, Colonel, 409th Correctional Units
B.Odontuya	Doctor, Lieutenant, 409th Correctional Units
B.Batkhuyag	Nurse, Corporal, 409th Correctional Units
T.Tuvshinjargal	Nurse, 409th Correctional Units
B.Amardorj	Chairman, Colonel, 427th Correctional Units
B.Batzorigt	Doctor, Senior Lieutenant, 427th Correctional Units
Ch.Tuya	Nurse, Senior Corporal, 427th Correctional Units
D.Javzandolgor	Nurse, Corporal, 427th Correctional Units
D.Battsetseg	Nurse, Corporal, 427th Correctional Units
G.Tamir	Chairman, Colonel, 421th Correctional Units
L.Batsaikhan	Doctor, Lieutenant, 421th Correctional Units

B.Badamtsetseg	Nurse, Corporal, 421th Correctional Units
N.Unurjargal	Nurse, Corporal, 421th Correctional Units
D.Buyankhishig	Nurse, 421th Correctional Units

DARKHAN-UUL PROVINCE

J.Erdenetuya	"Trust and Hope Women's Union" NGO
E.Nominzaya	Nurse, STI and HIV Cabinet, General Hospital of Darkhan-Uul province
T.Enkhzaya	Nurse, STI and HIV Cabinet, General Hospital of Darkhan-Uul province
G.Tuul	Doctor, STI and HIV Cabinet, General Hospital of Darkhan-Uul province
B.Gerelmaa	Project Doctor, STI and HIV Cabinet, General Hospital of Darkhan-Uul province
B.Bilguun	ORW, "Youth for Health" NGO
S.Uranchimeg	Doctor, STI and Dermatology Cabinet, General Hospital of Darkhan-Uul province
O.Tuya	Nurse, STI and HIV Cabinet, 2nd General Hospital of Darkhan-Uul province
N.Lkhagva	Serologists laboratory assistant, General Hospital of Darkhan-Uul province
D.Ulziibat	Chairman, Colonel, 435th Correctional Units
S.Enkhamgalan	Doctor, Lieutenant, 435th Correctional Units
B.Undral	Nurse, Senior Corporal, 435th Correctional Units
Kh.Dulmaa	Nurse, Senior Corporal, 435th Correctional Units
B.Enkhtsatsral	Nurse, Senior Corporal, 435th Correctional Units
M.Suvderdene	Nurse, Senior Corporal, 435th Correctional Units
S.Lkhagvasuren	Chairman, Major, 445th Correctional Units
Z.Urantsetseg	Doctor, Lieutenant, 445th Correctional Units
B.Tsolmon	Nurse, Senior Corporal, 445th Correctional Units

ORKHON PROVINCE

Ts.Gerelzul	ORW, "Youth for Health" NGO
D.Duurenjargal	Master's student, School of Public Health, MNUMS
D.Tsevelmaa	Doctor, STI and HIV cabinet, Regional Diagnostic and Treatment Center
L.Altantugs	Doctor, STI and HIV cabinet, Regional Diagnostic and Treatment Center
P.Udval	Serologists laboratory assistant, Regional Diagnostic and Treatment Center

DORNOD PROVINCE

P.Oyumaa	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
R.Nyamsuren	Laboratory assistant, STI Cabinet, Regional Diagnostic and Treatment Center
G.Gantsetseg	Director, “Healty chance” NGO
B.Solongo	Statistian, Dornod province governer’s office
D.Mangaljav	Nurse, Regional Diagnostic and Treatment Center
G.Tumurtogoo	Nurse, STI Cabinet, Regional Diagnostic and Treatment Center
O.Gankhuleg	ORW, “Youth for Health” NGO
B.Delgermaa	Doctor, STI and HIV Cabinet, Regional Diagnostic and Treatment Center
N.Tsetsegtuya	Doctor, STI and HIV Cabinet, Regional Diagnostic and Treatment Center
A.Nyamsuren	Serologists laboratory assistant, Regional Diagnostic and Treatment Center

DORNOGOBI PROVINCE

G.Otgonsuvd	Doctor, STI Cabinet, General Hospital of Zamiin-Uud soum
B.Tsetsegsuren	Laboratory assistant, STI Cabinet, General Hospital of Zamiin-Uud soum
N.Nandintsetseg	Nurse, General Hospital of Zamiin-Uud soum
T.Mandukhai	Doctor, STI Cabinet, General Hospital Dornogobi aimag
A.Ankhbayar	Doctor, STI Cabinet, General Hospital Dornogobi aimag

TUV PROVINCE

A.Dolgorjav	Doctor, STI Cabinet, General Hospital of Tuv aimag
P.Uuganbayar	Chairman, Colonel, 415th Correctional Units
B.Bayanzul	Doctor, Lieutenant, 415th Correctional Units
Ts.Gantsetseg	Nurse, Corporal, 415th Correctional Units
S.Tuvshinbayar	Nurse, Corporal, 415th Correctional Units
G.Khishigjargal	Nurse, 415th Correctional Units
Ch.Enkhbaatar	Chairman, Colonel, 415th Correctional Units
N.Narangerel	Nurse, Corporal, 415th Correctional Units

SELENGE PROVINCE

Б.Оюун-эрдэнэ	Doctor, STI Cabinet, General Hospital of Mandal soum
B.Batbayar	Chairman, Colonel, 433th Correctional Units

O.Burenjargal	Doctor, Lieutenant, 433th Correctional Units
A.Batulzii	Nurse, Senior Corporal, 433th Correctional Units
D.Delgermaa	Nurse, Senior Corporal, 433th Correctional Units
A.Buyanbaatar	Chairman, Colonel, 413th Correctional Units
S.Erdenetuul	Doctor, Senior Lieutenant, 413th Correctional Units
D.Erdenebaatar	Nurse, Senior Corporal, 413th Correctional Units
Ts.Myagmarsuren	Nurse, Corporal, 413th Correctional Units
B.Bolorsolongo	Nurse, Senior Corporal, 413th Correctional Units
B.Khongorzul	Nurse, Corporal, 413th Correctional Units

GOBISUMBER PROVINCE

N.Amarzaya	Doctor, Senior Lieutenant, 425h Correctional Units
N.Oyunerdene	Nurse, Senior Corporal, 425th Correctional Units
G.Taivan	Nurse, Senior Corporal, 425th Correctional Units
S.Otgonjargal	Nurse, Corporal, 425th Correctional Units

DUNDGOBI PROVINCE

E.Gandelger	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
B.Urantsetseg	Laboratory assistant, STI Cabinet, Regional Diagnostic and Treatment Center

ZAVKHAN PROVINCE

D.Norjinsuren	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
Ch.Suvdaa	Laboratory assistant, STI Cabinet, Regional Diagnostic and Treatment Center

UMNUGOBI PROVINCE

A.Oyunbold	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
E.Undrakhnaran	Doctor, Khanbogd soum Health Center
L.Javzandolgor	Nurse, STI Cabinet, Regional Diagnostic and Treatment Center
G.Jargalmaa	Laboratory assistant, STI Cabinet, Regional Diagnostic and Treatment Center
D.Gansukh	Doctor, Regional Diagnostic and Treatment Center

KHOVD PROVINCE

K.Munkhjargal	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
D.Otgontsagaan	Laboratory assistant, STI Cabinet, Regional Diagnostic and Treatment Center

KHUVSGUL PROVINCE

Ts.Erbold	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
E.Khishigjargal	Laboratory assistant, STI Cabinet, Regional Diagnostic and Treatment Center
O.Uugantsetseg	Executive director, “Perfect Harmony - Family” NGO
B.Ganchimeg	Pediator, STI Cabinet, Regional Diagnostic and Treatment Center
N.Jargaltuya	Nurse, STI Cabinet, Regional Diagnostic and Treatment Center
L.Oyuntsetseg	STI Officer, Healt department, Local goverment

KHENTII PROVINCE

N.Erdenetsastral	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
A.Altanchimeg	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
D.Khatanbaatar	Chairman, Colonel, 419th Correctional Units
L.Erdenechuluun	Doctor, Captain, 419th Correctional Units
G.Gantugs	Nurse, Senior Corporal, 419th Correctional Units
M.Sainkhishig	Nurse, Corporal, 419th Correctional Units
D.Davaasuren	Psychologist, Captain, 419th Correctional Units
Ts.Ganzorig	Social worker, Lieutenant, 419th Correctional Units
B.Bayasgalan	Social worker, Lieutenant, 419th Correctional Units

GOBI-ALTAI PROVINCE

P.Bulgamaa	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
D.Delger	Laboratory assistant, STI Cabinet, Regional Diagnostic and Treatment Center

BAYANKHONGOR PROVINCE

S.Odontuya	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
M.Tserennadmin	Laboratory assistant, STI Cabinet, Regional Diagnostic and Treatment Center

SUKHBAATAR PROVINCE

J.Uranchimeg	Doctor, STI Cabinet, Regional Diagnostic and Treatment Center
S.Enkhtungalag	Nurse, STI Cabinet, Regional Diagnostic and Treatment Center

LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
BS	Behavioral survey
CI	Confidence interval
ELISA	Enzyme Linked Immunosorbent Assay
FHC	Family Health Centre
FSW	Female Sex Worker
HC	Health Center
HD	Health Department
HIV	Human Immunodeficiency Virus
ILD	Integrated Laboratory Department
LWIF	Liberal Women Intellectual Foundation
MEIAD	Monitoring and Evaluation and Internal Auditing Department
MNUE	Mongolian National University of Education
MNUMS	Mongolian National University of Medical Sciences
MOH	Ministry of Health
MS	Medical Sciences
MSM	Men who have sex with men
NCCD	National Centre for Communicable Disease
NGO	Non-Governmental Organization
OR	Odds ratio
PH	Public Health
PHD	Public Health Division
RDTC	Regional Diagnostic and Treatment Centre
RPR	Rapid Plasma Reagin Test
SPH	School of Public Health
SS	Serological survey
STI	Sexually Transmitted Infections
TCS	Treatment and care services
SS	Surveillance Survey
TPHA	Treponema pallidum haemagglutination test
TVET	Technical and Vocational Education and Training
UN	United Nations
WHO	World Health Organization

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ACKNOWLEDGMENTS

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EXECUTIVE SUMMARY

Surveillance survey in 2019 was conducted among female sex workers, men who have sex men, male prisoners, transport drivers, male STI clients, blood donors and TB patients.

HIV prevalence

No HIV case have been detected among FSWs, male prisoners, male STI clients and male transport drivers. However, total of 48 HIV cases detected among MSM participants, it includes: 28 in UB, 9 in Darkhan-Uul, 2 in Dornod and 3 in Orkhon provinces. HIV infection prevalence percentage among MSM were 7,7% (7% in Ulaanbaatar city [weighted average 6.2%], 9,6% in countryside). HIV infection prevalence were 9,2% in 2017's surveillance survey and prevalence result were decreased in 2019.

Syphilis prevalence

Syphilis prevalence level among FSWs were 14.5% [WA 18.1%], 10.1% among MSM, (9.0% in UB [WA 5.9], 13.1% in rural areas), 15.7% male prisoners (18.1% open access prison, 12.7% in closed prison), 5.2% male transport drivers 23.0% male STI clients, 5.6% male transport drivers, 11,7% TB patients, 0.9% blood donors. Perspective of syphilis infection prevalence decreased among FSW's and blood donors but increased among MSM, male prisoners, STI cabinet clients and TB patients. In 2019, syphilis infection prevalence level was decreased among FSWs 24.5% to 10.1% but increased among MSM (9.2% to 10.1) compared with surveillance survey result, conducted in 2017. Syphilis infection prevalence level increased among male prisoners 8.2% to 15.6% and TB patients (5.3% to 11.7%) were in syphilis surveillance study conducted in 2019. Syphilis prevalence level were 5.3% among TB patients according to 2014 study but increased to 11.3% in syphilis surveillance study conducted in 2019. Syphilis prevalence level among blood donors were 5.2% according to 2014 but decreased to 0.9% in syphilis surveillance study conducted in 2019.

Level of knowledge on HIV prevention

The 2019 survey defined three questions about HIV infection that did not comprehensively assess the level of knowledge on HIV/AIDS prevention and did not identify a population that understands the basic conceptions.

Sexual behavior risk and changes

In 2019's syphilis surveillance study, 25.4% FSWs, MSM 71.9%, male prisoners 15.9%, male transport drivers 53.6%, male STI cabinet clients 69% were had sex with someone who is unfamiliar. The 28.1% FSWs, 50.9% MSM,

male prisoners 21%, male transport drivers 35.6%, 1.9% STI cabinet clients who used condom every time they have sex with someone.

Lubricant use

74.4% of MSM in UB and 51% of MSM in rural areas use gel and water-based lubricant for anal intercourse.

Symptoms and treatment of STI

20.9% FSWs, 7.7% MSM, 3.2% male prisoners, 8.1% male transport drivers and 32.3% STI cabinet clients have had STI symptoms, such as vaginal discharge, ulcer and genital herpes in last 12 months.

Alcohol and drug use

52.0% FSWs, 45.6% MSM, 59.2% male prisoners, 37.5% male transport drivers, 48.2% STI cabinet clients have had sex while they drunk alcohol within last 12 months and 11.0% FSWs, 5.2% MSM, 6.2% male prisoners always have had sex while they drunk alcohol drink. Drug use was 2% in FSWs, 4.0% in MSM, 3.6% in male prisoners, 4.3% in truck driver men, 0.7% in male STI cabinet clients, resperctively.

Accessibility and effectiveness of HIV prevention service

55.7% FSWs, 86.2 MSM, 42.8% male prisoners, 26.4% male transport drivers and 45.3% STI cabinet clients have tested for HIV detection. Proportion of FSWs who were tested and received the result of HIV were increased. In the 2017 survey, 84.5% of FSWs, 94.4% of MSM were tested for HIV positive. In the 2019 survey, there was a low level of coverage due to the use of a new sampling method for FSWs and the inclusion of latent risk groups.

Discrimination

About 50% of FSWs did not receive health services and HIV testing service due to fear of stigma, worried that someone would know about their sex work, due to fear of being violated, due to fear and anxiety of being arrested in last 12 months.

For MSM, 22.0-37.3% of them did not receive health services and HIV testing service due to fear of stigma, worried that someone would know about their sexual orientation, due to fear of being violated, due to fear and anxiety of being arrested in last 12 months.

ONE. OVERVIEW

HIV and syphilis surveillance survey this time was conducted to determine prevalence of HIV and syphilis, level of HIV, AIDS and STI prevention knowledge and sexual behavior among men who have sex with men (MSM), female sex workers (FSWs), male STI clients, Male transport drivers, blood donos and TB patients. The results of the surveillance survey shall be serving as evidence for planning of national STI, HIV and AIDS prevention interventions, to evaluate impact of treatment and care service programs to measure UNAIDS Global AIDS Monitoring report indicators.

HIV and syphilis surveillance survey has been conducted 9 times since 2002.

By previous 9 surveillance study, MSM was studied 7 times in every 2 years since 2005, FSWs were studied by 5 times in every 2 years since 2009, male prisoner study was done 2 times in every 4 years, studies of mobile men, donors were done 8 times in each 1-4 years frequencsy, TB patients stud was done 7 times in every 1-4 years frequency, students serum study was done1 time. In previous studies, long-distance drivers, mobile traders, border workers, miners, road construction workers included. But in the 2019 survey included only male transport drivers (crosscountry freight transport drivers and intercities passenger transportation drivers). In the previous studies knowledge of HIV/AIDS prevention was detected by complex question of rejection major misconception about HIV transmission and correctly identification of ways of preventing sexual transmission of HIV. But in this year study, we asked just 3 questions due to no further international reporting is required. For the first time use of Prep, PEP and lubricant questionnaire were identified in this survey.

Goal:

To determine HIV and syphilis prevalence, HIV/AIDS and STI knowledge and attitude, and sexual behavior among population groups.

Objectives:

- To measure the prevalence of HIV and syphilis among high risk and low risk population groups
- To determine level of STI/HIV/AIDS knowledge, attitude and sexual behavour among high risk and low risk population groups

TWO. SUVREY METHODOLOGY

2.1. Study design:

Respondent-Driven Sampling and cross-sectional study methodologies were used for this survey.

It is not recommended to use population based traditional sampling

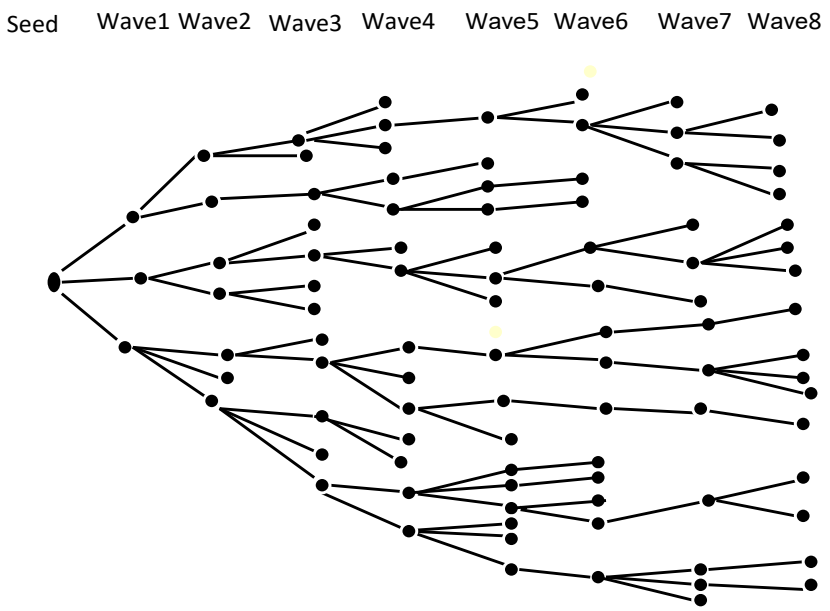
methods considering difficulties to involve hidden and hard-to-reach MSM and FSWs. Thus, probability-based sampling methods such as respondent driven sampling should be used.

Respondent driven sampling- RDS

Prevous surveys in 2014 and in 2017 used RDS among MSM and time-location sampling among FSWs. RDS starts with selecting "seeds" from a specific population group and seeds will be instructed on how and whom to recruit and invite certain number of individuals from their acquaintance network to participate the survey. Every participant will be tasked to recruit three more community members from their networks to create chains. Participants are anonymously registered by their coupon numbers to their questionnaires and test forms.

A primary incentive is given for completion of the survey and secondary incentives are given for each successfully recruited peer. RDS reduces the biases inherent in referral methods through statistical adjustments that attempt to account for social network size and similarity among persons within social networks. Recruitment progresses to produce numerous waves of recruits and ends once the sample size is met (Figure 1).

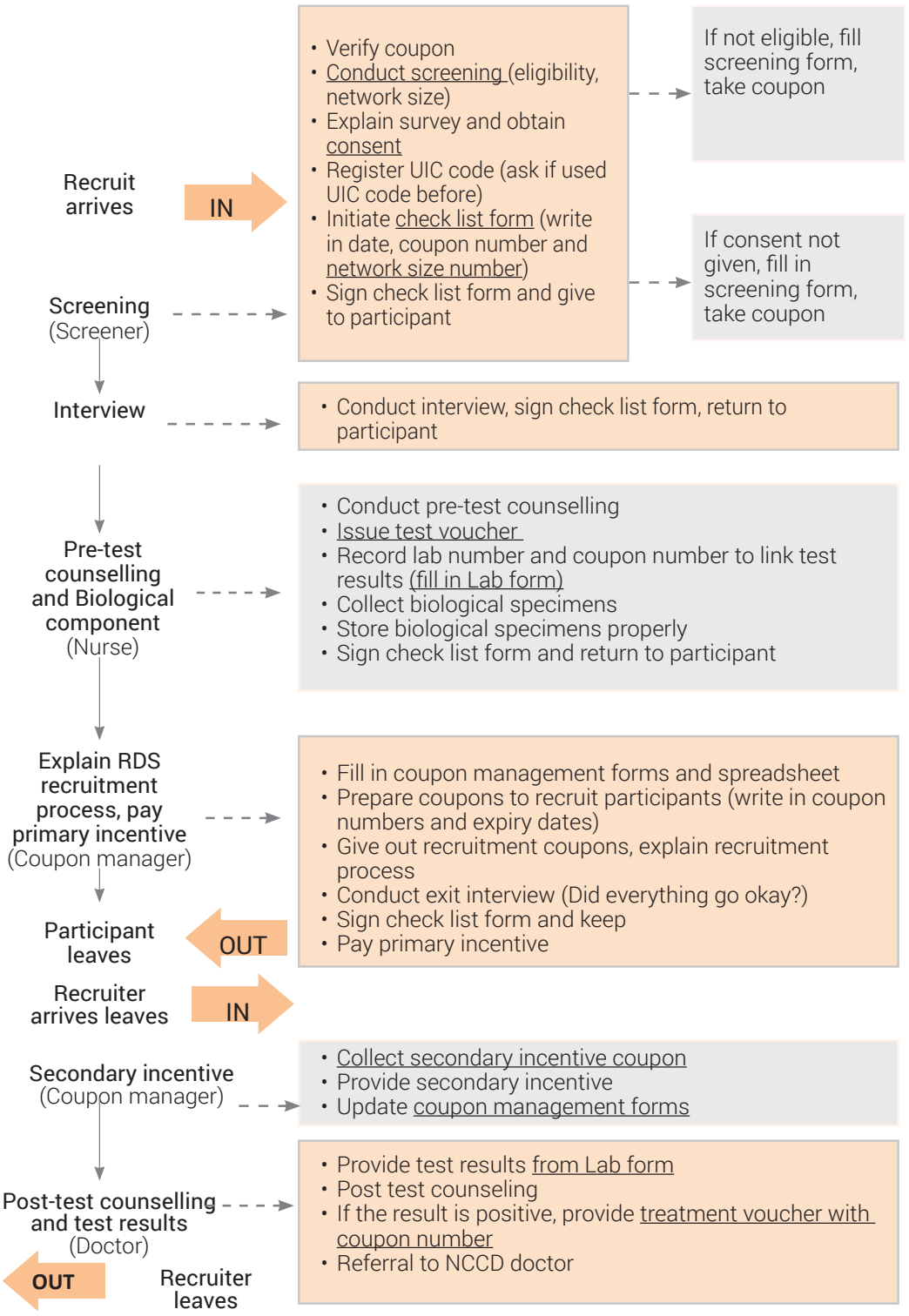
Figure 1. An example of a recruitment chain of eight waves generated from one seed



Steps of RDS

Community members with coupon will visit the survey site and enroll in the survey if eligible. Coupon manager will screen the person who is arrived at the survey site using the screening form to check wether the person is eligible. Eligible participants will be introduced about survey objectives and undergo informed consent. Coupon manager will provide a checklist form to participant. Checklist form should be signed by study team. Interviewer shall meet the participant in private and sign on checklist form once questionnaire is completed. Blood sample will be collected following pre-test counselling and followed by post-test counselling by nurse. The nurse should sign checklist form after issueing test voucher. Coupon manager will explain recruitment process, give out upto 3 recruitment coupons, and pay primary incentive. The participant should visit second time to collect secondary incentive for recruiting their peers to participate in the study, and receive their test results (Figure 2).

Figure 2. RDS steps



RDS "seeds" selection

A "seed" is the first participant of the survey. Different seed numbers decided depending on sample size of the study group. It is decided to have one seed per 100 population in 2019 survey. Seeds are selected not randomly members of the target population, based on their ability to further recruit community members to the survey. Each seed shall recruit 3 other people to the survey to generate chain waves. Seeds should leave the study site having had a positive experience. Because seeds are often known by the study team, extra care will be maintained to ensure their confidentiality. Seeds will be the first persons who undergo an interview, specimen collection, coupon explanation process, etc. At the end of the study process, a member of the study team will ask the seeds what they thought of the process and if they have any advice about how to improve it.

Choose people who will recruit diverse people based on socio-demographic characteristics and sexual orientation differences as "seeds".

Seeds will be selected based on their ability to recruit diverse people. Seeds will meet with the the screener/coupon manger to complete a 'diversity recruitment grid' to ensure that seeds think about the characteristics of the persons they will recruit and to ensure that a diverse mix of key populations enrol in the survey, that convergence is reached early on and that adjustments to the sample once the sampling is underway does not happen as this is likely to bias the final estimates.

RDS Coupons

The coupons will have 4 parts. First 3 parts to use to recruit peers and the other part as a receipt for having recruited a peer to receive secondary incentive. The coupon will include an expiration date during with time the recruiter must pass out their coupon and the recruit redeems it. The coupon will have a non-stigmatizing title, logos of the implementing entities, information about the survey location and hours and some information about the survey. The proposed study will be completely anonymous. Linkage of the various data components will be done through non-identifying unique study codes monitored through the coupons.

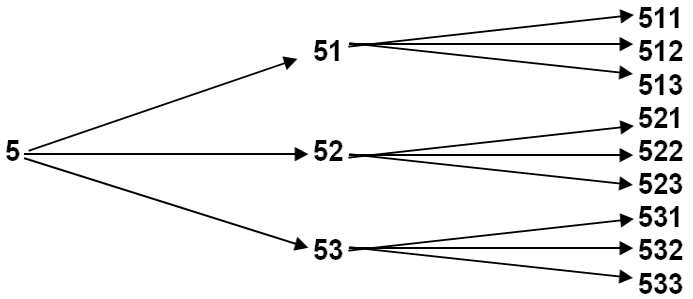
Coupon Numbering

Coupons will be logically numbered to identify the recruits of the seeds (by number only) and to identify the recruitment wave. Coupon numbers will be written directly onto the coupon.

Depending on the number of seeds, a unique number will be provided to the seed. For instance, in a study with three seeds, the first digit on each

coupon will be 1, 2, 3. Because this study will only allow for recruiters to recruit up to three peers, the numbers following the seeds' numbers are 1, 2 or 3 as shown below. For instance, if seed number 5 is interviewed and given three recruitment coupons, then the recruits for seed number 5 would receive the following numbers: 51, 52 and 53 (Figure 3). When a recruit with coupon 53 is interviewed, then she receives coupons with the identification numbers of 531, 532, or 533. This process occurs according to the number of waves produced by each seed, so that, for instance, coupon 533 represents the second wave produced by seed 5.

Figure 3. Coupon numbering for seed 5



Coupon number will be written on screening form, questionnaire, checklist form, consent form, specimen collection and laboratory test result forms. All forms must be connected through one coupon number. The Coupon Manager will manage the coupon numbers using a coupon tracking form and later entering the data into an excel database. all staff members will know the numbering system.

Coupon Management

The coupon links the recruiter to their recruits and is necessary for the analysis of RDS data. Issuance and receipt of coupons will be monitored on paper and electronically. Initially, participants will be given three coupons each. This number may be reduced to two and thereafter one as sampling progresses and recruitment needs to be slowed and stopped as the sample size is reached. Once the sample size approaches the target, and equilibrium has been achieved, no coupons will be handed out to remaining recruits.

2.2. Study Populations

The 2019 study populations include FSWs, MSM, male STI clients, Male transport drivers, male prisoners, blood donors and TB patients.

Table 1. Definition of study populations

Study Populations	Definition
MSM	Biological males, aged 15 and over, who had anal sex with men in the last 12 months.
FSWs	Biological females, aged 15 and over, who exchanged sex for money or gift in the last 12 months.
Male STI clients	Males aged 15-49 years, who received service at selected STI clinics during 2 months of sampling period (excluding those seeking preventive check-up)
Male transport drivers	Males aged 15-49 years, who have been away from their home communities for more than one month in the last 12 months for employment (crosscountry freight transport drivers and intercities passenger transportation drivers)
TB patients	Persons newly diagnosed with TB during 2 months of sampling period at selected TB clinics in Ulaanbaatar and chosen provinces
Blood donors	Persons donated blood and blood products at selected blood centesrs in Ulaanbaatar and chosen provinces during 2 months of sampling period
Male prisoner	Men who remanded in prison during the sampling period

2.3. Scope of the Survey and Sample Size

2.3.1 Sampling of Female Sex Workers

The sample was calculated based on the prevalence rate of syphilis infection among the FSW established by the 2017 HIV and Syphilis Epidemiological Surveillance Survey and on the survey design effect.

$$n_a = \frac{Z^2_{1-\alpha/2} * p * (1-p)}{d^2} = 458 \qquad n_0 = \frac{DEFF * n_a}{1-NR} = 723$$

DEFF – design effect (1.5)
Z^2_1- $\alpha/2$ – Accuracy of probability (1.96)
P – the prevalence of syphilis in FSW – 2017 (23.6%)
d – Sampling error (3.8%)
NR – non respondent rate (5%)

Table 2. Sample size of FSWs

№	Location	Number of women aged 15-49 years	Estimated number of total FSW	Proportion of FSW in total population	Expected count of FSW	Selection probability	Surveyed sample size
1	Ulaanbaatar	383333	1178	0.3%	1150	0.59	423
2	Darkhan-Uul	27510	154	0.5%	272	0.14	100
3	Dornod	21010	170	0.8%	272	0.14	100
4	Khuvsgul	35569	215	0.6%	272	0.14	100
	Total	**477798**	**1717**		**1966**	**1.00**	**723**

According to the international consultant, assuming that 100 sex workers from each aimag are represented. A total of 723 sex workers were included in the survey, with the number of sex workers from the aimags being calculated at 100 each.

2.3.2 Sampling of men who have sex with men

The sample size was calculated based on the HIV prevalence rate (9.2%) among the MSM identified in the 2017 HIV and Syphilis Epidemiological Surveillance Survey.

$$n = DEFF * \frac{[Z^2_{1-\frac{\alpha}{2}} * \sqrt{2p*(1-p)} + Z_\beta * \sqrt{p_1*(1-p_1)} + p_2*(1-p_2)]^2}{(p_1-p_2)^2} = 778$$

$$p = \frac{(p_1+p_2)}{2}$$

DEFF – design effect (1)
Z^2_1- $\alpha/2$ – Accuracy of probability (1.96)
Z_β – Sample capacity (0.84)
ρ_1 – Prevalence of HIV infection among MSM – 2014 (13.7%)
ρ_2 – Prevalence of HIV infection among MSM – 2017 (9.2%)

Table 3. Sample size of MSM

№	Location	Number of men aged 15-49 years	Number of MSM	Proportion of MSM in population	Expected count of MSM	Selection probability	Sample size
1	Ulaanbaatar	380812	1745	0.4%	1523	0.61	478
2	Darkhan-Uul	27045	128	0.4%	273	0.13	100
3	Dornod	21259	-	0.4%	273	0.13	100
4	Khuvsgul	35327	-	0.4%	273	0.13	100
Total		464443	1873		1857	1.00	778

2.3.3 Sampling of Mobile population

Crosscountry freight transportation truck drivers and intercity passenger transortation drivers were surveyed.

$$n = DEFF * \frac{[Z^2_{1-\frac{\alpha}{2}} * \sqrt{2p*(1-p)} + Z_\beta * \sqrt{p_1*(1-p_1) + p_2*(1-p_2)}]^2}{(p_1-p_2)^2} = 752$$

$$p = \frac{(p_1+p_2)}{2}$$

DEFF – Design effect (2)
Z^2_1- $\alpha/2$ – Probablity of accuracy (1.96)
Z_β – Sampling power (0.84)
ρ_1 – syphilis prevalence in Male transport drivers – 2009 (1.7%)
ρ_2 - syphilis prevalence in Male transport drivers – 2014 (5.1%)

Table 4. Sample size of the mobile population to be surveyed

№	Location	Cluster number	Selection probablity	Number of people per one cluster	Sample size - 1	Sample size - 2
1	Ulaanbaatar	2	0.29	100	200	152
2	Dornogobi Khatanbulag port	1	0.14	100	100	100
3	Umnugobi Gashuun Sukhait port	1	0.14	100	100	300
4	Dornod Khalhgol Bayankhoshuu port	1	0.14	100	100	100
5	Khovd Yarant port	1	0.14	100	100	100
Total		**6**	**1**	**600**	**700**	752

2.3.4 Sampling of Male prisoners

$$n_a = \frac{Z^2_{1-\alpha/2} * p * (1-p)}{d^2} = 1049 \qquad n_0 = \frac{DEFF * n_a}{1-NR} = 1104$$

DEFF – Design effect(1)
Z^2_1- $\alpha/2$ – Probablity of accuracy(1.96)
P – syphilis prevalence in male prisoner – 2014 (8.2%)
d – Sampling error(1.6%)
NR – non-respondent rate (5%)
From each of 11 locations selected as survey sites, 100 prisoners should be sampled.

Table 5. Sample size of prisoners to be surveyed

№	Number	Type	Location	IBBS sampling
	409	Closed	Bayanzurkh district	102
	421	Open	Bayanzurkh district	102
	427	Closed	Baganuur district	100
	413	Open Closed	Selenge, Zuunkharaa	100
	433	Closed	Selenge, Darit	100
	435	Closed	Darkhan-Uul	100
	445	Open	Darkhan-Uul	100
	415	Closed	Tuv (Maanit)	100
	417	Open	Tuv (Mungunmorit)	100
	419	Open	Khentii	100
	425	Closed	Govisumber	100
	Total			1104

2.3.5 Sampling of Male STI clients

$$n_a = \frac{Z^2_{1-\alpha/2} * p * (1-p)}{d^2} = 1996$$

DEFF – Design effect (2)
Z^2_1- $\alpha/2$ – Probablity of accuracy (1.96)
P – syphilis in male STI clients – 2014 (15.8%)
d – Sampling error (1.6%)
NR – non-respondent rate (5%)

Table 6. Sample size of Male STI clients to be surveyed

№	Provinces	Population	Total male STI clients, 2018	Male STI clients for testing, 2018	Syphilis in 2018	IBBS Sampling
1	Bayankhongor	88356	3722	299	34	100
2	Gobi-Altai	58471	2260	247	76	100
3	Dornod	80984	6089	674	104	100
4	Dundgobi	46628	744	61	15	100
5	Zavkhan	72779	1541	182	25	100
6	Sukhbaatar	62322	3691	185	106	100
7	Khentii	77028	7188	465	69	100
8	Khuvsgul	133964	20856	1102	246	100
9	Khovd	88330	2238	791	38	100
10	Umnogobi	66722	2445	46	40	100
11	Bayanzurkh district	1491375	95259	13772	1019	100
	Nalaikh district					50
	Chingeltei district					50
	Total	3238479				1200

2.3.6 Blood donors

People who donated blood and blood products at National Center for Transfusion Medicine and chosen districts and provinces participated this study during two months period.

2.3.7 TB patients

People who newly diagnosed with TB in chosen districts and provinces participated this study during two months period.

Survey sample size

10th survey sample size by study groups was presented in in table 7. In total of 4155 people included in the behavioral survey, 4965 people included in serological survey (Table 7).

Table 7. Sample size of behavioral and serological survey, by study group, 2019 он

	Study groups												
	Blood donor		Tb patients		FSWs		MSM		Transport driver men		Male STI cabinet clients		Priso-ners
Aimag, city	HIV	syphilis	HIV	syphilis	SSS	BSS	SSS	SSS	BSS	SSS	BSS	SSS	
Bayankhongor	8	8	5	5							100	100	
Gobi-Altai	35	35	4	4							86	86	
Darkhan-Uul					99	100	53	54					
Dornod	26	26	24	24	99	100	50	50	100	100	100	100	
Dornogobi									100	100			
Dundgobi	11	11									99	100	
Zavkhan	50	50	11	11							100	100	
Orkhon							43	43					
Umnugobi									300	300	80	80	
Sukhbaatar	13	13	9	9							99	100	
Khovd	25	25	1	1					100	100	98	100	
Khuvsgul	35	35	15	15	100	100					54	56	
Khentii	25	25	16	16							69	69	
Aimag sub-total	276	276	88	88	298	300	146	147	600	600	885	891	
Ulaanbaatar	400	400	57	57	422	423	400	401	152	152	136	136	
Total	**676**	**676**	**145**	**145**	**720**	**723**	**546**	**548**	**752**	**752**	**1021**	**1027**	**1105**

2.4. Data collection methodology

Serologic Surveillance Survey (SSS) to detect HIV and syphilis infections and Behavioral Surveillance Survey (BSS) were conducted under this surveillance survey. In SSS, blood specimen collected from survey participants in order to perform HIV and syphilis serologic tests. In BSS, data collected by interview with dedicated questionnaires.

2.4.1.Questionnaires

Standardized data collection questionnaire is used for quantitative data collection. The questionnaire originates from previously used surveys in order to compare results. Following components were included in the questionnaire for each study population groups for data collection:

- Demographics
- Socio-economic status
- Sexual behavioural information
- Lubricant use (for FSWs)
- HIV Pre- and Post-Exposure prophylaxis (for FSWs)
- Alcohol use
- Drug use
- HIV-related knowledge, attitude, practices
- HIV testing and care service receipt
- Human rights issues

Questionnaires used for the study:

- FSWs questionnaire
- MSM questionnaire
- Male STI clients' questionnaire
- Male transport drivers's questionnaire
- Male prisoners' questionaire

Data collected face to face with registration and interviewed data being collected and stored directly into an online based, electronic monitored in MSM and FSWs using mobile tablets.

2.4.2.Blood tests.

1. The nurse collects 5ml-7ml of blood from the participant's vein by using a vacutainer, as per the standard operating protocols. The specimen number of the participant is identical to the code number of his questionnaire. The amount of blood specimen should be sufficient for lab-testing, but hemolyzed or excessively lipemic blood samples should not be used for testing.
2. In Ulaanbaatar, all the blood specimens collected in a day were sent to the NCCD in the same day to be stored at testing room of AIDS/STI Surveillance and Research Department during the night and then were delivered to AIDS/STI Laboratory of the Integrated Laboratory Unit in the following morning. The survey team received test results within 5 working days.
3. In provinces, nurse delivered all blood specimens collected in a day to referred laboratory within the same day along with test forms.
4. Test results validation analysis was conducted with re-testing by AIDS/

STI Laboratory of the Integrated Laboratory Unit of NCCD on 10% of all blood specimen collected in provinces.

5. Should there be a participant who had positive test result/results, the team refers the participant to doctors at AIDS/STI Surveillance and Research Department of NCCD and provides free treatment and care services.
6. All participants were provided with a card for their test result which they can use for receiving their test results from STI cabinets at chosen district and provinceial health centers and from AIDS/STI Surveillance and Research Department of NCCD. Treatment was provided as necessary.
7. Prison medical doctors were assigned to provide treatment services to male prisoners who were diagnosed with syphilis.

2.5 Laboratory tests

Collection of blood specimen:

Blood specimens for serological testing of HIV and syphilis were collected from the participants' vein, in compliance with the standart operating protocols.

Storage and transportation:

Blood specimens were delivered to local serological laboratories within the day of sampling in compliance with the "Specimen Storage and Transportation Guidelines". Blood specimens collected from the survey participants were stored at room temperature for not less than 4 hours and centrifuged at the speed of 3000 rpm, to separate serum from the cells. The sera separated from the red blood cells were stored in 2 Eppendorf tubes. This process included:

1. Testing were performed directly on the serum from vacutainer.
2. The first tube of serum specimen was kept in the aimag laboratory at -20 degrees Celsius until the test results arrived from the Integrated Laboratory Unit of NCCD.
3. The second tube of serum specimens were stored at -20 degrees Celsius.

The second tube of serum specimens (stored at -20 degrees Celsius) collected from FSWs and other study groups in provinces were transported to the AIDS/STI Laboratory of the Integrated Laboratory Unit of NCCD once in every 21 days, in compliance with the "Specimen Storage and Transportation Guidelines".

4. The remaining one tube of serum specimens after testing from prisons in Ulaanbaatar and other provinces were kept frozen at -20 degrees Celsius and transported to the AIDS/STI Laboratory of the Integrated Laboratory Unit of NCCD once in every 21 days, in compliance with the "Specimen Storage and Transportation Guidelines".

- The serum specimen with a reactive HIV rapid antibody test results were sent for confirmation to the AIDS/STI Laboratory of the Integrated Laboratory Unit, NCCD in compliance with related guidelines.

HIV screening:

HIV screening tests in rural locations were conducted using a rapid test kits. Specimens tested reactive with the rapid tests were sent for confirmation to the AIDS/STI Laboratory of the Integrated Laboratory Unit of NCCD, following the "Regulations of Biohazardous shipping and bio-preparations transportation".

The AIDS/STI Laboratory of the Integrated Laboratory Unit of NCCD tested reactive specimens again for confirmation using the Western blot and ELISA techniques, in compliance with the Order #305 of the Minister of Health issued in 2017 on the Guidelines of STI, HIV and AIDS treatment and care. Tests were performed, as per the instructions of approved SOPs.

Syphilis screening:

Syphilis serological tests were performed locally using Rapid Plasma Reagin (RPR) and Treponema Pallidum Hemagglutination Assay (TPHA) as per study protocol. Qualitative RPR tests were performed first and confirming test was performed using TPHA test kit in specimens with reactive or suspicious RPR test result. In addition, RPR titer test was performed for specimens with reactive RPR test result to measure serum antibody level. It was confirmed as syphilis infection case, if both the RPR and TPHA test results were reactive with RPR dilution of >1:2.

Quality control:

Internal quality assurance is performed during lab-tests, according to the standards. All the positive specimens and 10 percent of the negative specimens, which were selected randomly, were sent for quality assurance to the AIDS/STI Laboratory of the Integrated Laboratory Unit of NCCD, and the control tests used diagnostic test kits (RPR, TPHA tests were used to detect Treponema Pallidum antibodes, and immunochromatographic tests were used to detect HIV infection) manufactured by the same company

2.6 Ethical Issues

Survey methodology was discussed and approved by the Council of scientists of the School of Public Health, MNUMS on Jun 18, 2019 and endorsed by the Medical Ethics Committee of the Ministry of Health on Jun 24, 2019. The survey respondents were given information through an 'Informed Consent Form' and were welcomed to participate in the survey. Those who consented to participate were recruited. The Informed Consent Form outlines the importance of the survey, potential risks, and general information about the survey.

2.7 Preparation for data collection

According to the survey goals and objectives, 7 teams were assigned to work on data collection from the FSWs, MSM, male STI clients, Male transport drivers, male prisoners, blood donors and TB patients.

Survey Consultant Lisa Johnston conducted FSW and MSM researchers'

training on RDS methods from August 25 to 29, 2019. Although time location sampling was planned for FSW survey 2019 on the methodologies and budgets, with the consultant's recommendations during the training and considering the proposal of the FSW outreach organization, it is decided to conduct the 2019 FSW survey using RDS method.

The Principle Investigator facilitated training of MSM and FSW questionnaire and provided instructions on how to operate on the tablets.

Data collection teams consisted of doctors and laboratory assistants of selected district and provincial health centers for other study population groups: male STI clients, Male transport drivers, TB patients, blood donors and male prisoners, were attended two-day training. The training covered topics such as the goals and objectives of the survey, survey methodologies, targeted population groups, data collection methods and confidentiality.

2.8 Data Collection

1. Data collection from FSWs

Data collection and logistics coordination was led by FSW team. Following team structure was arranged in Ulaanbaatar, Darkhan-Uul, Dornod and Khuvsgul provinces to conduct data collection. The team structure: a coupon manager, an interviewer, a nurse and an assistant. FSWs survey was held between 5th September to 31st October 2019 in accordance with RDS methodology.

2. Data collection from men who have sex with men

MSM data collected in Ulaanbaatar, Darkhan-Uul, Dornod and Orkhon provinces by a team which consists of a coupon manager, an interviewer, a nurse and an assistant. MSM survey conducted between 3rd September to 9th November 2019 in accordance with RDS methodology.

3. Data collection from mobile population

Mobile population's data collection was conducted at following sites: National Center for Auto Transportation in Ulaanbaatar, Gaashuunsukhait Port in Umnugobi province, Bayankhoshuu Port in Dornod province and Darvi soum of Khovd province. One driver per one transportation vehicle was invited to participate the survey. Drivers of passenger transportation were sampled at Passenger Tranportation Centers in Songinokhairkhan and Bayanzurkh districts. Provincial STI cabinet doctors were selected as team leaders. A team consisted of an interviewer, a nurse, a driver and a lab worker.

4. Data collection from male prisoners

Data collection from male prisoners was conducted in Ulaanbaatar including Baganuur district, Zuunkharaa and Darit soums of Selenge province, Mungunmorit and Maanit soums of Tuv province, Darkhan-Uul, Kehntii and Gobisumer provinces. Doctors from AIDS/STI Surveillance and Research

Department of NCCD were assigned as team leaders. Male prisoners' data collection team consisted of an interviewer, a nurse, a lab worker and a driver.

5. Data collection frommale STI clients

Data collection frommale STI clients was conducted in Bayanzurkh, Nalaikh and Chingeltei districts of Ulaanbaatar and in 10 chosen provinces. STI cabinet doctors at chosen local areas were assigned to lead the work. Male clients of local STI cabinets were invited to participate the survey. Sampling continued until sample size is completed.

6. Data collection from blood donors

Data collection from blood donors was conducted in chosen districts and provinces. People who donated blood at National Center for Transfusion Medicine and blood centers at chosen provinces were invited to participate this study. Sampling continued until sample size is completed.

7. Data collection from TB patients

Data collection from TB patients was conducted in chosen districts of Ulaanbaatar and provinces. Newly diagnosed TB patients at TB cabinets in chosen sites were invited to participate the survey. Data collection team invited newly diagnosed TB patients to participate this survey.

Treatment of survey participants: If the lab-test results reveal syphilis and HIV infections, the survey team will contact and inform the corresponding participants. NCCD will provide the infected participants and their sexual partners with free treatment and counselling.

THREE. SURVEY RESULT

1. FSWs survey

The FSWs survey was conducted in Ulaanbaatar city, Darkhan-Uul, Dornod and Khuvsgul provinces. Table 1.1 shows the number of targeted samples and the number of selected seeds.

Table 1.1. FSWs sample size, 2019

Location	Sample size	Survey population 2019	Number of seeds
Ulaanbaatar	423	423	6
Darkhan-Uul	100	100	2
Dornod	100	100	2
Khuvsgul	100	100	2

In Ulaanbaatar, FSWs sampling reached the target sample size and number of waves reached 15. In selected provinces, FSWs sampling also reached the target sample size and number of waves reached 7. Figure 1.1-1.4 shows the FSWs recruitment in the survey by location.

Figure 1.1. Recruitment waves in Ulaanbaatar, by seeds

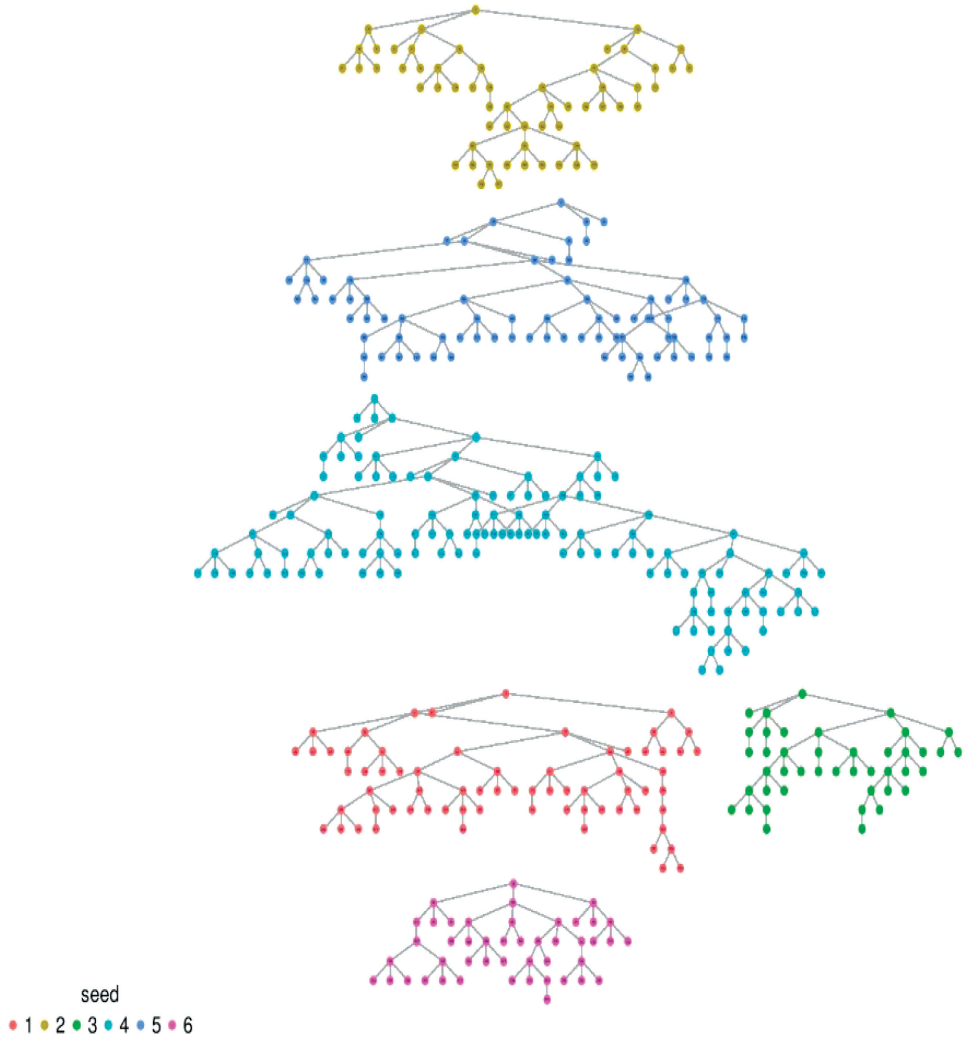


Figure 1.2. Recruitment waves in Darkhan-Uul province, by seeds

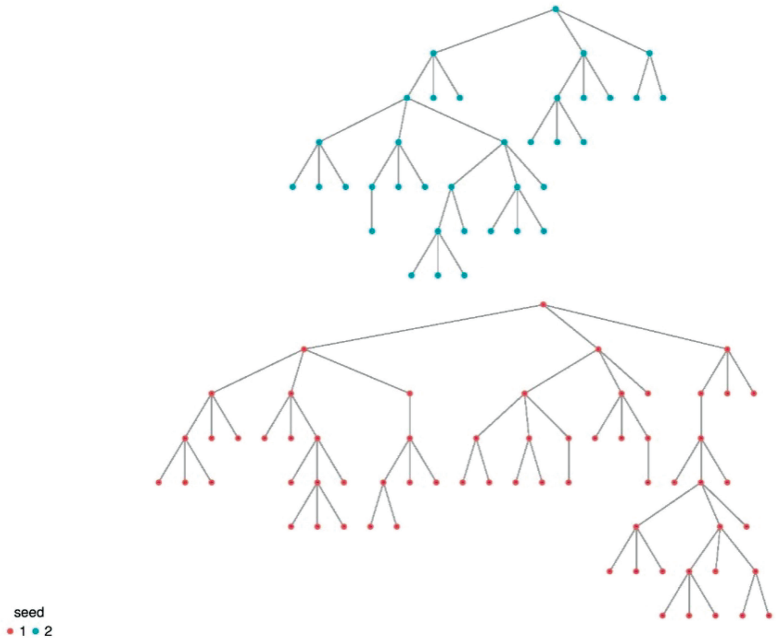


Figure 1.3. Recruitment waves in Dornod province, by seeds

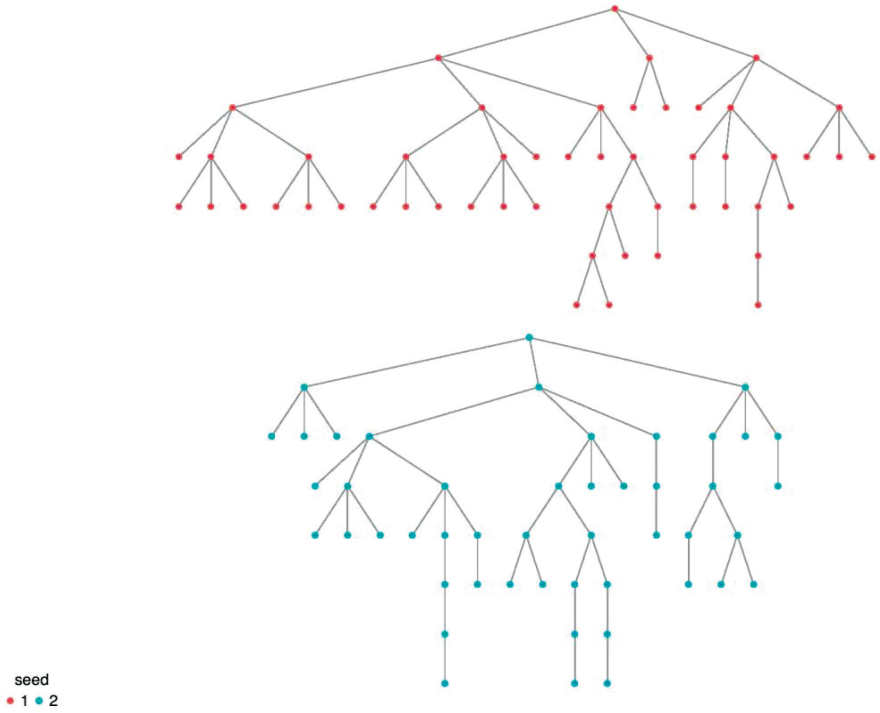
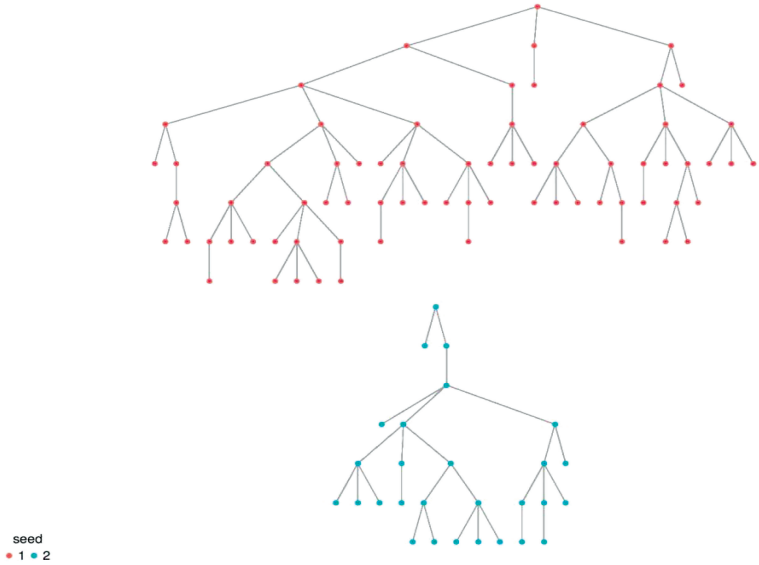


Figure 1.4. Recruitment waves in Khuvsgul province, by seeds



Socio-Economic Characteristics of survey respondents.

The average age of the respondents was 28 in Ulaanbaatar, 32 in Darkhan-Uul, 30 in the Dornod and 39 in Khuvsgul.

By surveyed location, 54.6% of respodents from UB were under 24, while the majority of respondets from other provinces were aged over 25 years. Dominated level of education among total respondents was complete high school and vocational college degree (Table 1.2).

Table 1.2. Socio-Economic Characteristics of Survey respondents.

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	N = 423		N = 100		N = 100		N = 100		N = 723	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Age										
≤19	57	16.1, (9.2-23.1)	8	8.6, (0.4-16.8)	21	23.2, (18.2-28.3)	5	4.9, (1.7-8.1)	91	15.9, (12.2-20.5)
20-24	156	38.4, (31.6-45.2)	10	10.1, (5-15.3)	15	15.6, (11.3-19.8)	15	14.0, (7.1-21.1)	196	37.1, (32.2-42.4)
25-29	58	12.6, (8.2-17.1)	21	23.4, (15.6-31.2)	19	19.5, (14.9-24.1)	9	7.4, (3-11.7)	107	12.8, (9.7-16.9)
30-34	64	12.3, (8.6-16.1)	20	22.4, (14.3-30.4)	10	9.9, (6.6-13.1)	13	14.0, (7.7-20.4)	107	12.5, (9.6-16.1)
35-39	26	4.7, (2.6-6.8)	19	17.7, (12.1-23.2)	12	10.7, (8-13.2)	8	10.3, (3.2-17.3)	65	5.1, (3.5-7.4)
40-44	24	6.2, (3.5-9)	12	11.0, (5.8-16)	19	18.8, (14.5-23.1)	15	17.7, (9.0-26.2)	70	6.7, (4.5-9.9)

45-49	20	4.7, (2.3-7.1)	8	5.8, (3.7-7.8)	3	2.4, (1.0-3.8)	15	14.9, (7.7-22.1)	46	4.9, (3-7.8)
50≤	17	4.7, (1.7-7.8)	1	1.1, (0.4-2.7)	-	-	19	16.7, (10.6-23)	37	4.9, (2.8-8.3)
Average age (min, max)										
Mean	28	16-57	32	15-52	30	16-49	38	16-62		
Educational status										
Incomplete middle school, 1-8 grades	6	1.0, (0.2-1.7)	2	3.8, (0.6-8.2)	3	2.9, (1.2-4.6)	18	17.1, (10.6-23.6)		1.3, (0.7-2.5)
Complete middle school, vocational College	313	74.7, (70.1-79.2)	82	82.5, (76.6-88.4)	80	82.2, (78.5-85.9)	71	73.1, (65.3-80.7)		74.9, (70-79.2)
University	102	24.3, (19.8-28.7)	15	13.6, (9,2-18.2)	16	14.9, (11.6-18.3)	10	9.8, (5.1-14.7)		23.7, (19.5-28.6)
Whether living with a sexual partner										
Yes	64	12.6, (9.1-16)	33	33.6, (25.1-42.2)	20	14.5-23.9	48	47.5, (39.7-55.3)		13.7, (10.6-17.4)
No	358	87.4, (84-90.9)	66	66.4, (57.8-74.9)	79	76.1-85.5	51	52.5, (44.7-60.3)		86.3, (82.6-89.3)

35% of total FSWs had another job in addotion to sex work. From them 22.2% were laborer, 21.8% were student, 15.7% was work in hotel, restaurant. In addition to sex work, 33.8% of FSW in UB, 57.7% in Darkhan-Uul, 88.2% in Dornod, 38.6% in Khuvsgul were employed.Majority of FSWs in UB are students while in Darkhan-Uul, Dornod and Khuvsgul provinces were workers and servants. (Table 1.3).

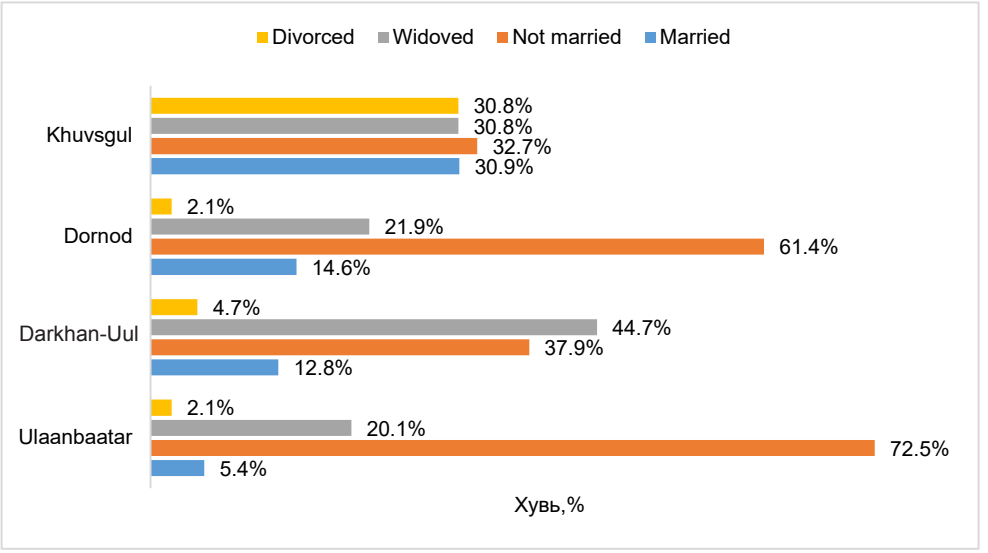
Table 1.3. Employment status of sex workers

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		All	
	N = 423		N = 100		N = 100		N = 100		N = 723	
	n	%, (95% CI)	n	%, (95% CI)	n	%, (95% CI)	n	%, (95% CI)	n	%, (95% CI)
Aside from selling sex for money or goods, other employment										
Yes	142	33.8, (28.9-38.8)	55	57.7, (49.4-66.1)	87	88.2, (84.2-92.2)	35	38.6, (30.3-47.1)	319	35,0 (30.2-40.1)
No	280	66.2 (61.2-71.1)	44	42.3, (33.9-50.6)	12	11.8, (7.8 -15.8)	64	61.4, (52.9-69.7)	400	65, 0 (59.9-69.8)
Other than selling sex way to earn money										
Laborer/Maid/ Cleaner	28	20.6, (12.7-28.6)	22	43, (24.2-63.8)	28	32.7, (26.1-39.3)	17	48.5, (30.5-67.6)	95	22.2, (15.8-30.2)
Beautician, massage, salon	10	6.1, (2.7-9.3)	2	2.2, (1-2)	2	1.9, (0.6-3)	0	-	14	5.7, (3-10.6)
Student	33	22.5, (14.1-30.8)	2	4.6, (1.4-11.5)	25	31.4, (24.6-40)	0	-	60	21.8, (15.7-29.4)

Selling things/ informal work	16	13.7, (7.1-20.6)	12	21.1, (8.2-32.7)	10	9.9, (7-12)	10	29.4, (11.4-47.1)	48	14.1, (8.7-21.9)
Full time office work	10	9.2, (4.1-14.7)	2	2.8, (0.4-5.8)	3	3, (1.3-4.6)	1	2.5, (1.9-6.7)	16	8.7, (4.4-16.4)
Part time office work	15	9.8, (2.6-16.9)	2	2.5, (0.02-4.2)	1	0.9, (0.6-1.1)	0	-	18	9.1, (5.4-15)
Entreprenuer/ business person	3	1.7, (0.01-3.3)	1	1.3, (0.5-2.6)	4	4.6, (1.7-7.5)	3	9.8, (3.7-23.5)	11	2, (0.7-5)
Hotel/ restaurant	23	15.8, (8.1-23.6)	11	19.9, (5.3-35.2)	13	14.6, (8.8-20.1)	2	5, (1.5-11.3)	49	15.7, (10.2-23.3)
NGO worker	4	0.6, (0.1-0.7)	1	2.6, (2.6-8.5)	1	0.9, (0.2-1.4)	2	4.7, (2.1-10.9)	8	0.8, (0.4-1.8)

Among total FSW respondents, majority (70.9%) were unmarried, 20.6% were widoved, 6.1% were married and 2.4% were divorced. In Khuvsgul, more FSWs than those in other locations lived together with their sexual partners (47.5%). (Figure 1.5).

Figure 1.5. FSWs marriage status, by location



Sexual behaviors and practice

Average age of sexual debut of the surveyed FSWs was 18, average age of sex work initiation was 21 (table 1.4). On average, 2-3 days spent selling sex in the last week and 6-7 months spent selling sex in the last year.

Table 1.4. Sexual behaviors and practice of FSWs

	Ulaanbaatar	Darkhan-Uul	Dornod	Khuvsgul	Total
	N = 423	N =100	N =100	N=100	N=723
Age of sexual debut					
Average	18.1	18.3	18.3	18.5	18.1
Median (min, max)	18 (13-32)	18 (14-35)	18 (14-25)	18 (13-28)	18 (13-35)
Average age of sex work initiation					
Average	23.8	23.5	21.4	26.8	23.8
Median (min, max)	21 (14-54)	23 (14-37)	21 (15-45)	25 (15-57)	22 (14-57)
Number of days spent selling sex in the last week					
Average	2.1	3	1.8	2.2	2.3
Median (min, max)	2 (1-7)	3 (1-7)	2 (1-4)	2 (1-7)	(1-7)
Number of months spent selling sex in the last 12 months					
Average	6.6	7.1	6.6	7.5	6.6
Median (min, max)	6 (1-12)	8 (1-12)	6 (2-12)	8 (1-12)	7 (1-12)

38.6% of all FSWs engaged to earn extra money, 28.2% to repay their loans, 23.2% to help their families, 13.8% to support their children, and 8.8% to earn money. FSWs in Khuvsgul province responded that they engaged in sex work to support their families while FSWs in Ulaanbaatar, Darkhan-Uul and Dornod provinces responded that they engaged in sex work in order to add more to their income level.(Table 1.5)

Table 1.5. Reasons for sex work in FSWs

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		All	
	N = 100		N = 100		N = 100		N=100		N = 423	
	n	%, (95% CI)	n	%, (95% CI)	n	%, (95% CI)	n	%, (95% CI)	n	%, (95% CI)
Reasons for sell sex										
Can make more money	161	39, (33.6-34.3)	42	45.9, (37.7-54.3)	52	**49.8**, (44.5-55.1)	11	9.6, (5.4-13.7)	266	38.6, (33.6-43.8)
I have no other skills	34	9, (5.7-12.3)	-	-	-	-	11	**11.6**, (6,4-17.3)	45	8.8, (6.1-12.5)
To help family (food, medical expenses, housing, etc.)	96	23.3, (18.1-28.4)	25	23.4, (16.5-30.2)	13	13.6, (9.7-17.5)	25	**26.2,** (17.7-34.9)	159	23.2, (18.9-28.2)
To pay off debts	12	1.8, (0.5-3.1)	1	1.5, (0.6-3.6)	-	-	8	7, (3.9-10.8)	21	1.9, (1-4)
I am being forced	5	2.4, (0.2-4.6)	1	1.5, (0.8-3.8)	-	-	22	**23.4**, (16.2-30.6)	6	2.3, (0.9-6)
In order to earn a livelihood for my children	68	13,5, (9.9-17)	26	24.1, (17.3-30.9)	12	12, (8.1-15.9)	2	1.6, (0.2-2.9)	128	13.8, (10.9-17.4)
To have a sexually active relationship	36	8.6, (5.7-11.5)	4	3.5, (1.2-5.8)	21	23.5, (18.4-28.7)	20	20.6, (12.8-28.3)	63	8.6, (6-12.2)
		2.4, (0.6-4.3)	-	-	1	1.1, (0.1-2.2)	-	-	30	2.8, (1.4-5.3)

Admitted average amount of earnings for a sex was 60000 tugrik (5000-500.000) in Ulaanbaatar, 50000 tugrik (15000-110.000) in Darkhan-Uul province, 40000 tugrik (5000-500.000) in Dornod province, 25.000 tugrik (5000-500.000) in Khuvsgul province. Rate for a day were following:

- In Ulaanbaatar 150.000 tugrik (5000-500.000),
- In Darkhan-Uul 120.000 tugrik (30.000-150.000)
- In Dornod 80.000 tugrik (20.000-300.000)
- In Khuvsgul 90.000 tugrik (15.000-200.000) tugrik earnging selling sex for a one night.

When asked number and type of their sexual partners:

- FSWs in Ulaanbaatar– 26.1%
- FSWs in Darkhan-Uul– 57.5%
- FSWs in Dornod– 39.4%
- FSWs in Khuvsgul -47.4% had regular sexual partners.

And the percentages of women with non-regular sexual partners were 24.8%, 44.4%, 39.5% and 31.4% in Ulaanbaatar, Darkhan-Uul, Dornod and Khuvsgul separately. Persentage of FSWs who had sexual partners who paid them in Ulaanbaatar, Darkhan-Uul, Dornod and Khuvsgul were 97.9%, 98.0%, 99.0% and 90.9% separately (Table 1.6).

Table 1.6. Type of sexual partners of FSWs, by location

Type of FSWs sexual partners (Last 12 months)	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Regular sexual partner (husband/ boyfriend)	122	26.1, (21.5-30.7)	58	57.5, (49.3-65.5)	40	39.4, (34.1-44.6)	48	47, (37.9-56.2)	268	27.2, (22.9-32)
non regular and non-paid sexual partner	110	24.8, (20.1-29.5)	45	44, (35.8-52.2)	38	39.5, (33.8-45.1)	28	31.4, (22.8-39.8)	221	25.4, (21.1-30.2)
Sexual contact who paid	109	97.9, (96.1-98.9)	97	98.0, (93.7-99.6)	98	99.0, (95.4-99.9)	90	90.9, (84.1-95.4)	697	97.1 (92.7-100)

FSWs condom use

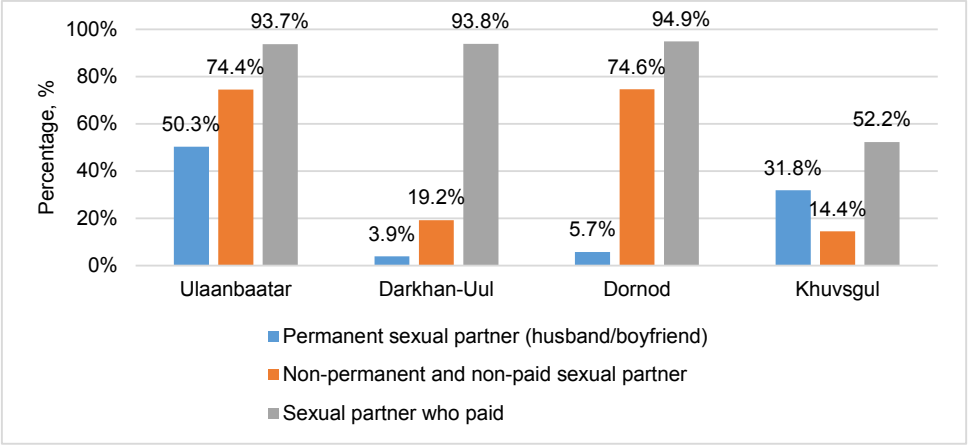
By condom use frequency, 16.0% of total 268 FSWs who had regular partners always use condom, 57.5% of them never use condom (Table 1.7). 28.1% of total 221 FSWs who had non-regular partners always use condom, 29.4% of them hever use condom.

Table 1.7. FSW condom use by IBBS year

Indicators	Surveillance survey					
	2007	2009	2011	2014	2017	2019
Condom use at last sexual intercourse						
Condom use at last sexual intercourse with paying clients, %	93.4	90.3	81.2	83.3	84.3	88.5
Consistent condom use in the last 12 months						
Consistent condom use with paying clients %	-	61.1	49.1	56.9	51.3	54.4
Consistent condom use with non-paying casual sexual partners within the last 12 months, %	20.7	33.5	25.4	25.0	31.7	28.1
Consistent condom use with regular sexual partners within the last 12 months, %	4.4	20.8	6.8	17.2	15.6	16.0

The condom use during the last paid sexual intercourse was more than 90 percent reported in Ulaanbaatar, Darkhan-Uul and Dornod provinces. The lowest rate is reported in Khuvsgul province (Figure 1.6).

Figure 1.6. Condom use among FSWs during last sexual intercourse, by location



To clarify the reasons for unprotected sex, 65.9% of FSWs with regular sex do not use condoms because they trust their sexual partners, and the majority of sex workers with non-regular sex partners or 23.5% do not use condoms because they do not like sex. However, 55.6% of sex workers do not use condoms because they use other methods to protect themselves from HIV and STIs (Table 1.8).

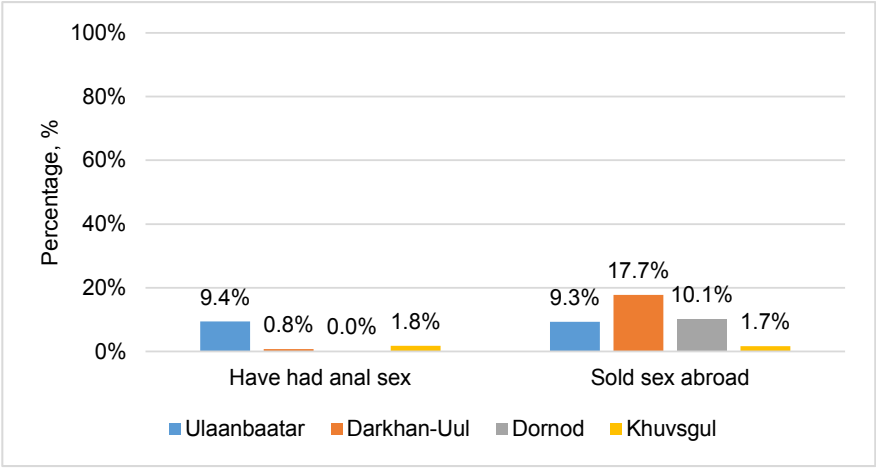
Table 1.8. Reasons for engaging in unprotected sex among FSWs, by sexual partner

	Regular sexual partner	Non-regular sexual partner	sexual intercourse with paying clients
Feeling decreases	17.7, (11.5-26.3)	7.9, (3.8-15.6)	7.2, (2.7-17.7)
Forgot to use	4.8, (1.9-11.7)	8.5, (4.2-16.6)	10.5, (3.9-25.1)
There was no condom at the time	6.8, (3.1-14.2)	28.4, (17.4-42.7)	15.6, (7.2-30.5)
Had no time to buy	4.4, (1.6-11.2)	1.5, (0.3-6.8)	7.7, (2.7-20.3)
Expensive	-	-	2.4, (0.6-9.6)
I feel ashamed to buy condoms	4, (1.5-10.8)	3.2, (1.1-8.6)	3.9, (1.1-12.6)
I do not trust condoms	5.9, (2.5-13.4)	5.7, (2.2-13.8)	4.8, (1.3-16.3)
I use other forms of contraception of HIV/STI	1.4, (0.2-8.8)	3, (0.7-11.6)	55.6, (39.9-70.2)
Sexual partners refuse to use condoms	35.7, (25.9-46.9)	23.5, (14.6-35.6)	6, (1.7-18.9)
I trust my sexual partner	65.9, (55.5-75)	14.5, (8.6-23.4)	12.5, (5.5-25.9)
Do not carry enough	6, (2.6-13.2)	4, (1.5-10.4)	17.4, (9.3-30.4)
I was drunk	9.3, (4.9-16.8)	18.7, (11.4-29.3)	18.2, (9.5-32.1)
Client was drunk	11.1, (6-19.5)	8.2, (3.8-16.7)	0.2, (0.03-1.5)
Has been abused	1.9, (0.4-8)	-	26.5, (14-44.5)
Clients pay more for having sex without using condoms	2.8, (0.8-9)	2.3, (0.6-8.9)	6.6, (2.3-18)
I use other forms of contraception of pregnancy	5.2, (2-12.7)	5, (1.8-12.9)	1.7, (0.2-11.4)
Wanted to become pregnant	5.3, (2.3-11.8)	0.5, (0.1-2.7)	3.7, (1-12.6)
Sexual partners/clients might think I have a disease	2.3, (1.3-4.1)	4, (1.7-9)	-

9.0% of total FSWs had anal sex and this was the higher in Ulaanbaatar city than in other provinces.

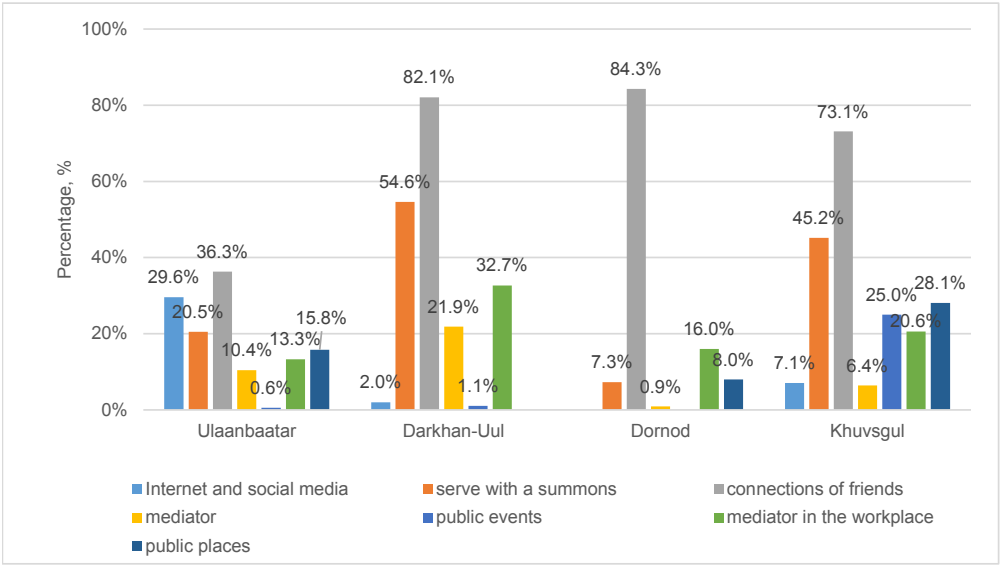
Among survey participants from Ulaanbaatar, Darkhan-Uul, Dornod and Khuvsgul, 9.3%, 17.7%, 10.1% and 1.7% sold sex abroad (Figure 1.7).

Figure 1.7 Sexual behavior of FSWs, by locations



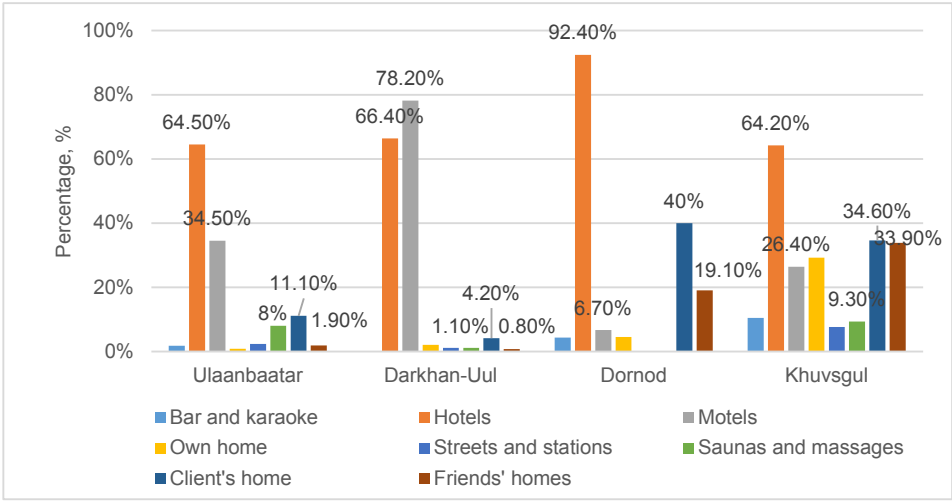
Most common way of FSWs solicite their clients was through connection of friends. This way to sell sex was the highest in the provinces rather than in Ulaanbaatar. 28.3% of the total FSWs sold solicite their clients through the internet and social media. This was the highest in Ulaanbaatar (figure 1.8).

Figure 1.8. FSWs' ways of soliciting clients, by locations



Most common places where FSWs provided sexual services to their clients were hotels (64.9%) and motels (34.7%). (Figure 1.9).

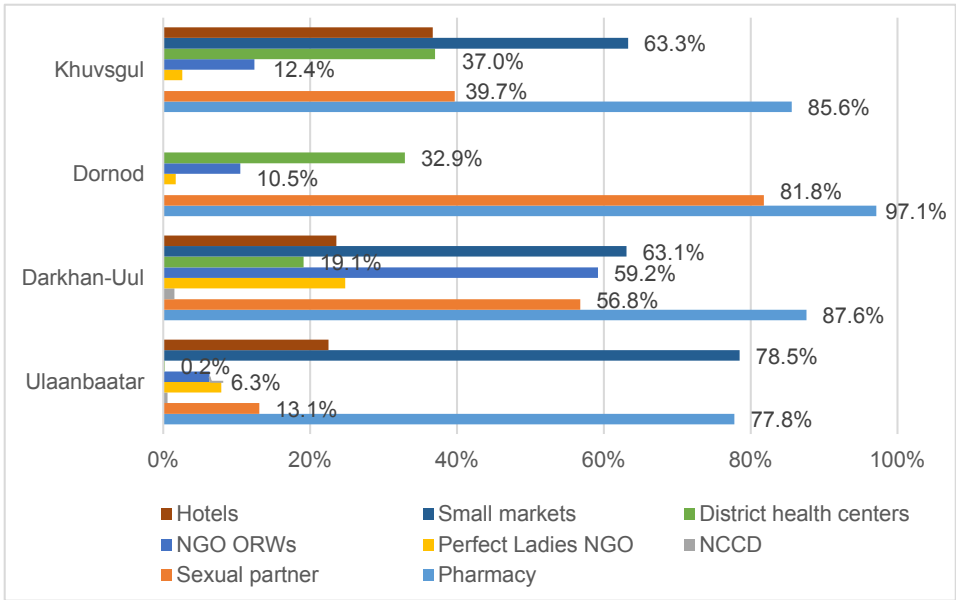
Figure 1.9. Venues of FSWs sexual service, by locations



Condom use

When FSWs needed condom, they mostly purchase in pharmacy (78.4%), stores and kiosks (78.2%). FSWs who get condoms from their clients was higher in provinces than in Ulaanbaatar (Figure 1.10).

Figure 1.10. Places where FSWs get/purchase condoms, by location



27.6% of total FSWs know organization which distribute free condom and other services. More FSWs from Dornod province than in other survey sites know about an organization where they can receive free condoms and other services (26.6% in UB, 14.7% in Darkhan-Uul, 77.8%in Dornod, 51.2% in Khuvsgul know where they can get free condoms and other services)

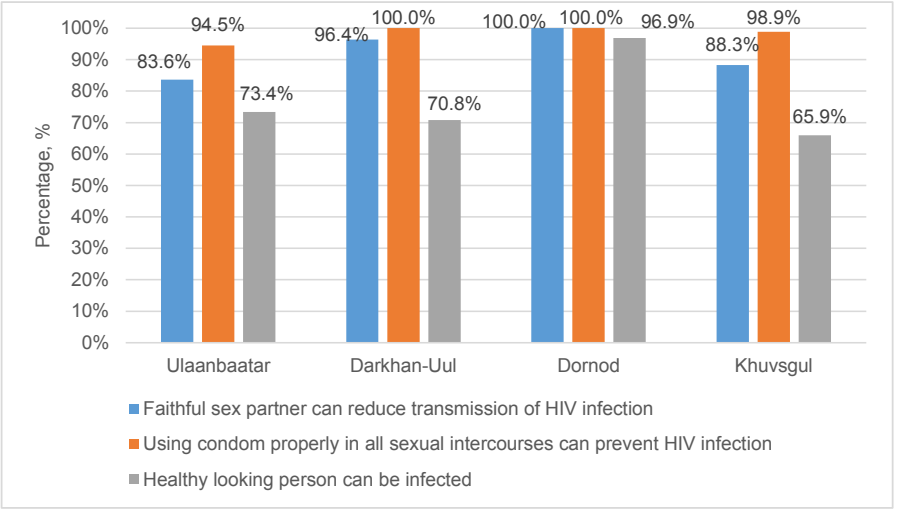
HIV and AIDS knowledge and attitude

More than 94% of participants have heard about HIV. Evaluation of their knowledge showed that more than 65.9% of them correctly answered the question – Can a healthy-looking person be infected with HIV.

28.1% of total MSM, were answered right that anal sex is the highest risk of HIV transmission. But 60.8% and 6% of them answered wrong that vaginal sex and oral sex is the highest risk of HIV transmission.

77.8%, 91,8% and 69.7% of total MSM answered right that faithful sex partner can reduce transmission risk of HIV infection, that using condom properly in all sexual intercourse can prevent HIV infection, that healthy looking person can be infected with HIV, respectively. In Figure 1.11, shows that knowledge of HIV by location.

Figure 1.11. Knowledge of HIV, by location



Of the 723 sex workers surveyed, 8.6% rated themselves not-risk at HIV infection, 88.3% as risk, and 3.1% as high-risk (Table 1.9). 65.1% of total FSWs knows about where to go an HIV testing and 96.5% of total FSWs agree that refular HIV testing can protect them and theirs clients from the risks.

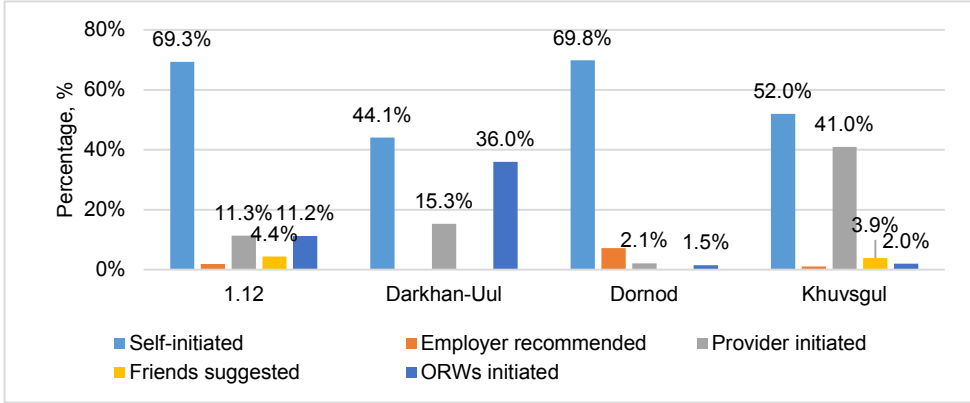
Table 1.9. HIV infection attitude, by locations

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	N=423		N =100		N=100		N=100		N=723	
	n	%, (95% CIs)	n	%,(95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Have you ever heard of HIV?										
Yes	401	94.2, (91.6-96.8)	98	97.3, (92.7-100)	97	97.1, (94.5-99.8)	94	95.6, (92.4-98.9)	690	94.3, (90.8-96.5)
No	21	5.8, (3.2-8.4)	1	2.7, (1.9-7.3)	2	2.9, (0.2-5.5)	5	4.4, (1.1-7.6)	29	5.7, (3.5-9.2)
HIV risk assessment herself										
at no risk	55	14.6, (10.4-18.8)	1	1.5, (0.8-3.9)	1	1.4, (0.5-3.4)	4	3.7, (0.8-6.6)	61	8.6 (6.7-10.8)
risky	346	82.5, (78.3-86.8)	92	91.6, (86.2-97)	97	98.6, (96.6-100.5)	91	92.9, (89.3-96.5)	626	88.3 (85.8-90.5)
high risk	12	2.9, (1.3-4.4)	6	6.9, (2-11.7)	-	-	4	3.4, (0.9-5.8)	22	3.1 (2.0-4.8)
Do you know where to go for an HIV testing?										
I know	276	63.8, (58.6-69.6)	94	91.6, (85.8-97.5)	98	98.6, (96.6-100.5)	81	80.6, (73.4-87.7)	549	65.1, (59.9-70)
I don't know	146	36.2, (30.4-41.9)	5	8.4, (2.5-14.2)	1	1.4, (0.5-3.3)	18	19.4, (12.3-26.6)	170	34.9, (30-40.1)
Agree that regular (every three to six months) HIV testing can protect from the risks										
Yes	409	98.7, (97.6-99.8)	77	87.2, (82.9-92.2)	99	100	86	96.1, (93.3-98.9)	671	96.5, (94.4-97.8)
No	5	1.3, (0.2-2.4)	13	12.8, (7.8-17.1)	-	-	4	3.87, (1.1-6.7)	22	1.5, (0.7-3)

HIV testing service covarage

More than 57 percent of the respondents were tested for HIV. When asked about whose initiation they received HIVTS, it was mostly self-initiated (68.1%). (Figure 1.12).

Figure 1.12. Reasons to be tested for HIV infection, by locations



HIVTS coverage among FSWs was 56.1% in UB, 90% in Darkhan-Uul, 96.4% in Dornod and 84.7% in Khuvsgul. In terms of time, percentage FSWs who received HIVTS within last 6 months was 55.3% in UB, 54% in Darkhan-Uul, 68.8% in Dornod and 32.2% in Khuvsgul. High percentage of people who received their HIV test result was observed (more than 90.8%), (Table 1.10).

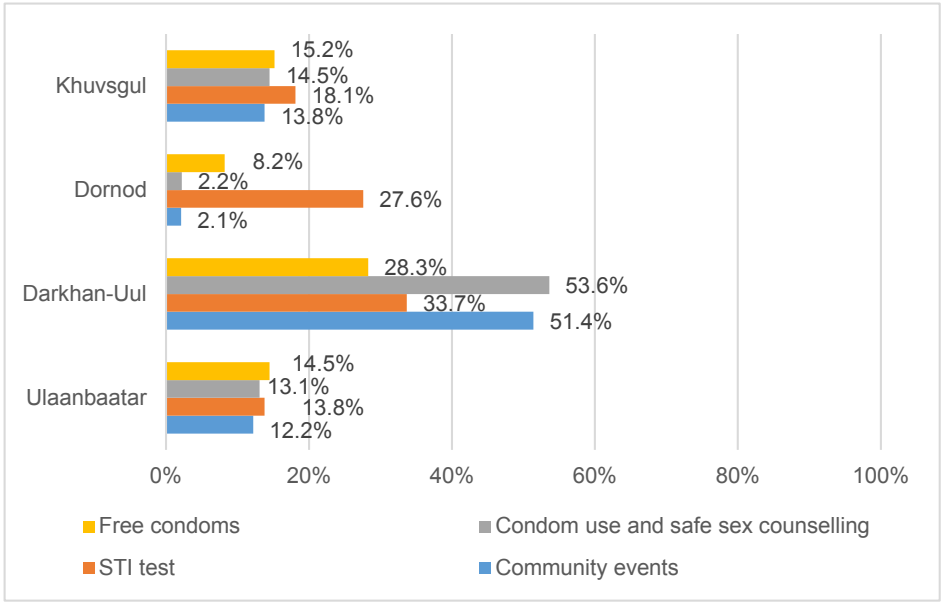
Table 1.10. HIV testing service covarage

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	N=423		N =100		N=100		N=100		N=723	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Have you been tested for HIV?										
Yes	254	56.1, (50.2-61.9)	93	90, (82.8-97.4)	96	96.4, (93.8-99)	84	84.7, (78.9-90.4)	527	57.7, (52.4-62.9)
No	168	43.9, (38.1-49.8)	6	10, (2.6-17.2)	3	3.6, (1-6.2)	15	15.3, (9.6-21.1)	192	42.3, (37.1-47.6)
When was the last time you received HIV testing service?										
Within 6 months	148	55.3, (46.8-63.4)	54	54, (44.4-62.8)	66	68.8, (63.3-74.2)	26	32.2, (22.5-42.1)	294	54.9, (48-61.6)
6-12 months	39	15.2, (9.3-21.1)	21	23, (14.8-31.2)	19	19.1, (14.5-23.6)	18	29, (13.3-28.3)	97	15.6, (11.4-21)
More than 12 months	67	29.5, (22.3-37.1)	18	23, (14.9-31.8)	11	12.1, (8.2-16.2)	40	46.9, (37.7-56)	136	29.5, (23.5-36.3)
Did you get your test result, yes or no?										
Yes	236	91.5, (85.4-97.6)	86	90.8, (84-97.2)	99	100	79	93.8, (88.8-99)	497	91.7, (86.3-95.2)
No	18	8.5, (2.4-14.6)	7	9.2, (2.8-16)	-	-	5	6.2, (0.9-11.2)	30	8.2, (4.8-13.7)
What was your latest test result?										
positive	1	0.1, (0.04-0.2)	1	0.8, (0.3-1)	1	1.2, (0.4-2.9)	-	-	3	0.2, (0.04-0.7)
negative	233	99.4, (98.9-100)	85	99.2, (99-99.7)	95	98.8, (97.1-100.4)	79	100	492	99.4, (98.3-99.8)
unknown	2	0.4, (0.2-0.9)		-		-	-	-	2	0.4, (0.1-1.7)

14.7% of total FSWs receive free condom through outreach program, from NGO and 14.4% were tested for STIs and 13.7% received condom use and safe sexual counseling.

STI testing service was the mostly received service which FSWs seeked in the last 3 months in Ulaanbaatar, Dornod and Khuvsgul provinces while in Darkhan-Uul, it was counselling service on condom use and safe sex practices (figure 1.13).

Figure 1.13 Type of services received in last 3 months through outreach program, from NGO and/or NCCD, by location



STI attitude in FSW

When asked whether experienced vaginal discharge in last 12 months, 20.4%-39.1% of the respondents answered Yes. Amongst them, 47.2%-96.3% visited health service providers. Women in Ulaanbaatar commonly visited private clinics, while in provinces they commonly visited provincial health centers to receive service. (Table 1.11).

Table 1.11. STI symptoms in FSWs

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	N = 423		N = 100		N = 100		N=100		N=723	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Experienced abnormal vaginal discharge or genital ulcer within last 12 months										
Yes	88	20.4, (16.3-24.5)	33	33.7, (25.3-41.7)	43	39.1, (33.9-44.1)	25	25.6, 1 (8.3-32.8)	189	20.9, (17-25.5)
No	334	79.6, (75.5-83.7)	66	66.3, (58.3-74.3)	56	60.9, (55.9-66.1)	74	74.4, (67.2-81.7)	530	79.1, (74.5-83)
Visited health service providers										
Yes	42	47.2, (36.6-57.6)	25	70.8, (49.3-85.9)	42	96.3, (92.6-97)	19	78.1, (66.9-90.2)	128	49.8, (38.6-61)
No	46	52.8, (42.3-63.4)	8	29.2, (14.1-50.1)	1	3.6, (3-7.4)	6	21.9, (9.7-33.1)	61	50.2, (39-61.4)
If yes, where did you go for care services?										
NCCD/ Red ribbon	6	13.3, (2.3-24.1)		-	1	2.2, (1.3-5.6)		-	8	12, (5-25.8)

Provincial and district health centers	11	24.9, (11.9-37.5)	18	73.2, (58.3-88)	29	69.6, (58.1-82.3)	18	73.2, (57.2-88.8)	76	31.5, (18.7-47.9)
Private clinic	20	51.8, (37.9-66.5)	7	26.8, (12-41.7)	12	28.1, (15.1-40.2)	7	26.8, (11.2-42.8)	39	47.7, (32.2-63.8)
NGO	5	10, (6.5-13.1)	-	-	-	-	-	-	5	8.7, (3-22.6)

STI testing service coverage

Investigation of STI testing coverage among total respondents in last 2 months demonstrated that 39.7% of UB, 67.3% of Darkhan-Uul province, 92.5% of Dornod province and 59.8% of Khuvsgul province particpants were tested for STI. The reason of receiving STI testing service were majorly voluntary as preventive screening or due to symptoms. (Table 1.12).

Table 1.12. FSWs STI testing coverage among FSWs

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	N = 423		N = 100		N = 100		N=100		N=723	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
STI testing except for HIV in the last 12 months										
Yes	185	39.7, (34.2-45.2)	68	67.3, (58.4-76.1)	93	92.5, (88.8-96.2)	61	59.8, (50.8-68.5)	407	41.2, (36.2-46.4)
No	237	60.3, (54.8-65.8)	31	32.7, (29.9-41.5)	6	7.5, (3.7-11.2)	38	40.2, (31.5-49.2)	312	58.8, (53.5-63.8)
The reasons for the test										
For preventive purposes, voluntarely	130	71.5 (64.5-78.7)	37	54.8, (42.9-67.0)	45	48.9, (42.3- 55.9)	27	41.6 (29.8-52.1)	239	69.5, (62-76.2)
For preventive purposes, by project	14	7.1 (1.5-12.6)	6	8.5, (3.4-13.5)	15	18.1, (13.5-23.6)	11	16.6 (8.2-24.6)	46	7.8, (4.3-13.5)
Because of the symptoms	36	18.5 (11.7-25.2)	20	27.6, (16.7-37.2)	9	9.1, (6.1-11.8)	22	39.7, (28.3-52.3)	87	19.1, (13.8-25.9)
Because I had casual sex without a condom	2	0.7 (0.3-1.6)	2	1.9, (1.1-1.9)	23	22.7, (17.7-26.7)	1	2.2, (1.6-3.0)	28	1.4, (0.6-2.9)
As per requested by a sexual partner	3	2.1 (1.7-2.7)	3	7.3, (0.8-17.1)	1	1.1, (0.4 -2.7)	-	-	7	2.2, (0.7-6.2)
Barriers to receive STIs testing service except HIV test										
Long waited	22	11.3, (6.2-16.3)	4	5.2, (0.2-9.7)	11	12, (8-16)	12	23.5, (13.5-35.4)	49	11.6, (7.3-17.9)
Hospital working hours not convenient	23	10.7, (6.9-13.9)	3	4.1, (0.7-8.5)	18	21.2, (16.1-27.1)	2	2.8, (0.4-5.9)	46	10.5, (7-15.4)
There is no confidentiality	14	5.5, (2.4-8.2)	5	6.1, (1.2-10.2)	-	-	-	-	19	5.2, (2.9-8.9)

Commication and attitudes of medical staff	20	9.1, (5.5-12.4)	4	5.1, (0.2-9.6)	-	-	3	6.6, (0.01-13.9)	27	8.7, (5.5-13.4)
Hospital area was not convenient	19	7, (3.9-9.6)	3	4.3, (0.5-7.9)		-	2	4.4, (1.5-10.8)	24	6.7, (4.1-10.7)
The hospital was far away	19	7.2, (3.6-10.1)		-	4	4.2, (1.9-6.6)	8	11.8, (4.9-18.1)	31	7, (4.3-11.3)
Expensive service charge	25	11.2, (7.1-15)		-	3	2.9, (1.2-4.4)	2	2.9, (0.7-6.6)	31	10.5, (6.9-15.5)

STI morbidity

Syphilis was diagnosed in 2.5% of UB FSWs, 5.5% of FSWs in Darkhan-Uul province, 2% of FSWs in Dornod, 5.3% of FSWs in Khuvsgul in last 12 months. Gonorrhea was diagnosed in last 12 months in 1.8%, 2.5%, 17.3% and 17.6% of FSWs in UB, Darkhan-Uul, Dornod and in Knuvsgul provinces separately. Among FSWs in Ulaanbaatar, 0.4% were diagnosed with chlamydia in last 12 months.

All, 100% of FSWs diagnosed with STI were received treatment service. Treatment coverage is 87.7% in Ulaanbaatar. (Table 1.13).

Table 1.13. The incidence of STIs among participants

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	N = 423		N = 100		N = 100		N=100		N=723	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Have you been diagnosed with the following diseases in the last 12 months?										
syphilis	16	2.5, (1.3-3.8)	6	5.5, (2.5-8.5)	2	2, (0.7-3.3)	6	5.3, (2.5-8)	30	2.6, (1.6-4.3)
gonorrhea	8	1.8, (96.7-99.8)	3	2.5, (0.7-4.3)	19	17.3, (13.8-20.7)	16	17.6, (10.7-25.6)	46	2.3, (1.1-4.7)
chlamydia	4	0.4, (0.1-0.8)	-	-	-	-	-	-	4	0.4, (0.1-1.2)
Did you receive treatment										
Yes	25	87.7, (81.4-95.5)	26	100	21	100	22	100	99	90.1, (76.3-96.2)
No	5	12.2, (4.5-18.6)	-	-	-	-	-	-	2	9.9, (3.8-23.7)
Who provided you treatment service										
Doctor	22	76.7, (51.2-99)	17	64.3, (60.4-60.4)	21	100	29	100	88	79.2, (49.6-93.6)
Pharmacist	2	19.6, (6.3-49)	1	7, (9.9-9.9)	-	-	-	-	3	16.2, (3.5-50.6)
Self treated	1	3.6, (8-15.2)	1	3, (2.1-2.1)	-	-	-	-	2	3, (0.4-17.7)

Alcohol and drug consumption

In last 12 months, 60.9%-85.8% of FSWs used alcohol and the rate is highest in Ulaanbaatar. Dominated frequency of alcohol use was once a month in UB (29.3%), more than one time in a week in Darkhan-Uul province (37.6%), one to two times a year in Dornod province (50.4%) and once a month in Khuvsgul province (29.8%). (Figure 1.14).

Figure 1.14. Frequency of alcohol use, by location

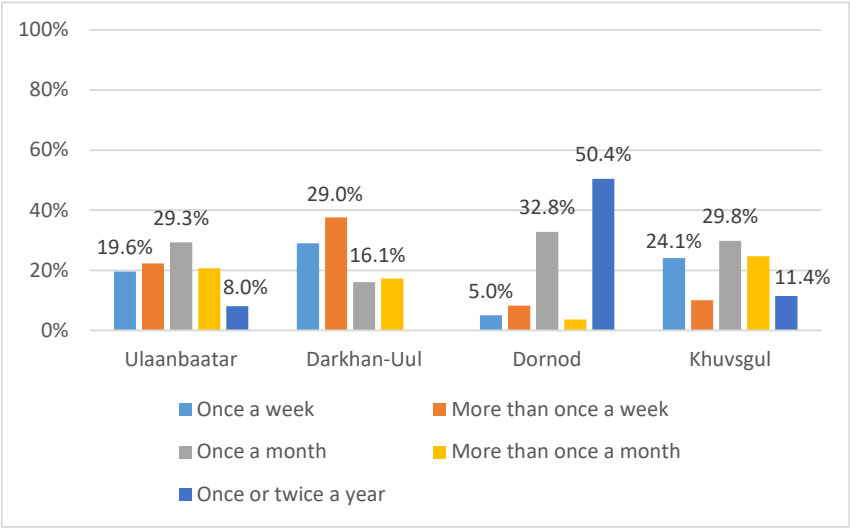


Table 1.14. Alcohol consumption, by location

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	N = 423		N = 100		N = 100		N=100			
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Alcohol consumption in the last 12 months										
Yes	364	85.8 (82.3-89.2)	78	74.2, (65.8-82.6)	85	83.2, (77.7-88.6)	61	60.9, (51-70.9)	588	85.1, (81.1-88.3)
No	58	14.2 (10.7-17.7)	21	25.8, (17.4-34.1)	14	16.8, (11.4-22.3)	38	39.1, (29.1-48.9)	131	14.9, (11.7-18.9)
Have you had sex while drunk in the last 12 months										
Yes	197	51.6 (45.7-57.4)	45	57.1, (45.9-68)	48	57.7, (51.4-64.9)	41	67.2, (56.8-75.6)	331	52, (46.1-57.7)
No	167	48.4 (42.6-54.3)	33	42.9, (31.9-54)	37	42.3, (35.1-48.6)	20	32.8, (22.2-43.2)	257	48, (42.2-53.9)

Frequency of having sex while drunk in the last 12 months										
Always	21	11.6 (6.2-17.0)	-	-	-	-	1	2.3, (0.6-5.3)	22	11, (6.8-17.5)
usually	21	10.3 (4.8-15.9)	4	7, (0.2-12.9)	2	4.6, (0.8-8.5)	13	36.3, (23.4-52.8)	40	10.7, (6.7-16.6)
sometimes	77	40.2 (31.7-48.8)	13	29.5, (9.7-69.2)	10	31.6, (14.6-63.7)	14	30, (17.3-40.2)	114	39.7, (32.1-47.8)
occasionally	78	37.9 (29.4-46.1)	28	63.5, (27.8-99.9)	30	63.7, (29.8-82.6)	13	31.4, (16.9-44.6)	149	38.4, (31.1-46.2)

Drug consumption

It is responded that 7 people in UB and 1 in Darkhan-Uul have used non-injectable drugs. As per drugs type, 3 people used marijuana/hashish, 1 person used ice, 1 person used cocaine, 2 people used poppers, 1 person used clay and 3 people used prescription drugs.

There were 3 participants in UB and 1 in Darkhan-Uul province who injected drugs. None of them reported to know the type of injectable drug they used.

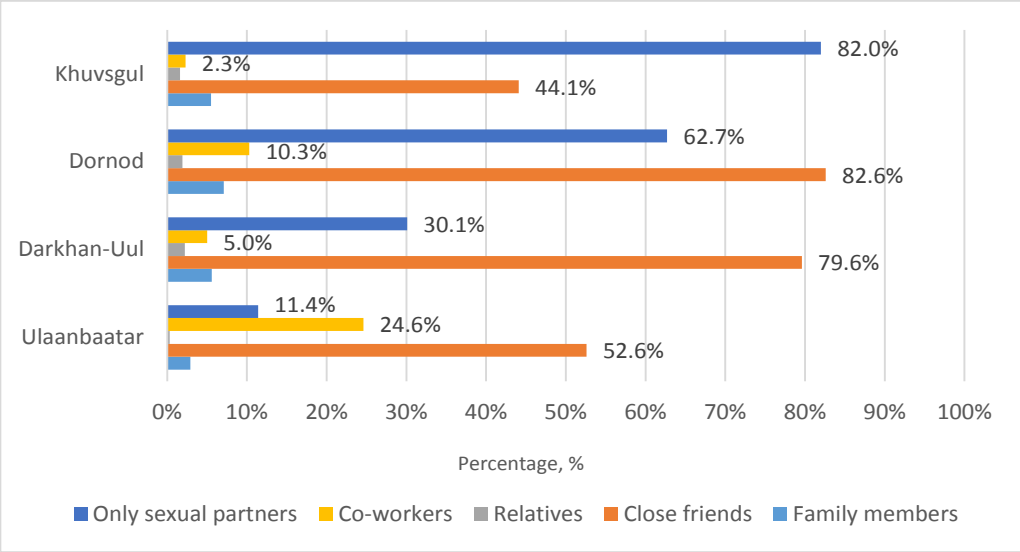
Table 1.15. Drug consumption, by location

	Ulaanbaatar		**Darkhan-Uul**		**Dornod**		**Khuvsgul**		**Total**	
	N = 423		**N = 100**		**N = 100**		**N=100**		**N=723**	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, **(95% CIs)**	n	%, (95% CIs)		
Non-injection drugs have been used in the last 12 months										
Yes	7	2.1 (0.1-4.2)	1	0.8, (0.02-1.6)	-	-	-	-	8	2 (0.8-5.0)
No	416	97.8 (95.8-99.8)	98	99.2, (98.4-100)	100	100	100	100	715	97.9 (95.0-99.2)
Type of drugs										
Marijuana / Hashish	3	57.1	1		-	-	-	-	4	
Cocaine	1	8.1	-	-	-	-	-	-	1	
Ice	1	12.8	-	-	-	-	-	-	1	
Poppers	2	26.7	-	-	-	-	-	-	2	
Clay	1	8.1	-	-	-	-	-	-	1	
Prescription Drugs	3	24.4	-	-	-	-	-	-	3	
Whether the drug was injected										
Yes	3	0.4 (0.09-0.7)	1	0.7, (0.1-1.4)	-	-	-	-	4	0.4 (0.1-1.2)
No	417	99.6 (99.3-99.9)	96	99.2, (98.6-100)	100	-	100	-	719	99.1 (97.9-99.6)

The human rights situation of the FSW

Close friends and co-workers of FSWs know about their sex work. (Figure 1.15).

Figure 1.15 People who know about FSW's selling sex



18.4% of total FSWs were beaten because of sex works, 13.4% нь of FSWs were discriminated by police. Among participants, 15.4% of FSWs were detained by police, 3.1% refused to provide health care services (Table 1.16).

Table 1.16. Discrimination and Violence of FSWs, by locations

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	N = 423		N = 100		N = 100		N=100		N=723	
	n	%,(95% CIs)	n	%,(95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%,(95% CIs)
Whether been beaten because of sex work										
Yes, 1 time	39	7.8 (5.3-10.3)	6	7.9, (1.3-14.6)	26	24.8, (19.6-29.9)	6	6.4, (1.6-11.3)	77	8, (5.7-11.1)
Yes many times	56	10.8 (7.7-13.9)	5	5.8, (1.8-9.9)	1	1.4, (0.4-3.2)	5	4.4, (1.3-6.7)	67	10.4, (7.8-13.9)
No	327	81.4 (77.7-85.5)	88	86.2, (79-93.5)	72	73.8, (68.3-79.3)	88	89.2, (84.1-94.4)	575	81.5, (77.4-85.1)
Whether the police committed violence or discrimination because of sex work										
Yes, 1 time	18	4 (2.0-6.0)	9	11.8, (4.9-18.5)	5	5.1, (2.3-8)	3	2.5, (0.5-4.4)	35	4.1, (2.5-6.9)
Yes many times	54	9.7 (6.7-12.7)	5	5.3, (0.9-9.6)	-	-	-	-	59	9.3, (6.8-12.6)
No	350	86.2 (82.8-89.7)	85	82.9, (75.3-90.7)	94	94.9, (92-97.7)	96	97.5, (95.6-99.4)	625	86.5, 82.6-89.6

Whether been refused to be provided with medical care because of sex work										
Yes, 1 time	14	2.4 (1.1-3.6)	1	0.8, (0.0-1.5)	-	-	1	1, (0.4-2.3)	16	2.3, (1.3-4.1)
Yes many times	5	0.9 (0.2-1.6)	-	-	-	-	1	1, (0.3-2.3)	6	0.8, (0.3-2.1)
No	403	96.7 (95.3-98.2)	98	99.2, (98.5-100)	99	100	97	98.1, (96.2-99.9)	697	96.8, (94.8-98.1)
Whether been arrested by the police										
Yes, 1 time	23	3.7 (2.4-5.1)	7	8.3, (2.8-13.7)	6	6.3, (3.2-9.4)	2	1.5, (0.1-2.8)	38	3.8, (2.5-5.8)
Yes many times	67	12.4 (8.7-15.4)	6	6.7, (2.1-11.3)	1	1.1, (0.05-2.1)	2	1.93, (0.1-3.7)	76	11.6, (8.7-15.3)
No	332	84.2 (80.5-87.9)	86	85, (78.1-92.1)	92	92.6, (89.4-95.9)	95	96.6, (94.4-98.8)	605	84.6, (80.7-87.8)

The percentages of FSWs who did not receive health services and HIVTS due to fear of stigma and discrimination were 17.9% and 16.9% among total FSWs. And the percentages of FSWs who did not receive health services and HIVTS because they were worried about someone might know their sex work were 29.9% and 27.3% separately. The percentages of FSWs who did not receive health services and HIVTS due to fear of violation were 17.6% and 14.6% and due to fear of police arrestment were 22.2% and 19.7% separately (Table 1.17).

Table 1.17. Reasons that FSWs did not receive health services and HIV testing service, by locations

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	N = 423		N = 100		N = 100		N=100		N=723	
	n	%,(95% CIs)	n	%,(95% CIs)	n	%,(95% CIs)	n	%,(95% CIs)	n	%,(95% CIs)
Due to fear of stigma										
Didn't receive health service	78	17 (13.1-20.8)	45	48.1, (39.9-56.4)	48	45.6, (39-52.2)	19	18.6, (11.6-25.6)	190	17.9, (14.3-22.2)
Didn't receive HIVTS	70	15.9 (12.1-19.8)	45	48.6, (40.2-56.8)	50	47.3, (40.3-54.4)	16	15.7, (9.5-21.9)	181	16.9, (13.3-21.2)
Because of worried that someone would know about their sex work										
Didn't receive health service	121	27.7 (23.2-32.2)	59	61.6, (53.8-69.4)	94	94.8, (92.3-97.2)	65	64.3, (55-73.5)	339	29.9, (25.3-34.9)
Didn't receive HIVTS	111	25.3 (20.7-30)	58	62.1, (54.4-69.7)	91	91.5, (87.5-95.4)	53	51, (42-60)	313	27.3, (22.9-32.2)
Due to fear of being violated										
Didn't receive health service	73	16.9 (13.0-20.7)	45	48, (39.9-56.1)	7	7, (3.7-10.3)	32	34.7, (26.5-43.1)	157	17.6, (14-21.9)
Didn't receive HIVTS	63	14 (10.3-17.7)	47	50.5, (42.3-58.6)	6	6.2, (2.9-9.4)	20	19.4, (12.6-26.3)	136	14.6, (11.3-18.7)
Due to fear and anxiety of being arrested										
Didn't receive health service	94	20.9 (17.0-24.9)	55	62.3, (55.3-69.6)	7	7.8, (4-11.5)	53	55.6, (47.6-63.6)	209	22.2, (18.2-26.7)
Didn't receive HIVTS	84	18.6 (14.7-22.6)	57	65.5, (59.1-72.2)	8	9.1, (5-13.3)	39	38.7, (30.5-46.8)	188	19.7, (15.9-24)

Among total FSWs, 49.6% (415) had sexual parners who refused to use condoms even though they wanted to use in last 12 months and 49.7% (238) of them had sexual intercourse anyway with that partner without using condom due to their sexual partners' refusal (Table 1.18).

Table 1.18. Case of forced sexual intercourse, by locations

	Ulaanbaatar		Darkhan-Uul		Dornod		Khuvsgul		Total	
	N = 423		N =100		N =100		N=100		N=723	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Someone forced you to have sex with himself										
Yes	115	24.2 (19.7-28.6)	21	22.5, (14-30.8)	9	9.1, (5.8-12.5)	15	16.5, (9.3-23.5)	160	23.8, (19.7-28.4)
No	307	75.8 (71.4-80.3)	78	77.5, (69.1-85.9)	90	90.9, (87.5-94.2)	84	83.5, (76.5-90.6)	559	76.2, (71.6-80.3)
In the last 12 months, a sexual partner refused to use condom during sex when you wanted to use										
Yes	214	48.9 (43.2-54.5)	76	79.2, (73-85.2)	88	88.5, (85-92.1)	37	37.8, (29.5-46.2)	415	49.6, (44.3-54.9)
No	208	51.1 (45.5-56.8)	23	20.8, (14.8-27)	11	11.5, (7.9-15)	62	62.2, (53.8-70.5)	304	50.4, (45.1-55.7)
Have had sex without condom in the last 12 months because a sexual partner refused to use condom during sex when you wanted to use										
Yes	109	48.8 (39.4-57.9)	23	31.4, (21.1-42.6)	75	85, (79.8-90.2)	31	85.9, (76.3-97.2)	238	49.7, (42.3-57.2)
No	105	51.2 (42.1-60.5)	53	68.6, (57.4-79)	13	15, (9.8-20.2)	6	14.1, (2.8-23.7)	177	50.3, (42.8-57.7)

HIV and syphilis prevalence among FSWs

There was no HIV infection detected among FSWs in 2019 survey. However, totally 106 syphilis infection were detected. By location, 49 were in UB, 18 were in Darkhan-Uul province, 18 were in Dornod province and 19 were in Khuvsgul province. Table 1.19 shows weigthed prevalence of syphilis by survey locations.

Table 1.19. Syphilis prevalence, 2019

Risk groups	Number of people who got tested	Number of people whose result is positive	Prevalence %	Weighted %, (95% CIs)
All FSW	720	105	14.5%	18.1 (17.8-18.4)
Ulaanbaatar	422	49	11.6%	11.2 (8.0, 14.4)
Darkhan-Uul	99	18	18.2%	25 (15.7, 34.5)
Dornod	99	19	19%	19.7 (14.3, 25.1)
Khuvsgul	100	19	19%	16.2 (11.0, 21.4)

According to social and demographic indicators, the prevalence of syphilis infection among FSWs is higher in uneducated and prevention low educated

women (31%; p=0.0001). In terms of marriage status, the incidence of syphilis infection is high among divorced and single women (21%; 12.5% p=0.02). (Table 1.20).

Table 1.20. Syphilis prevalence in FSWs (by age group, education, marital status)

	Female sex workers	Syphilis positive N(%)	Syphilis negative N(%)	P
Age	**N = 720**	**N=105**	**N=615**	0.005
<19	91	10(11.0)	81(89.0)	
20-24	196	23(11.7)	173(88.3)	
25-29	107	26(24.3)	81(75.7)	
30-34	107	22(20.6)	85(79.4)	
35-39	65	5(7.7)	60(92.3)	
40-44	70	12(17.1)	58(82.9)	
45-49	83	7(8.4)	76(91.6)	
The state of Education				0.216
None and primary	29	6 (20.7)	23(79.3)	
Incomplete secondary and complete secondary	546	84(15.4)	462(84.6)	
Special Vocational Schools8 college and University	143	15(10.5)	128(89.5)	
Marriage status				0.622
Married	91	11(12.1)	80(87.9)	
Not married	425	62(14.6)	363(85.4)	
Divorced	172	29(19)	143(83.1)	
Widow	31	3(9.7)	28(90.3)	

Regardless of the type of sexual partner, the use of condoms during sexual intercourse is a risk factor of syphilis infection (Table 1.21)

Table 1.21. Syphilis prevalence in FSWs by the frequency of condom use (by each sexual partner)

	FSW	Syphilis positive	Syphilis negative	P
		N (%)	N (%)	
Permanent sexual partner				**0.580**
Always	43	6 (14.0)	37 (86.0)	
Sometimes	71	7 (9.9)	64 (90.1)	
Never	154	23 (14.9)	131 (85.1)	

Non-permanent sexual partner				**0.629**
Always	62	7 (11.3)	55 (88.7)	
Somitimes	94	15 (16.0)	79 (84.0)	
Never	65	11 (16.9)	54 (83.1)	
Casual sex with a sexual partner				**0.469**
Always	379	50 (13.2)	329 (86.8)	
Sometimes	297	48 (16.2)	249 (83.8)	
Never	21	4 (19.0)	17 (81.0)	
Usage of condoms during the last sexual intercourse				**0.017**
Always	86	6 (7)	80 (93)	
Sometimes	140	23 (16.4)	117 (83.6)	
Never	172	36 (20.9)	136 (79.1)	

In the last 12 months, 36.7% of participants who said "They had been diagnosed with syphilis "were infected and 13.4% of those who said "No" were infected. (Table 1.22).

Table 1.22. Syphilis prevalence in FSWs by type of services received in last 3 months through outreach program, from NGO and/or NCCD

	Syphilis positive	**Syphilis nagative**	**P value**
	N (%)	**N (%)**	
Public events			0.720
Yes	19 (13.4)	123 (86.6)	
No	84 (14.6)	493 (85.4)	
STI testing			0.786
Yes	22 (13.7)	139 (86.3)	
No	81 (14.6)	477 (85.5)	
Usage of condom			0.288
Yes	26 (17)	127 (83)	
No	77 (13.6)	489 (86.4)	
Free condom			0.658
Yes	22 (15.5)	120 (84.5)	
No	81 (14)	496 (8.6)	

The lower the frequency of alcohol consumption, the lower the incidence of syphilis (P=0.0001). Having a sexual intercourse while under the influence of alcohol contributes to the syphilis infection prevalence. (Table 1.23).

Table 1.23. Syphlis prevalence in FSWs by alcohol, drug use

	N	Syphilis positive	Syphilis negative	P value
		N(%)	N(%)	
Had used alcohol bevereges in the last 12 months				**0.0001**
Yes	588	79 (13.4)	509 (86.6)	
No	131	24 (18.3)	107 (81.7)	
Frequency of alcohol bevereges in the last 12 months				**0.0001**
Once a week	120	23 (19.2)	97 (80.8)	
More than once a week	126	24 (19)	102 (81)	
Once a month	155	14 (9.6)	141 (90.4)	
More than once a month	111	10 (9)	101 (91)	
1-2 times a year	75	7 (9.3)	68 (90.7)	
Had Used alcoholic beverages before having sex				**0.262**
Yes	331	56 (16.9)	275 (83.1)	
No	257	23 (8.9)	234 (91.1)	
Use of non-injecting drugs (excluding tobacco)				0.386
Yes	8	2 (25)	6 (75)	
No	711	101 (14.2)	610 (85.8)	

The results of syphilis risk assessment among FSWs suggest that lower level of education (OR=10.7), being unmarried (OR=3.3), never using condom (OR=6.2) and having never received services from NGO and/or NCCD (OR=2.6) are increasing FSWs' risk of acquiring syphilis. (Table 1.24).

Table 1.24. Risk analysis of syphilis in FSWs

	Simple logistic regression analysis				Multivariable logistic regression analysis			
	OR	95% C.I.for OR		Sig.	OR	95% C.I.for OR		Sig.
		Lower	Upper			Lower	Upper	
The state of education								
University	1				1			
Incomplete middle school	5.850	1.947	17.574	***0.002***	10.693	1.572	72.732	***0.015***
Complete secondary school and vocational	2.214	0.993	4.937	***0.052***	3.961	0.896	17.503	***0.069***
Marriage status								
Married	1				1			
Not married	1.154	0.563	2.364	***0.695***	3.307	1.174	9.317	***0.024***

Divorced, widow	1.988	0.946	4.176	***0.070***	1.827	0.618	5.405	***0.276***
Sold sex abroad								
Yes	1				1			
No	1.507	0.835	2.720	***0.173***	1.905	0.841	4.313	***0.122***
Condom use								
Always	1				1			
Sometimes	2.621	1.021	6.726	***0.045***	3.052	0.851	10.954	***0.087***
Never used	3.529	1.424	8.745	***0.006***	6.192	1.714	22.368	***0.005***
Had sex while drunk								
Yes	1				1			
No	2.072	1.237	3.470	***0.006***	1.765	0.869	3.586	***0.116***
Received services from NGO or NCCD								
Yes	1				1			
No	1.554	0.894	2.700	***0.118***	2.634	1.172	5.921	***0.019***

Conclusion

Syphilis prevance decrease in this survey than in previous study. Lower level of education, being unmarried, never using condom and having never received services from NGO and/or NCCD are increasing FSWs' risk of acquiring syphilis.

1. MSM survey

A total of 598 respondents were included in the MSM survey. Table 2.1 shows the size of targeted samples, the number of respondents, and the number of selected seeds.

Table 2.1. Sample size of MSM, 2019

Locations	Sample size	Survey Population 2019	Seed number
Ulaanbaatar	478	401	1
Darkhan-Uul	100	54	2
Dornod	100	50	2
Orkhon	100	43	2

In Ulaanbaatar, MSMs sampling didn't reached yet the target sample size, but number of waves reached 15. In selected provinces, MSMs sampling size reached 50%, and number of waves reached 8.

Figure 2.1-2.4 shows the MSMs recruitment in the survey by location.

Figure 2.1. Recruitment waves in Ulaanbaatar, by seeds

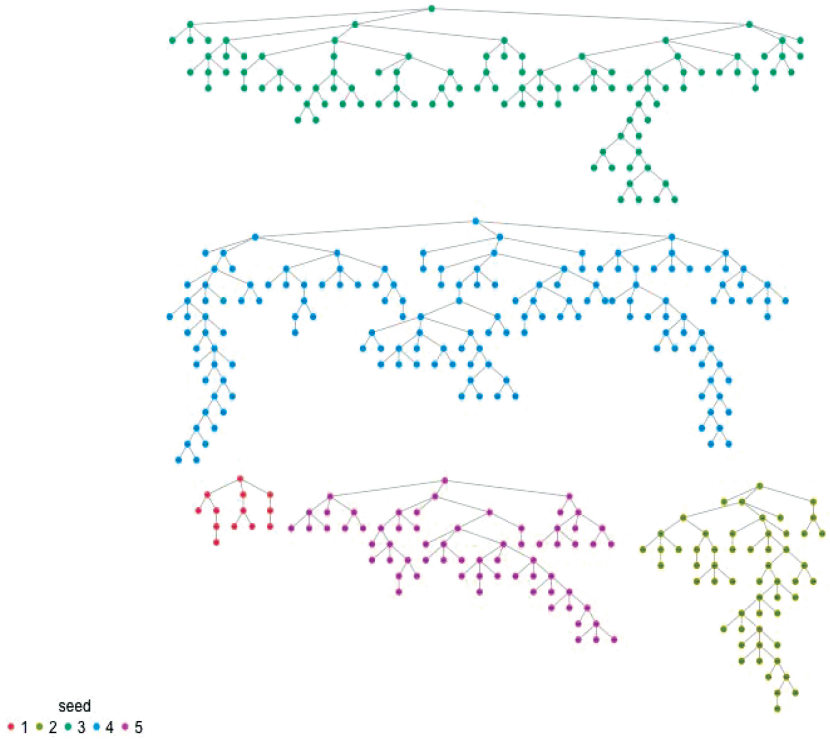


Figure 2.2. Recruitment waves in Darkhan-Uul province, by seeds

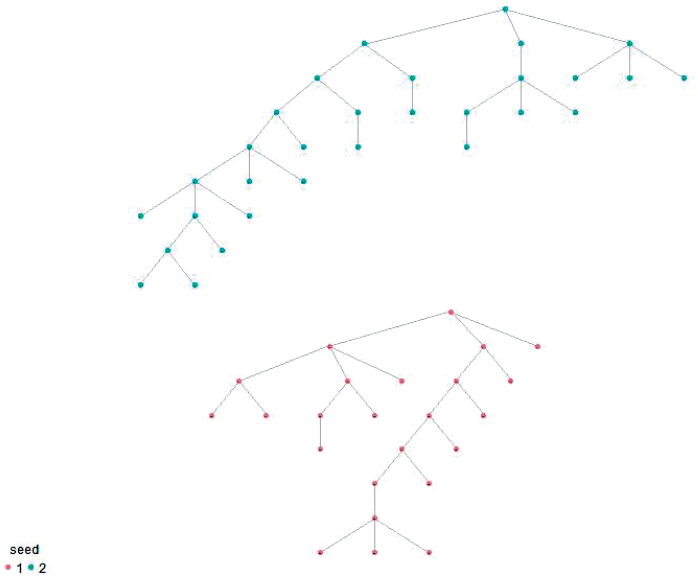


Figure 2.3. Recruitment waves in Dornod province, by seeds

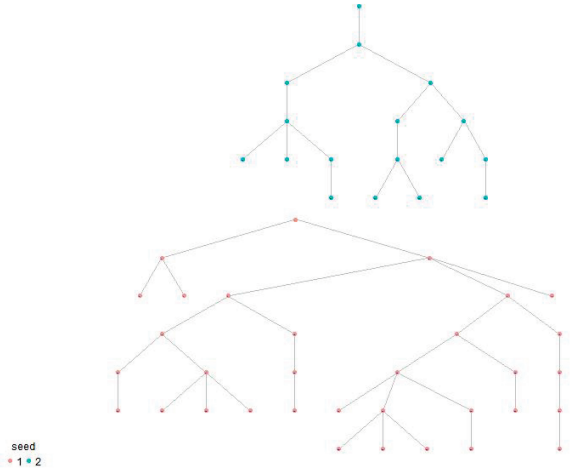
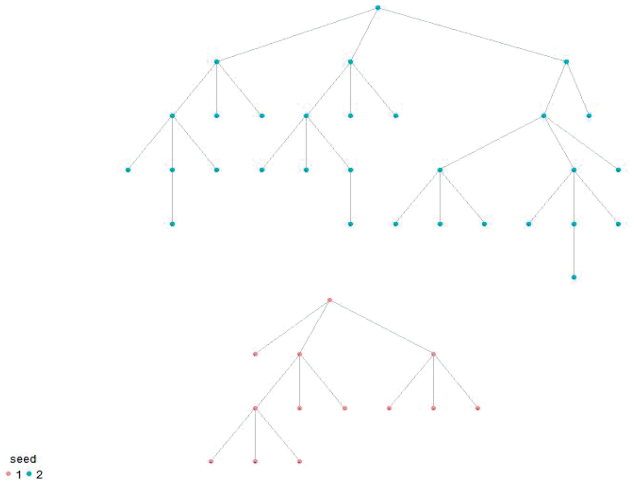


Figure 2.4. Recruitment waves in Orkhon province, by seeds



Socio-Economic Characteristics of survey respondents.

The majority of MSM in Ulaanbaatar (57.8%) were between 15-24 years old. But in provinces, 27.2% of MSMs were between 15-24 years of age. Table 2.2 shows educational and employment statuses of MSM. In Ulaanbaatar, 52.7% of MSM have complete secondary education, 35.8% have university degree. In provinces, 38.8% of MSM have completed secondary education and 37.4% have graduated from university. In terms of employment status of MSM, in Ulaanbaatar, 45.2% were employed, 15.1% were unemployed and 29.6% were students. In provinces, 41.1% of MSM were employed, 8.2% were unemployed and 13.7% were students.

91.5% of MSM in Ulaanbaatar were unmarried, 5.9% were married, and 16.3% were living with their partners. 64.6% of MSM in provinces were unmarried and 27.2% were married. Amongst 67 people who were living with their sexual partners in Ulaanbaatar, 52 (77.6%) had a male partner and 15 (22.4%) had a female partner. In provinces, 19.5% out of the 41 people who were living with their sexual partner had a male partner and 80.5% had a female partner.

Among participants from Ulaanbaatar, 13.8% served in the military, while 47.6% of particpants from provinces served in the military.

Table 2.2. Socio-Economic Characteristics of MSM population

	Ulaanbaatar		Provinces	
	N = 401		N = 147	
	n	%, (95% CIs)	n	%, (95% CIs)
Age groups				
≤19	89	26.5(24.8-37.7)	12	8.2(4.5-13.4)
20-24	129	31.3(9.7-37.7)	28	19.0 (13.3-26.0)
25-29	64	14.7(9.671-19.7)	25	17.0 (11.6-23.7)
30-34	37	8.9(5.2-12.7)	14	9.5 (5.6-15.1)
35-39	31	8.1(4.1-12.0)	25	17.0 (11.6-23.7)
40-44	20	4.9(2.0-7.8)	17	11.6 (7.2-17.5)
45-49	13	2.6(0.0-5.2)	18	12.2 (7.7-18.3)
≥50	16	3.1(0.2-5.9)	8	5.4 (2.6-10.0)
Educational status				
Did not attend school	1	0.1(-0.0-0.1)	-	-
Incomplete middle school, 1-8 grades	16	4.2(1.8-6.6)	8	5.4 (2.8-10.3)
Complete middle school,	201	52.7(45.8-59.6)	57	38.8 (31.3-46.9)
Vocational College	16	4.5(1.8-7.1)	25	17.0 (11.8-23.9)
University	153	35.8(29.3-42.3)	55	37.4 (30.0-45.4)
Master or higher degree	12	2.8(0.9-4.7)	2	1.4 (0.4-4.9)
Employment				
Unemployed	66	15.1(10.3-19.9)	12	8.2 (4.7-13.8)
Employeed (governmental/ non-governmental/private organizations)	192	45.2(38.5-51.9)	60	41.1 (33.4-49.2)
Self-employed	39	10.1(5.7-14.4)	54	37.0 (29.6-45.1)
Student	102	29.6(23.7-35.7)	20	13.7 (9.0-20.2)
Other	11	0.7(38.5-52.4)		-
Served in the army				
Yes	64	13.8(9.0-18.7)	70	47.6 (39.7-55.6)
No	335	86.2(81.3-91.0)	77	52.4 (44.4-60.3)
Marriage status				
Married	22	5.9(2.1-9.7)	40	27.2 (20.7-34.9)
Unmarried	366	91.5(87.1-87.1)	95	64.6 (56.6-71.9)

Divorced	11	2.6(0.6-4.5)	12	8.2 (4.8-13.8)
Living together with sexual partner				
Yes	67	16.3(11.6-21.0)	41	27.9 (21.3-35.6)
No	332	83.7(79.0-88.4)	106	72.1 (64.4-78.7)
Sexual partner				
Male	52	77.6(53.1-80.9)	8	19.5 (10.2-34.0)
Female	15	22.4 (19.1-46.9)	33	80.5 (66.0-89.8)

Sexual behavior and sexual practices among MSM

Table 2.3 shows the results on MSM sexual behavior and practices.

In terms of sexual orientation, among particpants from Ulaanbaatra, 59.3% were homosexual, 39.7% were bisexual, and 0.7% were transgender people. And in provinces, 54.4% were homosexual, 42.9% were bisexual individuals. Among UB participants, 71.7% had sexual interest in men, 8.2% had sexual interest in women and 20.1% had sexual interest in both sexes. Among participants from provinces, 66.7% had sexual interest in men, 7.5% had sexual interest in women and 25.9% had sexual interest in both sexes.

Average age of sexual debut was 18. In addition, 54.5% of UB participants and 32.1% of provincial participants have used condom during their very first sexual intercourse.

One third of MSM in UB and one fourth of M SM in the provinces wre universals.

Table 2.3. Sexual behaviors and practices of MSM

	Ulaanbaatar		Province	
	N = 401		N = 147	
	n	%, (95% CIs)	n	%, (95% CIs)
Sexual orientation				
Homosexual	262	59.3(52.8-65.8)	80	54.4 (46.3-62.2)
Bisexual	125	39.7(52.8-65.8)	63	42.9 (35.2-51.0)
Heterosexual	1	0.3(-0.1-65.8)	4	2.7 (1.1-6.8)
Transgender	11	0.7(0.2-1.2)	-	-
Interest in sex with				
Male	304	71.7(65.1-78.2)	98	66.7 (58.7-73.8)
Female	24	8.2(4.1-12.3)	11	7.5 (4.2-12.9)
Both	71	20.1(14.8-25.4)	38	25.9 (19.5-33.5)
Age of sexual debut				
Average		18		18
Median (min, max)		17.7 (10-28)		17.8 (14-25)
Condom use during first sex				
Yes	205	54.5(47.5-61.5)	42	32.1 (24.7-40.5)
No	194	45.5(38.5-52.4)	89	67.9 (59.5-75.3)
Sex of the person with whom the participant had their very first sex				

Male	204	47.1(40.1-54.1)	66	45.5 (37.6-53.6)
Female	195	52.9(45.9-59.9)	79	54.5 (46.4-62.4)
The average age of the very first anal sex with a man				
Average		19.95		20
Median (min, max)		19 (11-52)		20.8 (20-43)
The form of anal sex				
Activ/top	141	39.9(33.4-46.4)	75	51.4 (43.4-59.4)
Passiv/bottom	116	29.0(22.7-35.3)	33	22.6 (16.6-30.0)
Universal/versatile	134	30.9(25.3-36.6)	38	26.0 (19.6-33.7)
The number of anal sexual intercourses in the last week				
Number of sexual contacts		0.7		1
Median (min, max)		0 (0-11)		1.9 (0-19)

Out of MSM in UB, 38.8% and 40.8% of MSM in the provinces have regular sexual partners. Also, 65.1% of UB MSM and 83% MSM in the provinces have non-regular sexual partners. Low percentage of MSM who pay or get paid for sex is observed (2.5% of MSM in UB and 1.4% of MSM in the provinces have sexual partners they pay for sex; 1.5% of MSM in UB and 3.4% of MSM in the provinces have sexual partners who pay them for sex (Table 2.4).

Table 2.4. Type of sexual partners of MSM

	Ulaanbaatar		**Province**	
	N = 401		**N = 147**	
	n	%, (95% CIs)	n	%, (95% CIs)
Type of sexual partners of MSM (Last 6 months)				
Regular sexual partner (boyfriend)	173	38.8(32.7-44.9)	60	40.8 (33.2-48.9)
Non-regular sexual partner (including casual sexual contact)	272	65.1(59.6-72.2)	122	83.0 (76.1-88.2)
Person who pays you (money, gifts) for sex	15	2.5(0.6-4.4)	2	1.4 (0.4-4.9)
Person whom you pay for sex	9	1.5(0.01-2.9)	5	3.4 (1.5-7.7)
Number of sexual partners	Average	Median	Average	Median
Regular male sexual partner (boyfriend)	1.58	1.0 (1.0-3.0)	1.1	1.0 (1.0-3.0)
Non-regular sexual partner (including casual sexual contact)	4.64	2.0(1.0-30.0)	1.7	1.0(1.0-15.0)
Person who pays you (money, gifts) for sex	7.2	2.0(1.0-50.0)	2	1.0(1.0-1.0)
Person whom you pay for sex	2.44	2.0(1.0-5.0)	2.5	1.0(1.0-5.0)

Condom and lubricant use

In table 2.5, results on condom and lubricant use among MSM are demonstrated.

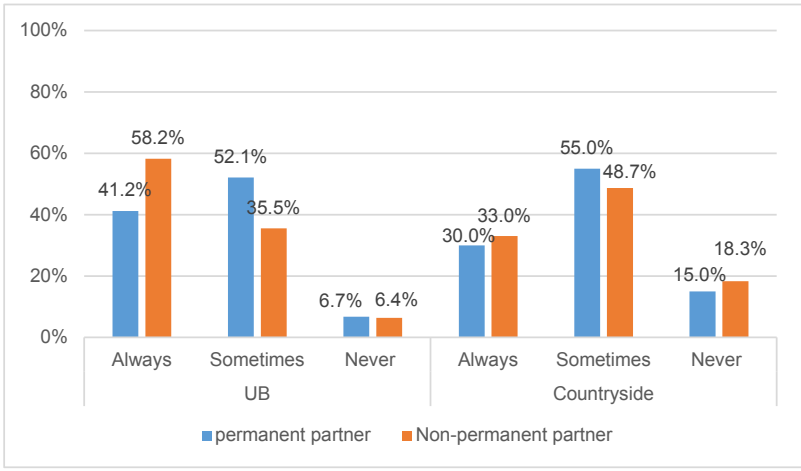
- The percentages of MSM who used condom during last sexual intercourse among MSM who have regular partners were 68.5% In UB and 63.3% in the provinces.
- The percentages of MSM who used condom during last sexual intercourse among MSM who have non-regular partners were 80.4% in UB and 75.2% in the provinces. (Table 2.5).

Table 2.5. Condom use by MSMs

	Ulaanbaatar		Province	
	N = 401		N = 147	
	n	%, (95% CIs)	n	%, (95% CIs)
Condom use at last sexual intercourse				
Regular sexual partner (boyfriend)	122	68.5(55.2-80.6)	38	63.3 (50.6-74.4)
Non-regular sexual partner (including casual sexual contact)	223	80.4(73.9-86.8)	91	75.2 (66.8-82.0)
The use of condoms during anal sex in the last 6 months				
Sexual partner who pays you (money, gifts)				
Regular	9	47.4(9.2-83.1)	-	-
Non-regular	6	52.6(16.9-90.8)	1	3.7 (0.3-34.8)
No			-	-
Sexual partner whom you pay				
Regular	6	42.5(21.1-101.9)	3	60.0 (20.5-89.7)
Non-regular	3	57.5(-1.9-121.1)	2	40.0 (11.8-76.9)
Is condom available every time you need one				
Yes	384	94.2(90.8-97.7)	143	97.3 (93.7-99.1)
No	13	5.1(1.7-8.5)	4	2.7 (0.9-6.3)
I did not need it	2	0.6(-0.1-1.4)	-	-
Reasons of condom unavailability when needed				
I am embarrased of purchasing a condom	8	74.5(42.5-106.1)	2	50.0
I don't like carrying condoms	7	55.5(18.5-91.9)	2	50.0
Knowing any organization that offers free condoms and other services				
Yes	52	40(27.6-51.8)	90	61.2 (53.2-68.8)
No	36	34(23.8-44.5)	57	38.8 (31.2-46.8)

The percentage of consistent condom use among MSM who have regular partners was 41.2% in UB and 30.0% in the provinces (Figure 2.5). And the percentage of consistent condom use among MSM who have non-regular partners was 58.2% in UB and 33.0% in the provinces.

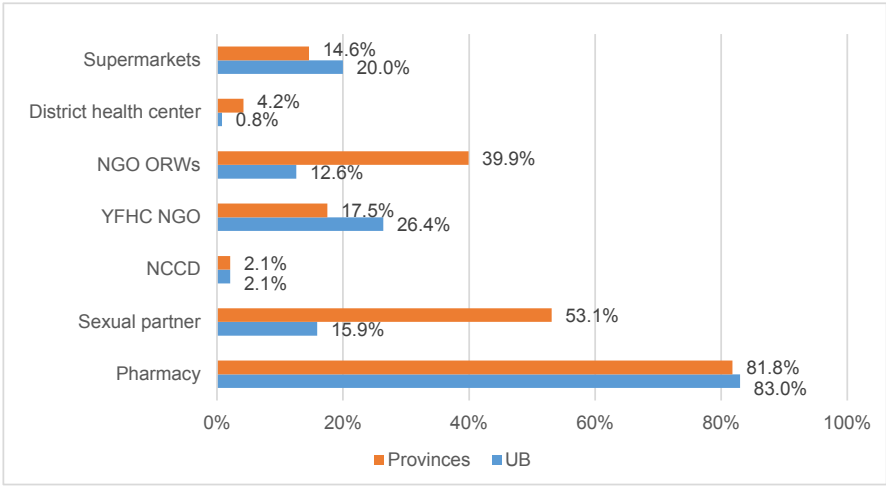
Figure 2.5. Frequency of condom use, by locations



Condom is available to 94.2% of MSM in UB and 97.3% of MSM in the provinces whenever they needed. For the 13 MSM in UB and 4 MSM in the provinces who were unavailable to get condoms when needed, reasons included embarrassed and/or disliked carrying condoms (Table 2.5).

Most common way to get a condom when neede is purchasing at pharmacies (Figure 2.6).

Figure 2.6. The places where MSM get/purchase condoms, by locations



Lubricant use

Gel and/or water based lubricant usage during anal sex among MSM is 74.4% in UB and 51.0% in the provinces. And 40% of total MSM who use

lubricants use it consistently. 38.0% of MSM in UB and 51.5% of MSM in the provinces received lubricants from ORWs last time.

Preferable way of lubricant distribution is through outreach workers and at community centers (Table 2.6).

Table 2.6. Usage of gel and/or water-based lubricants among MSM

	Ulaanbaatar		Province	
	N = 401		N = 147	
	n	%, (95% CIs)	n	%, (95% CIs)
Gel and/or water-based lubricant use during anal sex				
Yes	322	74.4(41.7-33.6)	75	51.0 (43.0-59.0)
No	77	25.6(19.1-32.0)	72	49.0 (41.0-57.0)
Frequency of gel and/or water-based lubricant use during anal sex within last 3 months				
Always (100%)	153	41.7(33.6-4.5)	30	40.0(25.0-57.1)
Sometimes (75%)	134	44.4(37.1-51.9)	41	54.7 (43.1-65.7)
No (50%)	35	13.9(8.4-19.4)	4	5.3 (2.1-12.9)
Reasons not to use gel and/or water-based lubricant for anal sex				
There was no gel or water-based lubricant at the time	10	59.6(37.8-84.3)	35	67.3 (53.7-78.5)
It is difficult to find a gel or water-based lubricant	9	65.1(37.5-93.0)		15.4 (8.0-27.5)
Use different kind of lubricant	-	-	14	26.9 (16.8-40.2)
Place where last time got/purchased gel and/or water-based lubricant				
Supermarket	6	1.9(0.0-3.7)	4	5.3 (2.1-12.9)
Pharmacy	41	14.0(8.5-19.6)	3	4.0 (1.4-11.1)
Health center	23	7.8(3.4-12.2)	1	1.3 (0.2-7.1)
Bar, hotel	2	0.3(-0.1-0.8)	2	2.7 (0.7-9.3)
From friend	6	1.4(-0.7-0.8)	14	18.7 (11.5-29.0)
NGO	49	21.8(15.6-28.3)	11	14.7 (8.4-24.4)
From ORW	146	38.0(30.4-45.3)	35	46.7 (35.8-57.9)
Internet	32	9.3(4.7-14.0)	3	4.0 (1.4-11.1)
Don't use lubricant	16	4.5(1.0-7.9)	2	2.7 (0.7-9.3)
Prefered way to get gel and/or water-based lubricant				
Supermarket	9	3.0(0.8-5.2)	6	8.0 (3.7-16.4)
Pharmacy	32	11.3(c-17.0)	7	9.3 (4.6-18.0)
Health center	43	16.6(10.6-22.8)	3	4.0 (1.4-11.1)
Bar, hotel	11	1.7(0.6-2.6)	11	14.7 (8.4-24.4)
From friend	4	0.5(0.0-1.0)	9	12.0 (6.4-21.3)
NGO	40	16.5(10.6-22.7)	35	46.7 (35.8-57.9)
From ORW	140	39.1(31.3-46.8)	3	4.0 (1.4-11.1)
Internet	26	6.3(2.6-10.0)	1	1.3 (0.2-7.1)
Don't use lubricant	16	3.9(1.5-6.5)	-	-

Female sexual partners of MSM population

The percentage of MSM who ever had anal or vaginal sex with a woman was 67.7% among total UB participants and 63.9% among MSM in the provinces. Out of them, 46.1% and 55.3% have had sex with a woman within last 12 months In UB and in the provinces separately. Consistent condom use during sex with a woman among MSM who have sex with women was 40.0% in UB and 13.5% in the provinces.

The percentage of MSM who had sex with regular female partner within last 12 months was 62.7% in UB and 82.7% in the provinces. And the percentage of MSM who had sex with a non-regular partner was 50.5% in UB and 63.5% in the provinces (Table 2.7).

Table 2.7. Female sexual partners of MSM

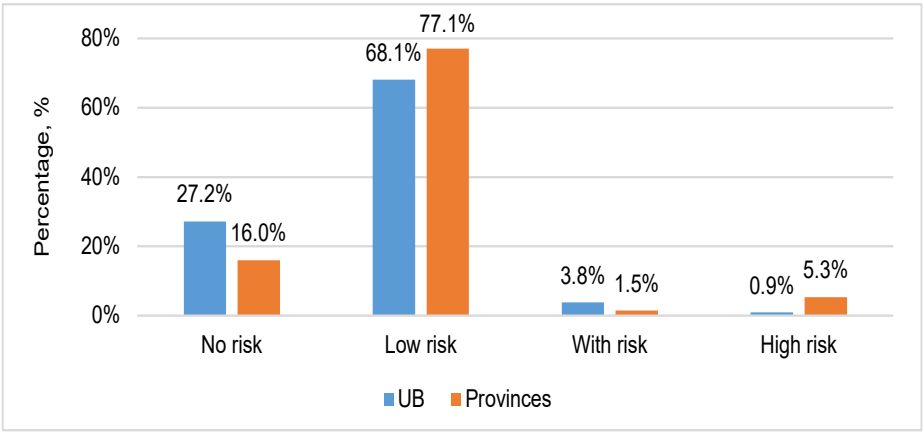
	Ulaanbaatar		Province	
	N = 401		N = 147	
	n	%, (95% CIs)	n	%, (95% CIs)
Vaginal and/or anal sexual intercourse with a woman				
Yes	265	67.7(61.6-74.0)	94	63.9 (55.9-71.2)
No	134	32.3 (26.0-38.5)	53	36.1 (28.8-44.1)
Had vaginal and anal sex with a woman within last 12 months				
Yes	116	46.1(38.1-54.2)	52	55.3 (45.2-64.9)
No	149	53.9(45.75-61.89)	42	44.7 (35.1-54.8)
Number of female sexual (vaginal and/or anal) partners within last 12 months	average	median	average	median
Number of female sexual partners	2.26	1.0(1.0-18)	2.5	2 (1-15)
Frequency of condom use during sex with a woman in the last 12 months				
Always (100%)	52	40.0(27.3-52.2)	7	13.5 (6.7-25.3)
Often (75%)	13	8.7(2.5-14.7)	6	11.5 (5.4-22.9)
Sometimes (50%)	13	12.8(3.6-22.1)	10	19.2 (10.8-31.9)
Occasionally (25%)	10	12.4(3.7-21.4)	9	17.3 (9.4-29.7)
Never used	28	26.1(16.4-35.9)	20	38.5 (26.5-52.1)
Had vagianl and/or anal sex with a regular female sexual partner within last 12 months				
Yes	63	62.7(48.5-77.5)	43	82.7 (70.3-90.6)
No	54	37.3(22.5-51.5)	9	17.3 (9.4-29.7)
Condom use during last sexual intercourse with a regular female partner				
Yes	30	42.2(27.1-57.0)	15	34.9 (22.4-49.8)
No	33	57.8(43.0-72.9)	28	65.1 (50.2-77.6)
Had vagianl and/or anal sex with a casual female sexual partner within last 12 months				

Yes	68	50.5(36.4-64.2)	33	63.5 (49.9-75.2)
No	48	49.5(35.8-63.6)	19	36.5 (24.8-50.1)
Condom use during last sexual intercourse with a casual female partner				
Yes	47	63.9(50.2-76.6)	19	57.6 (40.8-72.8)
No	21	36.1(23.4-49.8)	14	42.4 (27.2-59.2)

HIV and AIDS knowledge and attitude among MSM

The percentage of MSM who have ever heard about HIV was 98.9% among UB participants and 95.9% among participants from provinces. 27.2% of UB MSM and 16.0% of provincial MSM think they have zero risk of acquiring HIV. And 68.1% of MSM in UB and 77.1% of MSM in the provinces answered that they are at low risk of HIV (Figure 2.7).

Figure 2.7. Participants' ratings on their risk of HIV and AIDS



In the Table 2.8, HIV and AIDS knowledge among MSM is shown by survey location.

- The percentage of MSM who correctly answered that risk of HIV decreases if there is only one intimate sexual partner was 88.0% in UB and 95.5% in the provinces.
- The percentage of MSM who correctly answered that consistant and correct use of condom can prevent HIV was 95.6% in UB and 97.0% in the provinces
- The percentage of MSM who correctly answered that a healthy-looking person can be infected with HIV was 90.7% in UB and 81.0% in the provinces.

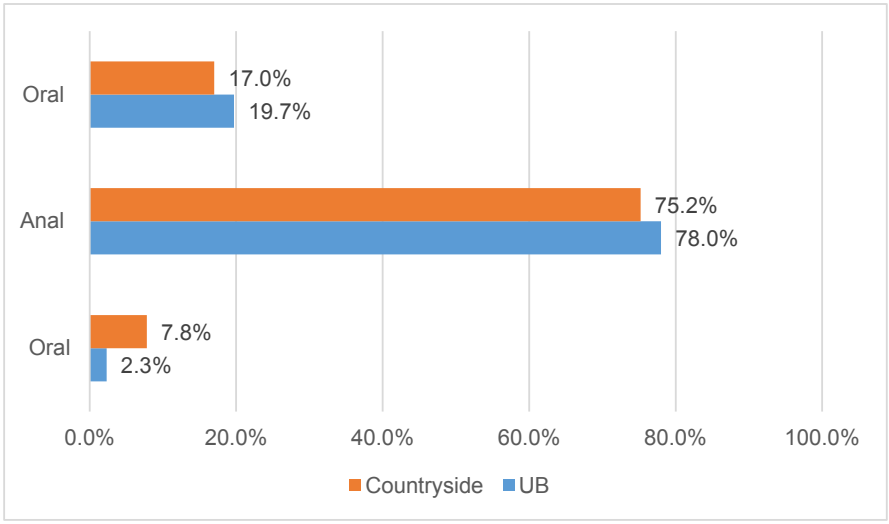
The percentage of MSM who correctly answered that regular HIV testing (every 3 to 6 months) can prevent themselves and their partners from HIV was 89.0% in UB and 95.8% in the provinces.

Table 2.8. Knowledge on HIV and AIDS among MSM, by location

	Ulaanbaatar		Province	
	N		N	
	n	%, (95% CIs)	n	%, (95% CIs)
I heard about HIV				
Yes	395	98.9(97.7-100.1)	141	95.9 (91.4-98.1)
No	4	1.1(-0.1-2.3)	6	4.1 (1.9-8.6)
Having only one intimate sexual partner can reduce the risk of HIV transmission				
Yes	314	88 (83.5-92.4)	127	95.5 (90.5-97.9)
No	51	12(7.4-16.5)	6	4.5 (2.1-9.5)
Consistant and correct use of condom during sexual intercourse can prevent HIV infection				
Yes	364	95.6(93.0-98.2)	131	97.0 (92.6-98.8)
No	16	4.4(1.8-7.0)	4	3.0 (1.2-7.4)
Externally healthy-looking person can be infected with HIV				
Yes	333	90.7(87.1-94.3)	81	81.0 (72.2-87.5)
No	48	9.3(5.8-12.9)	19	19.0 (12.5-27.8)
Regular (once every 3-6 months) HIV testing can help you and your partner avoid risk				
Yes	245	89(84.1-93.9)	114	95.8 (90.5-98.2)
No	39	11(6.1-15.9)	5	4.2 (1.8-9.5)
Services received in the last three months from NGOs, ORWs and NCCD				
community events	113	16(11.7-20.5)	12	8.2 (4.8-13.8)
STI test	168	32(26.0-38.1)	40	27.2 (20.7-34.9)
Condom use and safe sex counselling	130	20.9(15.8-25.9)	34	23.1 (17.0-30.5)
Free condoms	160	24.6(19.6-29.6)	53	36.1 (28.8-44.1)

The percentage of MSM who correctly answered that anal sexual intercourse without condom has the highest HIV risk was 75.2% in UB and 78.0% in the provinces (Figure 2.8).

Figure 2.8. The highest-risk sexual intercourse for HIV transmission answered by MSM participants



Among UB MSM, 88.5% and 89.1% among MSM in the provinces know where to got to receive HIVTS. Furthermore, 85.5% of MSM in UB and 78.9% of MSM in the provinces have been tested for HIV. Out of those who have been tested for HIV, 71.5% in UB and 43.5% in the provinces have received HIVTS within last 6 months (Table 2.9).

Among those who received HIVTS, 94% received their test results. In UB, 13 people had positive test results and, in the provinces, 8 people had positive test results.

Among those who had positive HIV test results, 11 out of 13 in UB and all 8 people receive ART service.

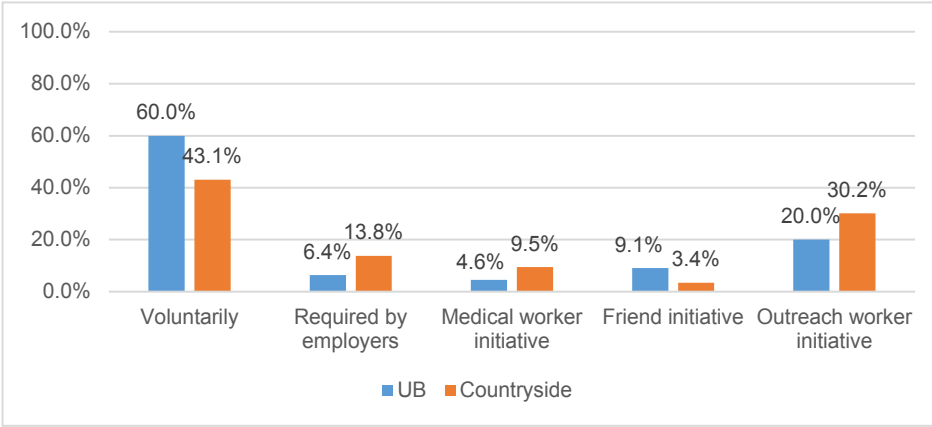
Table 2.9. HIV and AIDS testing service coverage amongst MSM

	Ulaanbaatar		Provinces	
	N		N	
	n	%, (95% CIs)	n	%, (95% CIs)
Do you know where to get tested for HIV?				
I know	**365**	88.5(84.0-93.1)	131	89.1 (83.0-93.2)
I don't know	34	11.5(7.0-16.0)	16	10.9 (6.8-17.0)
Have you been tested for HIV?				
Yes	354	85.5(80.4-90.6)	116	78.9 (71.6-84.7)
No	45	14.5(9.4-19.6)	31	21.1 (15.3-28.4)

When was the last time you received HIV testing service?				
Within 6 months	267	71.5(64.8-78.1)	50	43.5 (34.8-52.6)
6-12 months	43	12.6(7.6-17.6)	39	33.9 (25.9-42.9)
More than 12 months	43	15.9(10.5-21.4)	26	22.6 (15.9-31.1)
Did you get your test result last time?				
Yes	334	94.4(91.3-97.4)	109	94.0 (88.1-97.1)
No	20	5.6(2.6-8.7)	7	6.0 (2.9-11.9)
If yes, what was your test result last time?				
positive	13	1.4(0.3-0.3)	8	8.2 (4.2-15.4)
negative	313	98.0(96.9-99.3)	89	91.8 (84.6-95.8)
unknown	2	0.68(-0.1-1.2)		-
If your last result was positive, are you under ART?				
Yes	11	87.4(88.1-88.1)	8	100.0 (0.0-0.0)
No	2	12.6(11.9-11.9)	-	-

As per initiation of HIVTS, 60.0% of UB MSM and 43.1% of MSM in the provinces have received self-initiated HIVTS (Figure 2.9).

Figure 2.9. HIVTS coverage amongst MSM, by locations



Post- and Pre-Exposure Prophylaxis

The percentage of MSM who ever heard about immediate use of prescribed Post-Exposure Prophylaxis (PEP) to prevent HIV infection was 30.2% in UB and 14.3% in the provinces. The most common source of their information was 49.3% through an NGO.

Already, 11 MSM in UB and 3 MSM in the provinces have used PEP. Majority of those who haven't used PEP answered that they did not think PEP was useful.

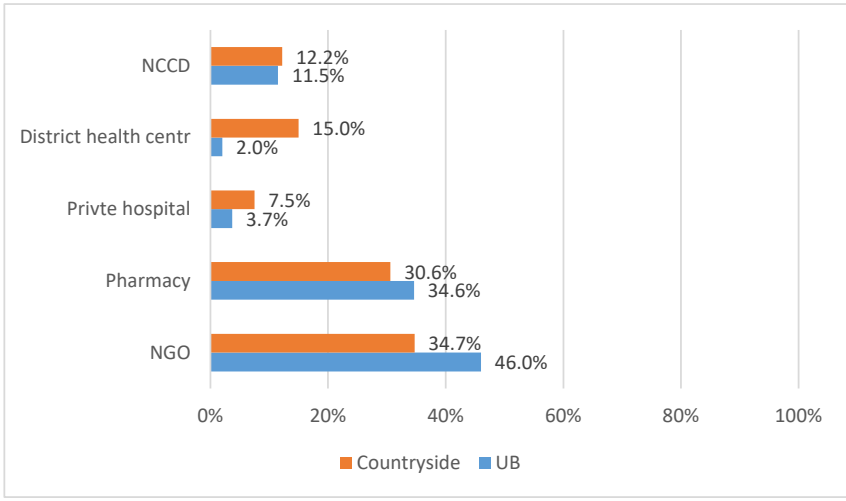
The percentage of MSM who ever heard about Pre-Exposure Prophylaxis (PrEP) was 22.5% in UB and 12.2% in the provinces. Furthermore, 83.6% of MSM in UB and 59.9% of the MSM in the provinces answered that they would use PrEP if this approach was made available in Mongolia. (Table 2.10).

Table 2.10. Pre- and Post-Exposure Prophylaxis knowledge amongst MSM

	Ulaanbaatar		Provinces	
	N		N	
	n	%, (95% CIs)	n	%, (95% CIs)
Ever heard about immediate use of prescribed Post-Exposure Prophylaxis to prevent HIV infection				
Yes	161	30.2(24.4-35.9)	21	14.3 (9.5-20.9)
No	238	69.8(64.1-75.6)	126	85.7 (79.1-90.5)
Have used PEP before				
Yes	11	6.8(0.6-13.0)	2	9.5 (2.6-28.9)
No	150	93.2(87.0-99.4)	19	90.5 (71.1-97.4)
Reasons of not using PEP				
I did not think it was useful	136	92.9(86.4-99.7)	13	65.0 (43.3-81.9)
It was too late; it already had been 72 hours	1	0.2(-0.1-0.4)	1	5.0 (0.9-23.6)
I was afraid to go to the hospital and ask for it	2	0.7(0.1-1.4)	2	10.0 (2.8-30.1)
I refused to use it	11	6.3(-0.5-12.8)	4	20.0 (8.1-41.6)
Ever heard about Pre-Exposure Prophylaxis to prevent HIV infection				
Yes	129	22.5(17.5-27.7)	18	12.2 (7.9-18.5)
No	270	77.5(72.4-82.5)	129	87.8 (81.5-92.1)
Wether to use PrEP if this approach was made available in Mongolia				
Won't use	33	9.9(3.6-9.4)	6	4.2 (0.5-26.6)
Not sure	32	6.5 (5.0-14.9)	51	35.9 (25.3-48.2)
Will use	329	83.6 (78.1-89.1)	85	59.9 (51.6-67.6)

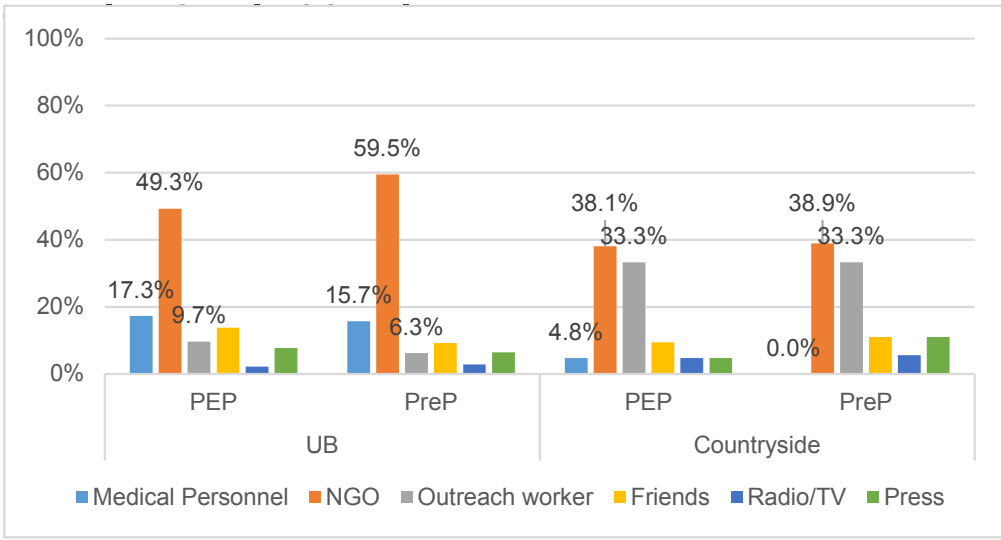
The preferred ways of receiving PrEP for the majority of the survey participants were through NGO (46.0% in Ub, 34.7% in the provinces), from pharmacies (34.6% in UB, 30.6% in the provinces) if PrEP was available in Mongolia. (Figure 2.10).

Figure 2.10. Preferred places to receive PrEP



As per the source of PrEP information, 59.5% of MSM in UB and 38.9% of MSM in the provinces received information about PrEP from an NGO (Figure 2.11).

Figure 2.11. The sources of information about PrEP and PEP



Experience of STI symptoms

A symptom of abnormal genital discharge has been experienced in 8.9% of MSM in UB and in 2.7% of MSM in the provinces within last 12 months. Among those who had STI symptoms, 80.4% and 57.1% seeked medical services and visited clinics. Mostly visited clinics were district and provincial health centers for 36.2% of MSM in UB and 40.0% of MSM in the provinces. Also, 40.0% of MSM visited private clinics (Table 2.11).

Table 2.11. Experience of STI symptoms and seeking care services

	Ulaanbaatar		Provinces	
	N = 401		N = 147	
	n	%, (95% CIs)		n
Abnormal genital discharge and ulcers in the last 12 months				
Yes	38	8.9(5.3-12.4)	Yes	38
No	361	91.2(87.6-94.7)	No	361
Abnormal anal discharge and ulcers in the last 12 months				
Yes	11	1.5(0.4-2.6)	Yes	11
No	388	98.5(97.4-99.6)	No	388
Whether visited health service providers				
Yes	34	80.4(75.6-86.0)	Yes	34
No	12	19.6(14.0-24.4)	No	12
Where did you receive care services last time?				
NCCD/ Red rebon	8	8.0(-14.4-28.1)	NCCD/ Red rebon	8
Province and district hospitals	5	27.9(-1.7-59.4)	Province and district hospitals	5
Private clinic	11	27.9(-12.2-67.5)	Private clinic	11
NGO	10	36.2(10.4-62.9)	NGO	10

STI testing coverage

Within last 12 months, 53.1% of MSM in Ub and 40.8% of MSM in the provinces received STI testing services excluding HIVTS.

Most of them self-initiated the preventive HIVTS they received (69.3% in UB, 73.3% in the provinces). The site of HIVTS was a community NGO for 46.4% of MSM in UB and provincial health center for 48.3% of MSM in the provinces (Table 2.12).

Common barriers that MSM faced to receive STI testing service were inconvenient hospital environment and unfriendly working hours of the clinics.

Table 2.12. STI testing coverage among MSM

	Ulaanbaatar		Provinces	
	N = 401		N = 147	
	n	%, (95% CIs)	n	%, (95% CIs)
Received STI testing services excluding HIVTS in the last 12 months				
Yes	259	53.1(46.0-60.1)	60	40.8 (33.2-48.9)
No	140	46.9(39.9-54.0)	87	59.2 (51.1-66.8)
The reasons for the test				
For preventive purposes, myself	172	69.3(59.8-79.1)	44	73.3 (61.0-82.8)
For preventive purposes, by project	24	7.7(2.3-13.0)	5	8.3 (3.6-18.0)
Because of the symptoms	22	7.1(2.5-11.5)	8	13.3 (6.9-24.1)
Because I had unprotected casual sex	13	4.8(0.3-9.3)	2	3.3 (0.9-11.3)
As requested by my sexual partner	10	6.9(1.3-12.8)	1	1.7 (0.3-8.9)
Other	18	4.2(1.4-6.8)	-	-
The place where STI testing service was provided				
NCCD/ Red ribbon	56	19.9(12.2-27.5)	8	13.3 (6.9-24.1)
Provincial and district health centers	33	18.4(10.5-26.8)	29	48.3 (36.1-60.7)
Private clinic	37	15.2(8.5-22.1)	10	16.7 (9.3-28.1)
NGO	133	46.4(37.1-55.4)	13	21.7 (13.1-33.7)
Barriers to receive STIs testing service except HIVTS				
Long waited	23	11.4 (5.3-17.6)	3	5.0 (1.4-12.7)
Hospital working hours not convenient	32	11.4 (6.3-16.4)	6	10.0 (4.3-19.5)
There is no confidentiality	26	11.7 (6.0-17.6)	3	5.0 (1.4-12.7)
Commication and attitudes of medical staff	20	8.0 (2.6-13.5)	3	5.0 (1.4-12.7)
Hospital area was not convenient	30	12.4 (6.1-18.9)	4	6.7 (2.3-15.1)
The hospital was far away	30	10.9 (5.1-16.6)	7	11.7 (5.4-21.5)
Expensive service charge	10	2.3 (0.4-4.1)	2	3.3 (0.7-10.3)

STI morbidity

Syphilis has been diagnosed in 4.7% of MSM in UB and in 4.1% of MSM in the provinces within last 12 months. And gonorrhea has been diagnosed in 6.1% of MSM in UB and in 3.4% of MSM in the provinces.

Most of the MSM who have been diagnosed with STIs (94.6% in UB and 100% in the provinces) were treated. All MSM who were treated have received treatment service from medical doctor. (Table 2.13).

Table 2.13. The incidence of STIs

	Ulaanbaatar		Provinces	
	N = 401		N = 147	
	n	%, (95% CIs)	n	%, (95% CIs)
MSM who diagnosed with the following diseases within last 12 months				
Syphilis				
Yes	22	4.7(1.9-7.5)	6	4.1 (1.7-8.2)
No	377	95.3(92.5-98.1)	141	95.9 (91.8-98.3)
Gonorrhea				
Yes	26	6.1(2.9-9.3)	5	3.4 (1.3-7.3)
No	373	93.9(90.7-97.1)	142	96.6 (92.7-98.7)
Chlamydia				
Yes	1	0.1(-0.0-0.2)	-	-
No	398	99.9(99.8-100.0)	147	100
Was it treated				
Yes	46	94.6(93.1-95.9)	10	100
No	2	5.4(4.1-6.9)	-	-

Alcohol and drug consumption

The percentage of MSM who used alcohol in the last 12 months was 90.1% in UB and 83.0% in the provinces. Among them, 34.8% and 40.1% have used alcohol once a month, 26.2% and 20.5% have used more than once in a month.

Furthermore, 45.6% of MSM in UB and 49.2% of MSM in the provinces have had sex when they were drunk. Even 3.7% and 5.0% have always had sex when they were drunk (Table 2.14).

Low percentage of MSM who use drugs was observed (3.7% in UB and 2.7% in the provinces).

Commonly used drugs were weed, clay and cannabis. Among UB MSM, 2 participants answered that they injected drug. However, they couldn't tell what drug they injected.

Table 2.14. Alcohol and drug consumption among MSM

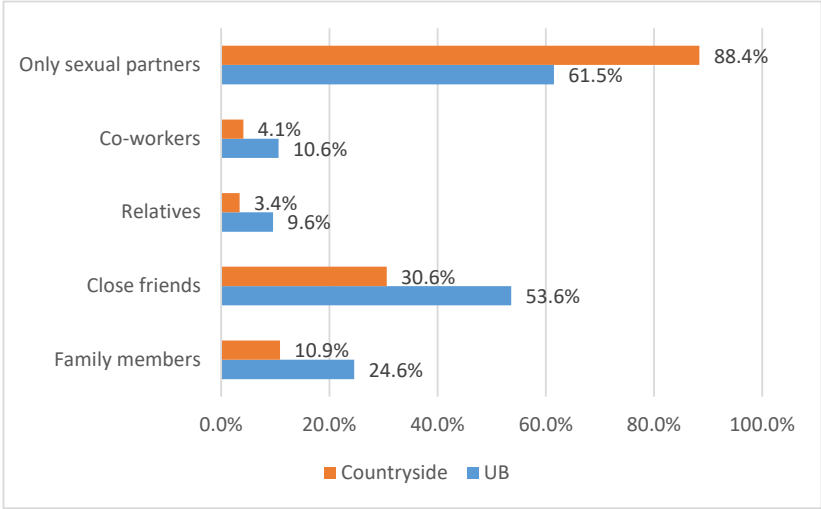
	Ulaanbaatar		Provinces	
	N = 401		N = 147	
	n	%, (95% CIs)	n	%, (95% CIs)
Alcohol consumption in the last 12 months				
Yes	369	90.1(85.5-94.6)	122	83.0 (76.1-88.2)
No	30	9.9(5.4-14.5)	25	17.0 (11.8-23.9)
Frequency of having sex while drunk in the last 12 months				

Once a week	63	11.6(7.7-15.3)	26	21.3 (15.0-29.4)
More than once a week	60	12.4(7.8-16.9)	11	9.0 (5.1-15.4)
Once in a month	104	34.8(28.1-41.6)	51	41.8 (33.4-50.7)
More than once a month	106	26.2(20.5-31.9)	25	20.5 (14.3-28.5)
1-2 times a year	36	15.1(9.7-20.6)	9	7.4 (3.9-13.5)
Have you had sex while drunk in the last 12 months				
Yes	190	45.6(39.1-52.0)	60	49.2 (40.5-58.0)
No	179	54.4(48.0-60.9)	62	50.8 (42.0-59.5)
Frequency of having sex while drunk in the last 12 months				
Always (100%)	10	3.7(0.7-6.6)	3	5.0 (1.7-13.7)
Often (75%)	19	8.3(2.8-13.7)	5	8.3 (3.6-18.0)
Sometimes (50%)	69	41.0(31.3-51.1)	18	30.0 (19.9-42.5)
Occasionally (25%)	89	47.0(36.4-57.5)	34	56.7 (44.1-68.5)
Non-injection drugs have been used in the last 12 months				
Yes	18	3.7(1.4-6.1)	4	2.7 (1.1-6.8)
No	381	96.3(93.9-98.6)	143	97.3 (93.2-98.9)
Type of drugs				
Marijuana / Hashish	5	27.8 (11.5-50.6)	1	25.0 (2.8-71.6)
Cannabis	2	11.1 (2.4-31.1)	-	-
Gasoline, gas and spray paint	1	5.6 (0.6-23.2)	-	-
Cocaine			-	-
Ice	2	11.1 (2.4-31.1)	2	50.0 (12.3-87.7)
Poppers	3	16.7 (4.9-38.1)	-	-
Clay	1	5.6 (0.6-23.2)	-	-
Weed	6		2	50.0 (12.3-87.7)
Whether injected drug				
Yes	2	0.1(0.0-0.1)	-	-
No	397	99.9(99.9-100.0)	147	100.0 (0.0-0.0)

Human rights situation, stigma and discrimination towards MSM

Only close friends know about sexual orientation of 53.6% of MSM in UB and 30.6% of MSM in the provinces. And family members know about sexual orientation of 24.6% of MSM in UB and 10.9% of MSM in the provinces. For 88.4% of MSM in UB and 61.5% of MSM in the provinces, only their sexual partners know about their sexual orientation (Figure 2.12).

Figure 2.12. Proportion of persons who are aware of sexual orentation of MSM participants, by locations



In Table 2.15, results relating violence are shown, i.e. have been beaten and/or abused by policemen because of sexual orientation.

Very few MSM have been beaten, discriminated and/or detained by the police because of their sexual orientation. However, 11.8% of MSM in UB and 3.4% of MSM in the provinces experienced human rights violence targeting their sexual orientation and seeked support from human rights organizations.

Table 2.15. Exposure to discrimination and violence against sexual orientation

	Ulaanbaatar		Provinces	
	N = 401		N = 147	
	n	%, (95% CIs)	n	%, (95% CIs)
Whether have been beaten because of sexual orientation				
Yes, 1 time	20	2.9(1.4-4.4)	8	5.4 (2.8-10.3)
Yes, many times	26	2.9(1.-4.7)	3	2.0 (0.7-5.8)
No	351	94.2(91.9-96.5)	136	92.5 (87.1-95.8)
Whether the police committed violence or discrimination against sexual oreantation				
Yes, 1 time	20	1.4(0.7-2.1)	4	2.7 (1.1-6.8)
Yes, many times	15	2.1(0.4-3.8)	-	-
No	364	96.5(94.7-98.4)	143	97.3 (93.2-98.9)
Whether have been refused by medical care service providers because of sexual oreantation				
Yes, 1 time	6	0.9(-0.2-1.9)	1	0.7 (0.1-3.8)
Yes, many times	5	0.3(0.1-0.5)	1	0.7 (0.1-3.8)
No	388	98.8 (97.7-99.9)	145	98.6 (95.1-99.6)

Whether have been detained by the police due to sexual oreantation				
Yes, 1 time	20	1.7(0.9-2.5)	5	3.4 (1.5-7.7)
Yes, many times	8	1.2(-0.3-2.8)		-
No	370	97.1(95.4-98.8)	142	96.6 (92.3-98.5)
Whether wanted to appeal to a human rights organization due to violation against sexual orientation				
Yes, 1 time	38	5.8(3.1-8.5)	5	3.4 (1.5-7.7)
Yes, many times	34	6.0(3.1-9.0)	-	-
No	326	88.2(84.2-92.2)	142	96.6 (92.3-98.5)
Whether have been sexually abused				
Yes, 1 time	22	4.8(2.1-7.6)	2	1.4 (0.4-4.9)
Yes, many times	12	1.3(0.4-2.2)	1	0.7 (0.1-3.8)
No	363	93.8(91.0-96.7)	144	98.0 (94.2-99.3)

In Table 2.16, the percentage of MSM who could not receive health services and/or HIVTS due to afraid of stigmatization, worrying that someone would know about their sexual orientation are shown. The percentage of MSM who couldn't receive health services due to afraid of stigmatization and/or being exposed their sexual orientation was 19.9% in UB and 5.4% in the provinces. The percentage of MSM who couldn't receive HIVTS due to afraid of stigmatization and/or being exposed their sexual orientation was 18.4% in UB.

Low percentage of MSM who couldn't receive health services and/or HIVTS due to afraid of being violated and/or being detained by police is observed (3.3% and 2.6% in UB; 1.4% and 0.7% in the provinces) (Table 2.16).

Table 2.16. The reasons of refusal to receive health services and HIVTS, by locations

	Ulaanbaatar N=401		**Provinces N=147**	
	n	%, (95% CIs)	n	%, (95% CIs)
Due to fear of stigma				
Didn't receive health service	81	19.9(14.7-25.0)	8	5.4 (2.8-10.4)
Didn't receive HIVTS	63	18.4(13.1-23.6)	8	5.4 (2.8-10.4)
Because of worried that someone would know about their sex work				
Didn't receive health service	126	33.1(26.8-39.4)	14	9.5 (5.9-15.0)
Didn't receive HIVTS	92	25.9(20.0-31.8)	11	7.5 (4.3-12.7)
Due to fear of being violated				
Didn't receive health service	22	3.5(1.5-5.5)	2	1.4 (0.4-4.8)
Didn't receive HIVTS	15	2.6(1.0-4.2)	1	0.7 (0.1-3.7)
Due to fear and anxiety of being arrested				
Didn't receive health service	18	3.3(1.2-5.5)	3	2.0 (0.7-5.8)
Didn't receive HIVTS	12	2.4(0.9-3.9)	1	0.7 (0.1-3.7)

HIV, syphilis prevalence in MSM

In 2019 survey, a total of 401 MSM from UB were participated and 400 of them agreed to give blood specimen for serologic tests. Syphilis infection was detected in 36 (9.0%) participants. Among participants from surveyed provinces, syphilis infection was detected in 19 MSM (13.1%). (Table 2.17).

Table 2.17. Syphilis prevalence in MSM, 2019

Risk groups	Number of people who got tested	Number of people whose result is positive	Prevalence %	Weighted %, (95% CIs)
All MSM	546	55	10.1%	-
Ulaanbaatar	400	36	9.0%	5.9 (3.1, 8.6)
Provinces	146	19	13.1	-

In 2019 survey, HIV infection was detected in 7.7% of total MSM. In 2019 survey, among MSM in UB, 28 PLHIV have been determined. Among MSM in the provinces, 14 PLHIV have been determined. (Table 2.18).

Table 2.18. HIV prevalence in MSM, 2019

Risk groups	Number of people who got tested	Number of people whose result is positive	Prevalence %	Weighted %, (95% CIs)
All MSM	546	42	7.7%	-
Ulaanbaatar	400	28	7.0%	6.2 (3.1, 9.3)
Provinces	146	14	9.6%	-

A total of 233 MSM from both UB and rural areas had regular sexual inter course and 20 of them had HIV. 85% of them use condom regularly, 10% of them use condom occasionally and 5% of them don't use condom at all. 393 MSM with non-regular sexual partners, 23 of them are HIV positive, 95.7% use condom regularly and 4.3% use condom occasionally.

213 MSM who had regular sexual intercourse and non-HIV infected, 57.7%use condom regularly, 27.7% occasionally, 14.6% don't use condom at all. Compared to non-HIV MSM and MSM living with HIV, the use of lubricants is high in MSM with HIV (71.2%-90.5%), but the use of lubricant is no different for syphilis infection. This shows that the use of condoms and lubricants are high in MSM living with HIV. (Table 2.19).

Table 2.19. HIV, syphilis prevalence in MSM by condom use (by each sexual partner type)

		HIV		Syphilis	
	Total	Positive	Negative	Positive	Negative
Permanent sexual partner					
Always	140	17 (85.0)	123 (57.7)	18 (75.0)	122 (58.4)
Sometimes	61	2 (10.0)	59 (27.7)	6 (25.0)	55 (26.3)
Never	32	1 (5.0)	31 (14.6)	-	32 (15.3)
Non-permanent sexual partner					
Always	302	22 (95.7)	280 (75.7)	36 (76.6)	266 (76.9)
Sometimes	67	1 (4.3)	66 (17.8)	8 (17.0)	59 (17.1)
Never	24	-	24 (6.5)	3 (6.4)	21 (6.1)
Gel and water-based moisturizers are used for anal sex					
Yes	397	38 (90.5)*	359 (71.2)	42 (75.0)	355 (72.4)
No	149	4 (9.5)	145 (28.8)	14 (25.0)	135 (27.6)

Out of total number of MSM living with HIV, 97.6% were tested for HIV, 85.7% were tested for STIs other than that HIV in the last 12 months. 85.1% of HIV free MSM were tested for HIV and 71.4% were tested for other STIs.

31 (73.8%) people out of 42 people living with HIV and 186 (36.8%) out of 506 HIV free people have received outreach services from NGO's and NCCD more than 2 times in the last 3 months. But in syphilis infection cases, there is no difference in access to outreach services, NGO and NCCD services. This result highlights the need for the HIV free, latent community to be involved in HIV testing and services. (Table 2.20).

Table 2.20. HIV, syphilis prevalence in MSM by HIV service coverage

		HIV infection		Syphilis	
	All	Positive	Negative	Positive	Negative
Had tested for HIV					
Yes	470	41 (97.6)	429 (85.1)	49 (87.5)	421 (85.9)
No	76	1 (2.4)	75 (14.9)	7 (12.5)	69 (14.1)
In the last 3 months, Had received services from NGOs and NCCD					
Once	331	11 (26.2)**	320 (63.2)	32 (57.1)	299 (60.8)
2 or more	217	31 (73.8)	186 (36.8)	24 (42.9)	193 (39.2)
In the last 12 months, all STIs, except for HIV, have been tested					
Yes	319	36 (85.7)***	283 (56.2)	40 (71.4)*	279 (56.9)
No	227	6 (14.3)	221 (43.8)	16 (28.6)	211 (43.1)

55 cases diagnosed among FSWs in UB and rural areas had syphilis and 16.1% had abnormal genital discharge in the last 12 months. However, 6.7% of FSWs who did not have syphilis infection had abnormal genital discharge. (Table 2.21).

Table 2.21. HIV, syphilis prevalence in MSM by experience of STI symptoms, STI testing coverage

		HIV infection		Syphilis	
	All	Positive	Negative	Positive	Negative
Abnormal genital discharge in last 12 months					
Yes	42	2 (4.8)	40 (7.9)	9 (16.4)	33 (6.7)*
No	504	40 (95.2)	464 (92.1)	46 (83.6)	457 (93.3)
Abnormal rectal discharge in the last 12 months					
Yes	15	2 (4.8)	13 (2.6)	3 (5.5)	12 (2.4)
No	531	40 (95.2)	491 (97.4)	52 (94.5)	478 (97.6)
STIs diagnosed in the last 12 months					
Syphilis	28	3 (7.1)	25 (5.0)	17 (30.9)	11 (2.2)**
Gonorrhea	31	1 (2.4)	30 (6.0)	2 (3.6)	28 (5.7)

Conclusion

High levels of condom and moisturizer use among HIV infected MSM are influencing in HIV prevalence constant decreasing. Most of the MSM did not hear about pre- and post-exposure prophylaxis of HIV.

3. SURVEY OF MALE PRISONERS

A total of 1105 people were surveyed. Six out of nine open prisons were selected and 603 male prisoners were enrolled. In addition, 502 participants were enrolled from 5 selected prisons out of 8 closed prisons. The average age of the respondents was 35 (age 18-55 years).

Socio-Economic Characteristics of male prisoners

Among total respondents, 12.6% were 18-24 years old, 21.4% were 25-29 years old, 20.5% were 30-34 years old, and 16.2% were 35-39 years old. By educational level, 28.0% of men had incomplete secondary education and 35.2% had secondary education. As per marriage status of the men serving prison sentences, 33.2% were married, 28.3% were unmarried, 17.4% were living together with their partners, and 19.2% were divorced. Average duration of sentence was 8 years and 5 months, of which four years and six months spent in prison on average. (Table 3.1).

Table 3.1. Socio-Economic Characteristics of male prisoners

	Open		Closed		Total	
	N = 502		N = 603		N = 1105	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Age groups						
18-24	23	4.6 (3.0-6.7)	116	19.2 (16.2-22.5)	139	12.6 (10.7-14.6)
25-29	78	15.5 (12.6-18.9)	158	26.2 (22.8-29.8)	236	21.4 (19.0-23.8)
30-34	113	22.5 (19.0-26.3)	114	18.9 (15.9-22.2)	227	20.5 (18.2-23.0)
35-39	91	18.1 (14.9-21.7)	88	14.6 (11.9-17.6)	179	16.2 (14.1-18.5)
40+	197	39.2 (35.0-43.6)	127	21.1 (18.0-24.4)	324	29.3 (26.7-32.1)
Educational status						
Did not attend school	55	11.0 (8.4-13.9)	55	9.1 (7.0-11.6)	110	10.0 (8.3-11.8)
Elementary school /1-4 анги/	68	13.5 (10.8-16.7)	64	10.6 (8.3-13.3)	132	11.9 (10.1-14.0)
Incomplete middle school, 1-8 grades	150	29.9 (26.0-34.0)	159	26.4 (23.0-30.0)	309	28.0 (25.4-30.7)
Complete middle school,	161	32.1 (28.1-36.2)	228	37.8 (34.0-41.7)	389	35.2 (32.4-38.1)
Vocational College	37	7.4 (4.6-11.1)	41	6.8 (4.5-10.0)	78	7.1 (5.2-9.4)
University	31	6.2 (4.3-8.5)	56	9.3 (7.2-11.8)	87	7.9 (6.4-9.6)
Marriage status						
Not married	153	30.5 (26.6-34.6)	217	36.0 (32.2-39.9)	370	33.5 (30.7-36.3)
Married	144	28.7 (24.9-32.8)	168	27.9 (24.4-31.5)	312	28.2 (25.6-30.9)
Unmarried and live together	80	15.9 (12.9-19.3)	112	18.6 (15.6-21.8)	192	17.4 (15.2-19.7)
The widow	8	1.6 (0.8-3.0)	11	1.8 (1.0-3.1)	19	1.7 (1.1-2.6)
Divorced	117	23.3 (19.8-27.2)	95	15.8 (13.0-18.8)	212	19.2 (16.9-21.6)

Sexual behavior and sexual practices

Average age of sex debut among male prisoners was 17±3 years old. 16.1% of participants used condom during their first sexual intercourse. First sexual partner of 9 (0.8%) participants were men. Among the male prisoners, 10 people (0.9%) were bisexual and 1086 (99.1%) people identified themselves as heterosexuals. For 98.5% of men, their sexual debut was consented.

Interestingly, 25.3% of respondents had placed a foreign object in their genitals, and 16.7% of them re-used the same tool for the procedure. It differed by the type of prison (25.4% of men in a closed prison, 9.0% of men in an open prison shared same tools to place foriegn objects in their genitals) (Table 3.2).

Table 3.2. Sexual behavior and sexual practices among male prisoners

	Closed		Open		Total	
	N = 502		N =603		N = 1105	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Age of sexual debut						
Age					17±3 нас	
Condom use during first sex						
Yes	68	13.9 (11.0-17.1)	106	17.9 (15.0-21.2)	174	16.1 (14.0-18.4)
No	422	86.1 (82.9-89.0)	485	82.1 (78.8-85.0)	907	83.9 (81.6-86.0)
Sex of the person with whom the participant had their first sex						
Male	4	0.8 (0.3-1.9)	5	0.8 (0.3-1.8)	9	0.8 (0.4-1.5)
Female	493	99.2 (98.1-99.7)	594	99.2 (98.2-99.7)	1087	99.2 (98.5-99.6)
Consent for sexual debut						
Consented	491	98.6 (97.3-99.4)	590	98.5 (97.3-99.3)	1081	98.5 (97.7-99.1)
Someone forced to	3	0.6 (0.2-1.6)	4	0.7 (0.2-1.6)	7	0.6 (0.3-1.2)
Was drunk	4	0.8 (0.3-1.9)	5	0.8 (0.3-1.8)	9	0.8 (0.4-1.5)
Sexual orientation and expression						
Bisex	8	1.6 (0.8-3.0)	2	0.3 (0.1-1.1)	10	0.9 (0.5-1.6)
Heterosex	489	98.4 (97.0-99.2)	597	99.7 (98.9-99.9)	1086	99.1 (98.4-99.5)
The presence of any foreign thing in the penis						
Yes	130	26.3 (22.5-30.3)	147	24.5 (21.2-28.1)		25.3 (22.8-27.9)
No	365	73.7 (69.7-77.5)	453	75.5 (71.9-78.8)	818	74.7 (72.1-77.2)
If yes, whether the tool was used by another person						
Yes	33	25.4 (18.5-33.3)	13	9.0 (5.1-14.4)	46	16.7 (12.7-21.5)
No	97	74.6 (66.7-81.5)	132	91.0 (85.6-94.9)	229	83.3 (78.5-87.3)

Female sexual partners of male prisoners

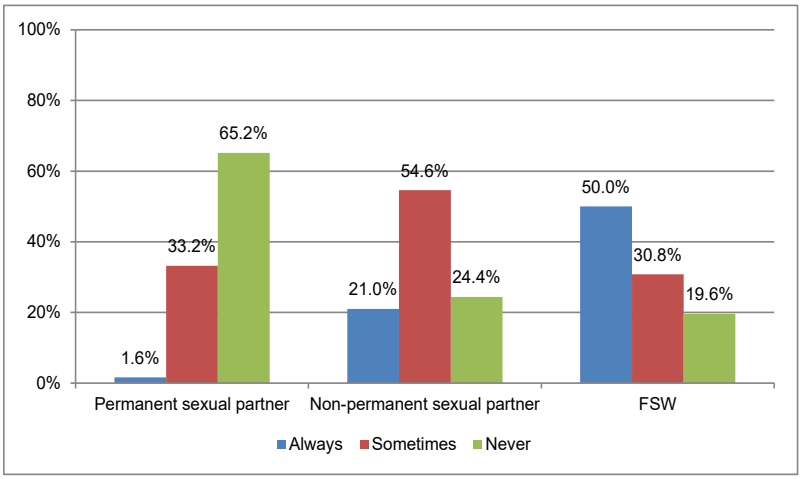
During the last 12 months, 15.9% of participants (3.6% of closed prison men and 26.2% of open prison men) had non-regular sexual partners, and 55.5% used condom during last sexual intercourse. And 22.1% of men had regular sexual partners (4.6% of men in closed prisons and 36.7% of men in open prisons), 12.5% of them used condom during their last sexual intercourse (Table 3.3). In addition, 56 men (5.1%) had sex with a female sex worker in the last 12 months and out of them, 41 people used a condom during last sex.

Table 3.3. Female sexual partners of male prisoners

	Closed		Open		Total	
	N = 502		N =603		N = 1105	
Non-regular female sexual partner /casual sex/						
Yes	18	3.6 (2.2-5.5)	158	26.2 (22.8-29.8)	176	15.9 (13.9-18.2)
Number						
Condom use during last sex						
Yes	10	52.6 (31.2-73.4)	86	55.8 (48.0-63.5)	96	55.5 (48.0-62.8)
Regular female sexual partner / wife, girlfriend/						
Yes	23	4.6 (3.0-6.7)	221	36.7 (32.9-40.6)	244	22.1(19.7-24.6)
Number						
Condom use during last sex						
Yes	1	4.2 (0.5-17.9)	29	13.4 (9.4-18.4)	30	12.5 (8.8-17.1)
FSW						
Yes	8	1.6 (0.8-3.0)	48	8.0 (6.0-10.3)	56	5.1 (3.9-6.5)
Number						
Condom use during last sex						
Yes	6	75.0 (40.8-94.4)	35	72.9 (59.3-83.9)	41	73.2 (60.7-83.4)
Whether had sex with a woman while being sentenced						
Yes	127	25.5 (21.8-29.5)	105	17.6 (14.7-20.8)	232	21.2 (18.8-23.7)
No	371	74.5 (70.5-78.2)	493	82.4 (79.2-85.3)	864	78.8 (76.3-81.2)
The person who had sex with						
Wife	115	91.3 (85.4-95.3)	98	93.3 (87.4-97.0)	213	92.2 (88.2-95.1)
Girlfriend, living together	11	8.7 (4.7-14.6)	7	6.7 (3.0-12.6)	18	7.8 (4.9-11.8)

In terms of frequency of condom use, 50% of men who had sex with a FSW consistently used condom (Figure 3.1).

Figure 3.1. Frequency of condom use with female sexual partner in male prisoners



Male sexual partners of male prisoners

Total of 1105 people in prison, 11 had sex with men, and 4 of them had sex with men while being sentenced in prison. (Table 3.4).

Table 3.4. Male sexual partners of male prisoners

	Closed		Open		Total	
	N = 502		N =603		N = 1105	
Whether had sex with men						
Yes	5	1.2 (0.5-2.5)	6	1.0 (0.4-2.1)	11	1.1 (0.6-1.9)
No	489	98.8 (97.5-99.5)	592	99.0 (97.9-99.6)	1081	98.9 (98.1-99.4)
Age of anal sexual debut with a man						
Age						20±5
The form of anal sex						
Activ/top	3		3		6	
Passiv/bottom	1		2		3	
Universal/versatile	1		1		2	
Whether had sex with a man while in prison						
Yes	1		3		4	
No	4		3		7	
Whether condoms were used during last intercourse with a man in prison						
Yes	-	-	1	-	1	
No	1	-	2	-	3	
Had sex with a man in the last 12 months						
Yes	-	-	2		2	
Condom use during last sex						
Yes	-	-	1		1	

HIV and AIDS knowledge and attitude

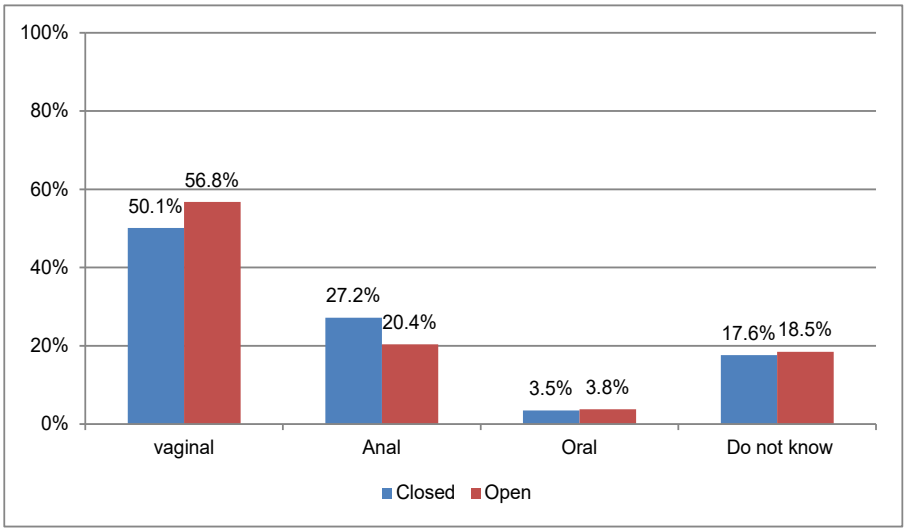
The percentage of male prisoners who have ever heard about HIV was 72.6. the percentage of male prisoners who correctly answered to questions - having only one intimate sexual partner can reduce the risk of HIV transmission; and consistent and correct use of condom can prevent HIV, was 72.6% and 85.7% separately. And 50% of participants answered that a healthy-looking person can be infected with HIV. (Table 3.5).

Table 3.5. Knowledge on HIV and AIDS among male prisoners

	Closed		Open		Total	
	N = 502		N =603		N = 1105	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Heard about HIV						
Yes	375	74.7 (70.8-78.4)	427	70.8 (67.1-74.3)	802	72.6 (69.9-75.1)
No	127	25.3 (21.6-29.2)	176	29.2 (25.7-32.9)	303	27.4 (24.9-30.1)
Having only one intimate sexual partner can reduce the risk of HIV transmission						
Yes	325	86.7 (82.9-89.8)	362	84.8 (81.1-87.9)	687	85.7 (83.1-88.0)
No	19	5.1 (3.2-7.6)	23	5.4 (3.5-7.8)	42	5.2 (3.9-6.9)
Don't know	31	8.3 (5.8-11.4)	42	9.8 (7.3-12.9)	73	9.1 (7.3-11.2)
Consistant and correct use of condom during sexual intercourse can prevent HIV infection						
Yes	346	92.3 (89.2-94.6)	391	91.6 (88.7-93.9)	737	91.9 (89.9-93.6)
No	14	3.7 (2.2-6.0)	9	2.1 (1.0-3.8)	23	2.9 (1.9-4.2)
Don't know	15	4.0 (2.4-6.3)	27	6.3 (4.3-8.9)		5.2 (3.6-4.9)
A healthy-looking person can be infected with HIV						
Yes	181	48.3 (43.2-53.3)	224	52.5 (47.7-57.2)	405	50.5 (47.0-54.0)
No	135	36.0 (31.3-41.0)	148	34.7 (30.3-39.3)	283	35.3 (32.0-38.6)
Don't know	59	15.7 (12.3-19.7)	55	12.9 (10.0-16.3)	114	14.2 (11.9-16.8)
Regular (once every 3-6 months) HIV testing can help you and your partner avoid risk						
Yes	327	67.0 (62.7-71.1)	422	70.8 (67.1-74.3)	749	69.1 (66.3-71.8)
No	68	13.9 (11.1-17.2)	72	12.1 (9.6-14.9)	140	12.9 (11.0-15.0)
Don't know	93	19.1 (15.8-22.7)	102	17.1 (14.3-20.3)	195	18.0 (15.8-20.4)

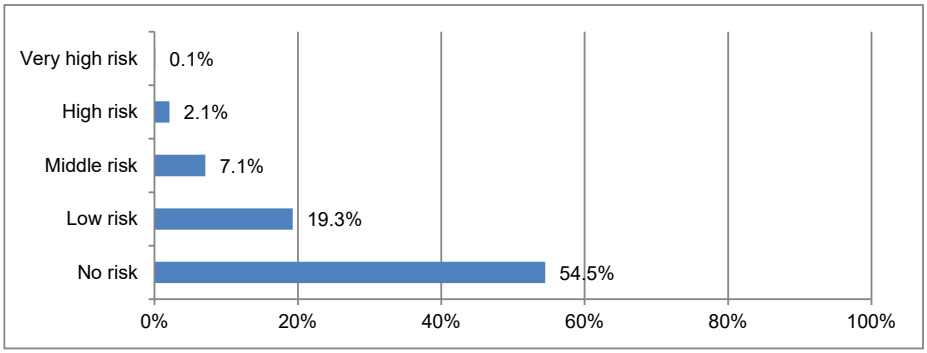
When asked which form of unprotected sexual intercourse has the highest risk of HIV transmission, 27.2% of men in closed prison and 20.4% of men in open prison correctly answered that anal sex (Figure. 3.2).

Figure 3.2. Highest risk route of transmission of HIV answered by male prisoners



Among all participants, 54% answered that they have no HIV risk (Figure 3.3).

Figure 3.3. HIV risk self-assessment in male prisoners



HIV testing service coverage

Among 55.1% of men know where to receive HIVTS and 42.8% have been tested for HIV. Out of those who have been tested for HIV, 78.3% received HIVTS more than 12 months ago. Among those who received HIVTS, 90% received their test results, and no cases of HIV infection were identified (Table 3.6).

Table 3.6. HIV and AIDS testing service coverage among male prisoners

	Closed		Open		Total	
	N = 502		N =603		N = 1105	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Do you know where to get tested for HIV?						
I know	274	54.6 (50.2-58.9)	335	55.6 (51.6-59.5)	609	55.1 (52.2-58.0)
I don't know	228	45.4 (41.1-49.8)	268	44.4 (40.5-48.4)	496	44.9 (42.0-47.8)
Have you been tested for HIV?						
Yes	217	43.2 (38.9-47.6)	256	42.5 (38.6-46.4)	473	42.8 (39.9-45.7)
No	285	56.8 (52.4-61.1)	347	57.5 (53.6-61.4)	632	57.2 (54.3-60.1)
On whose initiation did you get tested for HIV last time?						
Self-initiated	73	33.6 (27.6-40.1)	105	40.9 (35.0-46.9)	178	37.6 (33.3-42.0)
Employer	51	23.5 (18.2-29.5)	54	21.0 (16.4-26.3)	105	22.2 (18.6-26.1)
Health service provider	80	36.9 (30.7-43.4)	86	33.5 (27.9-39.4)	166	35.0 (30.8-39.4)
Friend	3	1.4 (0.4-3.6)	4	1.6 (0.5-3.7)	7	1.5 (0.7-2.9)
ORWs		-	1	0.4 (0.0-1.8)	1	0.2 (0.0-1.0)
When was the last time you received HIV testing service?						
Within 6 months	15	6.9 (4.1-10.9)	25	9.7 (6.6-13.8)	40	8.4 (6.2-11.2)
6-12 months	18	8.3 (5.2-12.5)	45	17.5 (13.2-22.5)	63	13.3 (10.5-16.6)
More than 12 months	184	84.8 (79.6-89.1)	187	72.8 (67.1-77.9)	371	78.3 (74.4-81.8)
Did you get your test result last time?						
Yes	198	91.2 (86.9-94.5)	226	87.9 (83.5-91.5)	424	89.5 (86.4-92.0)
No	19	8.8 (5.5-13.1)	31	12.1 (8.5-16.5)	50	10.5 (8.0-13.6)
If yes, what was your test result last time?						
negative	198	100.0	226	100.0	424	100.0

When asked about the courses and programs involved during sentenced period within last 12 months, the enrollment rate was less than 40%. The percentage of men who received free condom was very low (5 men or 0.5% of men answered that they received free condom). (Table 3.7).

Table 3.7. Training and community activities participated during sentenced period among male prisoners

	Closed		Open		Total	
	N = 502		N =603		N = 1105	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Community Activities (Training, Events)						
Yes	246	49.2 (44.8-53.6)	192	31.9 (28.3-35.8)	438	39.8 (36.9-42.7)
No	254	50.8 (46.4-55.2)	409	68.1 (64.2-71.7)	663	60.2(57.3-63.1)
STI test						

Yes	148	29.6 (25.7-33.7)	118	19.6 (16.6-23.0)	266	24.2 (21.7-26.8)
No	352	70.4 (66.3-74.3)	483	80.4 (77.0-83.4)	835	75.8 (73.2-78.3)
Condom use and safe sex counselling						
Yes	218	43.6 (39.3-48.0)	109	18.1 (15.2-21.4)	327	29.7 (27.1-32.4)
No	282	56.4 (52.0-60.7)	492	81.9 (78.6-84.8)	774	70.3 (67.6-72.9)
Free condoms and lubricants						
Yes	3	0.6 (0.2-1.6)	2	0.3 (0.1-1.1)	5	0.5 (0.2-1.0)
No	496	99.4 (98.4-99.8)	597	99.7 (98.9-99.9)	1093	99.5 (99.0-99.8)

Experience of STI symptoms

Abnormal genital discharge has been experienced in 35 (3.2%) male prisoners within last 12 moths. Among those who had STI symptoms, 91.7% seeked medical services and visited mostly NCCD and province medical center (Table 3.8).

Table 3.8. Experience of STI symptoms and seeking care services among male prisoners

	Closed		Open		Total	
	N = 502		N = 603		N = 1105	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Abnormal genital discharge and ulcers in the last 12 months						
Yes	4	0.8 (0.3-1.9)	31	5.1(3.6-7.1)	35	3.2 (2.3-4.3)
No	498	99.2(98.1-99.7)	572	94.9(92.9-96.4)	1070	96.8 (95.7-97.7)
Abnormal anal discharge and ulcers in the last 12 months						
Yes	4	0.8(0.3-1.9)	20	3.3(2.1-5.0)	24	2.2 (1.4-3.2)
No	498	99.2(98.1-99.7)	583	96.7(95.0-97.9)	1081	97.8 (96.8-98.6)
Whether visited health service providers						
Yes	4	100.0(0.0-0.0)	18	90.0(71.6-97.9)	22	91.7 (75.9-98.2)
No	0	0.0(0.0-0.0)	2	10.0(2.1-28.4)	2	8.3 (1.8-24.1)
Where did you receive care services last time?						
NCCD/ Red rebon	0	0.0(0.0-0.0)	3	15.8(4.7-36.4)	3	13.0 (3.8-30.9)
Province and district hospitals	1	25.0(2.8-71.6)	6	31.6(14.4-53.9)	7	30.4 (14.8-50.7)
Private clinic	0	0.0(0.0-0.0)	2	10.5(2.3-29.7)	2	8.7 (1.9-25.1)
NGO	0	0.0(0.0-0.0)	0	0.0(0.0-0.0)	0	0.0 (0.0-0.0)

STI testing coverage

Within last 12 months, 22.3% of male prisoners received STI testing services excluding HIVTS and 88.7% of those men were tested by provider's initiation. (Table 3.9).

Table 3.9. STI testing coverage among male prisoners

	Closed		Open		Total	
	N = 503		N = 603		N = 1105	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Received STI testing services excluding HIVTS in the last 12 months						
Yes	135	27.3 (23.5-31.4)	108	18.2 (15.2-21.4)	243	22.3 (19.9-24.9)
No	359	72.7 (68.6-76.5)	487	81.8 (78.6-84.8)	846	77.7 (75.1-80.1)
The reasons for the test						
For preventive purposes, myself	5	3.7 (1.4-8.0)	10	9.5 (5.0-16.2)	15	6.3 (3.7-9.9)
For preventive purposes, By project	126	94.0 (89.1-97.1)	86	81.9 (73.7-88.4)	212	88.7 (84.2-92.2)
Because of the symptoms	1	0.7 (0.1-3.4)	9	8.6 (4.3-15.1)	10	4.2 (2.2-7.3)
The place where STI testing service was provided						
NCCD/ Red ribbon	1	0.8 (0.1-3.5)	2	1.9 (0.4-5.9)	3	1.3 (0.4-3.3)
Provincial and district health centers	2	1.5 (0.3-4.7)	5	4.7 (1.8-10.0)	7	2.9 (1.3-5.7)
Private clinic	2	1.5 (0.3-4.7)	5	4.7 (1.8-10.0)	7	2.9 (1.3-5.7)
In prison	128	96.2 (92.0-98.6)	92	86.8 (79.4-92.2)	220	92.1 (88.1-95.0)
Barriers to receive STIs testing service except HIVTS						
Long waited	2	1.5(0.3-4.7)	3	2.8(0.8-7.4)	5	2.1 (0.8-4.5)
Hospital working hours not convenient	3	2.3(0.6-5.9)	1	0.9(0.1-4.3)	4	1.7 (0.6-3.9)
There is no confidentiality	1	0.8(0.1-3.5)	1	0.9(0.1-4.3)	2	0.8 (0.2-2.7)
Commication and attitudes of medical staff	0	0.0(0.0-0.0)	1	1.0(0.1-4.4)	1	0.4 (0.0-1.9)
Hospital area was not convenient	0	0.0(0.0-0.0)	1	0.9(0.1-4.3)	1	0.4 (0.0-1.9)
The hospital was far away	4	3.0(1.0-7.0)	3	2.8(0.8-7.4)	7	2.9 (1.3-5.7)
Expensive service charge	0	0.0(0.0-0.0)	3	2.8(0.8-7.4)	3	1.3 (0.4-3.3)

STI morbidity

Among male prisoners, 12 were diagnosed with syphilis and 38 were diagnosed with gonorrhea. Of those with who were diagnosed with any STIs, 90% received treatment. Among those who received treatment, treatment was

provided by a medical doctor in 73%, by a pharmacist in 12.5% and 10.4% were self treated. (Table 3.10).

Table 3.10. The incidence of STIs among male prisoners

	Closed		Open		Total	
	N =502		N = 603		N =1105	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Have you been diagnosed with the following diseases within last 12 months?						
syphilis	3	0.6 (0.2-1.6)	9	1.5 (0.7-2.7)	12	1.1 (0.6-1.8)
Yes	498	99.4 (98.4-99.8)	594	98.5 (97.3-99.3)	1092	98.9 (98.2-99.4)
No						
gonorrhea	3	0.6 (0.2-1.6)	35	5.8 (4.2-7.9)	38	3.4 (2.5-4.6)
Yes	498	99.4 (98.4-99.8)	567	94.2 (92.1-95.8)	1065	96.6 (95.4-97.5)
No						
chlamydia						
Yes	0	0.0 (0.0-0.0)	1	0.2 (0.0-0.8)	1	0.1 (0.0-0.4)
No	501	100.0	601	99.8 (99.2-100.0)	1102	99.9 (99.6-100.0)
Was it treated?	6	85.7 (49.9-98.4)	39	90.7 (79.4-96.8)	45	90.0 (79.5-96.1)
Yes	1	14.3(1.6-50.1)	4	9.3 (3.2-20.6)	5	10.0 (3.9-20.5)
Who provided treatment service?						
Doctor	6	85.7 (49.9-98.4)	29	70.7 (55.8-82.9)	35	72.9 (59.3-83.9)
Pharmacist	1	14.3(1.6-50.1)	5	12.2 (4.8-24.7)	6	12.5 (5.4-24.0)
self	0	0.0(0.0-0.0)	5	12.2 (4.8-24.7)	5	10.4 (4.1-21.3)

Alcohol and drug consumption

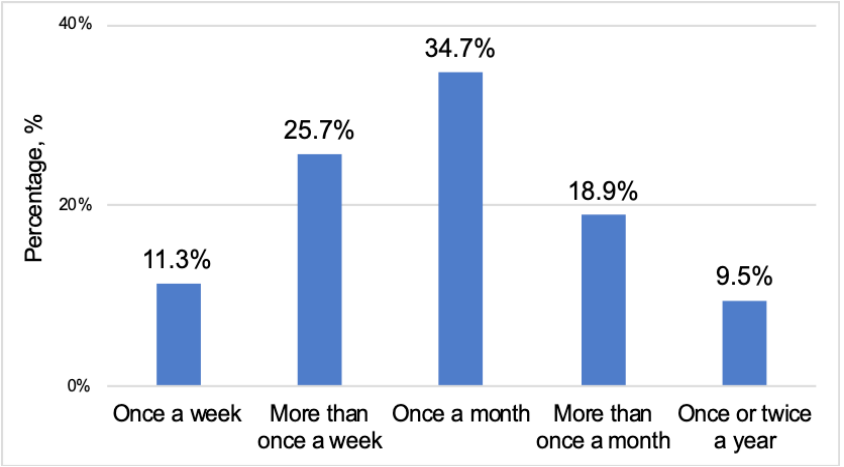
Table 3.11 shows the rate of alcohol and drug consumption of male prisoners. Among total participants, 20.3% of them used alcohol in the last 12 months and it differed by type of prison (4.0% of male prisoners in closed prisons and 33.8% of male prisoners in open prisons). As per frequency of alcohol use, 34.7% of the total male prisoners used once a month, 25.7% more than once a week, 18.9% more than once a month, 11.3% once a week and 9.5% used once or twice a year (Figure.3.4).

In the last 12 months, 45.6% of male prisoners have had sex when they were drunk, and 55.0% of them reported that they occasionally had sexual intercourse when they were drunk.

Table 3.11. Alcohol and drug consumption among male prisoners

	Closed		Open		total	
	N = 502		N = 603		N = 1105	
	n	%, (95% CIs)	n	%, (95% CIs)	n	%, (95% CIs)
Alcohol consumption in the last 12 months						
Yes	20	4.0(2.5-6.0)	204	33.8(30.1-37.7)	224	20.3 (18.0-22.7)
No	482	96.0(94.0-97.5)	399	66.2(62.3-69.9)	881	79.7 (77.3-82.0)
Had sex while drunk in the last 12 months						
Yes	7	41.2(20.7-64.4)	122	60.7(53.8-67.3)	129	59.2 (52.6-65.5)
No	10	58.8(35.6-79.3)	79	39.3(32.7-46.2)	89	40.8 (34.5-47.4)
Frequency of having sex while drunk in the last 12 months						
Always (100%)	1	14.3(1.6-50.1)	7	5.7(2.6-10.9)	8	6.2 (3.0-11.4)
Often (75%)	0	0.0(0.0-0.0)	14	11.5(6.7-18.0)	14	10.9 (6.4-17.1)
Sometimes (50%)	0	0.0(0.0-0.0)	36	29.5(22.0-38.0)	36	27.9 (20.7-36.1)
Occasionally (25%)	6	85.7(49.9-98.4)	65	53.3(44.4-62.0)	71	55.0 (46.4-63.4)
Non-injection drugs have been used in the last 12 months						
Yes	4	0.8(0.3-1.9)	36	6.0(4.3-8.1)	40	3.6 (2.6-4.8)
No	498	99.2(98.1-99.7)	567	94.0(91.9-95.7)	1065	96.4 (95.2-97.4)
Type of drugs						
Marijuana / Hashish	3		23		26	
Cannabis	4		25		29	
Extasy	1		7		8	
Gasoline, gas and spray paint	-	-	1		1	
Cocaine	-	-	1		1	
Methadone			1		1	
Cocaine	1		1		2	
Ice	2		12		14	
Mimi	-	-	1		1	
Clay	1		7		8	
Whether injected drug						
Yes	8	1.6(0.8-3.0)	7	1.2(0.5-2.3)	15	1.4 (0.8-2.2)
No	494	98.4(97.0-99.2)	595	98.8(97.7-99.5)	1089	98.6 (97.8-99.2)
Type of injected drug						
Heroin	-	-	1		1	
Cocaine	-	-	2		2	
Morphine	-	-	1		1	
Shared syringe with other people when injected drug						
Yes	-	-	2	40.0(9.4-79.1)	2	18.2 (4.0-46.7)
No	8	100.0(0.0-0.0)	5	60.0(20.9-90.6)	13	81.8 (53.3-96.0)

Figure 3.4. Frequency of alcohol consumption in last 12 months in prisoners



Drug consumption

In terms of drug consumption, 3.6% of male prisoners used non-injection drugs. Marijuana / hashish, cannabis, ice, ecstasy and clay were the commonly used drugs.

Of the respondents, 15 (3.6%) used injection drugs (1 person injected heroin, 2 people injected cocaine and 1 person injected morphine), however, some of them couldn't name the drug they injected.

Syphilis prevalence

Among 1105 male prisoners surveyed, 173 were diagnosed with syphilis. Syphilis prevalence rate is 15.7%. In table 3.12 prevalence of syphilis by prison type was showed. Prevalence of syphilis was 18.1% in male prisoners in open prison and 12.7% in male prisoners of closed prison. (Table 3.12).

Table 3.12. Prevalence of syphilis infection among male prisoners, by prison type

Risk groups	Number of people who got tested	Number of people whose result is positive	Prevalence %
Male prisoners in closed prison	602	64	12.7 (10.0-15.9)
Male prisoners in open prison	503	109	18.1 (15.2-21.3)
Total	1105	173	1.7 (13.6-17.9)

The prevalence of syphilis infection among male prisoners varied according to their education. The prevalence of syphilis is higher among uneducated and low-educated men in prison. (Table 3.13).

Table 3.13. Syphilis prevalence in male prisoner, by sociodemographic characteristics

	All	Open prison		Close prison	
Age	**N=1105**	**Syphilis positive N=109**	**Syphilis negative N=494**	**Syphilis positive N=64**	**Syphilis negative N=438**
18-24	139	20 (17.2%)	96 (82.8%)	0	23 (100%)
25-29	236	27 (17.1%)	131 (82.9%)	9 (11.5%)	69 (88.5%)
30-34	227	27 (23.7%)	87 (76.3%)	11 (9.7%)	102 (90.3%)
35-39	179	14 (15.9%)	74 (84.1%)	19 (20.9%)	72 (79.1%)
40+	324	21 (16.5%)	106 (83.5%)	25 (12.7%)	172 (87.3%)
Education level					
None	110	10 (18.2%)	45 (81.8%)	12 (21.8%)	43 (78.2%)
Primary	132	11 (17.2%)	53 (82.8%)	5 (7.4%)	63 (92.6%)
Incomplete secondary	309	30 (18.9%)	129 (81.1%)	23 (15.3%)	127 (84.7%)
Complete secondary	389	43 (18.9%)	185 (81.1%)	21 (13%)	140 (87%)
Special Vocational School, college and University	165	15 (15.5%)	82 (84.5%)	3 (4.4%)	65 (95.6%)
Marriage status					
Divorced, wiwod	231	20 (18.9%)	86 (81.1%)	16 (12.8%)	109 (87.2%)
Not married	562	59 (17.9%)	270 (82.1%)	38 (16.3%)	195 (83.7%)
Not married	312	30 (17.9%)	138 (82.1%)	10 (6.9%)	134 (93.1%)

The prevalence of syphilis infection among male prisoners varied according to their partner's gender. For example, the prevalence of syphilis is higher among men who have casual sex and who have sex with FSWs (Table 3.14).

Table 3.14. Syphilis prevalence in male prisoner by sexual partner type

	Open prison		Close prison	
By type of sexual partner	**Syphilis positive N=109**	**Syphilis negative N=494**	**Syphilis positive N=64**	**Syphilis negative N=438**
Non-permanent sexual partner				
Yes	35 (22.2%)	123 (77.8%)	2 (11.1%)	16 (88.9%)
No	74 (16.6%)	371 (83.4%)	62 (12.8%)	422 (87.2%)
Permanent sexual partner				
Yes	38 (17.2%)	183 (82.8%)	4 (17.4%)	19 (82.6%)
No	71 (18.6%)	311 (81.4%)	60 (12.5%)	419 (87.5%)
Female sex worker				
Yes	12 (25%)	36 (75%)	0	8 (100%)

No	97 (17.5%)	458 (82.5%)	64 (13%)	430 (87%)
Had sex with a woman while in prison?				
Yes	19 (18.2%)	86 (81.9%)	12 (9.4%)	115 (90.6%)
No	89 (18.2%)	404 (81.9%)	51 (13.7%)	320 (86.3%)
Do not want to answer	0	0	0	0
Abnormal genital discharge and ulcer in the last 12 months				
Yes	10 (32.3%)	21 (67.7%)	1 (25%)	3 (75%)
No	99 (17.3%)	473 (82.7%)	63 (12.7%)	435 (87.3%)
Had diagnosed with syphilis				
Yes	4 (44.4%)	5 (55.6%)	1 (33.3%)	2 (66.7%)
No	105 (17.7%)	489 (82.3%)	63 (12.7%)	435 (87.3%)
Had diagnosed with gonorrhea				
Yes	13 (37.1%)	22 (62.9)	0	3 (100%)
No	95 (16.8%)	472 (83.2%)	64 (12.9%)	434 (87.1%)
Had diagnosed with chlamydia				
Yes	1 (100%)	0	0	0
No	107 (17.8%)	494 (82.2%)	64 (12.8%)	437 (87.2%)
Tested for STIs other than HIV				
Yes	25 (23.1%)	83 (76.9%)	16 (11.9%)	119 (88.1%)
No	83 (17%)	404 (83%)	48 (13.4%)	311 (86.6%)

Syphilis prevalence was higher in men who use alchohol beverage before having sex. (Table 3.15).

Table 3.15. Syphilis prevalence in male prisoner, by alcohol consumption

	Open prison		Close prison	
Last 12 months	**Syphilis positive**	**Syphilis negative**	**Syphilis positive**	**Syphilis negative**
Used alcohol				
Yes	41 (20.1%)	163 (79.9%)	3 (15%)	17 (85%)
No	68 (17%)	331 (83%)	61 (12.7%)	421 (87.3%)
Frequency of alcohol bevereges in the last 12 months				
Once a week	7 (33.3%)	14 (66.7%)	0	4 (100%)
Once more a week	11 (22.4%)	38 (77.6%)	1 (12.5%)	7 (87.5%)
Once a month	13 (17.8%)	60 (82.2%)	0	4 (100%)
Once more a month	5 (12.5%)	35 (87.5%)	1 (50%)	1 (50%)
1-2 times a year	4 (21.1%)	15 (78.9%)	1 (50%)	1 (50%)
Used alcoholic beverages before having sex				
Yes	29 (23.8%)	93 (76.2%)	0	7 (100%)
No	11 (13.9%)	68 (86.1%)	2 (20%)	8 (80%)

Identified risk factors for syphilis infection, lack of education and lack of access to services from NGPs and NCCDs are mostly affected the risk of syphilis infection. (Table 3.16).

Table 3.16. Risk analysis of syphilis prevalence in male prisoner

	Simple logistic regression analysis				Multiple logistic regression analysis			
	OR	95% C.I.for OR		Sig.	OR	95% C.I.for OR		Sig.
		Lower	Upper			Lower	Upper	
Education level								
Special Vocational School, College, and University	1				1			
Complete secondary	2.042	1.038	4.016	0.039	1.430	0.579	3.535	0.438
Incomplete secondary	1.126	0.550	2.305	0.745	1.435	0.541	3.808	0.468
Primary	1.691	0.954	2.995	0.072	1.340	0.381	4.713	0.648
None	1.608	0.920	2.810	0.095	1.203	0.271	5.342	0.808
Marriage								
Married	1				1			
Not married	1.418	0.953	2.111	0.085	1.215	0.589	2.508	0.598
Divorced, wiwod	1.255	0.772	2.042	0.359	1.701	0.672	4.307	0.262
Abnormal genital discharge and ulcer in the last 12 months								
No	1							
Yes	2.569	1.234	5.347	0.012	2.618	1.036	6.617	0.042
Sexual partner partner								
Permanent sex partner	1				1			
Many sexual	1.379	0.727	2.618	0.325	1.124	0.560	2.257	0.743
Usage af condom								
Always	1							
Sometimes	1.543	0.245	9.700	0.175				
Never	2.700	0.642	11.354	0.644				
Used alcoholic beverages before having sex								
No	1							
Yes	1.695	0.826	3.479	0.150	0.947	0.463	1.937	0.881
Had received any services from NGOs and NCCD								
Yes	1							
No	1.494	1.022	2.185	0.038	0.671	0.280	1.606	0.371

Conclusion:

The prevalence of syphilis among male prisoners has increased, which indicates the having a casual sex and not being tested for STIs are increase the risk of syphilis infection.

4. MALE STI CLIENTS AND MALE TRANSPORT DRIVERS

In a surveillance survey of 2019, a total of 1027 male STI clients and 752 Male transport drivers were surveyed.

The table 4.1 shows the socioeconomic characteristics of the men surveyed. In terms of age, 50% of male STi clients are under 29 years of age and 55% of Male transport drivers are over 35 years old. In terms of educational level, the majority of them had incomplete secondary and complete secondary school education. As per marriage status, 15.1% of male STI clients and 44.8% of transport drivers were unmarried.

Table 4.1. Socio-Economic Characteristics of male STI clients and male transport drivers

	Male transport drivers		Male STI clients	
	N = 752		N = 1027	
	n	%, (95% CIs)	n	%, (95% CIs)
Age groups				
<24	47	6.3 (4.7-8.2)	320	31.2 (31.7-31.7)
25-29	102	13.6 (11.3-16.2)	217	21.1 (21.5-53.2)
30-34	190	25.4 (22.4-28.6)	196	19.4 (17.1-21.9)
35-39	158	21.1 (18.3-24.1)	111	11.0 (9.2-13.0)
40-44	145	19.4 (16.7-22.3)	96	9.5 (7.8-11.4)
45<	107	14.3 (11.9-16.9)	70	6.9 (5.5-8.6)
Educational status				
Did not attend school	1	0.1 (0.0-0.6)	29	2.8 (1.9-4.0)
Incomplete middle school, 5-8 grades	14	1.9 (1.1-3.0)	70	6.8 (5.4-8.5)
Complete middle school,	196	26.1 (23.0-29.3)	226	22.0 (19.6-24.6)
Vocational College	401	53.3 (49.8-56.9)	394	38.4 (35.4-41.4)
University	37	4.9 (3.5-6.6)	114	11.1 (9.3-13.1)
Did not attend school	103	13.7 (11.4-16.3)	194	18.9 (16.3-21.1)
Marriage status				
Married, living together with wife	498	66.2 (62.8-69.5)	508	49.5 (46.5-52.6)
Married, but not living together with wife	131	17.4 (14.8-20.3)	32	3.1 (2.2-4.3)
Unmarried and with regular sexual partner	58	7.7 (6.0-9.8)	167	16.3 (14.1-18.6)

Unmarried and with no regular sexual partner	56	7.4 (5.7-9.5)	292	28.5 (25.8-31.3)
The widow	2	0.3 (0.1-0.9)	2	0.2 (0.0-0.6)
Divorced	7	0.9 (0.4-1.8)	25	2.4 (1.6-3.5)

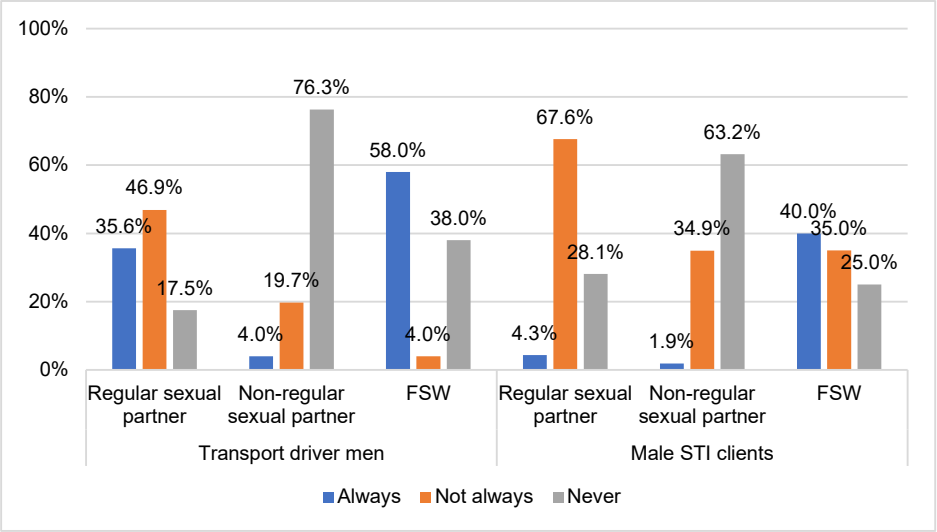
In the last 12 months, 91.9% of male STI clients and 81.0% of Male transport driverss had a regular sexual partner. The percentage of condom use during last sexual intercourse with a regular sexual partner was 17.2% and 13.8% respectively. Among surveyed men, 53.6% and 69.0% had non-regular sexual partners respectively. In the last 12 months, 7.2% of male STI clients and 5.2% of Male transport drivers had sex with a FSW. The percentage of men who used condom during last sex was 63.3% and 6.7% respectively (Table 4.2).

Table 4.2. Sexual behaviors and practices of male STI clients and male transport drivers

	Male transport drivers		Male STI clients	
	N = 752		N = 1027	
	n	%, (95% CIs)	n	%, (95% CIs)
Age of sexual debut				
Average		18		17
Median (min, max)		18 (12-29)		18 (12-27)
Have had sex for the last 12 months				
Yes	719	96.8 (95.3-97.9)	987	96.1 (94.8-97.2)
No	24	3.2 (2.1-4.7)	39	3.8 (2.8-5.1)
Type of sexual partner in the last 12 months				
Regular sexual partners	683	91.9 (89.8-93.7)	727	81.0 (77.3-82.6)
Non-regular sexual partners / Include casual sex /	395	53.6 (50.0-57.2)	584	69.0 (65.7-72.0)
FSW	52	7.2 (5.5-9.3)	30	5.1 (3.5-7.1)
Condom use during last sex				
Regular sexual partners	116	17.2 (14.5-20.1)	103	13.8 (11.5-16.4)
Non-regular sexual partners / Include casual sex /	253	64.1 (59.2-68.7)	122	19.0 (16.1-22.2)
FSW	31	63.3 (49.3-75.7)	11	6.7 (3.6-11.2)

Over the past 12 months, 58.0% of male STI clients and 40.0% of the Male transport drivers who had sex with FSWs consistently used condom (Figure 4.1).

Figure 4.1 Frequency of condom usage of male transport drivers, male STI clients by sexuel partner



Regarding HIV and AIDS knowledge, 81.7% of male STI clients and 95.3% of Male transport drivers have heard about HIV infection. The percentage of respondents who correctly answered that a healthy-looking person can be infected with HIV was 51.9% and 58.9% respectively. (Table 4.3).

Table 4.3. Knowledge on HIV and AIDS, by location among male STI clients and male transport drivers

	Male transport drivers		Male STI clients	
	N = 752		N = 1027	
	n	%, (95% CIs)	n	%, (95% CIs)
Have heard about HIV and AIDS				
Yes	717	95.3 (93.7-96.7)	839	81.7 (79.2-84.0)
No	35	4.7 (3.3-6.3)	188	18.3 (16.0-20.8)
Having only one intimate sexual partner can reduce the risk of HIV transmission				
Yes	644	89.9 (87.6-92.0)	764	89.9 (87.7-91.8)
No	20	2.7 (1.7-4.1)	19	2.2 (1.4-3.4)
Don't know	65	8.9 (7.0-11.1)	67	7.9 (6.2-9.8)
Consistant and correct use of condom during sexual intercourse can prevent HIV infection				
Yes	651	90.8 (88.5-92.7)	501	58.9 (55.6-62.2)
No	31	4.2 (3.0-5.9)	188	22.1 (19.4-25.0)
Don't know	48	6.6 (4.9-8.5)	62	7.3 (5.7-9.2)
A healthy-looking person can be infected with HIV				

Yes	372	51.9 (48.1-55.4)	501	58.9 (55.6-62.2)
No	135	18.8 (15.7-21.3)	188	22.1 (19.4-25.0)
Don't know	226	30.8 (27.6-34.2)	161	18.9 (16.4-21.7)
Regular (once every 3-6 months) HIV testing can help you and your partner avoid risk				
Yes	657	88.0 (85.5-90.1)	749	74.5 (71.8-77.1)
No	55	7.4 (5.7-9.4)	56	5.6 (4.3-7.1)
Don't know	35	4.7 (3.3-6.4)	200	19.9 (17.5-22.5)
For the last 12 months has been involved in event prevention of HIV and STI				
Yes	125	16.6 (14.1-19.4)		
No	626	83.4 (80.6-85.9)		
Taken services for the last three months, from services provided by ORW, NGO and NCCD.				
Training	31	27.2 (19.7-35.9)		
Test for HIV infection	64	56.1 (47.0-65.0)		
Diagnosis and analysis of STI	18	15.8 (10.0-23.3)		
What type of sex without a condom is the highest risk of transmitting HIV infection				
Have sex with the vagina	465	65.3 (61.8-68.7)	580	68.3 (65.1-71.4)
Anal sex	40	5.6 (4.1-7.5)	85	10.0 (8.1-12.2)
Oral sex	4	0.6 (0.2-1.3)	33	3.9 (2.7-5.3)
All of the above	23	3.2 (2.1-4.7)	10	1.2 (0.6-2.1)
I don't know	180	25.3 (22.2-28.6)	141	16.6 (14.2-19.2)
Risk assessment of HIV infection				
No risk	296	39.4 (35.9-42.9)	273	27.1 (24.4-29.9)
Low risky	272	36.2 (32.8-39.7)	419	41.6 (38.6-44.7)
Mid risky	117	15.6 (13.1-18.3)	183	18.2 (15.9-20.6)
High risky	20	2.7 (1.7-4.0)	44	4.4 (3.2-5.8)
Very high risky	1	0.1 (0.0-0.6)	5	0.5 (0.2-1.1)
I don't know	46	6.1 (4.6-8.0)	82	8.1 (6.6-10.0)

Among survey participants, 69.8% of Male transport drivers and 74.9% of male STI clients know where to get tested for HIV. And 45.9% of Male transport drivers and 54.0% of male STI clients were tested for HIV infection. (Table 4.4).

Table 4.4. HIV testing service coverage of STI clients and male transport drivers

	Male transport drivers		**Male STI clients**	
	N =752		**N =1027**	
	n	%, (95% CIs)	n	%, (95% CIs)
Do you know where to get tested for HIV?				
I know	525	69.8 (66.4-73.0)	753	74.9 (72.2-77.5)
I don't know	226	30.2 (25.3-35.5)	239	23.8 (21.2-26.5)
Have you been tested for HIV?				
Yes	343	45.9 (42.3-49.4)	544	54.0 (50.9-57.0)
No	404	54.0 (50.4-57.6)	464	46.0 (43.0-49.1)

On whose initiation did you get tested for HIV last time?				
Self-initiated	171	50.6 (45.3-55.9)	234	41.3 (37.3-45.4)
Employer	112	33.1 (28.3-38.3)	156	27.5 (24.0-31.3)
Health service provider's initiation	42	12.4 (9.2-16.3)	89	15.7 (12.9-18.9)
Friend	4	1.2 (0.4-2.8)	27	4.8 (3.2-6.8)
When was the last time you received HIV testing service?				
Within 6 months	98	28.7 (24.1-33.6)	200	35.4 (31.5-39.4)
6-12 months	56	16.4 (12.7-20.6)	147	26.0 (22.5-29.8)
More than 12 months	182	53.2 (47.9-58.5)	204	36.1 (32.2-40.1)
Did you get your test result last time?				
Yes	316	92.9 (89.9-65.3)	537	95.0 (93.0-96.6)
No	24	7.1 (4.7-10.1)	28	5.0 (3.4-7.0)

A symptom of abnormal genital discharge has been experienced in 32.3% of male STI clients and in 8.1% of moblile men within last 12 months. Among those who had STI symptoms, 75.7% and 59.9% seeked medical services and visited clinics. Mostly visited clinics were district and provincial health (Table 4.5).

Table 4.5. Experience of STI symptoms and seeking care services among male STI clients and male transport drivers

	Male transport drivers		Male STI client	
	N = 752		N = 1027	
	n	%, (95% CIs)	n	%, (95% CIs)
Abnormal genital discharge and ulcers in the last 12 months				
Yes	61	8.1 (6.3-10.2)	331	32.3 (29.5-35.2)
No	690	91.9 (89.8-93.7)	693	67.6 (64.7-70.4)
Abnormal anal discharge and ulcers in the last 12 months				
Yes	33	58.9 (45.9-71.1)	246	75.7 (70.8-80.1)
No	23	41.1 (28.9-54.1)	79	24.3 (19.9-29.2)
Where did you receive care services last time?				
NCCD/ Red ribbon	0	-	13	5.2 (2.9-8.4)
Province and district hospitals	19	57.6 (40.7-73.2)	200	79.4 (74.1-84.0)
Private clinic	14	42.4 (26.8-59.3)	30	11.9 (8.3-16.3)
NGO	0	-	-	-

Within last 12 months, 26.4% of Male transport drivers and 45.3% of male STI clients received STI testing services excluding HIVTS (Table 4.6). Most of them self-initiated the preventive HIVTS they received.

Table 4.6. STI testing coverage of male STI clients and male transport drivers

	Male transport drivers		Male STI clients	
	N = 752		N = 1027	
	n	%, (95% CIs)	n	%, (95% CIs)
Received STI testing services excluding HIVTS in the last 12 months				
Yes	198	26.4 (23.4-29.7)	464	45.3 (42.2-48.3)
No	551	73.6 (70.3-76.6)	561	54.7 (51.7-57.8)
The reasons for the test				
For preventive purposes, myself	132	67.0 (60.2-73.3)	160	34.6 (30.4-39.1)
For preventive purposes, by project	43	21.8 (16.5-28.0)	93	20.1 (16.7-24.0)
Because of the symptoms	11	5.6 (3.0-9.5)	133	28.8 (24.8-33.0)
Because I had unprotected casual sex	4	2.0 (0.7-4.8)	19	4.1 (2.6-6.2)
As requested by my sexual partner	1	0.5 (0.1-2.3)	26	5.6 (3.8-8.0)
The place where STI testing service was provided	42	21.2 (16.0-27.3)	13	5.1 (2.9-8.3)
NCCD/ Red ribbon	111	56.1 (49.1-62.8)	202	78.9 (73.6-83.6)
Provincial and district health centers	31	15.7 (11.1-21.2)	30	11.7 (8.2-16.1)
Private clinic	2	1.0 (0.2-3.2)	0	0.0 (0.0-0.0)
Barriers to receive STIs testing service except HIVTS				
Long waited	8	3.8 (1.8-7.0)	20	4.3 (2.7-6.4)
Hospital working hours not convenient	6	2.8 (1.2-5.7)	15	3.2 (1.9-5.1)
There is no confidentiality	2	0.9 (0.2-3.0)	5	1.1 (0.4-2.3)
Commication and attitudes of medical staff	4	1.9 (0.6-4.4)	0	0.0 (0.0-0.0)
Hospital area was not convenient	1	0.5 (0.1-2.2)	6	1.3 (0.5-2.6)
The hospital was far away	3	1.4 (0.4-3.7)	18	3.9 (2.4-5.9)
Expensive service charge	5	2.4 (0.9-5.1)	8	1.7 (0.8-3.2)

In the last 12 months, 22.0% of Male transport drivers and 32.4% of male STI client were diagnosed with gonorrhea. Of those, more than 90% were treated (Table 4.7).

Table 4.7. The incidence of STIs of male STI clients and male transport drivers

	Male transport drivers		Male STI clients	
	N = 752		N = 1027	
	n	%, (95% CIs)	n	%, (95% CIs)
Have you been diagnosed with diseases within last 12 months?				
syphilis	4	1.9 (0.6-4.4)	71	14.6 (11.7-17.9)
gonorrhea	46	22.0 (16.8-28.0)	165	32.4 (28.5-36.6)
chlamydia	6	2.9 (1.2-5.8)	30	6.4 (4.5-8.9)
Was it treated				
Yes	55	91.7 (82.7-96.7)	220	90.2 (86.0-93.4)
No	5	8.3 (3.3-17.3)	24	9.8 (6.6-14.0)
Who was treated				

The doctor	50	89.3 (79.2-95.4)	199	88.8 (84.2-92.5)
Pharmacist	3	5.4 (1.5-13.6)	9	4.0 (2.0-7.2)
Self	2	3.6 (0.7-11.0)	7	3.1 (1.4-6.0)
Reasons for not receiving treatment				
Symptoms were gone	3		7	
Worried about other people	1		3	
Afraid of the doctor	0		1	
Had no money	0		0	
Found no hospital	0		1	
Didn't know where to go	1		1	
Busy to go to hospital	5		4	

Of the total respondents, 82% had consumed alcohol in the last 12 months. Regarding drugs consumption, 27 of Male transport drivers have used mimi, and 2 of the male STI clients have used weed, another 2 have used cannabis (Table 4.8).

Table 4.8. Alcohol and drug consumption of male STI clients and male transport drivers

	Male transport drivers		Male STI clients	
	N = 752		N = 1027	
	n	%, (95% CIs)	n	%, (95% CIs)
Alcohol consumption in the last 12 months				
Yes	616	81.9 (79.0-84.5)	844	82.7 (80.3-84.9)
No	136	18.1 (15.5-21.0)	177	17.3 (15.1-19.7)
Frequency alcohol sonsumption in the last 12 months				
Once a week	46	7.5 (5.6-9.8)	50	6.0 (4.5-7.7)
More than once a week	29	4.7 (3.3-6.7)	48	5.7 (4.3-7.5)
Once in a month	278	45.5 (41.6-49.5)	356	42.5 (39.2-45.9)
More than once a month	165	27.0 (23.6-30.6)	188	22.5 (19.7-25.4)
1-2 times a year	93	15.2 (12.5-18.2)	195	23.3 (20.5-26.3)
Have you had sex while drunk in the last 12 months				
Yes	232	37.5 (33.8-41.4)	399	48.2 (44.9-51.7)
No	385	62.3 (58.4-66.1)	427	51.6 (48.2-55.0)
Frequency of having sex while drunk in the last 12 months				
Always (100%)	2	1.0 (0.2-3.0)	10	2.5 (1.3-4.4)
Often (75%)	4	1.9 (0.7-4.5)	27	6.8 (4.7-9.6)
Sometimes (50%)	24	11.5 (7.7-16.4)	120	30.4 (26.0-35.0)
Occasionally (25%)	176	84.6 (79.2-89.0)	238	60.3 (55.4-65.0)
Non-injection drugs have been used in the last 12 months				
Yes	32	4.3 (3.0-5.9)	7	0.7 (0.3-1.3)
No	719	95.7 (94.1-97.0)	1007	99.2 (98.5-99.6)
Type of drugs				
Mimi	27		-	
Cannabis	-		2	

Cocaine	1	
Weed		2
Whether injected drug		
Yes	1	1

Syphilis prevalence in STI clients, Male transport drivers

In this 2019 survey, 235 syphilis infections were detected among male STI clients. Among Male transport drivers, 39 were diagnosed with syphilis. (Table 4.9).

Table 4.9. Syphilis prevalence in male STI clients and male transport drivers, 2019

Risk groups	Number of people who passed test	Number of people infected	Percent of epidemic
Male STI clients	1027	235	23.0 (20.5-25.7)
Male transport drivers	752	39	5.2 (3.8-6.9)

Syphilis prevalence in male transport drivers

Syphilis prevalence has decreasing trend in Male transport drivers aged above 30 years old. (6.8% in age group 30-34 years old, 3.7% was in age adove 45 years old). According to the education, syphilis prevalence was lower in people who have higher education. (prevalence was 4.7% in transport who have lower education, 1.9% in Male transport drivers who have higher education). By marital status, syphilis prevalence wa higher ni single Male transport drivers. (Table 4.10).

Table 4.10. Syphilis prevalence in male transport drivers by sociodemographic characteristics

Specifications	mtbd	Syphilis positive	Syphilis negative	(P value)
	N = 752	N=39	N=713	
Age				0.646
<29	149	8 (5.4)	141 (94.6)	
30-34	190	13 (6.8)	177 (93.2)	
35-39	158	9 (5.7)	149 (94.3)	
40-44	145	5 (3.4)	140 (96.6)	
45<	107	4 (3.7)	103 (96.3)	
Education level				0.208
None	1	0 (0%)	1 (100%)	
Primary	14	1 (7.1%)	13 (92.9%)	
Incomplete secondary	196	9 (4.6%)	187 (95.4%)	
Complete secondary	401	27 (6.7%)	374 (93.3%)	

Special Vocational School, college	37	0 (0%)	37 (100%)	
University	103	2 (1.9%)	101 (98.1%)	
Marriage status				0.806
Married, live with wife	498	24 (4.8)	474 (95.2)	
Married, live together	131	6 (4.6)	125 (95.4)	
Not married, permanent sex worker	58	4 (6.9)	54 (93.1)	
Not married, non-permanent sex partner	56	4 (7.1)	52 (92.9)	

53.6% of total male transport drivers had casual sexual partner in laset 12 months, numbers of casual sexual partner were 1 to 20. For FSWs, 7.2% of total male transport drivers had sex with FSW. (numbers of sex with FSW were 1-10) (Table 4.11).

Table 4.11. Syphilis prevalence in male transport drivers by sexual parner type

Specifications	Male transport drivers	Syphilis positive	Syphilis negative	(P value)
	N = 752	N=39	N=713	
Permanent sex partner				0.220
Yes	684	34 (5.0)	650 (95.0)	
No	58	5 (8.6)	53 (91.4)	
Non-permanent sex partner				0.102
Yes	397	26 (6.5)	371 (93.5)	
No	342	13 (3.8)	329 (96.2)	
Female sex worker				1.000
Yes	52	2 (3.8)	50 (96.2)	
No	669	36 (5.4)	633 (94.6)	

The prevalence of syphilis is higher in Dornogobi (30.8%) and Umnugobi (28.2%) aimags than in other locations (Table 4.12).

Table 4.12. Syphilis prevalence in male transport drivers, by location

Location	Transport drivers men	Syphilis positive	Syphilis negative	(P value)
	N=752	N=39	N=713	
				0.01
Ulaanbaatar	152	4 (2.6%)	148 (97.4%)	
Dornogobi	100	12 (12.0%)	88 (88.0%)	
Dornod	100	6 (6.0%)	94 (94.0%)	
Umnugobi	300	11 (3.7%)	289 (96.3%)	
Khovd	100	6 (6.0%)	94 (94.0%)	

Decreased use of condom by male transport drivers during sexual intercourse while under the influence of alcohol is contributing to the syphilis infection prevalence. 5.8% of participants who consumed alcohol were infected with syphilis (p=0.090) (Table 4.13).

Table 4.13. Syphilis prevalence in male transport drivers by alcohol consumption

Specifications	Male transport drivers N = 752	Syphilis positive N=39	Syphilis negatinegne N=713	P value
Used alcohol bevereges				**0.090**
Yes	616	36 (5.8%)	580 (94.2%)	
No	136	3 (2.2%)	133 (97.8%)	
Frequency of alcohol bevereges in the last 12 months				0.670
Once a week	46	3 (6.5%)	43 (93.5%)	
Once more a week	29	1 (3.4%)	28 (96.6%)	
Once a month	278	13 (4.7%)	265 (95.3%)	
Once more a week	165	10 (6.1%)	155 (93.9%)	
1-2 times year	93	8 (8.6%)	85 (91.4%)	
Had Used alcoholic beverages before having sex				0.599
Yes	232	15 (6.5%)	217 (93.5%)	
No	386	21 (5.4%)	365 (94.6)	

Analysis of single and multi-factor risk for syphilis infection in male transport drivers revealed that they had casual sex during transportation in the last 6 months were 3.6 (AOR=3.35; 95% CI:1.050-10.892) times more likely to be infected with syphilis (Table 4.14).

Table 4.14. Risk analysis for syphilis prevalence in male transport drivers

	Simple logistic regression analysis				Multiple logistic regression analysis			
	OR	95% C.I. OR		P	OR	95% C.I. OR		P
		min	max			min	max	
Education level								
University	1				1			
Complete secondary	2.512	0.540	11.683	***0.240***	0.833	0.137	5.054	***0.842***
None, primary	3.318	0.776	14.181	***0.106***	1.539	0.309	7.671	***0.599***
Marriage								
Married	1				1			
Not married	1.507	0.673	3.377	***0.695***	0.667	0.199	2.239	***0.512***
Had sex in the last 6 months								
Permanent sex partner	1				1			
Non-permanent sex partner	2.521	1.106	5.746	***0.028***	3.635	1.050	10.892	***0.042***
Usage of condom								

used	1				1			
never	1.130	0.411	3.110	***0.813***	0.678	0.171	2.682	***0.580***
Used alcoholic beverages before having sex								
No	1				1			
Yes	1.201	0.607	2.380	***0.599***	0.985	0.339	2.864	***0.978***
Number of sexual partners	1.134	0.981	1.311	***0.088***	1.089	0.914	1.298	***0.341***

Prevalence of syphilis among STI male clients

Syphilis prevalence among STI male clients was different by marital status (Table 4.15).

Table 4.15. Prevalence of syphilis among STI male clients in by sociodemographic characteristics

Specifications	STI cabinet clients	Syphilis positive	Syphilis negative	(P value)
	N = 1004	N=230	N=774	
Age				0.158
18-24	319	73 (22.9%)	246 (77.1%)	
25-29	216	58 (26.9%)	158 (3.1%)	
30-34	194	39 (20.1%)	155 (79.9%)	
35-39	109	31 (28.4%)	78 (71.6%)	
More than 40	166	29 (17.5%)	137 (82.5%)	
Education level				0.266
None	29	8 (27.6%)	21 (72.4%)	
Primary	70	15 (21.4%)	55 (78.6%)	
Incomplete secondary	224	43 (19.2%)	181 (80.8%)	
Complete secondary	390	97 (24.9%)	293 (75.1%)	
Special Vocational School, College	114	34 (29.8%)	80 (70.2%)	
University	191	38 (19.6%)	156 (80.4%)	
Marriage status				0.003
Married, live together	505	94 (18.6%)	411 (81.4%)	
Married, live separately	32	14 (43.8%)	18 (56.3%)	
Not married, permanent sex partner	164	43 (26.2%)	121 (73.8%)	
Not married, non-permanent sex partner	292	75 (25.7%)	217 (74.3%)	
Divorced,widow	27	9 (33.3%)	18 (66.7%)	

The syphilis prevalence was different by sexual partner type among male STI clients. For instance syphilis prevalence was increased by casual sex, sex with FSW. (Table 4.16).

Table 4.16. Prevalence of syphilis among STI male clients in by sexual partner

Specifications	STI male clients	Syphilis positive N (%)	Syphilis negative N (%)	(P value)
Non-permanent sex partner				0.00
Yes	579	161 (27.8%)	418 (72.2%)	
No	261	39 (14.9%)	222 (85.1)	
Permanent sex partner				0.284
Yes	721	155 (21.5)	566 (78.5%)	
No	170	43 (25.3%)	127 (74.7%)	
Female sex worker				0.052
Yes	30	11 (36.7%)	19 (63.3%)	
No	553	119 (21.5%)	434 (78.5%)	

According to the location, syphilis prevalence were higher in Ulaanbaatar city, Gobi-Altai, Dornod provinces (Table 4.17).

Table 4.17. Syphilis prevalence in STI male clients, by location

Location	STI cabinet clients N=1021	Syphilis positive N=235	Syphilis negative N=786	(P value)
				0.00
Ulaanbaatar	136	61 (44.9%)	75 (55.1%)	
Bayankhongor	86100	11 (11%)	89 (89%)	
Gobi-Altai		29 (33.7%)	57 (66.3%)	
Dornod	100	35 (35%)	65 (65%)	
Dundgobi	99	12 (12.1%)	87 (87.9%)	
Zawkhan	100	17 (17%)	83 (83%)	
Umnugobi	80	16 (20%)	64 (80%)	
Sukhbaatar	99	18 (18.2%)	81 (81.8%)	
Khovd	98	11 (11.2%)	87 (88.8%)	
Khentii	54	12 (22.2%)	42 (77.8%)	

Table 4.18. Syphilis prevalence in Male STI clients, by alcohol consumption

Specifications	STI cabinet clients N = 1015	Syphilis positive N=233	Syphilis negative N=782	(P value)
Had consumed alcoholic beverages in the past 12 months				**0.016**
Yes	840	205 (24.4%)	635 (75.6%)	
No	175	28 (16%)	147 (84%)	
Frequency of alcohol bevereges in the last 12 months				0.199
Once a week	50	16 (32%)	34 (68%)	
Once more a week	47	14 (29.8%)	33 (70.2%)	
Once a month	355	78 (22%)	277 (78%)	
Once more a month	186	53 (28.5%)	133 (71.5%)	
1-2 times a year	195	42 (21.5%)	153 (78.5%)	
In the last 12 months, had used alcoholic beverages before having sex				0.011
Yes	396	114 (28.8%)	282 (71.2%)	
No	426	85 (20%)	341 (80%)	

According to the regression analysis marital status, casual sex, alcohol use were risk factors for for the syphilis in STI male clients. (Table 4.19).

Table 4.19. Risk analysis for syphilis among male STI clients

	OR	95% C.I for OR		Sig.
		Lower	Upper	
Marriege status				
Married	ref			
Divorced, wiwod	2.186	0.952	5.018	0.065
Married, live separataly	3.401	1.633	7.081	0.001
Not married, cohabitant	1.554	1.027	2.350	0.037
Not married, байнга бус/гүй	1.511	1.070	2.134	0.019
Had a genital discharge in the last 12 months				
No	ref			
Yes	1.781	1.318	2.406	0.000
Casual sex				
No	ref			
Yes	2.192	1.491	3.225	0.000
Had sex with a sex worker				
No	ref			
Yes	2.111	0.978	4.559	0.057
Consumed alcoholic beverages in the past 12 months				
No	ref			
Yes	1.695	1.098	2.615	0.017
Used alcoholic beverages before having sex				
No	ref			
Yes	1.627	1.179	2.245	0.003

Conclusion

1. Number of cases of casual sex, sex with sex workers increases with the number of days spent outside the home increased; and the use of condoms during sexual intercourse decreases with use of alcohol which affects the spread of syphilis.
2. Syphilis prevalence was increasing in STI cabinet male clients. Syphilis Alcohol use before sex and casual sex increase the risk of the syphilis prevalence.

5. BLOOD DONORS AND TB PATIENTS

As of the 2019 survey, no HIV infection case has been detected among blood donors and TB patients.

Syphilis prevalence

In 2019 survey, the prevalence of syphilis was 0.9% among blood donors and 11.7% among TB patients. (Table 5.1).

Table 5.1. Syphilis prevalence among blood donors and TB patients, 2019

Risk groups	Number of people who passed test	Number of people infected	Percent of epidemic
Blood donors	676	6	0.9
TB parients	145	17	11.7

Discussion

In 2019 survey, no HIV infection has been identified among FSWs, male prisoners, male STI clients, Male transport drivers, blood donors and TB patients.

Table 6.1 compares HIV prevalence in MSM of each survey years.

Table 6.1. HIV prevalence in MSM by IBBS year

Study group	2005	2007	2009	2011	2014	2017	2019
MSM	0	0.85	1.8	7.5	Crude 13.7 (9.4-18.0) weighted 12.0 (5.6-18.3)	Crude 9.2 (8.7-9.7) Weighted 9.1 (8.4-9.7)	Crude 7.7 weighted 6.2 (3.1-9.3)

Note: HIV prevalence in MSM is calculated as an adjusted rate since 2011.

Table 6.2 compares syphilis prevalence of each survey years.

Perspective of syphilis infection prevalence decreased among FSW's and blood donors but increased among MSM, male prisoners, STI cabinet clients and TB patients. In 2019, syphilis infection prevalence level was decreased among FSWs 24.5% to 10.1% but increased among MSM (9.2% to 10.1) compared with surveillance survey result, conducted in 2017. Syphilis infection prevalence level increased among male prisoners 8.2% to 15.6% and TB patients (5.3% to 11.7%) were in syphilis surveillance study conducted in 2019. Syphilis prevalence level were 5.3% among TB patients according to 2014 study but increased to 11.3% in syphilis surveillance study conducted in 2019. Syphilis prevalence level among blood donors were 5.2% according to 2014 but decreased to 0.9% in syphilis surveillance study conducted in 2019.

Table 6.2. Syphilis prevalence, by risk groups

Study groups	2002	2003	2004	2005	2007	2009	2011	2014	2017	2019
FSWs						18.3 (15.7-20.9)	27.5 (24.3-30.7)	29.7 (26.3-33.1)	24.5	14.5 (weighted 18.1)
MSM				22.0 (10.5-33.5)	11.0 (5.4-16.7)	5.4 (1.8-9.0)	4.1 (1.3-6.9)	7.1 (3.9-10.3)	9.2 (5.7-12.7)	10.1 (weighted 9.0)
Male transport drivers	4.7 (2.8-6.6)	3.7 (2.4-5.0)	4.1 (3.0-5.1)	3.2 (1.9-4.5)	3.9 (2.6-5.3)	1.7 (0.8-2.6)	-	5.1 (3.4-6.8)	-	5.2 (3.8-6.9)
STI clients	2.6 (1.4-3.8)	5.0 (2.9-7.2)	4.1 (2.8-5.4)	6.9 (5.6-8.3)	6.1 (5.0-7.2)	6.9 (5.8-8.0)	-	15.8 (14.2-17.4)	-	23.0 (20.5-25.7)
Male prisoners								8.2		15.7

Blood donors	2.5 (1.4-3.6)	4.6 (3.1-3.6)	3.1 (2.0-4.1)	2.2 (2.0-4.1)	1.7 (1.6-1.8)	2.4 (2.0-2.8)	5.2 (4.5-5.9)	0.9
TB patients	-	1.7 (0.0-4.0)	2.7 (0.8-4.5)	1.3 (0.3-2.3)	2.3 (1.2-3.4)	5.4 (1.8-9.0)	5.3 (1.6-9.0)	11.7

It is applausible that the percentage of people who have correct knowledge on HIV and STIs is increased compared to prevous survey results. However, the percentage of FSWs, male STI cabinet clients who have heard about HIV and AIDS decreased slightly. (Table 6.3).

Table 6.3. HIV and AIDS knowledge in FSWs, MSM

HIV and AIDS knowledge	FSWs		MSM	
	2017	2019	2017	2019
Have heard about HIV and AIDS	98.0 (97.3-98.7)	95.6, 92.4-98.9	95.4 (94.3-96.5)	98.4 (97.7-100.0)
Having only one intimate sexual partner can reduce the risk of HIV transmission	79.9 (78.0-81.8)	88.3, 81.8-94.8	81.2 (79.2-83.2)	88.0 (83.5-92.4)
Correct and consistent condom use can prevent HIV	89.5 (88.0-91.0)	98.9, 97.4-100.5	91.6 (90.1-93.0)	95.6 (93.0-98.2)
A healthy-looking person can be infected with HIV	74.4 (72.3-76.5)	69.7, 56.3-75.4	75.1 (72.9-77.3)	90.7 (87.1-94.3)

Table 6.4. Knowledge about HIV and AIDS in male STI cabinet clients, male transport drivers

Knowledge about HIV and AIDS	Male transport drivers		Male STI clients	
	2014	2019	2014	2019
Heard about HIV	95.3			96.3
Having sex with only one intimate sexual partner will reduce HIV risk	81.1	89.9	89.3	89.9
Constant and correct use of condom can prevent HIV infection	91.7	89.9	93.3	90.8
A healthy-looking person can be infected with HIV	69.3	51.9	76.9	58.9

Conclusions:

1. HIV infection prevalence percentage among MSM were 7,7% (7% in Ulaanbaatar city [weighted average 6.2%], 9,6% in countryside). There was no HIV case has detected among FSWs, male prisoners, male transport drivers, STI cabinet clients and blood donors.
2. Syphilis prevalence level among FSWs were 14.5% [WA 18.1%], 10.1% among MSM, (9.0% in UB [WA 5.9], 13.1% in rural areas), 15.7% in male prisoners (18.1% open access prison, 12.7% in closed prison), 5.2% in male transport drivers, 23.0% in male STI clients, 11,7% in TB patients, 0.9% in blood donors. Perspective of syphilis infection prevalence among decreased among FSW's and blood donors but increased among MSM, male prisoners, STI cabinet clients and TB patients.
3. According to the univariate or multivariate analysis being unmarried, casual sex,

never using condom, having sex while alcohol use and having never received services from NGO and/or NCCD more likely to be infected with syphilis in study groups.
4. 25.4% of total FSWs, 71.9% of MSM, 15.9% of male prisoners, 53.6% of male transport drivers, 69.9% of male STI cabinet clients were had casual sex.
5. 52.0% FSWs, 45.6% MSM, 59.2% male prisoners, 37.5% male transport drivers, 48.2% STI cabinet clients have had sex when they were use alcohol within last 12 months.
6. In this study, lubricant use was determined in MSM first time. 74.4% of MSM in UB and 51% of MSM in rural areas use gel and water-based lubricant for anal intercourse.
7. Also pre-and post-exposure prophylaxis knowledge of HIV were determined in first tim in this survey. The proportion of MSM who heard about this prophyslxis was low.
8. Knowledge about HIV/AIDS result was similar with previously conducted studies

Recommendations:

1. RDS methodology has been used for FSWs survey first time in this 2019 survey. It is shown that FSWs have good networks. Also, it is plausible that hidden community members participated in the survey. Therefore, RDS is considered to be appropriate method for upcoming surveys. However, completion of sampling was thanks to increased number of incentives provided to the participants which was insufficient at the beginning, and therefore, sufficient number of incentives should be properly budgeted if RDS is considered for the next IBBS among FSWs.
2. Increase the scope of activities of NGOs and outreach staff in Ulaanbaatar in connection with the introduction of new FSW who don't participate in the activities of NGO's and outreach workers in Ulaanbaatar due to the new methodology of survey
3. MSM survey has been expanded to three provinces in addition to UB in this 2019 survey. However, in all three provinces, sampling did not reach its size. This might be due to small population size and small network size in the provinces. Thus, MSM survey is considered to be not feasible at provincial level. It is therefore recommended to conduct MSM survey only in UB for next time.
4. Increase the availability of water and gel-based lubricant to MSM from rural areas
5. Improving awareness among MSM for infection prevention before and post exposure prevention of HIV
6. HIV/AID and STI prevention examination should conduct once a year among male prisoners.
7. Conduct training and advocacy for health care workers to provide equal access and without discrimination
8. The employers should enroll transport and passenger driver to get tested for HIV and STI when they start working, also conduct regular examination
9. Carry out STI, HIV/AIDS awareness campaigns among transport drivers through implementation of employment program.

ANNEXES

GAM indicators, FSWs

	Darkhan-Uul		Dornod		Khuvsgul		Ulaanbaatar		Total	
	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)
Service coverage, in the last 12 months										
<25 age										
Yes	9	47.4 (26.6-68.8)	2	5.6 (1.2-16.6)	4	20.0 (7.2-40.8)	33	15.4 (11.1-20.7)	48	16.6 (12.7-21.2)
No	10	52.6 (31.2-73.4)	34	94.4 (83.4-98.8)	16	80.0 (59.2-92.8)	181	84.6 (79.3-88.9)	241	83.4 (78.8-87.3)
≥ 25 age										
Yes	52	64.2 (53.4-74.0)	5	7.8 (3.0-16.3)	16	20.0 (12.4-29.7)	51	24.4 (19.0-30.5)	124	28.6 (24.5-33.0)
No	29	35.8 (26.0-46.6)	59	92.2 (83.7-97.0)	64	80.0 (70.3-87.6)	158	75.6 (69.5-81.0)	310	71.4 (67.0-75.5)
Number of people who have been tested for HIV in the last 12 months and are aware of their results										
<25 age										
Yes	14	93.3 (72.8-99.3)	35	100	17	100.0	73	86.9 (78.5-92.8)	139	92.1 (86.9-95.6)
No	1	6.7 (0.7-27.2)	0	-	0	-	11	13.1 (7.2-21.5)	12	7.9 (4.4-13.1)
≥ 25 age										
Yes	72	92.3 (84.8-96.7)	61	100	62	92.5 (84.4-97.1)	163	95.9 (92.1-98.1)	358	95.2 (92.7-97.0)
No	6	7.7 (3.3-15.2)	0	-	5	7.5 (2.9-15.6)	7	4.1 (1.9-7.9)	18	4.8 (3.0-7.3)
Number of people who used condoms with last sexual partner										
<25 age										
Yes	17	94.4 (76.8-99.4)	34	94.4 (83.4-98.8)	11	64.7 (41.1-83.7)	193	95.1 (91.4-97.4)	255	93.1
No	1	5.6 (0.6-23.2)	2	5.6 (1.2-16.6)	6	35.3 (16.3-58.9)	10	4.9 (2.6-8.6)	19	6.9
≥ 25 age										
Yes	74	93.7 (86.7-97.5)	59	95.2 (87.6-98.8)	36	49.3 (38.1-60.6)	193	92.3 (88.2-95.4)	362	85.6
No	5	6.3 (2.5-13.3)	3	4.8 (1.4-12.4)	37	50.7 (39.4-61.9)	16	7.7 (4.6-11.8)	61	14
Refused to receive medical care services due to discrimination and fear in the last 12 months										
<25 age										
Yes	15	78.9 (57.4-92.4)	36	100	18	90.0 (71.6-97.9)	72	33.6 (27.6-40.2)	141	48.8 (43.1-54.5)
No	4	21.1 (7.6-42.6)	0	-	2	10.0 (2.1-28.4)	142	66.4 (59.8-72.4)	148	51.2 (45.5-56.9)
≥ 25 age										
Yes	57	70.4 (59.8-79.5)	60	93.8 (85.8-97.9)	57	71.3 (60.7-80.3)	77	36.8 (30.5-43.5)	251	57.8 (53.1-62.4)
No	24	29.6 (20.5-40.2)	4	6.3 (2.1-14.2)	23	28.8 (19.7-39.3)	132	63.2 (56.5-69.5)	183	42.2 (37.6-46.9)

GAM indicators, MSM

	Darkhan-Uul		Dornod		Orkhon		Ulaanbaatar		Total	
	N	% (95% CI)	N	% (95% CI)	N	% (95% CI)	N	% (95% CI)	N	% (95% CI)
Service coverage, in the last 12 months										
<25 age										
Yes	10	55.6 (33.2-76.3)	0		2	18.2 (4.0-46.7)	82	38.1 (31.8-44.8)	94	36.9 (31.1-42.9)
No	8	44.4 (23.7-66.8)	11	100	9	81.8 (53.3-96.0)	133	61.9 (55.2-68.2)	161	63.1 (57.1-68.9)
≥ 25 age										
Yes	12	44.4 (27.1-62.9)	1	2.7 (0.3-11.9)	8	27.6 (14.0-45.4)	71	45.2 (37.6-53.0)	92	36.8 (31.0-42.9)
No	15	55.6 (37.1-72.9)	36	97.3 (88.1-99.7)	21	72.4 (54.6-86.0)	86	54.8 (47.0-62.4)	158	63.2 (57.1-69.0)
Number of people who have been tested for HIV in the last 12 months and are aware of their results										
<25 age										
Yes	15	83.3 (61.9-95.1)	2	100%	8	100%	170	96.0 (92.4-98.2)	195	95.1 (91.5-97.5)
No	3	16.7 (4.9-38.1)	0		0		7	4.0 (1.8-7.6)	10	4.9 (2.5-8.5)
≥ 25 age										
Yes	25	96.2 (83.4-99.6)	17	89.5 (70.3-97.7)	28	96.6 (85.0-99.6)	139	93.3 (88.4-96.5)	209	93.7 (90.0-96.4)
No	1	3.8 (0.4-16.6)	2	10.5 (2.3-29.7)	1	3.4 (0.4-15.0)	10	6.7 (3.5-11.6)	14	6.3 (3.6-10.0)
Refused to receive medical care services due to discrimination and fear in the last 12 months										
<25 age										
Yes	2	11.1 (2.4-31.1)	0		3	27.3 (8.3-56.5)	90	41.9 (35.4-48.5)	95	37.3 (31.5-43.3)
No	16	88.9 (68.9-97.6)	11	100%	8	72.7 (43.5-91.7)	125	58.1 (51.5-64.6)	160	62.7 (56.7-68.5)
≥ 25 age										
Yes	4	14.8 (5.2-31.5)	3	8.1 (2.3-20.1)	3	10.3 (3.0-25.1)	45	28.7 (22.0-36.1)	55	22.0 (17.2-27.4)
No	23	85.2 (68.5-94.8)	34	91.9 (79.9-97.7)	26	89.7 (74.9-97.0)	112	71.3 (63.9-78.0)	195	78.0 (72.6-82.8)
HIV prevalence										
<25										
HIV										
Negative	18	100%	11	100%	11	100%	215	97.7% (95.1%-99.1%)	255	98.1% (95.8%-99.3%)
Positive	0		0		0		5	2.3% (0.9%-4.9%)	5	1.9% (0.7%-4.2%)
>=25										
HIV										
Negative	27	75.0% (59.3%-86.8%)	37	94.9% (84.6%-98.9%)	29	90.6% (77.0%-97.3%)	158	87.3% (81.9%-91.5%)	251	87.2% (82.9%-90.6%)
Positive	9	25.0% (13.2%-40.7%)	2	5.1% (1.1%-15.4%)	3	9.4% (2.7%-23.0%)	23	12.7% (8.5%-18.1%)	37	12.8% (9.4%-17.1%)