

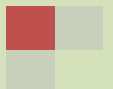
2020

# Female Sex Workers in the Island of Mauritius

Integrated Biological and Behavioral Surveillance  
[IBBS] survey by the Ministry of Health and Wellness

**Fourth Volume**

November 2021



## Fourth Integrated Biological and Behavioral Surveillance [IBBS] survey among female sex workers, by the Ministry of Health and Wellness

The present 2020 IBBS survey report on female sex workers comes out just ten years after the first female sex workers report was published in 2010 in Mauritius, hence presenting a good opportunity to make a ten-year programmatic impact assessment. The 2020 IBBS survey among female sex workers, which is the fourth round of female sex workers studies in the country, was conducted by the National AIDS Secretariat with collaboration from the AIDS Unit, both offices functioning within the Ministry of Health and Wellness. Collaboration was also obtained from NGOs engaged in the fight against HIV. Previous IBBS studies in Mauritius among female sex workers have been carried out in 2010, 2012 and 2015.

Mauritius has been undertaking IBBS studies regularly among key HIV-affected populations since 2009, starting with **People Who Inject Drugs (PWID)**, then among **Men having Sex with Men (MSM)** and **Female Sex Workers (FSW)**. Prevention, Information et Lutte contre le SIDA (PILS), an NGO, has carried out an IBBS survey among the Transgender persons in 2017. The Ministry of Health and Wellness intends to have its first TG IBBS survey such that, all four major HIV most-at-risk populations, namely, PWID, FSW, MSM and TG, will be included in the systematic evaluation of the national public HIV surveillance system. The aim of IBBS studies is to provide baselines for monitoring trends of indicators related to key HIV-affected populations.

In terms of geographical coverage, the 2020 IBBS FSW survey did not include residents of the smaller outer islands, but referred exclusively to residents of the main Island of Mauritius, which accounted for 97% of the population of the Republic of Mauritius.

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## Acronyms

<b>ANC</b>	Antenatal Care
<b>FSW</b>	Female Sex Worker
<b>GDP, GVA</b>	Gross domestic product, Gross value added
<b>HBV</b>	Hepatitis B
<b>HCV</b>	Hepatitis C
<b>IBBS</b>	Integrated Biological & Behavioral Surveillance
<b>MOH&amp;W</b>	Ministry of Health and Wellness
<b>MHSM</b>	Men Having Sex with Men
<b>NAS</b>	National AIDS Secretariat
<b>NEP</b>	Needle Exchange Program
<b>PLHIV</b>	People living with HIV
<b>PWID</b>	People Who Inject Drugs
<b>RDS</b>	Respondent Driven Sampling
<b>STI</b>	Sexually Transmitted Infection
<b>TG</b>	Transgender

2020 IBBS survey among female sex workers  
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## Executive Summary

The 2020 Integrated Biological and Behavioral Surveillance (IBBS) study among female sex workers was implemented under the headship of the National AIDS Secretariat (NAS) of the Ministry of Health and Wellness, with collaboration from different officers attached to the AIDS Unit of the same Ministry. Carried out in November/December 2020, this study made use of the Respondent-Driven Sampling (**RDS**) technique and attempted to obtain an unbiased and representative final sample of 476 women. These women were eligible for the study after having reported anonymously, through face-to-face interviews, having vaginal and/or anal and/or oral sex in the last six months with a male, in exchange for money or kind and that they were aged 15 years or more, while living in the study area, that is, in the main Island of Mauritius.

**RDS** is a chain-referral sampling method specifically designed to obtain probability-based samples of hard-to-reach HIV most-at-risk populations. Enrollment of subjects to participate in the survey was entirely and strictly done using a peer-to-peer recruitment system. After providing informed consent on survey sites, respondents completed respectively individual face-to-face interviews on sex-work-related behavioral information and then provided blood specimens to be tested by the national public laboratory, for selected sexually transmitted pathogens, namely, HIV and syphilis. Tests were also carried out for hepatitis B and hepatitis C.

This 2020 IBBS report presents the findings of the fourth round of a series of IBBS surveys conducted among female sex workers, since 2010. The last of this kind was carried out in 2015. The present 2020 survey aims at providing information on the prevalence of HIV infection and associated risk factors among FSW to inform programmatic and strategic responses and provide a baseline from which to monitor epidemic trends.

The results of the 2020 IBBS survey have revealed that most of the female sex workers IBBS indicators have been on the decline during the past ten years, between 2010 and 2020. Previous female sex workers IBBS studies carried out, showed that HIV prevalence among this HIV key population was 28.9%, 22.3% and 15.0%, in 2010, 2012 and 2015, respectively, while it stood at 14.3% in 2020. Thus, HIV prevalence among female sex workers has decreased by 51% between 2010 and 2020.

In 2015 HIV prevalence among female sex workers was 15.0%, representing a decrease of 5% during the last five years 2015-2020, as compared to a percentage decrease of 48% in the previous five-year period 2010-2015. Most of the HIV program expected impact, resulting from the harm reduction and condom distribution program, among others, have occurred effectively as from 2010 up to 2015, taking into account the fact that other factors like HIV-related mortality and HIV treatment do have some influences on the overall prevalence. The 2015-2020 performance reflected more a maintenance phase and a new HIV response model with measures like PrEP and viral load monitoring, will now be the battle horse to bring further significant curb to the epidemic.



Hepatitis C decreased by 55% from a prevalence of 43.8% in 2010 to 19.9% in 2020. Syphilis increased by 210% from 2010 to 2020, with most intensification of the disease observed in the last five years 2015-2020, that is, a percentage increase of 147% in the last five years, as compared to a percentage increase of only 25% for the period 2010-2015. Syphilis prevalence was 15.8% and has become more prevalent than HIV among female sex workers.

No Hepatitis B virus was detected in the 2020 study, this virus being very rare among female sex workers as already observed in previous IBBS surveys.

The HIV prevalence of 14.3% among female sex workers observed in 2020, coupled with that of 1.1% among pregnant women, based on public antenatal care sentinel surveillance and the national HIV prevalence of around 1.2% among the population aged 15-49 years, altogether authenticate Mauritius is experiencing a concentrated HIV epidemic among the high-risks populations. These three dimensions of the national HIV epidemic represent a call for the country, firstly to maintain the existing vigilance regarding its national HIV response towards the high-risks groups. Secondly, to monitor the epidemic among the remaining less-at-risk (general) population to prevent bridging of the HIV epidemic outside the already affected key populations. HIV infection among female sex workers, which at the beginning of the epidemic was mostly concentrated in the district of Port Louis and Plaines Wilhems respectively, is now a concern in the southern part of the island, namely in Grand Port district (HIV+ =23.7%).

In 2020, through the IBBS study laboratory tests, nearly two third of female sex workers, 66.9%, C.I (60.8, 72.9), were found free from any infections regarding four pathogens, namely, HIV, Hepatitis viruses (B or C) and Syphilis, against 33.1% sex workers respectively found infected with one or more pathogens.

On the other hand, HIV was found to be more prevalent among widows, 33.8%, as compared to singles, 3.9%. HIV infection rate showed rapid increase across age, from an infection rate of 7.0% among female sex workers aged 20-24 years to a rate of 22.2% among those aged 25-29 years. HIV prevalence was 30.9% among FSW who have ever used injecting drug against 10.6% among those who have never used it. HIV was also found to be more prevalent among female sex workers with higher network sizes.

Likewise previous IBBS studies, the 2020 IBBS survey has firstly confirmed certain known situation and secondly has brought new light through additional information, specific to the population of female sex workers, in order to enhance evidence-based data on which solid strategies and planning can be built up. Thus, it was observed that 94% of female sex workers had their first sex experience before the age of 20 years, with nearly one quarter having started sex in the age group 10-14 years. In 2020, female sex workers came from different family backgrounds. Fifty percent of them were living either in cohabitation or separated/divorced and another fifty percent included singles, married women and a few widows. Three quarter were either primarily with a male partner/husband or with their siblings/parents and only 12% were living primarily alone. Their age, which on average was 31 years, ranged between 15 and 67 years.

Fifty percent had not completed secondary schools, three quarter were earning money solely through sex work, whereas 60% had monthly income of Rs 5000-14,999, while 20% had earnings of less than Rs5,000 monthly.

Regarding their residence, in 2020 female sex workers were spread geographically all over the island, but with more residential concentration in some vulnerable settlements of the country.

In 2020, female sex workers were usually contacting their sex clients by phone (89%) and were mostly (67%) operating sex work at only one or two places, while 8% had ever been arrested by police, for drug use, larceny, violence and sex work. Based on a combination of knowledge on HIV transmission by mosquito, meal sharing, used needles sharing, faithful sexual life and condom protection, only 56% of female sex workers had the correct overall HIV transmission knowledge. On the other hand, during a period of three months, female sex workers had on average seven paid sex partners. Roughly three quarter had respectively 2-9 clients. Those who were drug users usually had large number of sex clients.

Condom distribution has remained high since 2010. In 2020, about 80% of female sex workers had taken advantage of programmatic free-distributed condoms, such that, condom use during paid sex had increased by nearly 100% for the period 2010-2020, from 39% to 76%.

Furthermore, 79% of female sex workers knew where to obtain an HIV test, while overall 66% had ever done an HIV test, out of which 6% did not receive their tests results. Among those who had ever been tested, the majority (86%) of female sex workers had access to HIV tests mainly through caravans, hospitals and the AIDS Unit. However, for around fifty percent of female sex workers, the last HIV test goes back to one year or more ago. Finally, 65.5% (49.5% in 2015) of all female sex workers in fact reported they knew their HIV status before the 2020 survey.

The 2020 IBBS study showed that alcohol and drug consumption is present among female sex workers' habits. Half of female sex workers were consuming alcohol, with relatively higher consumption among widows. There were indications about relatively higher alcohol consumption among female sex workers of Black River and Grand Port districts respectively. One quarter of female sex workers were taking non-injecting drugs, mainly synthetic and cannabis, amongst others, while 17.6% had ever injected drugs. Those who injected drugs in 2020 were using essentially heroin. Injecting drug use among female sex workers had decreased by 56% in the last ten years. 81% of those who had ever injected drugs were infected with HCV infection against 7%among non-injecting subjects.

In 2020, nearly two-third of female sex workers reported they had never been stigmatized because of sex work. Prevalence of public-institution-based stigma against female sex workers is rare in Mauritius, less than two percent.

**2020 Female Sex Workers IBBS survey**  
**Trend of selected main indicators, 2010, 2015 and 2020**

Year	Prevalence of disease (%)					Ever injected drugs (%)	Condom use at last time paid sex (%)	Have ever been stigmatized (%)	Correct knowledge of HIV (%)	Ever had HIV test (%)
	HIV	Syphilis	Hepatitis C	HIV/Hepatitis co-infection rate	Hepatitis B					
2010	28.9	5.1	43.8	25.7	0.0	40.0	38.5	NA	48.8	60.0
2015	15.0	6.4	24.6	11.7	1.0	21.2	67.2	27.2	54.2	63.0
2020	14.3	15.8	19.9	7.0	0.0	17.6	76.2	34.1	56.0	66.1
% change(2010-2020)	<b>-51%</b>	<b>+210%</b>	<b>-55%</b>	<b>-73%</b>	-	<b>-56%</b>	<b>+98%</b>	-	<b>+15%</b>	<b>+10%</b>
%change (2010-2015)	-48%	+25%	-44%	-54%		-47%	+75%	-	+11%	+5%
% change (2015-2020)	-5%	+147%	-19%	-40%		-17%	+13%	+25%	+3%	+5%

- **NOTE:** During the last ten years 2010-2020, regarding FSW behavioral & biological main indicators, most improvement have been observed in the five-year period 2010-2015 and smaller changes occurred in the recent five-year period 2015-2020. In fact, 85% of the progress made during the last decade 2010-2020, have been felt in the first five-year period 2010-2015 against 15% the period 2015-2020.
- This pattern of effect on the population of FSW can be partly attributed to the influence of the harm reduction program launched in 2006, yielding the optimum of its effectiveness during 2010-2015. Apart from syringes & needles, the national harm reduction program also consists of the whole package of integrated services i.e condoms, informational materials, counseling and testing for HIV/Syphilis/Hepatitis B and C, information of methadone program and referral for MST, psychological support, social aid and recently Pre-Exposure Prophylaxis (PrEP) and Post-Exposure Prophylaxis (PEP) have been introduced.
- For the period 2010-2015, the prevalence of Hepatitis C among female sex workers decreased by 44% and the prevalence of drug injectors, decreased by 47%. Decreases of 19% for HCV and 17% for drug injectors for the period 2015-2020 have been noted.
- Apart from incidence, other contributing factors that impact on prevalence statistics are treatment which extends life of patients and death.

# 1. Country profile

## 1.1 Country profile and the 2020 Covid-19 pandemic context

### 1.1.1 2020, an uncharacteristic socio-economic year for Mauritius

By the time the 2020 IBBS female sex workers survey was held in November/December 2020 and this report being prepared early this year in January 2021, it is worth underlining that the year 2020 has been an atypical one, as well as, a special one for Mauritius. Thus, in 2020 the country has gone through a few uncommon socio-economic features, landmarks, as well as, disturbances. Firstly, on 1st July, the World Bank has classified Mauritius as a high-income country for the first time, joining the Seychelles as the second high-income economy in Africa. Mauritius' Gross National Income (GNI) per capita for 2019 was US\$ 12,740.

Secondly, as all other states, Mauritius had to face its locally transmitted covid-19 epidemic from March to April 2020. It is to be noted that following the outbreak of Covid-19 worldwide, the national borders of Mauritius were totally closed down as from 20 March 2020. Covid-19 has affected the country's economy, for instance, there was a decline in tourist arrivals, with a first-semester passenger traffic of 887,787 arrivals in 2019 against 424,127 arrivals correspondingly in 2020, that is, a percentage decrease of 54.6% - Statistics Mauritius.

Thirdly, the COVID-19 outbreak was under control after 14 weeks of lockdown with no new local cases as of July 2020. There were concern that both GDP at market prices and GVA at basic prices would contract by 15.2% in 2020 due to the impact of COVID-19 pandemic, which would mark the country's worse contraction since 1980 - Statistics Mauritius - 23<sup>rd</sup> December 2020.

Finally, the year 2020 has been a demographic landmark for Mauritius, in the sense that it was the first time that the main Island of Mauritius (97% of the population) had experienced a negative population growth, namely, -0.03%.

### 1.1.2 The national demographic dynamics

In 2020, as at 1<sup>st</sup> July, the population of the Island of Mauritius (excluding Rodrigues and outer islands) was estimated at 1,221,921. The population grew at a rate of -0.03% over the last year. The total fertility rate decreased from 1.6 in 2010 to 1.4 in 2019 with a net reproduction rate of 0.7, indicating that the country is still experiencing demographic trend of below replacement level. The median age of the population of the Mauritius has nearly doubled in 47 years, from 19 years to 37 years, from 1972 to 2019 respectively, indicating that the ageing process is maintaining its upward trend. Female aged 15-49 years represented 49.7% of the total female population and they stood at 25.1% of the whole population both sexes and all ages. In 2019, the population of children aged less than one year accounted for 1% and children under 15 years represented 17% of the total population, while the elderly population 60 years and above was 18% and is projected to reach a figure of 29% by the year 2040.

### 1.1.3 The country selected health and development profile

Life expectancy for male was 70 years in 2011 and was 71 years in 2019 while for female it was 77 years in 2011 and 78 years in 2019, indicating the continuous national gain in health improvement observed over several past decades. The human development index was 0.80 (Very high) in 2019 as compared to 0.76 in 2010 and 0.67 in 2000. In 2019, globally Mauritius ranked 66th in terms of human development. (Human development report 2019).

In 2019, there were 12,056 live births, giving a crude birth rate of 9.9 per 1,000 mid-year population. 70% of births occurred in public health facilities against 30% in private. The percentage of births attended by qualified health personnel was 99.8%. Infant mortality rate was 14.3 per 1,000 live births. The coverage of public immunization among children, based on the Hexavalent vaccine (Immunization against Diphtheria, Pertussis, Haemophilus-B, Polio (Inactivated), Tetanus and Hepatitis B), was 86.5%.

Considering both public and private services, in 2019 there were 272 inhabitants for one hospital/clinic bed, 385 inhabitants for one doctor and 282 inhabitants for one nurse. The leading causes of deaths were attributed to cardiovascular diseases, 31.5%, followed by diabetes mellitus, 22.8% and neoplasm (cancer) 13.2%. Regarding infectious diseases, major communicable infections including indigenous malaria, have been either eradicated or eliminated from the country. Apart from the ongoing covid-19 pandemic, surveillance concern is now additionally about a few emergence of infectious diseases like Chickungunya and dengue, for instance. The national incidence of Tuberculosis was 10.0 per 100,000 population and the incidence of HIV was 0.57 per 1,000 (UNAIDS Spectrum) with a prevalence of less than 1.2% in the population aged 15-49 years.

## 2. Literature review

### 2.1 The HIV epidemic situation in Mauritius

In 2019, the number of newly detected HIV/AIDS cases among Mauritians, by the Ministry of Health and Wellness, was 374 (220 males and 154 females). Based on UNAIDS Spectrum estimation and projection tools, it is estimated that the total number of people living with HIV in Mauritius, in 2020, was 11,263 with 7,822 males and 3,441 females. Among the population aged 15-49 years, the HIV prevalence was 1.2% (1.7% among males, 0.8% among females).

The HIV epidemic in Mauritius, being a concentrated one (prevalence >5% among high-risk populations), consists of a significant proportion of people who inject drugs (PWID), around 60% of people living with HIV in the country. At the beginning of the epidemic in the late 1980s, the mode of transmission of the HIV virus was predominantly heterosexual. As from year 2000, the HIV epidemic was driven by injecting drug use. The gradual shift in mode of transmission from heterosexual to injecting drug use became evident in 2003 when 68% of the new cases were detected among the PWIDs compared to 14% in 2002. The epidemic reached its peak in 2005 with 92% of the new cases among PWIDs in prison settings and dropped to 84% in 2006. In 2019, it stood at 29.9%.

HIV prevalence is significant among key affected populations in Mauritius. High HIV prevalence above 5% were found in previous rounds of Integrated Biological & Behavioral Surveillance (IBBS) surveys conducted among people who inject drugs, female sex workers and among Men Having Sex with Men. The surveys revealed HIV prevalence among PWID was 32% in 2017, 14% among MSM in 2015 and 15% among FSW in 2015.

Public antenatal sentinel surveillance of HIV among pregnant women, suggests that in 2020, HIV infection rate was around 1.1% among pregnant women in the country.

### 2.2 Overview of the national response to HIV epidemic in Mauritius

Through its current HIV National Action Plan 2017-2021 with the main objectives – Zero Stigma and Discrimination against those infected with and affected by HIV,

Zero new HIV infections and Zero AIDS-related death, Mauritius shows its determination to get to its vision, eliminate AIDS by 2030. As a result, Mauritius has committed itself to come forward with international recommendations for prophylactic measures, universal treatment and care services, with particular attention to the most-at-risk of HIV infection groups. The strategy has been worked out in line with the UNAIDS 90.90.90 targets: 90% of people living with HIV know their status by 2020. 90% of those diagnosed with HIV initiated on treatment and 90% of those on treatment be virally suppressed.

Mauritius has a long-standing dynamic HIV Testing Service (HTS). In 2015, based on the IBBS study, 86% of female sex workers knew where to get an HIV test and 63% have ever had such test. Based on service statistics, 72% of people living with HIV have been initiated on treatment and 45% virally suppressed.

While the national HIV program includes all citizens, in Mauritius, HIV prevention targets the most-at-risk of HIV infection groups, given that the HIV epidemic is key-population driven with infection rates ranging from 15% to 30% across these high-risk groups.

Prevention tools for Information Education and Communication are fully effective. Psychologists have the counseling role for people living with HIV (PLHIV) and adolescents in rehabilitation centres. Condom and lubricant programming are in place to encourage their correct and consistent use. Condom use has a preponderating position in the HIV/STIs prevention package, condom usage can be up-scaled given that coverage stood at 67% among female sex workers, according to 2015 IBBS survey.

The PrEP protocol in line with the 2015 WHO recommendation has been developed and implemented in Mauritius since end 2018. It is available and accessible to all in need including serodiscordant couple.

On the ground of stigma and discrimination elimination towards people living with HIV, among the various activities and measures taken, Mauritius recently set up the National Drug and HIV Council in 2019 under the Prime Minister's Office. One of its crucial roles is to provide a space for promoting equity and human rights, thus, inviting enhancement of human-rights policies and a protective legal environment. Another determinant step regarding stigma and discrimination is the introduction of a HIV management protocol adopted in 2017 and this is believed to play a key role in the eradication of stigma and discrimination towards HIV patients. Many capacity-building interventions on gender equality and human rights have been organized by the country, namely workshops held between 2018 and 2019 among a thousand of participants from the civil society organizations, public and private sectors.

The national HIV epidemic has long been driven by people who inject drugs reaching above 90% of all HIV new cases in the late 90s and early 2000, but nowadays only 30% of new cases are from people who injects drugs. This is the result of a strong and sustained harm reduction program since 2006. Presently, a Needle Exchange Program (NEP) is fully effective together with the national Methadone Substitution Therapy (MST). People who injected drugs (PWID) and were on NEP, represented was 53% of all PWID in 2017 (IBBS survey). Most fundamental services for PWID are delivered through the NEP and MST channels, namely, syringes & needles, condoms, informational materials, counseling and testing for HIV/STI/Hepatitis C, explanation of methadone program and referral for MST, Pre-Exposure Prophylaxis (PrEP) and Post-Exposure Prophylaxis (PEP), psychological support, and social aid. PWIDs HIV prevalence has decreased from a rate of 50% in 2009 to a rate of 32% in 2017, while the corresponding rate for FSW has decreased from a rate of 28% in 2010 to a rate of 15% in 2015.

Mauritius has set the objective of eliminating Mother To Child Transmission (MTCT). Option B+ for preventing mother to child HIV transmission was taken on board in 2015. The PMTCT has provision for tracking of the lost to follow up cases. Retention of HIV positive pregnant women in care is done through a multi-disciplinary approach. There is provision of free formula milk for babies born to HIV positive

mothers. Antenatal clinic attendance is very high (>90%), while, coverage of ART for HIV+ pregnant woman, is almost total. Recent service statistics showed that HIV infection among ANC cases is 1.1%. In Mauritius, the question of poor adherence to management protocols by HIV positive mothers is a matter of concern for program managers as it contributes to HIV infected babies.

Since 2017, the Mauritian HIV Treatment, Care, and Support Services Policies, is steered by the World Health Organization (WHO) "Treat All Guidelines which stipulate that guidelines and ARVs should be made accessible to each and every person detected with HIV including provision of viral load testing services. With antiretroviral treatment totally funded by the government, a Differentiated Delivery of Services (DSD) method is in place to deliver ART services.

### 2.3 Female sex work, HIV and other STIs in Mauritius

So far, estimates of the population size of female sex workers have not been fully conclusive in Mauritius and hypotheses about this figure vary across organizations or groups. There is currently no existing consensual figure or trend regarding this indicator for Mauritius. Worldwide, estimation of the population size of female sex workers presents the most challenging estimation exercise compared to estimation for other HIV key affected populations. A national mapping study in 2014 conducted by the National AIDS Secretariat, estimated a population size of 6,223 female sex workers.

Female sex workers represent a hard-to-reach population because of stigma and discrimination and sex work being illegal. The nature of their work and the difficulty to negotiate the use of condoms if clients insist, make this key affected population at high risk of being infected with HIV and other sexually transmitted infections. In Mauritius, previous surveys have shown that a proportion of female sex workers, around 20% in 2015, were women who injected drugs, one of the reasons explaining their engagement in sex work. As expected, the prevalence of HIV is higher among FSW who reported ever injecting drugs, almost 50% of them (IBBS 2015). Given the significant proportion of FSW engaged in drug injection, hepatitis C among this key population is a concern. One quarter of FSW were diagnosed with hepatitis C in 2015. A high proportion of female sex workers is engaged in alcohol consumption (69% in 2015 IBBS) and non-injecting drugs as well (50%). This situation contributes to the difficulties for some of this key population to adhere correctly to prevention and treatment programs and also to manage condom use with sex partners, along with other health problems.

The majority of female sex workers in Mauritius (87% in 2015 IBBS), is usually in the age band between 20 and 50 years. Most started paid sex in the age group 15-19 years. Very few (less than 5% in 2015 IBBS) have completed secondary education, while around 80% have a monthly family income of less than Rs 10,000.

From information available from the 2015 IBBS survey, nearly one third of FSW had their respective last test one year ago. While the prevalence of HIV among FSW was 15% in 2015, few FSW will not choose to have an HIV test because of confidentiality of their HIV status, fear about the community attitude towards HIV infected persons and also because of confidence in condom protection against HIV.



According to the 2015 FSW study, around two third of female sex workers were either divorced/separated or in cohabitation. Based on previous studies, female sex workers in Mauritius usually have their first sex experiences in the age group 15-19 years, while nearly half of them have correct knowledge of HIV transmission. In 2015, 60.9% of FSW had used condom at their last time paid or unpaid sex even if almost all of them admitted they had received free male condoms and knew where to obtain male condoms.

Previous FSW surveys showed that on average a Mauritian FSW can have 18 male paid sex partners, while only half would use a condom during paid sex. This makes this key population a serious route to transmission to the low-risk general population, since they also have drug injecting partners, as well as non-paying partners with whom, only one third would use condom. Furthermore, although around 80% of FSW who go through an HIV test will eventually get their test results, the HIV transmission risk becomes more evident knowing that, an estimated 50% of FSW who have ever had an HIV test, can stay without having another HIV test for more than one year (IBBS 2015).

Finally, like all other HIV most-at-risk key populations, female sex workers in Mauritius have claimed that they have encountered problems as a result of their sex work. Past IBBS surveys had revealed that FSW in fact have experienced different degrees of stigmatization and discrimination; through job recruitment, police assistance refusal, verbal and physical assault of friends and family, among others. Public health and police are the two areas where very low stigmas are reported, while, most stigmas are from friends and the family members.

### 3 Rationale and objectives of the 2020 IBBS survey among female sex workers

Female sex workers IBBS surveys, combined with HIV sentinel surveillance conducted in antenatal clinics and serial HIV knowledge, attitudes, practices and behavior surveys, provide essential data to track the HIV epidemic trends and to measure the outcomes and impact of the national HIV response. Collectively, these data provide needed information to ensure an effective strategy to guide future HIV program responses to knowledge, attitude, behavior and perception in the general population in Mauritius.

#### Specific Objectives

The 2020 FWS IBBS survey specific objectives were to determine the prevalence of HIV, Hepatitis B, Hepatitis C and Syphilis among FSW in Mauritius and to provide a baseline for monitoring trends of these diseases. Other specific aims were:

- To assess sexual and other risk behaviours associated with HIV and sexually transmitted infections among FSW.
- To assess health seeking behaviors, including harm reduction, condom access and voluntary counselling and testing (VCT), among FSW.
- To describe demographic characteristics of FSW and the nature of their high risk behaviors in Mauritius
- To develop capacity in Mauritius to strengthen national HIV/STI surveillance systems for FSW.
- To provide information about FSW to policy makers and service providers and thereby assist the Government of Mauritius and stakeholders in HIV and other infections strategic planning.

## 4 Methodology

### 4.1 Respondent Driven Sampling (RDS)

The 2020 IBBS study among female sex workers used Respondent-Driven Sampling to recruit its survey participants throughout the Island of Mauritius. Respondent-Driven Sampling (RDS) is a sampling method based on a chain referral process. It has been developed to eliminate the well-known biases generally associated with chain referral methods, such as snowball sampling for example, by applying theoretical and mathematical techniques. RDS is designed especially for studies among hard-to-reach and hidden populations. Female sex workers form part of the set of HIV high-risk populations who are hard-to-reach just like People Who Inject Drugs and Men Having Sex with Men.

A population is "hidden" when no sampling frame exists and public recognition of membership in the population is potentially threatening. Reaching such populations is difficult because classical probability sampling methods yield low response rates and responses that lack truthfulness. Respondent-driven sampling is the variant of chain-referral sampling that makes use of a dual system of structured incentives to overcome some of the deficiencies of traditional samples. In traditional chain-referral sampling, an incentive is given only for participation, whereas in RDS, a dual incentive includes a reward for participation and another reward for (limited) recruitment of other peers. A theoretic analysis, drawing on both Markov-chain theory and the theory of biased networks, shows that this procedure can reduce the biases generally associated with chain-referral methods.

RDS starts with an initial group of members of the key population selected purposely and are called "seeds". Each seed is provided with a fixed amount (no more than three) of uniquely numbered coupons to be used for recruiting other eligible members (peers) of the key population into the survey. These recruited peers who join the survey are the first "wave" of participants. In the first wave, each participant who completes the survey is then provided with a fixed number of coupons to be used for recruiting in turn their peers into the survey. This gives a second wave of survey participants. This process of peer recruitment continues through further waves until the sample size is reached. Each participant is identified throughout the survey by using a unique number as the study is carried out anonymously. This unique number is determinant at the analysis stage being a key unique identifier variable in the survey database, which is processed through a especially designed RDS application software. Finally, based on the Markov Chain theory, even though sampling begins with an arbitrarily chosen set of initial subjects (Seeds), as do most chain-referral samples, the composition of the ultimate sample is wholly independent of those initial subjects.

## 4.2 Sample Size Calculation

The formula used for the sample size was:

$$n = [D * Z_{1-\alpha}^2 * P (1-P)] / d^2$$

n	=	The required sample size
Z <sub>1-α</sub>	=	Z score for the desired confidence level, set at 1.96 for 95% confidence
P	=	Expected proportion
d	=	Precision (set at 5%)
D	=	Design effect

A prevalence of 15% was used, given the prior information of the 2015 FSW IBBS. The precision was decided at 5%. The final calculation of the required sample size was 500 giving a design effect of 2.55.

## 4.3 Data collection

### 4.3.1 Target population and survey sites

The target population for the 2020 IBBS study among female sex workers was, females having vaginal and/or anal and/or oral sex, in the last six months with a male, in exchange for money or kind and that they were aged 15 years or more, while living in the study area, that is, in the main Island of Mauritius.

To have a proper geographical representation of participants there was a need to increase and ease accessibility to the survey sites in terms of minimizing the distance and at the same time the travel cost required to reach these sites. Accordingly, a total of three survey sites was decided for the survey for the whole Island of Mauritius, namely; Terre Rouge (in the northwest), Beau Bassin (in the centre) and Mahebourg (in the southeast).

### 4.3.2 Seeds

Six seeds (initial recruits) were identified through key contacts and were selected to reflect as far as possible diversity on a number of key characteristics, such as, geographic residence, age, infectious disease status etc.

### 4.3.3 Recruitment process

Seeds identified for the study population are provided each with three uniquely coded coupons to be used for recruiting their peers into the survey. Participants who present a valid recruitment coupon to one of the three survey sites are screened for eligibility and provide informed consent for a face-to-face interview. HIV pre-test counseling and a blood extraction is done for HIV, HCV, HBV and syphilis tests. Interviews are conducted in the local language by trained interviewers. The questionnaire collects data on socio-demographic characteristics, sexual and drug risk behaviors, HIV transmission and STI signs and symptoms and HIV knowledge, information on participants' social network sizes, as well as, access and utilization of HIV and IDU related services. Following the interview, each participant is provided with a number of coupons (no more than three coupons) to be used for recruiting eligible peers.

Participants receive a primary compensation for completing the survey and an additional secondary compensation for each recruit who is eligible and consented to participate in the survey. After specimen collection, participants receive uniquely numbered voucher which they can use to return to the interview site after two weeks to receive their test results with post-test counseling. Those with positive test results for HIV, HCV, HBV and/or syphilis infection are referred for treatment and/or for further management. To ensure confidentiality, participants' questionnaires and biological tests are identified using a unique study identification number provided on the recruitment coupons.

#### 4.4 Tools development and staff training

Field staff, including interviewers, peer leaders, screeners, supervisors and voluntary counseling and testing (VCT) counselors were trained on seed selection and participant recruitment, ethical consent, coupon and participant tracking, the incentive process, administration of the behavioral questionnaire, collection of biological samples, processing and transportation, specimen testing, and provision of biological test results and referrals by the Ministry of Health and Wellness.

#### 4.5 Laboratory procedures

A 5cc sample of venous blood was collected from each compliant study participant after the completion of the survey questionnaire. After the blood collection on survey sites, the samples were transported to the Central Laboratory in Candos where tests for HIV/AIDS, HBV, HCV and syphilis were carried out.

The **HIV** P24 antigen and antibodies to HIV1 and HIV2 were detected using an Enzyme Immunoassay, Genscreen Ultra HIV Ag-Ab (Manufacturer: BIORAD, France). Reactive specimens were confirmed by Western Blot Assay HIV Blot 2.2 MP Diagnostics (Singapore). **Hepatitis B** surface antigen (HBs Ag) was detected using MONOLISA HBs Ag Ultra (Manufacturer: BIORAD, France) and antibodies to **HCV** were detected using MONOLISA Anti-HCV Plus version 3 (Manufacturer: BIORAD, France). **Syphilis** infection was tested with VEDA (Manufacturer: VEDALAB, France) a hemagglutination test for Treponema Pallidum antibodies (IgG and IgM) in serum. Reactive Specimens for TPHA were also tested by Fortress carbon antigen (Manufacturer: Fortress Diagnostics Limited, UK).

#### 4.6 Dataset management and analysis

Data were entered into Epi Info. Data cleaning and quality control were performed. The final dataset was converted to SPSS. Further consistency checks and frequencies were performed to check validity and logic of all variables in the datasets. The final SPSS dataset was imported by the RDS Analyst software designed for RDS analysis (RDS Version 0.5-5 created on 2017-11-20. copyright (c) 2014, Krista J. Gile, University of Massachusetts – Amherst. Mark S. Handcock, University of California - Los Angeles)

The analysis settings used are: 0.95 for confidence interval with 500 bootstraps, while the weight has been set to Gile's SS and the population iteration is 1,000.

#### 4.7 Ethical considerations

Participants were informed that they were free to withdraw from the study at any time during the survey process and were provided with the consent form to read or, if necessary, the consent form was read to the participant by a staff member. Based on Respondent Driven Sampling (RDS) principles among HIV most-at-risk key population, the survey was completely anonymous, such that, no survey participants could be identified by their respective names, but only through a unique identification survey numbering

system. Measures were taken by investigators to ensure confidentiality and privacy of participants and survey site officers were trained accordingly.

#### 4.8 Constraint

The well-known popular method of Multiplier Technique was initially planned to be used for estimating the population size of female sex workers in the 2020 IBBS study. Unfortunately, because of logistics constraint this method could not be carried out. **Care should be taken for indicators associated with small sample.**

## 5 Results and Analysis

This section presents the behavioral findings and biological results from the 2020 IBBS survey among FSW in Mauritius in the following order:

- Recruitment diagnosis, [Page 22].
- Profile of the survey respondents, [Page 26].
- Sexual behaviors, [Page 30].
- Condom use, [Page 32].
- Sexually Transmitted Infections (STI), [Page 33].
- Utilization, attitude and access to HIV test services, [Page 34].
- Alcohol and drug use among FSW, [Page 36].
- Disease status, trend and risk, [Page 38].
- Personal stigma and discrimination, [Page 47]
- General observation and recommendations [Page 50]

### 5.1 Recruitment diagnosis

#### 5.1.1 Survey site and recruitment

Data collection for the 2020 IBBS survey among female sex workers lasted 17 working days on survey sites from 28<sup>th</sup> November to 17<sup>th</sup>December. Three survey sites were used to recruit respondents. These three sites were located at the following places, firstly, in the village of Terre Rouge in the northwest of the island, secondly in the town of Beau Bassin in the centre of the island and the third one in the southern coastal village of Mahebourg. Six seeds, two on each of the three survey sites, started the initial recruitments. At Terre Rouge survey site one seed did not generate any chain of recruitment after one week. She was replaced and the replacement eventually brought a productive recruitment chain. Half of respondents admitted that the main reason they participated in the survey was to know their HIV status against the other half of survey respondents motivated by the payment incentive. After data cleaning and validation of the survey dataset, the 2020 FSW IBBS survey final sample size was **476**, out of a raw initial dataset of 488 respondents

#### 5.1.2 Recruitment performance by survey site and seeds

The recruitment distribution by survey sites was as follows; Terre Rouge survey site recruited 48.7% of the total survey respondents, Beau Bassin survey site enrolled 30.9% and Mahebourg survey site accounted for 20.4% of the total respondents. The percentage of recruits per seed ranged from the lowest performance of 3.2% of the total survey recruits from a seed at Mahebourg, to the highest operation of 32.6% of recruits from a seed at Terre Rouge survey site.

Each respondent was limited to a maximum number of 3 recruits, using three recruitment coupons. In the final survey sample, 68% of respondents individually made three recruitments respectively (using 3 coupons each), 24% were associated with two recruits, either through respective inadequate recruitments (less than 3 recruits) or by limited number of coupons allocated by survey staff (using only 2 coupons) and finally 8% made one recruitments respectively, again either because of inadequate recruitments or limited coupons distributed by survey staff (using only one coupon), see figure 1 below. The minimum number of recruits per seed was 15 and the maximum was 155. The median number of recruits was 79, that is, half of seeds had recruited below this number and half recruited above.

Table 1  
2020 IBBS female sex workers  
Distribution of respondents per survey site

IBBS 2020						IBBS 2015	
SURVEY SITE	SEED ID no.	Number of cases recruited	% of recruits by SEED	% of recruits by SITE			
Beau Bassin	3	113	23.7	<b>30.9</b>	Curepipe	<b>20.2%</b>	
	4	35	7.4				
Mahebourg	5	15	3.2	<b>20.4</b>	Mahebourg	<b>25.1%</b>	
	6	82	17.2				
Terre Rouge	1	155	32.6	<b>48.7</b>	Port Louis	<b>54.8%</b>	
	2	76	16.0				
SURVEY SAMPLE		476	100.0	<b>100.0</b>	n=491	<b>100.0%</b>	

### 5.1.3 Characteristics of the survey seeds

In Respondent-Driven Sampling (RDS), although long chains of recruitment actually contribute to the unbiasedness and randomness of samples, the seeds for the 2020 IBBS among FSW have been chosen in attempting to optimize the representativeness of the different characteristics of female sex workers in the study. Thus, out of the six seeds, two were HIV positive against four being HIV negative. Three seeds were infected with hepatitis C, while none of them had syphilis. The age of the seeds ranged from a minimum of 22 years to a maximum of 44 years, with a mean age of 30 years and a median of 29 years. Furthermore, half of the seeds have ever injected drugs and among them only two injected heroin the last 3 months, while none of the six seeds has ever been arrested by police.



### 5.1.4 Network of female sex workers

The term “**network**” as used in the 2020 IBBS survey, can be understood as being “Sex workers aged 15 years or more who were living in the study area and because of the nature of their sex work, they were interconnected as a group of members formed by reciprocal knowledge of members, with visual contact in the last 3 months within members of the group.

Based on the above network definition, 81.4% of female sex workers in the survey reported they were part of different networks of less than ten sex workers. 15.2% were in networks of 10-29 sex workers and the rest (3.4%) in networks of 30 and more sex workers. The overall mean network size was 7 female sex workers and the median was 3 female sex workers. Analysis by survey site showed that the mean network size was 15 female sex workers and the median 10 female sex workers at Terre Rouge. Correspondingly, the mean network size and the median was 5 and 3 respectively at Beau Bassin survey site. At Mahebourg, the mean network size was 3 female sex workers and the median 3 female sex workers.

Figure 1  
2020 IBBS female sex workers  
Distribution of network size

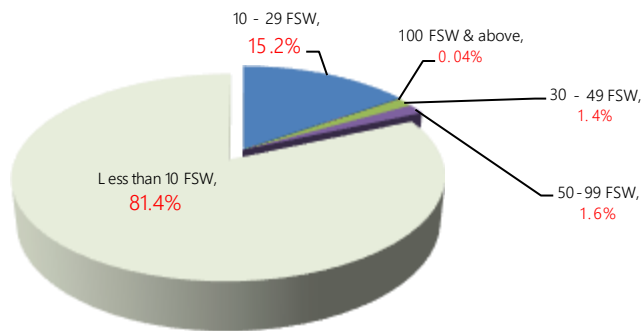


Figure 2  
2020 IBBS Female sex workers  
Mean network size

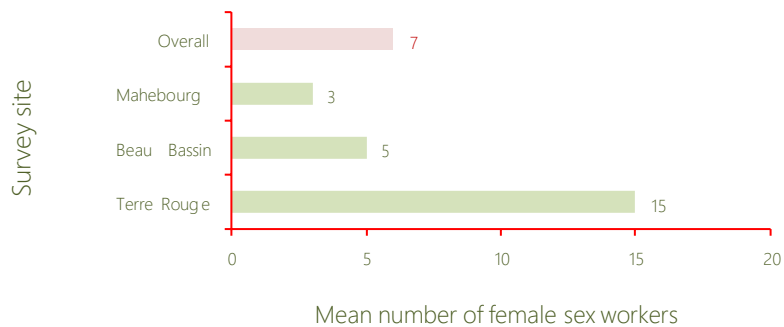
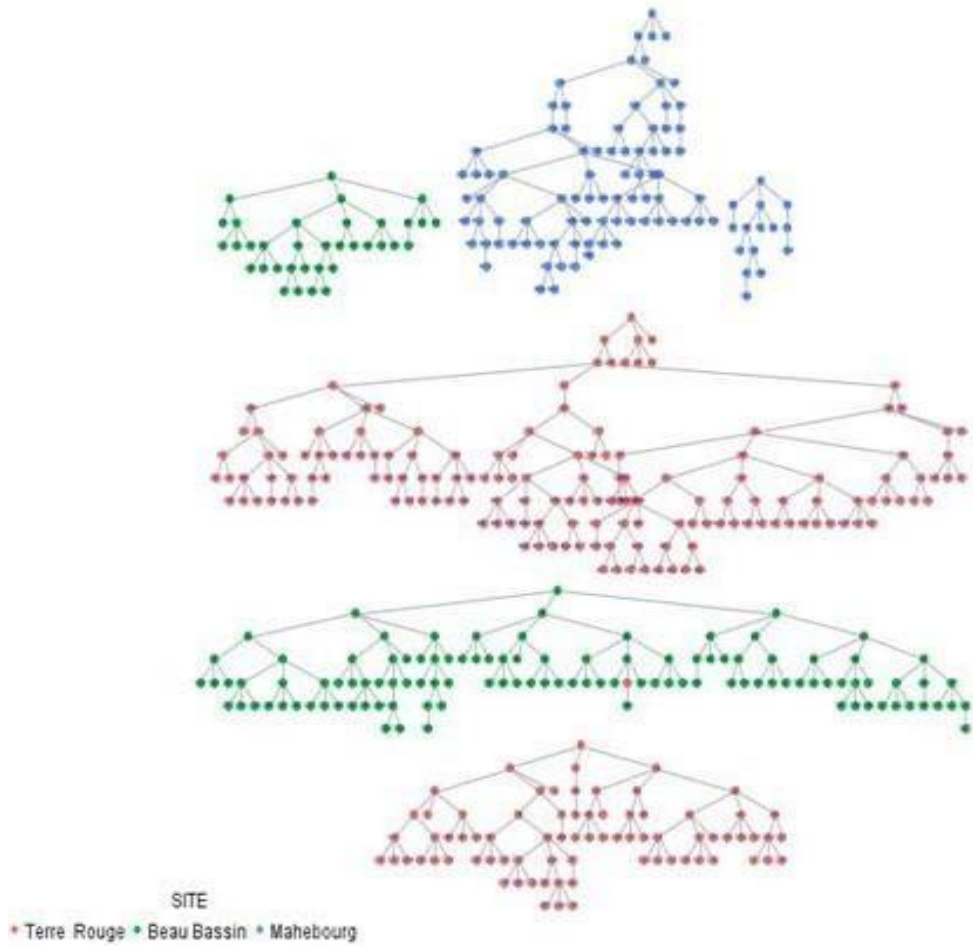


Figure 3  
2020 IBBS Female Sex Workers  
Recruitment graph with a survey sample size of 476 respondents with six seeds recruitment chains  
(by survey site)



Note: The seeds are the dots appearing on the top most position of each chain

## 5.2 Profile of respondents

### 5.2.1 Residence of female sex workers

Participants in the 2020 IBBS survey had travelled to the survey sites from various regions of the Island, essentially from seven districts, out of the nine districts in the country. There was practically no recruitment process from the districts of Rivière du Rempart, Flacq and Moka respectively (barely 6 recruits for the three districts combined, zero at Flacq). Thus, 29.7% of respondents were residents of the district of Port Louis, followed by residents of the district of Plaines Wilhems, 21.1%, then the district of Pamplemousses, 16.6%, Grand Port, 11.2%, Black River, 10.5%, Savanne 9.7% and Rivière du Rempart, Flacq and Moka districts, 1.2% combined.

Terre Rouge survey site had accommodated mostly residents of Port Louis, that is, 54.0% of this survey site recruits, followed by residents of Pamplemousses, 33.3%. Black River residents attending Terre Rouge site stood at 8.2% of the site's recruits. Residents of Rivière du Rempart and Plaines Wilhems combined attended Terre Rouge survey site, only 3.2%.

Beau Bassin site had surveyed mainly residents of Plaines Wilhems, 63.3%, followed by residents of Black River, 21.1% and residents from Port Louis, 10.2%. The remaining 5.6% of respondents at Beau Bassin survey site were equally distributed among residents from Rivière du Rempart, Pamplemousses, Grand Port and Moka districts respectively.

Finally, Mahebourg survey site had examined residents from two southern districts only. Nearly half were residents of the district of Grand Port, while the other half was from the district of Savanne. Further analyses of residence of respondents are shown graphically by locality in Table 3 and the map in Figure 4 below.

Table 2  
2020 IBBS Female sex workers  
Attendances at survey site  
(By district of residence of female sex workers)

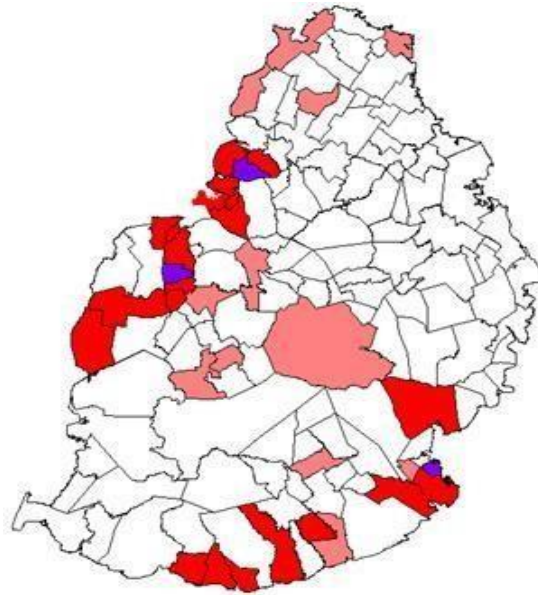
District of residence of female sex workers	Survey site			Total
	Terre Rouge	Beau Bassin	Mahebourg	
Port Louis	54.5%	10.2%	-	29.7%
Pamplemousses	33.3%	1.4%	-	16.6%
Rivière du Rempart	0.9%	1.4%	-	0.8%
Grand Port	-	1.4%	52.6%	11.2%
Savanne	-	-	47.4%	9.7%
Plaines Wilhems	3.0%	63.3%	-	21.1%
Moka	-	1.4%	-	0.4%
Black River	8.2%	21.1%	-	10.5%
All survey sites	100% (n=231)	100% (n=147)	100% (n=97)	100% (n=475)

## 2020 IBBS Female sex workers

Figure 4

Map of respondents' attendances at survey site, by locality of residence

High attendances ■ Moderate or low attendances ■ 2020 survey site ■



## 5.2.2 Socio-economic and demographic status of female sex workers

### 5.2.2.1 Civil status and age of female sex workers

According to the 2020 IBBS survey, a sizable proportion of respondents, nearly one third, were living in cohabitation, 32.9% C.I (25.6, 38.4), while 28.3% were single-never-married female sex workers. 20.2% were divorced or separated, 14.0% were married and only 5.3% were widows. Around one third of respondents, 32.0%, were living primarily with their parents or siblings, 30.8% were living primarily with a male partner, 12.7% mostly alone, 12.2% mostly with husband, 1.5% with friends and finally 11.0% were living primarily with other unspecified persons.

Female sex workers who presented themselves at the 2020 IBBS survey were on average 31 years of age, with a median age of 28 years. The age of respondents at the survey ranged from the minimum of 15 years to the maximum of 67 years. Those aged 15-19 years accounted for 21.4% and those aged 20-24 years, 19.8%. The age group 25-29 years accounted for 11.0%, while the group 30-39 years stood at 23.8%. 11.1% were in the age group 40-49 years and those aged 50 years and above represented 12.9%. In short, 41.3% were under the age of 25 years against 58.7% aged 25 years and above.

### 5.2.2.2 Education and socio-economic situation of female sex workers

Only 1.9% of respondents never attended school (2.6% in 2015 survey), 33.4% had been to primary schools only, while half of respondents had an incomplete secondary education. 9.5% attained at least the secondary School Certificate (SCG/GCE O Level). Only one respondent in the survey had reported having tertiary education level, that is, 0.1%.

Merely 26.9% (32.8% in 2015) of the survey participants reported they had other means of earning money apart from sex work, out of which, half were employed and around one third self-employed. The majority of these other means comprised; full time and part time jobs as cleaner, fieldworker, maid, hawker, restaurant worker and shop attendant, amongst others. Hence, distribution of female sex workers by respective monthly income of all respondents in the survey, showed that only 9.5% had a high income 20,000 or more, against 33.0% those in the low- income group of Rs 5,000-9,999, while 38.0% were earning Rs10,000-19,999 a month. Furthermore, 29.2% had a household contribution of Rs 5,000- 9,999 against 1.9% those contributing Rs 20,000 and above. In fact, half of the respondents were contributing less Rs 5,000 in the family respectively.

69.0% C.I (62.9, 74.9) reported they were financially supporting another person and among this group, 43.2% had financial responsibilities towards adults aged 15 years or more, while 82.9% were financially supporting children aged less 15 years, with mainly one or two children to cater for.

### 5.2.3 Knowledge, sexual history and generalities related to sex work practices in 2020

15-19 years was the most popular reported age group for sex workers to have their first anal or vaginal sexual intercourse, 66.7%, followed by 27.3% for those having their first sexual experience in the age group 10-14 years. Very few had sex before the age of 10 years, 0.4%, while 5.5% started having sex when they were aged 20 years and above. Both the mean and median age at first sex was 16 years, while the mode was 15 years. The minimum age stated for first sex experience was 5 years.

Table 3  
2020 IBBS Female sex workers  
Age of female sex workers at first anal or vaginal sexual intercourse

Age group (years)	Point Estimate	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
Under 10	0.4%	-0.001692	0.011112	1.27	0.00327	3
10-14	27.3%	0.218405	0.328416	2.23	0.02806	144
15-19	66.7%	0.608143	0.725421	2.27	0.02992	301
20 years and above	5.5%	0.027512	0.082683	2.14	0.01407	26
	100.0				Total	474

Just around half of respondents, 51.7%, had friends who knew about their involvement in sex work and similarly 33.3% regarding their families. Very few female sex workers had revealed their sex work practices to their non-sex co-workers or acquaintance, 3.3%, combined.

Female sex workers responded they essentially contacted clients by phone, 89.3%. A significance proportion (20.7%) had contact with clients in public areas and a few by internet, 11.6%. Other rare means of sex clients' contacts were; private parties, 8.5%, guest houses, 4.4%, massage parlors, 2.5%, media, 1.9% and bars, 0.6%.

According to this 2020 IBBS survey, during the last three months preceding the study, most female sex workers, 37.6% C.I (31.3, 43.8) had operated sex work at one and same place only. 29.3% had operated at two different places, 31.2% at three to five different places and finally 1.9% at more than five places. In addition, during the last preceding 6 months, the majority, 75.7%, C.I (70.0, 81.3) of female sex workers had sex work at rented apartment or hotel, against 18.9% at the paid sexual partner's place, while 15.7% were street-based workers.

Although 97.5% of respondents reported they have ever heard of HIV as the virus causing AIDS, on the other hand, just around half, 56.0%, of female sex workers had correct knowledge of HIV transmission. Correct HIV transmission knowledge was measured by answering the following questions correctly:

- Can people protect themselves from HIV by using a condom every time they have sex?
- Can a person get HIV from mosquito bites?
- Can people protect themselves from HIV by having one uninfected faithful sex partner?
- Can a person get HIV by sharing a meal with someone who is infected?
- Can a person get HIV by getting injections with a needle that was already used by someone else?

There were 20% of respondents who still believed that mosquito can transmit HIV virus to human, while 11.2% believed that transmission was possible by sharing meal. 16.3%, 14.9% and 6.9% were respectively not convinced that sexual abstinence, faithful partner and condom, were protective means to avoid HIV transmission. Finally, 1.9% was not sure that sharing of used needles & syringes can transmit the virus.

Only 6.9% of respondents were not able to answer correctly that a pregnant woman infected with HIV can transmit the virus to her unborn child. Regarding knowledge about whether an HIV positive pregnant woman can prevent transmission of HIV to her baby by taking antiretroviral drugs, 18.5% of respondents answered incorrectly. On breastfeeding HIV transmission, 11.8% disagreed that a woman with HIV can transmit HIV to her newborn child through breastfeeding.

In the 2020 IBBS survey, among 8% of respondents who admitted they have ever been arrested by police, 35% was in fact arrested for sex work. 28% were arrested for larceny, 20.8% for drug and 16.2% for violence.

## 5.3 Sexual activity and type of sexual partners

### 5.3.1 Sexual partners

In the last three months preceding the 2020 IBBS survey, respondents had sex on average with 8 male paid or non-paying partners and the corresponding median was 6 partners, that is, half had paid or non-paying sex, with six or less male partners, against the other half who had paid or non-paying sex, with six or more male partners. For the same period, a minimum of one, up to a maximum of 91 paid or non-paying male sex partners, were reported.

Among all the sex partners just mentioned above, in the last three months preceding the survey, there was on average one non-paying sex partner per sex worker. The number of non-paying sex partners per sex worker ranged from a minimum of zero non-paying sex male partner to a maximum of 10.

40.4% of respondents had sex only once with their respective non-paying partners in the last three months, against 16.1% who did not have any non-paying sex, while 43.5% had non-paying sex more than once. The mean number of non-paying sex per FSW, during the last three months, was 5 times.

### 5.3.2 Paying sexual partners

As regards paid male sex partners, in the last three months preceding the survey, respondents had sex on average with 7 clients per sex worker, with a median of 4 clients, that is, half had sex with 4 or less clients, while the other half had sex with 4 or more clients. For the same period, a minimum of one up to a maximum of 90 paid male sex partners were reported.

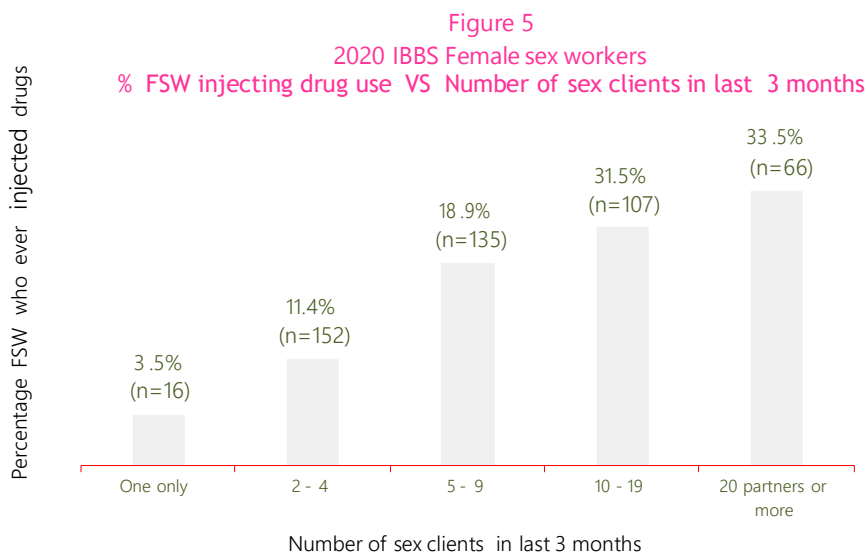
The distribution of paid sex partners, in the last three months was as follows; 6.6% of female sex workers had sex with only one client respectively, 46.4% with 2-4 clients, 27.0% with 5-9 clients, 13.9% with 10-19 clients and finally, 6.3% with 20 clients or more.

Table 4

2020 IBBS Female sex workers  
Distribution of paid sexual partners in the last three months

Number of Sex clients	Point Estimate	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
One only	6.4%	0.02665	0.10041	3.346	0.01882	16
2 - 4	46.4%	0.39507	0.53034	2.708	0.03451	152
5 - 9	27.0%	0.21931	0.32265	1.993	0.02636	135
10 - 19	13.9%	0.10240	0.17663	1.693	0.01894	107
20 partners or more	6.3%	0.04482	0.08172	0.851	0.00941	66
	100.0				Total	474

The 2020 IBBS survey clearly established the connection between injecting drugs and sex work. In fact, analysis of the distribution of paid male partners in the last three months, revealed that there was a strong association (Chi Square 25.71, with p value 0.00, n=476) between the number of paid sex partners and female sex workers who injected drugs. Figure 5 below depicts the drug use differential, with respect to frequency of sex clients, among female sex workers.



## 5.4 Condom use

### 5.4.1 Condom use among female sex workers

85.6% C.I (79.5, 91.6) of respondents reported they were provided with free male condoms as compared to 83.8% in 2015 and 37.7% C.I (30.1, 44.0%) were provided with free female condoms during the last 12 months (50.3% in 2015). Thus, 76.2% C.I (70.0, 82.4) of female sex workers reported they had used condoms at the last time they had sex, whether for money and other gifts or with non-paying sex partners, as compared to 60.9% in 2015.

67.9% C.I (61.4, 74.4) female sex workers usually always negotiated male or female condoms use with their sex partners, against 25.6% who did so occasionally. A few, 6.5%, usually never discussed any condom use. If the sex partner had refused to use condom for sexual relation, around one third (62.5%) of female sex workers would have refused sex at all cost. 14.6% would have accepted readily, 10.5% would have accepted with insistence and 12.2% would have accepted with additional payment.

79.3% C.I (73.5, 85.1) of female sex workers knew where to obtain male condoms, while only 21.4% have ever used female condoms. Table 6 below gives the places where respondents expected to obtain male condoms.



Table 5  
2020 IBBS Female sex workers  
Places where respondents knew they could obtain male condoms

Places	% Respondents
NGO	53.3%
Pharmacy	38.7%
Caravan(NGO)	32.9%
Health facility	24.7%
Friends	20.9%
NEP at Ministry of Health	18.3%
AIDS Unit	15.9%
Peer educator	14.6%
Voluntary	11.2%
Dispenser	10.7%
NEP caravan	1.9%

#### 5.4.2 Condom use in paid sex

One of the eligibility criteria to participate in the 2020 IBBS survey was to have done sex work in the last six months. Accordingly, it was observed that just around half (51.2%) of respondents had paid sex in the last week preceding the survey and 15.2% one month ago. One quarter of respondents (25.4%) had paid sex just the day before the survey, while 2.2% had done so on the same day of the survey. 5.2% had sex 2 - 6 months ago. Furthermore, the last time respondents had paid sex, on that particular day, there were on average 2 paid partners (median 2). In fact, on that particular day, 41.8% had one paid partner respectively, 45.2% had 2-3 paid partners and the remaining 13.0% of respondents had 4 partners or more.

76.2% C.I 70.5, 81.8) of female sex workers who participated in the survey had used condom at the last time they had paid sex as compared to 67.2% in 2015. Also, during last month preceding the 2020 IBBS survey, among those who had paid sex, 90.9% always used condoms, against 9.1% who never did so or did so occasionally. Table 7 below gives the main reasons for not using condom in paid sex.

During paid sex in the last month, in 80.2% of cases it was the respondent who took the decision to use condom. It was a joint decision in 13.3% of cases and 6.5% by the paying partner. Usually when condom was not used, it was either because it was not available or not pleasurable for the client.

**Table 6**  
**2020 IBBS Female sex workers**  
**Main reasons for not using condom in paid sex last month**

Main reasons	Point Estimate	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
Not available	37.1%	0.259212	0.4943692	1.91	0.05999	35
Not pleasurable for client	32.8%	0.2199235	0.4162716	1.411	0.05009	56
Trust partner	20.7%	0.1165025	0.3072868	1.785	0.04867	16
Never thought about using a condom	4.5%	-0.0682182	0.1584679	9.562	0.05783	6
Get more money if use a condom	1.0%	-0.0038586	0.0279536	0.693	0.00812	1
Too expensive	1.2%	0.0120475	0.0120475	0	0	1
Allergic to condom	0.4%	-0.0002216	0.0072612	0.108	0.00191	2
Other	2.0%	-0.0477837	0.0887388	7.563	0.03483	2
Total	100.0%				Total	119

### 5.4.3 Condom use with non-paying sex partners

Among female sex workers having non-paying partners, at the last time of anal or vaginal sex, 53.1% c.i (46.2, 59.9) had used condom as compared to only 36.0% in 2015. Among those who had used condom, 91.7% had used condom always, 4.4% most of the time and 3.9% occasionally. 85.4% of respondents had decided for the use of condoms during non-paying sex in the last three months, against 9.0% joint decision and 5.6% non-paying partner's decision.

### 5.4.4 Female condom use

It was observed earlier that 37.7% of female sex workers were given free female condoms in the last 12 months and that only 21.4% of them had ever used female condoms. Among the group who had used female condoms, 70.6% did so to protect themselves against HIV infection and other sexually transmitted infections. 28.1% had used female condoms to avoid being pregnant and finally 1.3% had used it for other reasons. NGO is the most popular place where respondents knew they could obtain female condoms, 41.3% (NGO+ NGO caravan).

## 5.5 Sexually Transmitted Infections (STIs)

### 5.5.1 STI knowledge, signs and symptoms

82.2% c.i (76.6, 87.6) of female sex workers had heard of STIs, defined as diseases that can be transmitted through sexual intercourse. 59.7% reported they were able to describe signs or symptoms of STIs in men and 59.6% for description of signs or symptoms in women.

Among the 9.9% of FSW who reported having signs or symptoms of STI in the past 12 months in terms of genital or anal discharge, sore and ulcer, the majority, 52.0% reported that they went to a government health facility, 21.2% did not do anything, 11.3% reported they treated themselves at home, 10.3% reported they bought drugs from pharmacy, 9.2% reported that they stopped having sexual intercourse, 4.8% reported they visited a private health facility, 3.7% had used condoms and 3.2% just told about it to the sex partner.

## 5.6 Utilization, attitude and access to HIV tests services

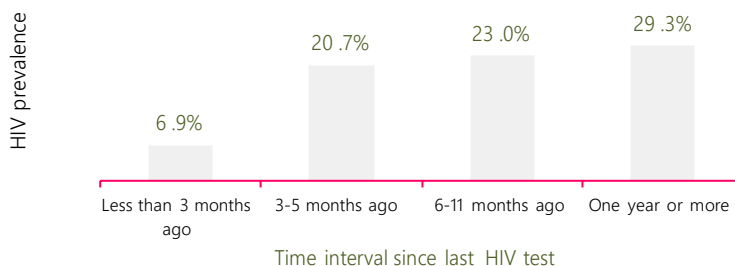
78.7% C.I (73.1, 84.2) of female sex workers reported they knew where to go to have an HIV test, whereas 66.1% C.I (60.3, 71.9) have ever had an HIV test. Among those who have ever been tested for HIV, the most popular places where they have been tested, were through caravans, 31.0% (37.7% in 2015), followed by 29.3% at Hospitals (26.6% in 2015), 25.5% at AIDS Unit (32.1% in 2015), 17.5% by NGOs, 15.6% at Health Centres, 6.2% by outreach services and 1.5% at private laboratories.

Among respondents who have ever been tested for HIV, 48.7% (55.8% in 2015) had been tested one year or more prior to the 2020 FSW survey. 22.6% had been tested during the last 3 months, 17.4% had been tested 3-5 months ago and 11.2%, tested 6-11 months ago. Among those who have been tested one year or more prior to the 2020 FSW survey, 79.1% were found to be HIV negative at the 2020 FSW survey tests.

Table 7  
2020 IBBS Female sex workers  
Interval of time since last HIV test

Last HIV test interval	Point Estimate	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
Less than 3 months ago	22.6%	0.15656	0.29788	2.83	0.0361	67
3-5 months ago	17.4%	0.10928	0.24073	2.97	0.0335	55
6-11 months ago	11.2%	0.07041	0.15092	1.62	0.0205	46
One year or more	48.7%	0.40457	0.56966	2.70	0.0421	170
	100.0%				Total	338

Figure 6  
2020 IBBS Female sex workers  
HIV prevalence, (by interval since last HIV test)



Among those who have ever been tested for HIV, 93.5% (78.9% in 2015) reported they have received their test results, which implies that, roughly 65.5% (49.5% in 2015) of all female sex workers in fact knew their HIV status before the 2020 survey. Among those who have ever been tested for HIV, 6.5% did not find their results, that is, roughly 5.5% of all female sex workers. Among this group, the main reasons for not finding their HIV test results were; still waiting for results, did not have time, still waiting for results, fear of test results, found the testing location inconvenient and those who did not find the importance of results.

Out of those who had received their HIV test results, 14.6% were found to be HIV positive at the 2020 FSW survey laboratory results. Among this group, 89.2% had medical follow with almost all of them on ARV, 7.1% never had any medical follow up and 4.0% had stopped medical follow up. For those who did not receive their HIV test results, 52.6% (n=26) were tested positive with HIV at the 2020 FSW survey laboratory tests.

The table below displays the reasons why female sex workers never had an HIV test before the 2020 IBBS survey.

Table 8  
2020 IBBS Female sex workers  
Among those ever been tested against for HIV  
Reasons for not having HIV tests.

Reasons for not having HIV tests.	Point Estimate	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
Didn't know where to go	38.90%	0.27177673	0.51159166	2.0709	0.061178	41
No risk; always use a condom	18.60%	0.12021468	0.24683658	0.906	0.032302	31
Afraid someone would know my results	12.70%	0.06295692	0.18683885	1.1849	0.031603	20
Do not really care about HIV infection	8.10%	0.01422574	0.14654314	2.0076	0.033755	12
Negative health workers attitude	0.30%	-0.00027659	0.00478044	0.0871	0.00129	1
Testing location inconvenient to access	0.10%	0.00001552	0.00158845	0.0172	0.000401	1
Other	21.30%	0.10357507	0.32933281	2.5992	0.057592	20
					Total	126

## 5.7 Alcohol and drug use

### 5.7.1 Alcohol consumption by female sex workers

Around half, 49.0% C.I (42.4, 55.3) of female sex workers had consumed alcohol in the past four weeks preceding the 2020 IBBS FSW survey, as compared to two third in 2015. Fifty percent of female sex workers were drinking alcohol one or two days weekly, while 12.8% were consuming alcohol daily.

Alcohol consumption was rather similar across age groups, however, although SPSS unadjusted data showed no statistical association at 5% level between alcohol and civil status (Chi Square 8.277, df=4, P value=0.082, n=476), adjusted data from RDS Analyst showed that alcohol consumption among widows was twice higher than among married respondents, that is, 61.8% against 33.7% respectively. In fact, the P value of 0.82 indicates a confidence level of 91.8% that there is an association

Figures 7 and 8 below give detailed prevalence of alcohol consumption by civil status and district of residence respectively. District-wise Black River and Grand Port showed alarming prevalence of alcohol consumption.

Figure 7

2020 IBBS among Female Sex Workers  
Alcohol consumption, by district of residence of FSW

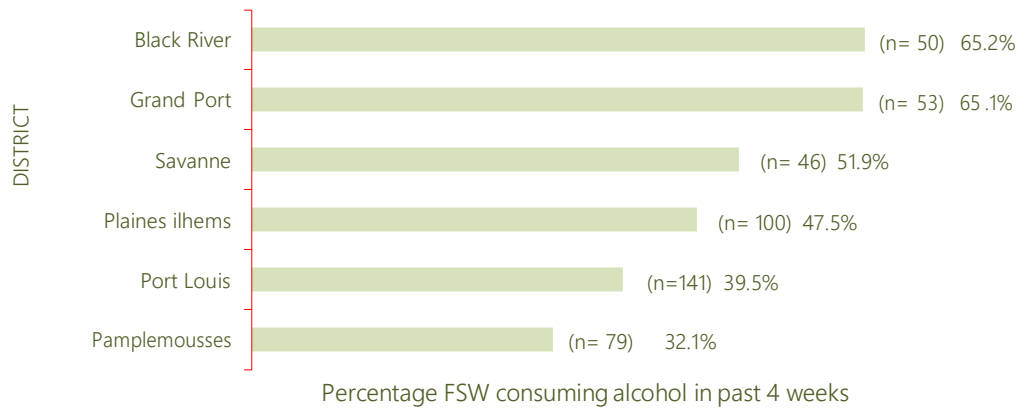
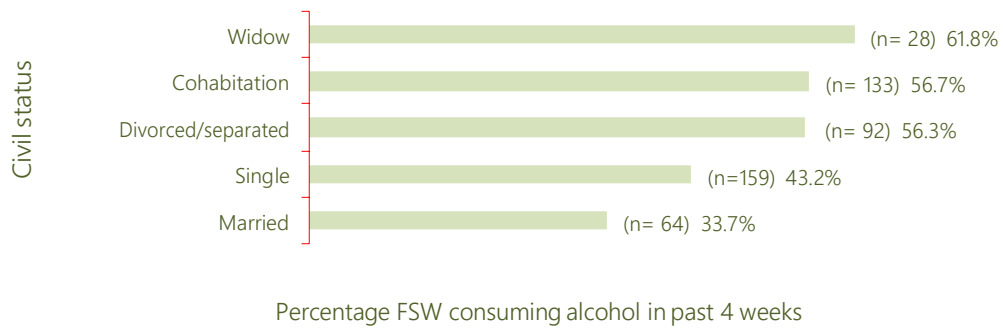


Figure 8

2020 IBBS Female sex workers  
Alcohol consumption, by Civil status of FSW



### 5.7.2 Non-injecting drug use

24.8% c.i (19.5, 30.1) of female sex workers had ever used non-injecting drugs, out of whom, 86.2% had used non-injecting drugs in the last three months preceding the 2020 FSW survey.

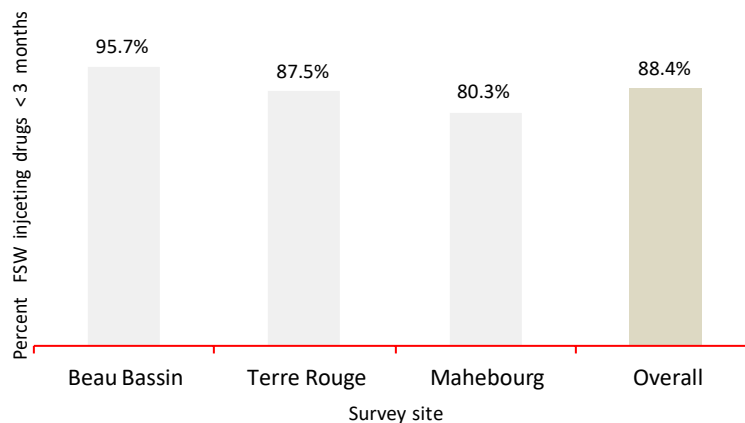
Among female sex workers who had used non-injecting drugs in the last three months, the non-injecting drugs used, were cannabis, 52.8%, synthetic drugs, 35.6%, methadone, 18.1%, cough mixture, 13.5%, codeine, 13.5%, tranquilizers, 12.5% and tramal, 6.3% among very few other drugs, such as ecstasy and sniffing, 2.5% combined.

### 5.7.3 Injecting drug use

#### 5.7.3.1 Injecting practices

17.6% c.i (13.2, 21.8) of female sex workers had ever used injecting drugs as compared to 21.2% in 2015. Among those who had ever injected drugs, 88.4% had injected drugs in the last three months preceding the 2020 FSW survey. Among those who reported injecting illicit drugs in the past three months, almost all reported they injected essentially heroin.

Figure 9  
2020 IBBS Female sex workers  
Among those who ever injected drugs  
% Female sex workers on drug injection in last 3 months  
by survey site



Among those who injected drugs in the last three months, 70.3% of FSW injected drugs on a daily basis, whereas, 18.8% injected on a few days weekly, 3.0% injected on a single day weekly, 3.1% injected once in two weeks, 3.1% once a month and 3.1% once in last three months.

Among those who reported having injected illicit drugs in the past three months, 12.0% c.i (2.6, 20.3) had shared needles at the last time they injected, as compared to 30.0% in 2015.

### 5.7.3.2 Awareness among FSW about services for people who inject drugs

In the last three months, 75.7% of respondents who injected drugs were aware of services available for people who inject drugs, as compared to 80.0% in 2015. In 2020, 56.4% of female sex workers who injected drugs, in the last three months before the survey, were benefitting of the services of the Needle Exchange Programme (NEP), as compared to 54.3% in 2015. This gives roughly about 9% of overall female sex workers who were on the NEP. Among injectors, 45.6% were receiving methadone in 2020 compared to 35.7% in 2015. Around 1.0% was taking advantage of rehabilitation centres services.

## 5.8 Status of infectious diseases among female Sex workers (HIV, Hepatitis B & C and Syphilis)

### 5.8.1 Co-infection analysis among female sex workers

Inexorably, female sex workers are exposed to sexually transmitted infections. The human immune deficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV) and Syphilis are the frequent diseases commonly transmitted among this community. Past IBBS surveys in Mauritius have demonstrated that unsafe sex, multiple sexual partners and drug injection risky behaviors, are among the main reasons of high transmission rates of STIs among this key affected community.

In 2020, through the IBBS study laboratory tests, nearly two third of female sex workers, 66.9%, C.I (60.8, 72.9), were found free from any infections regarding four pathogens, namely, HIV, Hepatitis viruses (B or C) or Syphilis, against 33.1% sex workers infected with respectively one or more of these four pathogens.

19.0% C.I (14.8, 23.8) of female sex workers were respectively concerned with only one specific infection, that is, they were individually tested positive with either HIV only or Hepatitis C only or Syphilis only. No Hepatitis B infection was detected in the Female Sex Workers 2020 IBBS study.

11.5% of female sex workers were respectively tested positive with two-disease co-infection, which means that they were either cases of the following respective co-infections; HIV-Hepatitis C, 7.0% C.I (4.8, 9.2), HIV-Syphilis, 5.2% C.I (2.7, 7.7) and Hepatitis C-Syphilis, 7.4% C.I (4.9, 10.0).

Finally, 2.7% female sex workers had three types of infections, that is, HIV, hepatitis C and syphilis.

Figure 10  
2020 IBBS Female sex workers  
Co-infection among Female Sex Workers  
HIV and/or Hepatitis and/or Syphilis

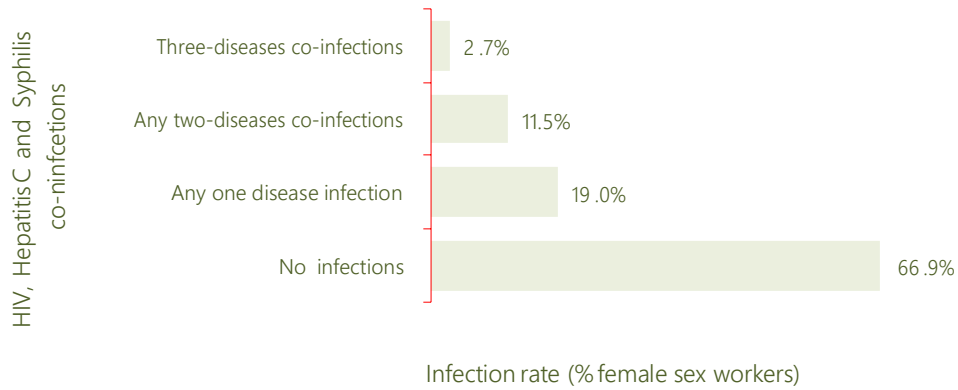


Table 9  
2020 IBBS Female Sex Workers  
Estimate for HIV, Hepatitis C and Syphilis co-infections

Co-infections	Point Estimate	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
No infections	66.9%	0.60783	0.72892	2.44	0.0309	280
Any one disease infection (HIV or Hepatitis C or Syphilis)	19.0%	0.14127	0.23836	2.26	0.0248	95
Any two-disease co-infections (HIV-Hepatitis C or HIV-Syphilis or Hepatitis C-Syphilis)	11.5%	0.08012	0.14926	1.73	0.0176	76
Three-disease co-infections (HIV and Hepatitis C and Syphilis)	2.7%	0.01320	0.04103	1.08	0.0071	25
TOTAL	100.0%					Total sample size 476

Female Sex Workers infected with at least one disease = 33.1%(HIV or Hepatitis C or Syphilis)

Table 10  
Female Sex Workers, 2020  
Estimate for HIV-Hepatitis C co-infection

	Point Estimate	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
Not co-infected	93.0%	0.90797	0.95230	1.11	0.0113	414
Co-infected	7.0%	0.04770	0.09203	1.11	0.0113	62
						Total sample size 476



**Table 11**  
**Female Sex Workers, 2020**  
**Estimate for HIV-Syphilis co-infection**

	Point Estimate	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
Not co-infected	94.8%	0.92309	0.97300	1.86	0.0127	442
Co-infected	5.2%	0.02700	0.07691	1.86	0.0127	34
Total sample size						476

**Table 12**  
**IBBS Female Sex Workers, 2020**  
**Estimate for Hepatitis C-Syphilis co-infection**

	Point Estimate	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
Not co-infected	92.6%	0.90015	0.95141	1.41	0.0131	421
Co-infected	7.4%	0.04859	0.09985	1.41	0.0131	55
Total sample size						476

## 5.8.2 HIV infection among female sex workers

### 5.8.2.1 HIV infection, by region

The 2020 IBBS study showed that HIV prevalence among female sex workers was 14.3%, C.I (10.0, 18.5) out of a sample size of 476 respondents. Among the three survey sites used, Mahebourg site showed the highest HIV infection rate with 15.4%, while HIV prevalence was 14.3% at Beau Bassin site and finally at Terre Rouge site, HIV prevalence was 11.3%. As mentioned earlier, Terre Rouge survey site recruited half of its respondents from the district of Port Louis and one third from the district of Pamplemousses with a few from Plaines Wilhems and Black River, 11.2%. HIV infection among female sex workers is no longer predominantly in the district of Port Louis, but has intensified its grasp in the southern region.

Table 13  
2020 IBBS Female sex workers  
Estimate for HIV

	HIV Prevalence)	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
Negative	85.7%	0.8148	0.8997	2.16	0.0216	389
Positive	14.3%	0.1003	0.1852	2.16	0.0216	87
						Total 476

Figure 11  
2020 Female Sex Workers  
HIV prevalence  
by Survey site

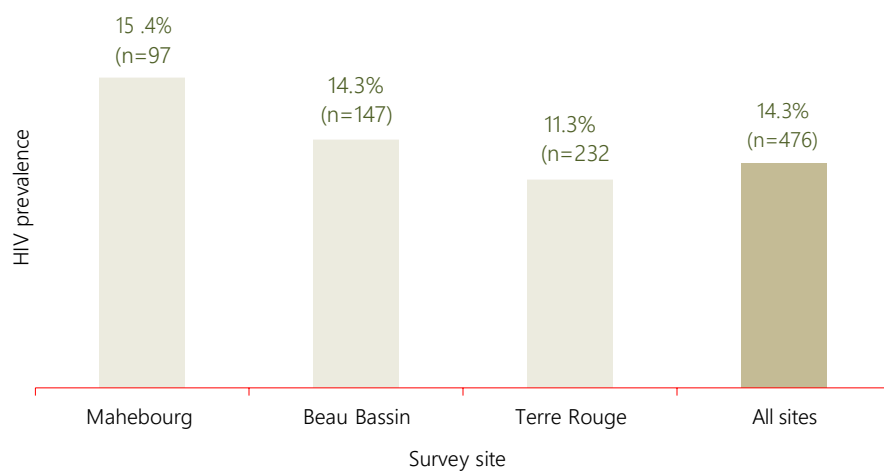
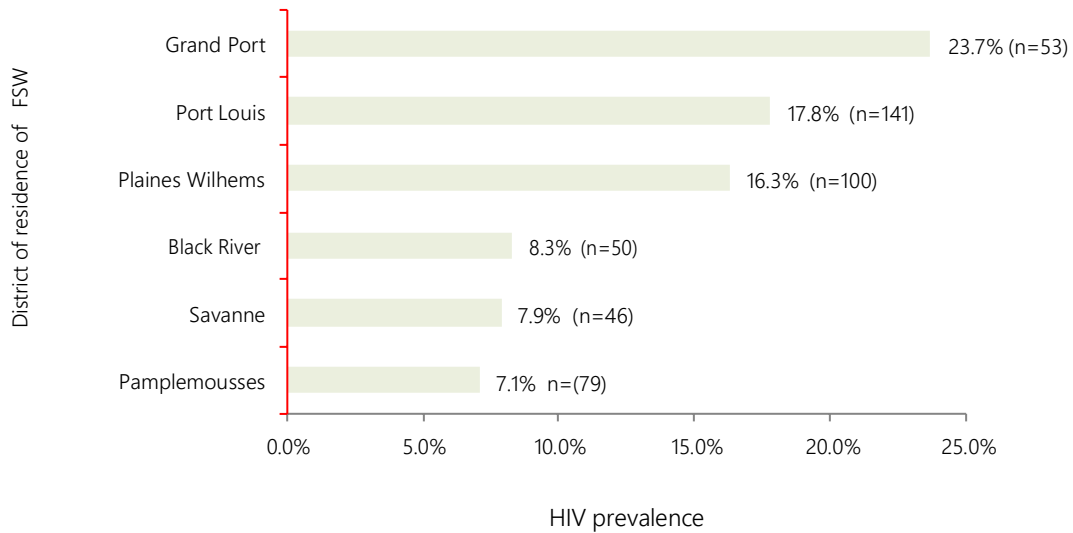


Figure 12  
2020 IBBS Female Sex Workers  
HIV prevalence  
by district of residence



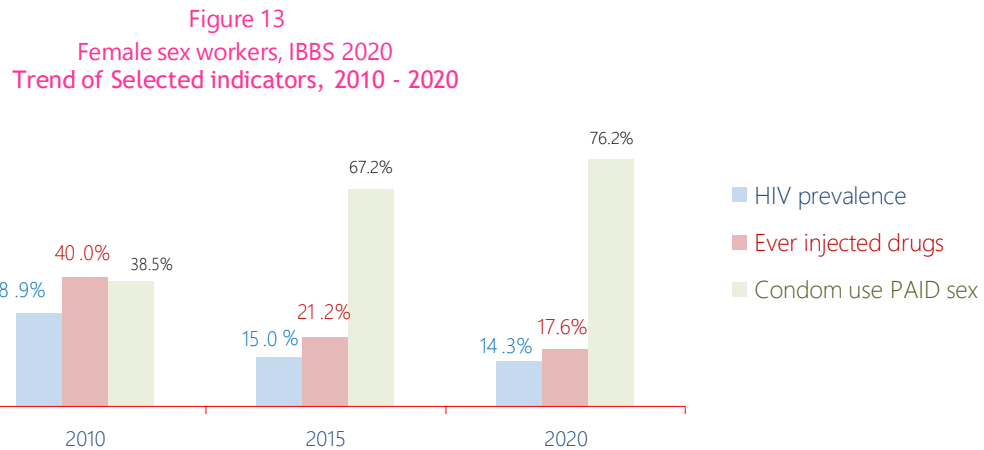
#### 5.8.2.2 Trend of HIV infection among female sex workers and main improvement factors

HIV prevalence among female sex workers has decreased by 51% between 2010 and 2020 from 28.9% to 14.3% respectively. In 2015 HIV prevalence was 15.0%, such that, HIV prevalence decreased by 4.7% during the last five years 2015-2020 as compared to a percentage decrease of 48.1% to the previous five years between 2010-2015.

There are many contributing factors that could possibly explain the general improvement of the HIV epidemic among female sex workers, but two factors need to be mentioned. The resulting decrease in HIV prevalence among female sex workers is in fact largely attributed, firstly, to the impact of the Harm reduction program set up in 2006 by the Ministry of Health and Wellness. It is well documented that a significant proportion of female sex workers in Mauritius were drug injectors; 40.0%, 21.5% and 17.5%, in 2010, 2015 and 2020 respectively, which implies, a percentage decrease of 56.3% of drug injection practices among this group, during the last ten years. It is to be noted that HIV prevalence among all people who inject drugs in the country (men and women) has decreased by 37.2% between 2009 and 2017 (IBBS surveys), from an infection rate of 51.6% to 32.4% respectively. Furthermore, the 2020 IBBS survey has shown that HIV prevalence was only 10.6% among FSW who had never injected drugs against 30.9% among drug injecting FSW (See paragraph 4.8.2.4 below).

The second factor having played a strong role in alleviating the burden of HIV infections among female sex workers is the relentless condom distribution management and execution program among this HIV key-affected group. IBBS surveys have exposed the fact that condom use has increased by nearly 100% in the last ten years 2010-2020 among female sex workers, that is, from 38.5% to 76.2% respectively.

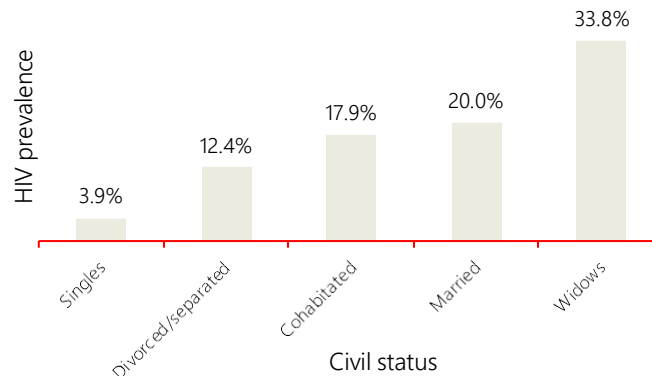
Finally, in-depth analysis of HIV-related mortality should be carried to out to further enlighten the pattern of improvement during the last ten years.



### 5.8.2.3 Age and civil status of HIV infected female sex workers

As regards HIV and the civil status of female sex workers, in 2015, infection risk was higher among widows, with a HIV prevalence of 34.3% and in 2020 the same tendency was observed with a corresponding prevalence of 33.84% (n=28) among this group. In 2020, never-married singles presented themselves as the lowest HIV-affected group with only 5.4% (n=159) HIV infection. It was 3.9% among this group in 2015.

**Figure 14**  
2020 IBBS Female Sex Workers  
HIV prevalence, by Civil status of FSW



HIV prevalence by age group of female sex workers showed that HIV infection varied among the different age groups, ranging from the lowest prevalence of 0.6% (n=77) among teenagers 15-19 years, to the highest prevalence of 36.1% (n=57) among those aged 50 years and above. HIV prevalence was also particularly high among those aged 25-29 years 22.2% (n=65), but was only 7.0% (n=87) among the 20-24 years.

**5.8.2.4 Other aspects of HIV infection among female sex workers**  
 [HIV infection and condom use, sexual partners, injecting drug use and access to care and HIV detection test]

It was observed that the prevalence of HIV was relatively high among female sex workers living with their respective husbands, 23.3%, as compared to 8.0% for those who were with their respective parents/siblings or those living alone, 6.3%. High HIV prevalence was also noted for female sex workers living respectively with a male partner, 16.7%.

Also, the number of sex clients had to some extent influenced the severity of HIV infection among female sex workers. In fact, HIV infection ranged from the lowest rate of 8.4% among those having 2-4 paid sex partners in the last three months, to the highest HIV infection rate of 46.2% for those who had only one sex partner in the same period. See Table 16 below for details on HIV prevalence by number of paid sex partners per female sex worker.

**Table 14**  
**2020 IBBS Female sex workers**  
**HIV prevalence, primary living persons of female sex workers**

<b>Primary living person/s</b>	<b>HIV prevalence (%)</b>	<b>Sample size</b>
Husband	<b>23.3</b>	58
Male Partner	<b>16.7</b>	121
Parents/Siblings	<b>8.0</b>	150
Alone	<b>6.3</b>	91

**Table 15**  
**2020 IBBS Female sex workers**  
**HIV prevalence, by number of paid sex partners in the last three months**

<b>No. of paid sex partners</b>	<b>HIV+ (%)</b>	<b>Sample size</b>
One only	<b>46.2</b>	16
2-4	<b>8.4</b>	152
5-9	<b>16.7</b>	135
10-19	<b>12.4</b>	107
20 partners or more	<b>15.6</b>	66
Total	<b>14.3</b>	476

HIV prevalence was 30.9% among FSW who have ever used injecting drugs and 10.6% among those who have never used. In fact, among all HIV positive FSW, 37.5% had ever injected drugs against 13.7% injectors among negative HIV infected FSW.

As given earlier, 76.2% of FSW had used condom at their respective last-time paid or non-paying sex. Among this group, HIV prevalence was 14.9% (n=383) against 11.0% (n=93) for those who did not use any condom. Considering paid sex only, the HIV prevalence was 14.5% (n=389) for those who had used condom the last time they had paid sex, while correspondingly it was 12.5% (n=87) among FSW who did not use condom.

Only 53.1% (n=225/411) of FSW had used condom the last time they had sex with non-paying partners and among them the HIV prevalence was 15.9% (n=225) against 14.2% (n=186) for those who did not use any condom. For those who have ever used a female condom, 21.2% (n=117/476), HIV prevalence was 11.3% against 14.8% for those who have never used.

Among 48.8% (n=170) of FSW who had their respective last HIV tests one year or more ago, the HIV prevalence was 23.0% as compared to an HIV prevalence of 6.9% among those who had the last HIV tests in less than 3 months preceding the 2020 survey. HIV prevalence was around 29.2% for those with the last HIV test done 3-11 months ago.

Among the 66.1% of FSW who have ever had an HIV test, HIV prevalence was 19.6% against an HIV prevalence of 2.6% among those who have never had an HIV test. In fact, among HIV infected FSW (14.3%), only 6.3% have never had an HIV test before the 2020 FSW IBBS survey, while, among FSW who were tested negative with HIV (85.7%) at the 2020 survey, 38.7% have never had an HIV test before.

16.3% of FSW who had correct knowledge of HIV transmission was infected with HIV against 11.5% among those who had incorrect knowledge. Conversely, among those who have ever had an HIV test, 58.5% had correct knowledge about HIV transmission against 51.2% correct knowledge among those who had never been tested for HIV.

### 5.8.3 Hepatitis C infection among female sex workers

In 2020, 19.9% CI (15.5, 24.3) of respondents were tested positive with Hepatitis C, as compared to 24.6% in 2015, that is, a percentage decrease of 19% for the same period. Previously, between 2010 and 2015 Hepatitis C had decreased by 44%. Among HIV positive FSW, 42.2% were tested positive with Hepatitis C, as compared to 39.2% in 2015. Among female sex workers who have ever injected drugs, 81.1% (83.4% in 2015) were tested with Hepatitis C, against 6.6% (4.7% in 2015) hepatitis C subjects among those who never injected drugs and almost the same respective rates and patterns were observed in 2015.

Observation by survey site shows that Hepatitis C was more prevalent at Beau Bassin survey site, 25.8%, compared to Terre Rouge site and Mahebourg site, that is, 16.1% and 16.9% respectively.

Table 16  
2020 IBBS Female sex workers  
Estimate for Hepatitis C

	<b>Hepatitis C prevalence</b>	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
Negative	80.1%	0.7549	0.8463	1.93	0.0233	334
<b>Positive</b>	<b>19.9%</b>	0.1537	0.2451	1.93	0.0233	142
					Total	476

#### 5.8.4 Syphilis among female sex workers

15.8% of female sex workers were found with syphilis or with a history of syphilis. Syphilis was relatively less prevalent at Mahebourg survey site, 9.3% as compared to Terre Rouge, 15.1% and Beau Bassin, 22.0%. Most of the syphilis cases among female sex workers were co-infected patients, either with HIV or with hepatitis C or both, in addition to syphilis. Roughly 3.2% were infected only with syphilis alone.

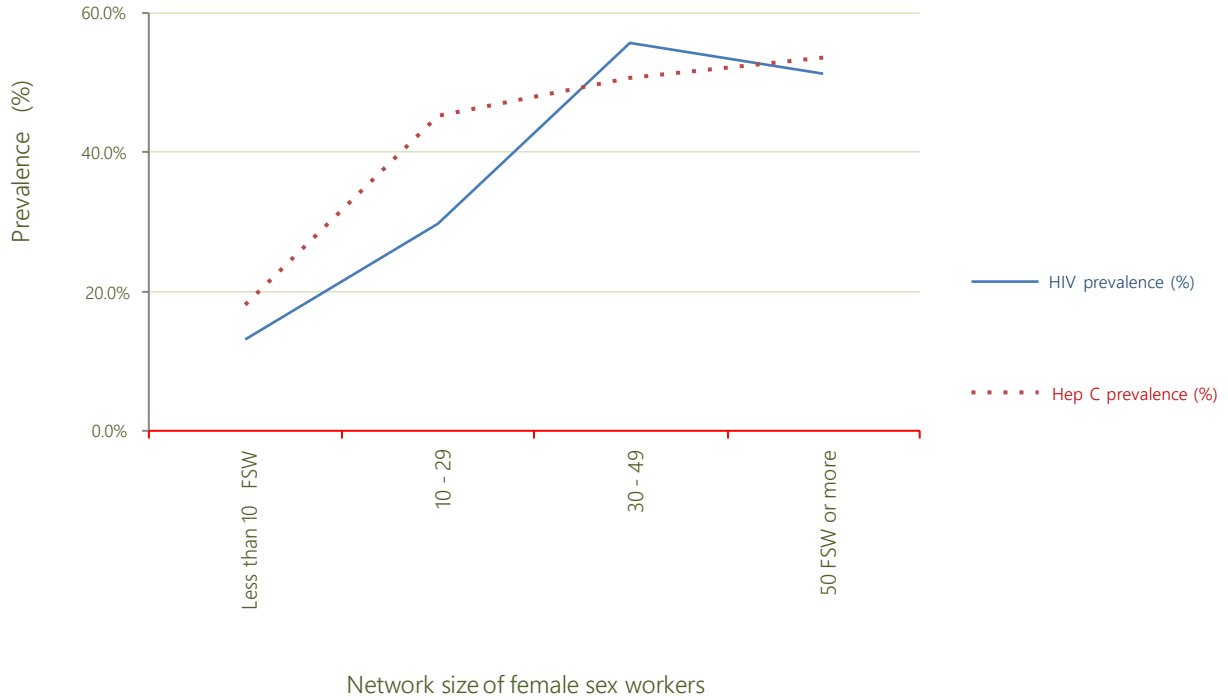
Table 17  
2020 IBBS Female sex workers  
Estimate for Syphilis

	<b>Prevalence of syphilis</b>	95% Lower Bound	95% Upper Bound	Estimated Design Effect	Standard Error	Sample Size
<b>Positive</b>	<b>15.8%</b>	0.1165	0.2000	1.92	0.0213	93
Negative	84.2%	0.8000	0.8835	1.92	0.0213	383
					Total	476

#### 5.8.5 HIV and Hepatitis C spread in FSW network

The 2020 IBBS survey showed that the severity of HIV virus transmission was higher within larger network sizes of female sex workers. For instance, HIV prevalence ranged from 13.1% in small network sizes of less than 10 female sex workers, to the high HIV infection rate of 55.7% among network sizes of 30 - 49 female sex workers. The same pattern was observed for hepatitis C. See Figure 14 below. It is to be noted that, as already mentioned earlier in paragraph 5.1.4, 47.5% of FSW were associated with network sizes of less than 10 FSW and 35.9% with network sizes of 10-29 FSW.

Figure 15  
 2020 IBBS Female sex workers  
 HIV and Hepatitis C prevalence, by size of FSW network



### 5.9 Personal stigma, discrimination, violence and arrest

65.9% of respondents reported they have never had problems of stigmatization related to sex work, as compared to 72.8% in 2015. On the other hand, 27.2% reported they were verbally insulted because of the nature of their sex work. 12.3% (16.7% in 2015) have been forced to have sexual intercourse in the last 12 months preceding the 2020 FSW survey, mainly by sex clients and sexual partners. 5.2% reported they were refused jobs, 1.1% were refused police assistance and 0.7% refused public health services. 8% have ever been arrested by Police for drug, violence, larceny and sex work.



## 6 General observation and recommendations

### 6.1 The remarkable HIV-related status improvement during the last ten years

During the last ten years 2010-2020, Mauritius has made a considerable progress in controlling and reducing the proliferation of sexually transmitted infections, as well as, in the management of STIs behavioral risks. Prevalence of HIV and hepatitis C among female sex workers, and the prevalence of FSW who inject drugs, respectively dropped by more than 50% during the period 2010 -2020. During the last ten years, for HIV, hepatitis C and drug injection among female sex workers, on average 85% of the progress made during the last ten years have in fact been observed during the first five-year period 2010- 2015, against 15% in the second five-year period 2015-2020.

Apart from the strong impact of the HIV program put in place, the pattern observed between the past two five-year periods, 2010-2015 and 2015-2020, can also be explained by the influence of factors like deaths and medical treatment provided. It is to be recalled at this stage, that HIV epidemics, like many other diseases, have got their own specific epidemiologic curves or patterns, even if in Mauritius it is known that the harm reduction program, has significantly impacted on the drug injectors population and subsequently impacted on infections among the female sex workers population. In general, the HIV epidemic curve usually moves to a peak at some point of time, because not all members of a key population will be affected, and then gradually follows a more or less “natural” downward trend irrespective of program impact, mainly due to mortality. The degree of the downward trend depends on the intensity of intervention programs, while a gradual increase may occur in some circumstances, especially if response is not appropriate or inadequate.

Though very informative, prevalence statistics have limitations in monitoring trend of diseases. Consequently HIV-related mortality and incidence (new cases) statistics are the two areas where in-depth analysis is vital to complement the IBBS findings in order to enlighten the pattern of progress obtained during the past years.

### 6.2 The drug-use-driven aspect of HIV and hepatitis C epidemics among female sex workers

Injecting drug practice has significantly been present among female sex workers for quite some years back. In 2010, 2015 and 2020, 40%, 21% and 18% of female sex workers were drug injectors. As a result, hepatitis C has been highly prevalent with 44%, 25% and 20% infected female sex workers in 2010, 2015 and 2020, respectively. The fact that during the last decade, both prevalence of hepatitis C and prevalence of FSW who injected drugs, declined to the same extent, that is, -55% and -56% respectively, is clear indication that epidemics of sexually transmitted diseases among female sex workers, namely HIV and hepatitis C, have been and remain drug-use driven. This has been confirmed by the 2020 IBBS data since HIV prevalence was 31% among FSW drug injectors against 11% for HIV positive among FSW non- injectors. In addition, hepatitis C was 81% among FSW drug injectors, but only 7% among FSW non- injectors.

At this stage it is worth mentioning that the national harm reduction program launched in 2006 has a very particular dimension, in the sense that, it has fully incorporated other essential HIV preventive services like condom distribution, counseling and all other elements of the recommended HIV preventive package. The size of the population of people who inject drugs (PWID) has decreased by 40% between 2010 and 2017 (IBBS surveys). In Mauritius, the effectiveness of reduction of sexually infectious diseases among female sex workers still relies heavily on the efficacy of the harm reduction activities.

### 6.3 Protection of the HIV less-at-risk general population

In spite of the substantial drop of 51% observed for the HIV prevalence among female sex workers, in the last ten years, the actual rate of 14% observed in 2020 is still high. Considering other aspects of the national HIV epidemics, such as, antenatal HIV prevalence of around one percent in 2020 and the HIV prevalence of around one percent among subjects aged 15-49 years, the national HIV program should maintain its momentum among the concentrated high-risk population, while allocating significant attention to the evolution of the virus circulation among the less-at-risk general population. The outstanding accelerated progress in HIV and Hepatitis C (above 50%) made during 2010-2015 and the comparatively mitigated progress (5% and 19% respectively) during 2015-2020, is an indication that Mauritius needs to adopt and fully implement a new and strengthened response model to further curb down the epidemic. Many of the new measures (including hepatitis C treatment) to drive a new response model have already been adopted in the National Action Plan 2017-2021 of the Ministry of Health and Wellness. The main thrust of the NAP 2017-2021 is to reduce new HIV infections by providing HIV combination prevention services especially for KPs and implementing activities geared towards achieving the 90.90.90 fast track treatment targets by 2021. The NAP 2017-2021 also aims to strengthen health and community systems that will enable the achievements of the 90.90.90 fast track targets.

It is also recommended to have an integrated HIV services for people living with HIV, hepatitis c and other sexually transmitted infections.

### 6.4 Young girls in high-risk environment

For ethical reason, IBBS studies in Mauritius survey female sex workers who are aged 15 years or more. However, the 2020 IBBS survey has exposed the fact that nearly one quarter of female sex workers start the first sexual experience while still being in the age group 10 – 14 years. Although prevalence of HIV was as low as 3.0% among teenage female sex workers, there is need to consider monitoring closely infectious disease risk and intensifying sexually-transmitted-disease program interventions among young girls in most-at-risk environment.

### 6.5 Alcohol consumption

Alcohol consumption was quite significant among female sex workers in all geographical regions where they were residing, however a few districts showed critical alcohol consumption, such as, Black River, Grand Port and Savanne. The study could not establish whether the relatively higher and important alcohol consumption among female sex workers, was associated to a generalized alcohol problem in those geographical areas. There is need to address this situation among the female sex workers concerned, to increase their participation and adherence to HIV programs, as it is well-known that alcohol consumption can mitigate compliance to HIV education and counseling efforts and thus be a detrimental factor for the efficacy of intervention programs. In addition, alcohol may interfere with the effectiveness of medical treatment.

A similar observation was made regarding alcohol among widows, those in cohabitation and divorced/separated female sex workers, as compared to lesser consumption among singles and married couples.

## 6.6 The upsurge of syphilis among female sex workers

In 2010, when HIV prevalence was 29%, prevalence of syphilis was then at only 5%. Ten years later in 2020, a quite different pattern was observed, syphilis infection among female sex workers had reached the rate of 16%, that is, slightly more than the HIV infection rate of 14%. With this tendency, syphilis could become one of the most prevailing infectious diseases among female sex workers in Mauritius.

## 6.7 Condom use

Condom use with sex clients is fairly good, 77%, but female sex workers still have difficulties in protecting themselves when are involved in sex with their non-paying partners. Only half of them are protected when having sex with non-paying partners. This situation is a preoccupying one, in the sense that, they also have on average seven sex clients and 23% usually do not use condom with such clients. Low condom use among non-paying partners is a potential channel for spreading the HIV virus in the less-at-risk general population.

## 6.8 Management of co-infections

Roughly, 14% of female sex workers were concerned by co-infections, either with all three pathogens in their bodies, namely, with HIV, hepatitis C and syphilis, or with combinations of two of these three pathogens. This presents an additional difficulty for the sex worker as regards management of medication as well as the ability to fully fulfill the exigencies expected from particular medical treatment schedule and follow up, apart from health complications resulting from the co-infections themselves. With the advent of increasing syphilis rate, protocols for effective management of female sex workers with co -infections should be developed or re-engineered if they already exist.

## 6.9 Monitoring and Evaluation

Monitoring and Evaluation (M&E) Framework as well as M&E Plan needs to be developed and implemented. Ensure data consistency.

## WAY FORWARD

1. Communicate survey results: disseminate the survey results – survey to be uploaded on MOHW website.
2. Share the survey results with staff of AIDS Unit and NGOs involved in the implementation of the HIV programmes. Improvements to be brought in required areas. Discuss how to make changes happen. Dig deeper in survey results.
3. Host group discussions with the respective key population to address immediate and long - term issues.
4. Empower the health care providers to be the change they want to see and get regular feedback from client.