Programmatic Mapping and Size Estimation of Key Populations in Haiti

FINAL REPORT

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LINKAGES
Across the Continuum of HIV Services for Key Populations

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CONTRIBUTORS

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EXECUTIVE SUMMARY

This study was designed to identify and map places where HIV transmission is most likely to occur in Haiti, to estimate the coverage of prevention services at those locations, and to characterize key populations in Haiti including estimating population size, prevalence, and risk factors for HIV. This study is the first of its kind to cover all 10 geographic departments of Haiti. It represents a major effort on the part of the national Ministry of Health and its partners to understand the epidemic of HIV among key populations in Haiti.

Data collection occurred from April 2016 to February 2017. During this period, 2,339 hot spots were identified and mapped and 990 female sex workers (FSWs), 520 men who have sex with men (MSM), and 109 transgender women (TGW) were interviewed and tested for HIV.

Summary of Fieldwork

Artibonite
537 hot spots mapped
182 FSWs interviewed
238 MSM interviewed
29 TGW interviewed

Nord-Est
115 hot spots mapped
44 FSWs interviewed
49 MSM interviewed
13 TGW interviewed

Centre
90 hot spots mapped
0 FSWs interviewed
0 MSM interviewed
0 TGW interviewed

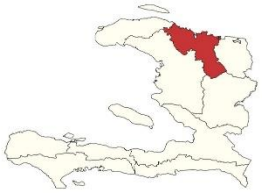
Nord-Ouest
152 hot spots mapped
62 FSWs interviewed
25 MSM interviewed
5 TGW interviewed

Grande-Anse
23 hot spots mapped
7 FSWs interviewed
10 MSM interviewed
5 TGW interviewed

Ouest
1,001 hot spots mapped
529 FSWs interviewed
120 MSM interviewed
39 TGW interviewed

Nippes
49 hot spots mapped
32 FSWs interviewed
21 MSM interviewed
1 TGW interviewed

Sud
92 hot spots mapped
39 FSWs interviewed
20 MSM interviewed
2 TGW interviewed



Nord
110 hot spots mapped
56 FSWs interviewed
23 MSM interviewed
4 TGW interviewed

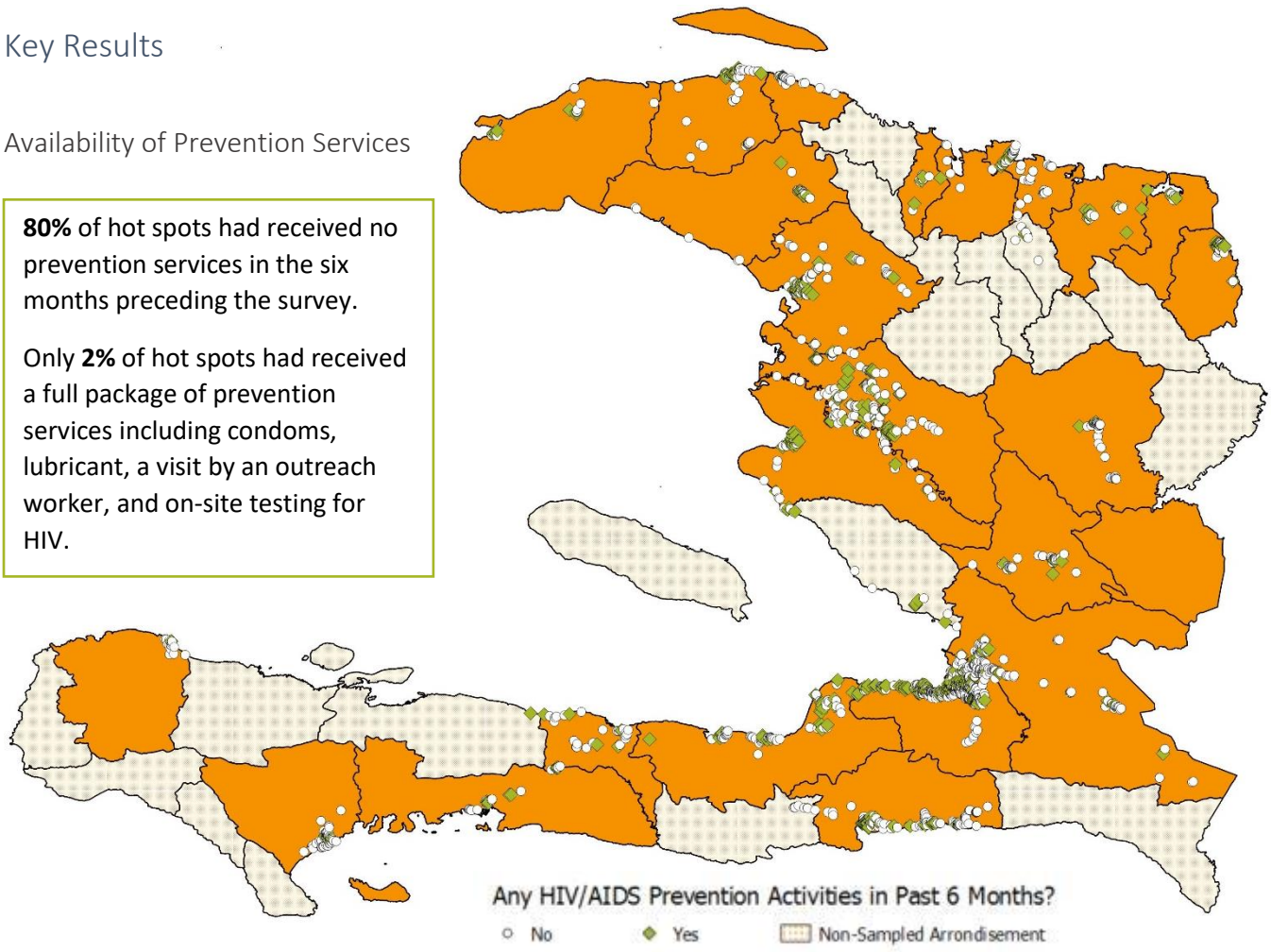
Sud-Est
170 hot spots mapped
44 FSWs interviewed
14 MSM interviewed
11 TGW interviewed

Key Results

Availability of Prevention Services

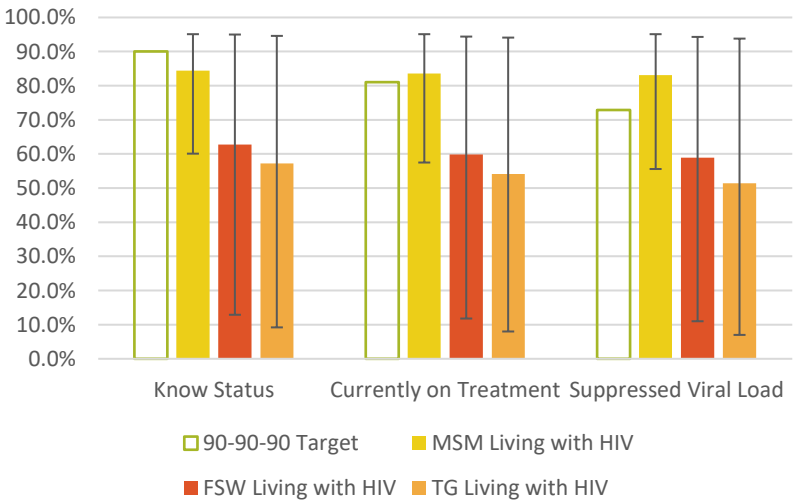
80% of hot spots had received no prevention services in the six months preceding the survey.

Only **2%** of hot spots had received a full package of prevention services including condoms, lubricant, a visit by an outreach worker, and on-site testing for HIV.



HIV Prevalence and Treatment Cascade

Of the **183** people living with HIV (PLHIV) identified by PLACE, **two out of three** did not know their status. The graph below shows the estimated treatment cascade among key populations living with HIV. The error bars represent 95 percent confidence intervals.



HIV Prevalence among Key Populations in Haiti

FSWs	**7.7%** *(6.4–9.3%)*
MSM	**2.1%** *(0.3–12.5%)*
TGW	**27.8%** *(4.5–76.0%)*

An estimated 40,400 female sex workers and 38,300 men who have sex with men can be reached by programs in Haiti.

BACKGROUND

HIV in Haiti

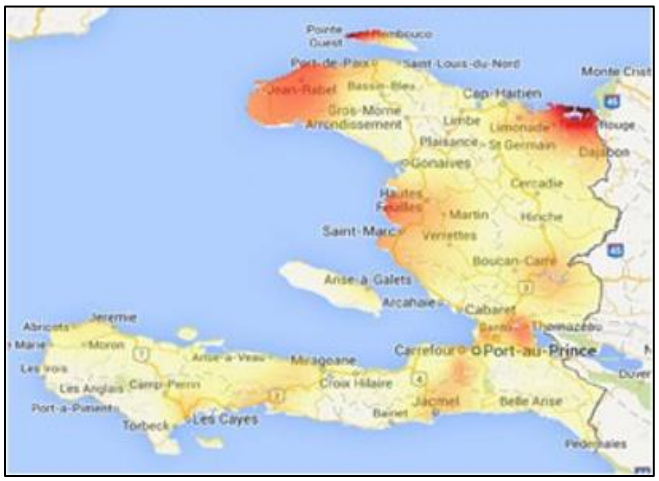
Haiti was one of the first countries in the Western Hemisphere to be affected by HIV. The first 11 likely cases were reported in 1982. Sixty-one cases of AIDS were retrospectively identified, the earliest of which was diagnosed in June 1979.

The initial introduction and spread of the virus was associated with homosexual intercourse, but the epidemic quickly generalized. Heterosexual intercourse has been the primary mode of transmission in Haiti since 1985 (Koenig et al. 2010, pg. 2).

According to sentinel surveys conducted among pregnant women, the prevalence of HIV peaked and then began to drop off in the 1990s (Koenig et al. 2010, pg. 2). Estimated at 10 percent in urban areas and 3 percent in rural areas in 1992, prevalence declined to 2.2 percent by the time of the first national household survey to estimate the prevalence of HIV—the EMMUS-IV conducted in 2005–2006 (Pape et al. 1992, pg. 1536). The EMMUS-V, conducted in 2012, also estimated prevalence at 2.2 percent. UNAIDS estimated national prevalence at 1.7 percent (1.4–2.1 percent) among adults aged 15–49 in 2015 (UNAIDS, 2015). These statistics indicate that HIV prevalence in the general population has remained relatively stable in the last 10 years, although an increasingly disproportionate burden of infection exists among women since 2000, with the case ratio estimated at 2.3:2.0 in 2006 (Koenig et al. 2010, pg. 2).

Today, Haiti has the highest burden of HIV/AIDS in the Caribbean Region. The country represents approximately 25 percent of the population of the Caribbean, but accounted for 71 percent of new infections, 60 percent of PLHIV, and 68 percent of deaths related to AIDS in 2012 (PANCAP 2014, pg. 20-22). In 2014, UNAIDS conducted a spatial analysis of HIV prevalence using data from the EMMUS-V. Arrondisements with estimated prevalence above 3 percent were in the Nord-Est in the arrondisements of Fort-Liberté, Ouanaminthe, and Trou-du-Nord, in the Nord-Ouest in the arrondisement of Mole Saint-Nicolas, and in the Artibonite in the arrondisement of Saint-Marc. The highest absolute number of PLHIV were in Port-au-Prince (UNAIDS, 2014).

Figure 1. Spatial Analysis of HIV Prevalence, Ages 15–49 (Developing Subnational Estimates of HIV Prevalence and the Number of People Living with HIV, UNAIDS, 2014, pg. 7)



Partners In Health (PIH) and the Haitian Group for the Study of Kaposi's Sarcoma and Opportunistic Infections (GHESKIO) were the first organizations to provide access to antiretroviral therapy (ART) in Haiti. In 2003, the country received grants totaling nearly $400 million from the Global Fund and PEPFAR to develop a national infrastructure for the distribution of ART. In 2012, the percentage of PLHIV enrolled on ART was estimated at 58 percent (PANCAP 2014, pg. 22).

Haiti adopted a universal test and start protocol in July 2016. The country is still highly dependent on external funding to finance ART, and PIH and GHESKIO still care for about two-thirds of all patients on ART (Figueroa, 2014). Little is known about the rate of viral suppression among patients on ART, although in a study conducted from 2003-2004, 76 of a subset of 100 patients on treatment at GHESKIO had suppressed viral load at fewer than 400 copies per mL.

Key Populations in Haiti

This section is excerpted from the Mapping Readiness Assessment, a formative assessment conducted to ensure that a PLACE study could be implemented in a way that protects the safety, confidentiality, and well-being of key populations in Haiti. The assessment, which involved structured interviews with key population representatives and other stakeholders, was conducted from October to November 2015.

Men Who Have Sex with Men

In Haiti, homosexuality is highly stigmatized. MSM commonly experience verbal and physical harassment, violence, and social exclusion. They are often rejected by their families and communities or forced to lead double lives to protect themselves. However, the discrimination that individuals experience depends on a variety of factors, most notably social class and geography. MSM who are members of the elite may live in more tolerant communities and have the resources to protect themselves from violence. MSM living in rural areas may be less likely to experience harassment or violence because of the strong social fabric of rural Haiti. Certain areas of the country are known to be more tolerant of MSM, such as the Artibonite Department. Tolerance there may be due to the prevalence of the *vodou* religion, known to embrace homosexuality.

In recent decades the national dialogue about sexual orientation has been greater than in the past, but visibility and violence have increased in parallel. Harassment begins in the nuclear family as parents scold and discipline their children for behavior that does not conform to gender norms. In their schools and communities, homosexual individuals are subjected to harassment and violence, and many young gay men eventually leave home because their families and neighborhoods do not accept them, making this a highly mobile population.

SEROvie and Kouraj, two of the first organizations to work with MSM in Haiti, point toward the earthquake on January 12, 2010, as a turning point for national perceptions and treatment of MSM.

Many evangelists blamed homosexuality for the earthquake and, as a result, many homosexual individuals reported experiencing increased harassment and corrective rape in the months following the earthquake, as detailed in a report by SEROvie and the International Gay and Lesbian Human Rights Commission (IGLHRC 2010).

In 2013, more than 1,000 people participated in an anti-gay protest in Port-au-Prince. The protest was organized by the anti-gay Haitian Coalition of Moral and Religious Organizations. According to the Inter-American Commission on Human Rights (IACHR), 47 physical attacks against LGBT individuals occurred during the week of the protest, including the use of knives, machetes, cement blocks, rocks, and sticks. In some cases, houses were burned down or looted (IACHR 2013).

In 2016, a cultural event organized by Kouraj was cancelled by the Commissioner of Port-au-Prince. The MassiMadi Festival was intended to be a four-day film and art festival hosted by the cultural institution Fondasyon Konesans Ak Libète (FOKAL). A number of prominent politicians called for the cancellation of the festival, saying that it offended societal values. FOKAL received threats of violence in the days leading up to the festival. In an editorial published in *Le Nouvelliste* on September 30, 2016, the minister of communication and culture denied any political motivation behind the cancellation of the festival, claiming that "there is no threat against homosexuals in Haiti" (Garcia 2016). Referring to the fact that there are no laws against homosexuality in Haiti, he claimed that "homosexuals have never needed democracy in order to exist and to thrive." He accused the festival organizers of "looking for trouble" and "forcing [homosexuality] down the throats" of the population. In the weeks following the cancellation, many members of the LGBT community were afraid to gather publicly, and organizations like Kouraj and SEROvie were forced to temporarily suspend their outreach activities.

The social climate of stigma and discrimination against MSM is one of the reasons this group is less likely to receive appropriate prevention services, putting them at increased risk of HIV. Fear of discrimination from health care providers and lack of knowledge among health care providers about anal STIs also makes MSM less likely to seek testing or treatment for HIV and other STIs. Addressing homophobia is therefore an essential part of reducing HIV incidence among MSM.

Female Sex Workers

FSWs can be found working on street corners, at beaches, public parks, and in brothels, bars, hotels, and restaurants throughout Haiti. FSWs may be formal, working full-time in fixed locations, or informal, picking up occasional sex work or receiving gifts in exchange for sex. Formal sex workers are relatively visible, are typically based in brothels, and the threats they face come mostly from their clients and from the police. Informal sex workers, on the other hand, are unlikely to identify as sex workers and may not be reached by organizations that provide services to FSWs.

Although sex work is not illegal in Haiti, the police are known to harass and sometimes abuse FSWs. Sex workers who report sexual violence to the police may be told they were asking for it. In addition, many sex workers are afraid to tell their families that they engage in sex work and, as a result, are forced to keep their work secret. Politicians have worked with the police to shut down brothels to garner public support. Women's rights advocates such as Association Nationale de Protection des Femmes et Enfants Haitiens (ANAPFEH) have suggested that it is necessary to raise awareness about the lived experiences and human rights of FSWs in Haiti. With greater awareness, more sex workers may be able to turn to their families, communities, and law enforcement for support rather than being alienated by society.

Sex work is, by and large, a subsistence activity in Haiti. FSWs who participated in the 2014 Integrated Bio-Behavioral Survey (IBBS) reported making an average of 372 HTG (about US$6) at their last transaction, and 66 percent reported a monthly income of less than 5,000 HTG. In addition, sex workers are vulnerable to violence from their clients, partners, families, and communities. Of the sex workers who participated in the IBBS, 36.6 percent reported being beaten by a sexual partner, and 27 percent had been forced to have sex against their will.

Legal, social, and economic vulnerability remain important barriers to reducing HIV prevalence among FSWs: the lack of legal protections leaves sex workers more vulnerable to violence, discrimination means that they are less likely to access prevention and treatment services, and economic vulnerability leaves them less able to take steps to limit their risk of infection. All these social factors need to be addressed to effectively reduce HIV incidence among FSWs.

HIV Prevalence in Key Populations

Despite recent achievements in controlling the epidemic in the general population, the prevalence of HIV remains elevated among key populations (KPs). Only very recently have epidemiological studies of the prevalence of HIV among KPs been done in Haiti. Among the first were two TRaC studies conducted by PSI in 2006 and 2008, which measured condom use among FSWs. Time/location sampling (TLS) was used to identify and interview FSWs. The interview included questions about risk behaviors and condom use but did not include testing for HIV. These studies were designed to evaluate interventions that PSI was conducting in Haiti to market condoms to FSWs.

In 2011, PSI conducted a modified PLACE study to identify and map hot spots throughout Haiti. The study mapped 813 hot spots, but interviewers had some difficulty identifying ones frequented by key populations. Of the 813, only 42 were reported to be frequented by MSM and 301 by FSWs.

In tandem with this PLACE study, PSI conducted an IBBS in 2011 with the goal of estimating the population size, characteristics, and prevalence of HIV among MSM and FSWs. As a result, confidence intervals around the departmental estimates could not be calculated. It is also likely that the study population was not representative of all FSWs and MSM in Haiti. For example, some study supervisors reported that it was difficult to screen out participants who wanted to participate because of the financial incentive but were not in fact FSWs or MSM.

PSI conducted a second IBBS in 2014. This study was limited to five of the 10 departments of Haiti: the Artibonite, Nord, Nord-Est, Ouest, and Sud. In total, 1,239 complete interviews were conducted with MSM and 1,667 with FSW. HIV prevalence was estimated at 8.7 percent among FSWs and 12.9 percent among MSM. Because the sample was restricted to five departments, these estimates are not necessarily representative of national HIV prevalence among KPs. Table 1 shows prevalence estimates and confidence intervals for each of the five study departments. These estimates were reviewed by technical experts at UNAIDS, who were unable to determine if statistically significant differences in prevalence existed among departments or over time between 2011 and 2014. This could be because the sample sizes in four of the five departments were smaller than the theoretical minimum sample size needed to detect a statistically significant difference (379 per department for FSWs and 306 for MSM). UNAIDS also noted a lack of overlap in recruitment chains in departments with multiple data

collection centers, which violates the assumptions of respondent-driven sampling (RDS). Consequently, the validity of the resulting estimates should be interpreted with caution.

Table 1. HIV Prevalence Estimates Disaggregated by Department (IBBS, 2014)

	FSWs		MSM	
Department	**HIV Prevalence (95% CI)**	**n**	**HIV Prevalence (95% CI)**	**n**
Artibonite	0.14 (0.05-0.24)	241	0.14 (0.07-0.21)	186
Nord	0.15 (0.08-0.22)	258	0.06 (0.02-0.09)	280
Nord-Est	0.03 (0.00-0.08)	166	0.02 (0.01-0.03)	407
Ouest	0.05 (0.03-0.07)	764	0.35 (0.25-0.44)	294
Sud	0.19 (0.00-0.38)	189	0.26 (0.11-0.42)	81

We have limited understanding of the specific factors contributing to the elevated prevalence of HIV among KPs in Haiti. According to the 2014 IBBS, rates of condom use are fairly high among KPs: 72 percent of MSM used a condom with their last male sexual partner, and 89 percent of FSWs used a condom with their last male client. Nearly all study participants knew where to get tested for HIV. The majority had been tested previously, although less than half had been tested in the past three months. The study highlighted the social vulnerability of key populations, which may contribute to the risk of infection. Half of FSWs and 35 percent of MSM reported experiencing physical or verbal abuse because of their status as a KP member. Twenty-nine percent of MSM and 27 percent of FSWs reported ever having been raped.

Given the limited body of evidence on HIV prevalence and risk factors for HIV among KPs in Haiti, this study was designed to provide revised national prevalence estimates, estimation of the treatment cascade, population size estimates, and population characteristics for MSM and FSWs.

Introduction to PLACE

PLACE, which stands for Priorities for Local AIDS Control Efforts, is a methodology developed by MEASURE Evaluation and first implemented in South Africa in 1999. Since then, PLACE has been implemented in more than 30 countries throughout sub-Saharan Africa, Asia, Eastern Europe, Latin America, and the Caribbean. PLACE identifies public venues where people meet new sexual partners and provides information about those locations to local prevention programs for outreach efforts. This list of locations is also used as a sampling frame to reach, interview, and test populations at risk for HIV.

The central tenet of PLACE is that HIV transmission always happens locally, and no two local epidemics are the same. PLACE addresses the challenge of how to tailor prevention programs to local epidemics. PLACE also recognizes the critical role that new sexual partnerships play in the spread of HIV. PLACE identifies the locations where new partnerships form and evaluates the coverage of prevention services at those locations, pinpointing critical gaps in prevention program coverage. People occupying central positions in transmission networks are often members of mobile, stigmatized, and hard-to-reach populations; PLACE utilizes a venue-based sampling methodology to reach these marginalized and hidden populations. PLACE is an ideal research methodology for studies of key populations.

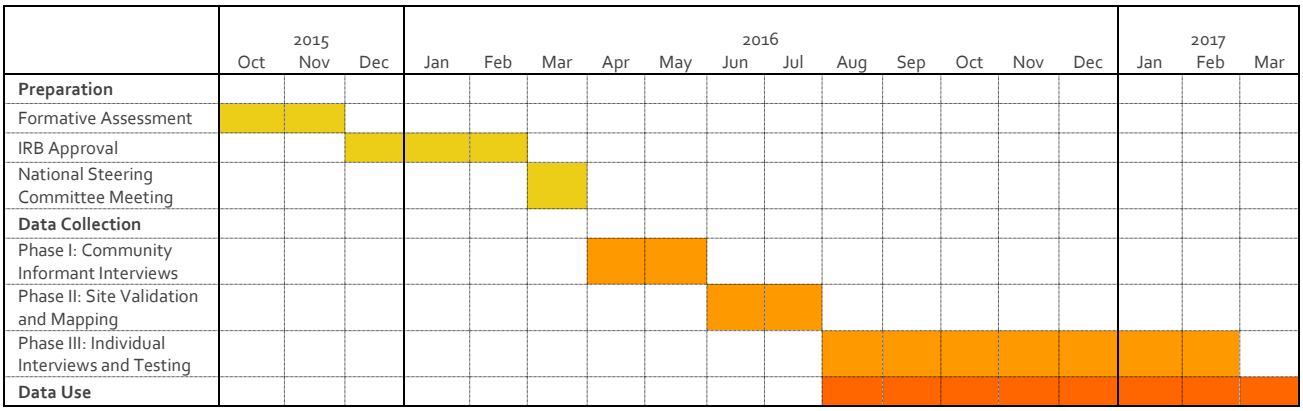
Study Objectives

The specific objectives of this study were to:

1. identify the locations where people, including members of KPs, meet new sexual partners in Haiti
2. map the services currently available at those locations and highlight locations where services should be extended
3. describe the risk factors for HIV among KPs
4. estimate the prevalence of HIV and measure the treatment cascade among KPs
5. estimate the size of KP groups that can be reached by programs to provide a denominator for program coverage

Study Timeline

This study was conducted from October 2015 to March 2017. A broad overview of the study timeline is presented below.



METHODS

The PLACE methodology involves three broad steps: preparation, data collection, and data use.

Preparation

This step included a systematic review of the available evidence, a formative assessment of the potential risks and benefits of the study to key populations, and the appointment of a national steering committee to identify priority geographic areas for inclusion in the study.

First, the available evidence was reviewed to identify gaps and opportunities for generating new knowledge about HIV among KPs in Haiti. UNC identified and reviewed previous studies to assess the availability and quality of HIV prevalence and population size estimates of KPs. Based on this review, LINKAGES identified the need for updated prevalence and size estimates and decided to implement PLACE.

Second, a formative assessment was conducted to identify the potential risks and benefits of a PLACE study to key populations in Haiti. UNC recognizes that collecting information from vulnerable populations, even to improve programs, may pose unintended risks such as breaches in confidentiality or misuse of spatial data. The mapping readiness assessment was designed to systematically identify any such unintended risks and create an action plan for addressing them. The specific objectives of the assessment were to determine whether a programmatic mapping study could be implemented in a way that protects the safety, well-being, and confidentiality of KP individuals and groups, and to develop partnerships with key population service providers and discuss how they might use the study results to improve their programs. The assessment reflects conversations with a wide range of stakeholders including KP representatives, health care service providers, law enforcement officials, and local and regional leaders including government officials. Structured interviews were conducted with key stakeholders between October and November 2015.

Finally, a national steering committee was appointed to review the study protocol and select priority geographic areas for inclusion. The steering committee was convened by UNAIDS and included representatives from the National LGBT Platform, Ministry of Women's Affairs, MINUSTAH, FOSREF, and PSI. The committee determined the criteria by which geographic areas were chosen for inclusion. These criteria are factors thought to be associated with KP size, such as the presence of ports, major roads, tourist attractions, nightlife and vodou peristyles, as well as the prevalence of HIV.

The administrative structure of Haiti is shown in Figure 2. Sampling arrondisements for hot spot identification and mapping would allow for the calculation of KP size estimates and other indicators at the department level. Therefore, arrondisements were scored based on the criteria listed above, and then cutoffs were assigned to sort them into strata of high, medium, and low priority. One hundred percent of high-priority arrondisements and a random sample of 90 percent of medium-priority and 10% of low-priority arrondisements were selected, resulting in a sample of 24 arrondisements for inclusion in PLACE.

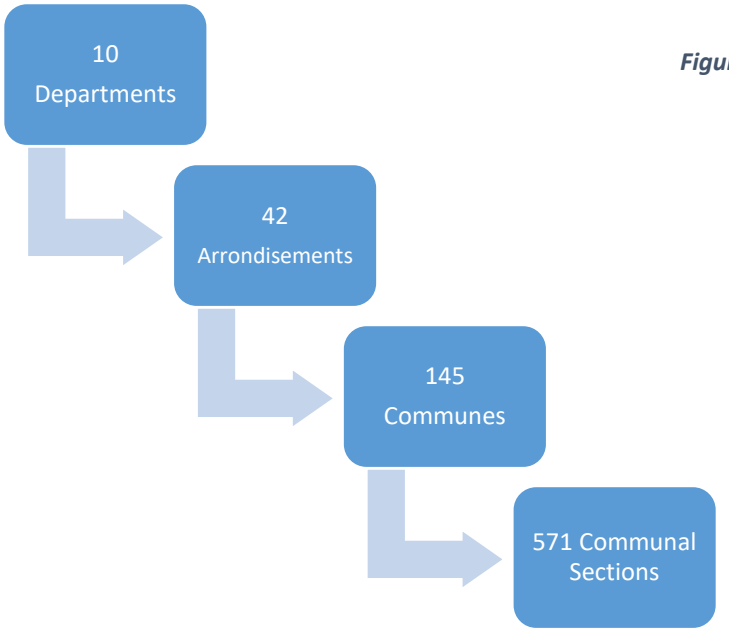


Figure 2. Administrative Structure of Haiti

Data Collection

Data were collected in three phases. In Phase I, data collectors compiled a list of venues where people meet new sexual partners, or hot spots, by interviewing individuals knowledgeable about the community such as local leaders, peer educators, moto drivers, security guards, and street vendors. In Phase II, data collectors visited these hot spots to take geo-coordinates and gather information such as the type of hot spots, number of patrons, hours, amenities, activities, and prevention services available on-site and nearby. In Phase III, interviewers returned to a sample of hot spots to interview individuals working and socializing there and test them for HIV.

Personnel and Training

The study was conducted by UNC staff based in Port-au-Prince and Chapel Hill. Data were collected by 18 interviewers during Phases I and II, and 12 interviewers and 12 nurse-counselors during Phase III. Additional study staff included drivers and community mobilizers during Phase III.

Prior to each phase of data collection, the team received training in research ethics, interviewing techniques, and the study methodology. Each phase of data collection was preceded by field testing of the survey instrument in Port-au-Prince.

Photo: Phase I Training

Study Procedures

Phase I

In this phase, data collectors conducted interviews with community informants to obtain a complete list of venues where people meet new sexual partners, commonly called hot spots, such as bars, nightclubs, brothels, parks, *baz*, and public events such as patron saint celebrations. Each community informant was asked to name up to 10 such hot spots, describe their locations, and provide basic information about the busiest times, number of patrons, and whether any key population members frequent the hot spots.

The objective of this phase of data collection was to capture a complete list of hot spots in sampled geographic areas by talking to a sufficiently large and diverse pool of community informants. Capturing a complete list of hot spots was important for three reasons. First, it would allow us to completely map hot spot activity in selected geographic areas during Phase II. Second, it would allow us to reach individuals at highest risk during Phase III. If the list of hot spots is incomplete, the sample of key populations interviewed would not be representative. Third, population size estimates are extrapolated up to the departmental and national levels based on the sampling frame of all hot spots mapped during Phase II. If a complete list of hot spots is not captured in this first phase, the resulting population size estimates would likely be underestimates.

To ensure that a complete list of hot spots was identified, supervisors divided each geographic area into zones and set criteria for the number of community informants interviewed in each zone. A minimum of 30 community informants were interviewed per population of 50,000. To ensure diverse representation of different types of community informants, supervisors assigned each data collector daily targets for the number and types of community informants to be interviewed. Types of informants included police, street vendors, bartenders, tap-tap and moto-taxi drivers, youth, security guards, individuals socializing at hot spots, hairdressers, community leaders, peer educators, and members of key populations.

Responses were recorded on paper and entered in a database at the end of each day. The data were then cleaned and deduplicated, resulting in a complete list of all unique hot spots in each sampled arrondisement.

> *What is a Hot Spot?*
>
> A hot spot is defined as a venue or event where people meet new sexual partners. Examples of hot spots are bars, nightclubs, brothels, parks, or public events such as patron saint celebrations. Hot spots are places where HIV prevention programs can reach people who engage in behaviors associated with an increased risk of HIV infection, including members of KPs.

Phase II

In this phase, the same team of data collectors returned to validate and map all hot spots identified in Phase I. At each hot spot, data collectors identified a person knowledgeable about the hot spot such as the manager or owner, a regular patron, or someone who lived or worked nearby. The knowledgeable person was a member of a key population whenever such a person could be identified. The data collection tool used in this step was Form B (see Appendix B). This questionnaire obtains information about the location and hours of the hot spot, number and type of patrons, amenities such as electricity and beds on site, and availability of services such as visits by a peer educator, on-site testing, condom distribution, etc. Electronic tablets were used to record responses and collect geo-coordinates, and completed questionnaires were sent directly to a secure server.

Phase III

In this phase, data collectors returned to a sample of hot spots to conduct interviews and rapid testing with individuals working and socializing there. Phase II data were used to select hot spots, oversampling those hot spots where greater numbers of key population members could be found.

First, hot spots were sorted into strata based on the expected yield of KPs. This strategy was used to increase the likelihood of reaching the desired sample size of FSWs and MSM. Hot spots with a high proportion of KP members relative to the total number of male or female patrons were sorted into the high-priority stratum, hot spots with a lower proportion of KP members relative to total patrons were sorted into the medium-priority stratum, and hot spots for which the general site informant reported no KP members were sorted into the low-priority stratum. Then, random interval sampling was used to select hot spots from each stratum. Separate samples were drawn for FSWs and MSM. Thus, each validated hot spot had a chance of being selected as a FSW hot spot, as an MSM hot spot, or as both.

Prior to the arrival of the study team, interviewers met with the owner or manager of each selected hot spot individually to explain the purpose of the study and obtain permission to conduct interviews and testing at that location. Then, a team of interviewers and nurses visited the hot spot at a busy time, set up testing tables in a private and quiet location, and proceeded to interview anyone who was present, eligible, and consented to participate.

At hot spots selected in the FSW sample, all women present at the hot spot were approached; at hot spots selected in the MSM sample, all men were approached; at hot spots selected in both samples, all women and men were approached to participate. Those who consented to participate were screened for eligibility using the following criteria.

Eligibility Criteria

(1) age 15 or older

(2) engaged in *any* of the following behaviors in the past three months

- □ had three or more sexual partners
- □ had anal sex, *OR*
- □ had sex with someone they met at a public festival

These criteria were meant to select for members of key populations as well as other men and women at risk of HIV. We chose this approach for two important reasons. First, it would reduce the risk of backlash from the community or further stigmatization of KPs. Limiting participation to MSM and FSWs would not only label individual participants as KP members but would perpetuate the stereotype that these groups are uniquely responsible for spreading HIV. Second, casting a wider net would reduce recruitment bias. Many members of key populations do not self-identify as such and would not have participated in a study that specifically targeted MSM and FSWs. The use of broad eligibility criteria allowed us to identify KPs based on the specific behaviors they reported during the interview, rather than self-identification as a member of a KP.

The interview was to take place in a quiet and private area within the hot spot. The questionnaire used in this step was Form C (see Appendix C). Responses were recorded on a tablet and sent directly to a secure server. Upon completion of the interview, the participant was assigned a unique identification code and taken to a nurse for pretest counseling. After pretest counseling, the nurse took finger-stick blood for two concurrent rapid tests using SD BIOLINE Syphilis 3.0 and Alere Determine HIV-1/2. After 15 minutes, participants received their test results and post-test counseling. Positive HIV tests were confirmed with a second rapid test: OraQuick was used until October 31, 2016; Uni-Gold was used after the national testing protocol was updated November 1, 2016.

Participants with a positive HIV test result were asked to provide another finger-stick blood sample for viral load testing. A sample of 200 to 250 µl of blood was collected on filter paper, air-dried, and stored at ambient temperature. The dried blood spots were processed using the Abbott RealTime HIV-1 platform by the Virology, Immunology and Microbiology Core at the University of North Carolina.

Referral forms were completed for all participants with positive HIV tests. Participants were referred to the nearest facility providing free antiretroviral treatment; in some cases, these were public hospitals and in others were LINKAGES-supported local nongovernmental organizations (NGOs) providing KP-friendly treatment services, such as GHESKIO, SEROvie, and FOSREF.

Ethical Considerations

The study protocol was reviewed and approved by the Comité National de Bioéthique as well as by the Institutional Review Board at the University of North Carolina at Chapel Hill. Verbal informed consent was obtained from all study participants. No personal identifying information was collected at any point in the interview process. No biological samples were preserved except for dried blood spots for viral load testing, which were linked to interview data using a randomly assigned study ID number.

Participants were not compensated for their participation. During Phase III, peer educators were often instrumental in helping the data collection team gain access to networks of MSM. These peer educators sometimes provided a safe place in the community where interviews and testing could be conducted without incident. In cases where participants needed to pay for transportation to come to the study site, they were reimbursed, each receiving 150 HTG (about US$3).

For the safety of the study personnel and participants, the national police were notified of the study in advance of data collection. During Phase III, local police commissaries were also notified of the study prior to the start of data collection in their catchment area. This ensured that the field team would have the support of local law enforcement should any threat to their safety or that of participants arise during data collection.

Data Management and Analysis

All study data were stored on a secure server hosted by the University of North Carolina at Chapel Hill. Data were analyzed using Stata 14.

Descriptive population characteristics and prevalence estimates were calculated using survey commands in Stata. This approach accounts for various elements of the survey design, including sampling weights and clustering within strata. Individual sampling weights were calculated to account for the refusal rate. Bivariate associations were examined without survey commands, as the sample size was often too small to allow for stratum-specific population prevalence estimates.

Data from hot spot validation visits and individual interviews were used to calculate the size of KP groups that can be reached by programs at places where people meet new sexual partners in Haiti. These population size estimates are meant to be used as denominators for planning program activities and for estimating the coverage of programs targeting key populations. These estimates are not meant to be interpreted as estimates of the total number of FSWs or MSM living in Haiti.

Size estimates were calculated in three steps. First, crude size estimates were calculated using data from hot spot validation visits. Second, adjustments to these crude size estimates were calculated using data from individual interviews with key population members at hot spots. Third, estimates were extrapolated to geographic areas where data were not collected to determine department-level and national-level KP size estimates.

Step 1. Calculation of Crude Size Estimates

The first estimate calculated is a crude size estimate, which was calculated using data collected from general site informants as part of hot spot validation and mapping. The crude size estimate is equal to the number of KP members present at a hot spot at a busy time—as reported by general site informants—summed across all hot spots in a given geographic area.

The following equation yields crude size estimates for each key population at the arrondisement level, for arrondisements where data were collected.

$$\sum_{h=1}^{H}\left[\frac{\boldsymbol{a_h}}{\boldsymbol{\pi_h}}\right]$$

h = hot spot index
H = number of hot spots frequented by key populations in the arrondisement
$\boldsymbol{a}$ = number of key population members who visit the hot spot at the busiest day and time
$\boldsymbol{\pi}$ = sampling fraction of the hot spot

The sampling fraction of the hot spot ($\boldsymbol{\pi}$) is equal to one (1) because all hot spots identified by community informants were visited for validation.

Crude size estimates were calculated separately with $\boldsymbol{a}$ set to the minimum, the midpoint, and the maximum of the range reported by general site informants.

Step 2. Adjustment of Size Estimates

The crude size estimates were validated and adjusted using other available sources of data, including interviews with key population members themselves and actual counts of the number of key population members present at hot spots. Using all available sources of data ensures that size estimates are as accurate as possible. Four separate adjustment factors were calculated, each of which are explained in detail below.

a) Iceberg Adjustment Factor

One of the reasons it is difficult to estimate the size of key populations is because stigmatized populations are typically not visible to the wider community. The general population may have difficulty identifying whether the male patrons of a certain bar or public park, for example, are MSM. To examine this phenomenon, we looked at hot spots where some of the individuals interviewed were KP members, even though general site informants reported that none of the hot spot patrons were KP members. Using this information, we estimated the number of KP members who were not counted by general site informants in arrondisements where data were collected. The following equation yields adjusted size estimates by arrondisement.

$$CSE_i + \left[\frac{b}{c} * d * x_i\right]$$

CSE = crude size estimate
i = arrondisement index
b = number of hot spots where individual interviews were conducted and at least one KP member was interviewed, despite general site informant report of no KPs
c = total number of hot spots where individual interviews were conducted, and general site informant reported no KPs

d = average number of KP members interviewed at hot spots in *b*
x = number of hot spots where no individual interviews were conducted, and general site informant reported no KPs

These arrondisement-level adjusted size estimates are the ones used in the extrapolation model in Step 3. The resulting department-level size estimates are shown in column (a) of Tables 17 and 18.

b) General Site Informant Bias Adjustment Factor

Interviewing general site informants about the number of KP members present at a hot spot rather than KP members themselves could produce a bias in the resulting size estimates. General site informants may underestimate or overestimate the number of KP members actually present at hot spots. For example, a bar manager may not know that certain male patrons of the bar are MSM or may incorrectly assume that certain female patrons are FSWs. To assess for possible bias, we counted the number of KP members actually present at the hot spot when the study team visited at a busy time for individual interviews and compared this number to the estimate reported by the general site informant. The count of KP members present at the hot spot is based on the self-reported behaviors of participants, rather than the subjective opinion of the general site informant about who is a man who has sex with men or a female sex worker.

Using this approach, we found that general site informants tend to overestimate the number of FSWs present at hot spots, but slightly underestimate the number of MSM. We were then able to adjust for this source of bias by calculating an adjustment factor based on data from the subset of hot spots that were visited for individual interviews and testing. The formula used to calculate the adjustment factor is shown below. One adjustment factor was calculated for each key population, equivalent to the geometric mean of the ratio of the number of key population members who were actually interviewed at the hot spot to the expected number reported by the general site informant.

$$e^{\left[\frac{\sum_{i=1}^{I}\left[\log\left(\frac{a_i}{b_i}\right)\right]}{I}\right]}$$

a = number of key population members interviewed at the hot spot, weighted for refusals
b = number of key population members who visited the hot spot at the busiest day and time, as reported by the general site informant
i = hot spot indicator
I = total number of hot spots visited for individual interviews

The resulting adjustment factor is shown in column (b) of Tables 17 and 18. This adjustment factor can be interpreted as an indicator of how reliably general site informants are able to estimate the number of KP members who visit hot spots. A factor of one (1) means that general site informants, on average, perfectly estimate the number of KP members present at hot spots. A factor less than one means that general site informants tend to overestimate the number of KP members present, and a

factor greater than one means that general site informants tend to underestimate the number of KP members present.

c) Double-Counting Adjustment Factor

We wanted to avoid double-counting individuals who visit multiple hot spots in the same geographic area. Simply summing the hot-spot-specific size estimates across all hot spots in a given geographic area would result in an overestimate of KP size, which is one of the principal limitations of the crude size estimate. The reality is that most people visit multiple hot spots, and some may even visit more than one hot spot per day. To adjust for double-counting, we used data from interviews with KP members themselves about their hot spot visiting behavior.

The following equation was used to calculate an adjustment factor based on data from individual KP interviews.

$$\left(1 - \frac{m}{n}\right) + \left(\frac{m/n}{e}\right)$$

m = number of KP members who visited or planned to visit multiple hot spots on the day of the interview
n = total number of KP members interviewed
e = average number of hot spots KP members in m visited or planned to visit on the day of the interview

To better capture heterogeneity in hot spot visiting behavior by department, this adjustment factor was calculated separately for the Ouest and Artibonite. As the two largest and most metropolitan departments, we found that hot spot visiting behavior was different in the Ouest and Artibonite compared to the smaller and more rural departments of Haiti. The remaining departments were grouped together to take advantage of their combined sample size to obtain a more precise estimate.

This factor can be interpreted as an indicator of how many different hot spots KP members visit per day, on average. A factor less than one (1) means that KP members tend to visit more than one hot spot per day. For example, a factor of 0.5 indicates that, on average, KP members visit two different hot spots per day. If this were in fact the case, we would need to halve the population size estimate to obtain a realistic estimate of the number of unique individuals reachable at hot spots on a given day.

d) Month Adjustment Factor

This adjustment factor is calculated to account for people who visit hot spots occasionally, but not on every single busy day. The result is an estimate of the number of KP members who can be reached in a given geographical area over the course of a month, rather than on a single busy day. This is an important estimate for program planning.

To accomplish this, we calculated an adjustment factor by asking participants about the last time they came to the hot spot where they were interviewed. Each participant was assigned a weight based on how often they come to the hot spot. Then, we took a weighted average of these individual weights to arrive at one adjustment factor for each KP member.

Individual weights are based on the assumption that in a typical month, the total number of busy days is 12. The following table shows how individual weights were calculated based on responses to two questions about hot spot visiting behavior.

How often do you come to this place?		When was your last visit?	Weight
At least 2 or 3 days per week	*AND*	<=7 days ago	1
One day per week	*OR*	8-13 days ago	3
2 or 3 days per month	*OR*	14-29 days ago	6
Once a month or less	*OR*	>=30 days ago	12

Because of the study design, an exception was made for MSM. MSM who said this was their first time visiting the hot spot were excluded from the weight calculation. This is because some MSM were recruited by peer educators to come to the hot spot on the day of the interviews and would not otherwise have visited the hot spot on that day.

This adjustment factor was also calculated separately for the Ouest and Artibonite. Again, as the two largest and most metropolitan departments, hot spot visiting behavior here was different from that of the smaller departments of Haiti.

This adjustment factor can be interpreted as an indicator of how frequently KPs visit hot spots in a particular geographic area, on a scale of 1 to 12. The higher the factor, the less frequently KPs visit hot spots. For example, a factor of three would mean that KPs on average visit hot spots only once per week. This factor is expected to be higher in geographic areas with lower concentrations of hot spots, such as more rural departments.

Step 3. Extrapolation of Size Estimates

Finally, a model was used to extrapolate the arrondisement-level size estimates to areas where data were not collected. This is the final step in obtaining departmental and national KP size estimates.

Specifically, we fit Poisson models of the relationship between various independent variables and KP size, separately for MSM and FSWs. The independent variables are all those variables thought to be associated with KP size, including total population size, the presence of a port, a major road, a tourist attraction, nightlife, or a culturally important area for vodou. The models predict values for KP size based on all these combined factors.

The resulting departmental size estimates are therefore the sum of the observed size estimates for arrondisements where data were collected, and the size estimates predicted by the extrapolation model for arrondisements where data were not collected.

Data Use

Data use is a crucial step of the process of conducting PLACE. The Programme National de la Lutte contre les IST/VIH/Sida (PNLS), a branch of the Ministry of Health, is working with its partners to ensure that the data from this study are used to better characterize the HIV/AIDS epidemic in Haiti and to inform national and local strategies for delivering services to KPs and other groups at risk for HIV.

NATIONAL RESULTS

Selection of Study Areas

A sample of 24 of the 42 arrondisements in Haiti was selected for inclusion in PLACE. Following the methodology described above, the factors considered in the selection process were the following: the presence of ports, major roads, tourist attractions, nightlife and vodou peristyles, and the prevalence of HIV.

Once all arrondisements were scored, cutoffs were assigned to sort them into strata of high priority (score of 5 to 8), medium priority (score of 2 to 4), and low priority (score of 0 or 1). Finally, 100 percent of high-priority and a random sample of 90 percent of medium-priority and 10 percent of low-priority arrondisements were selected for inclusion in PLACE.

The following table shows the arrondisements that were ultimately selected, alongside their scores and sampling probabilities.

Table 2. Arrondisements Sampled for Inclusion in PLACE 2016

Department	Arrondisement	Score	Sampling Probability
Artibonite	Dessalines	6	1
	Gonaives	7	1
	Gros Morne	2	0.9
	Saint-Marc	8	1
Centre	Hinche	2	0.9
	Lascahobas[1]	3	0.9
	Mirebalais	3	0.9
Grande-Anse	Jeremie	2	0.9
Nippes	Miragoane	4	0.9
Nord	L'Acul du Nord	1	0.1
	Cap Haitien	7	1
	Grande Riviere du Nord	2	0.9
Nord-Est	Fort-Liberte	4	0.9
	Trou du Nord	3	0.9
	Vallieres[3]	1	0.1
Nord-Ouest	Mole Saint Nicolas	3	0.9
	Port-de-Paix	5	1
	Saint Louis du Nord	2	0.9
Ouest	Croix des Bouquets	4	0.9
	Leogane	4	0.9
	Port-au-Prince	7	1
Sud	Aquin	2	0.9
	Cayes	5	1
Sud-Est	Jacmel	5	1

[1]Lascahobas and Vallières were ultimately not visited due to lack of accessibility. They were replaced by two other arrondisements with the same priority scores, Ouanaminthe and Limbé.

Phases I and II were implemented in all 24 of the arrondisements sampled for inclusion in PLACE. Phase III was only implemented in priority departments for LINKAGES. These include the six geographic departments directly served by LINKAGES, as well as three additional departments identified as potential areas for the expansion of services to meet the needs of KPs. Only the Centre was excluded from Phase III. The following map shows the 24 arrondisements covered by PLACE, indicating in light orange the three arrondisements in the Centre that were covered only in Phases I and II.

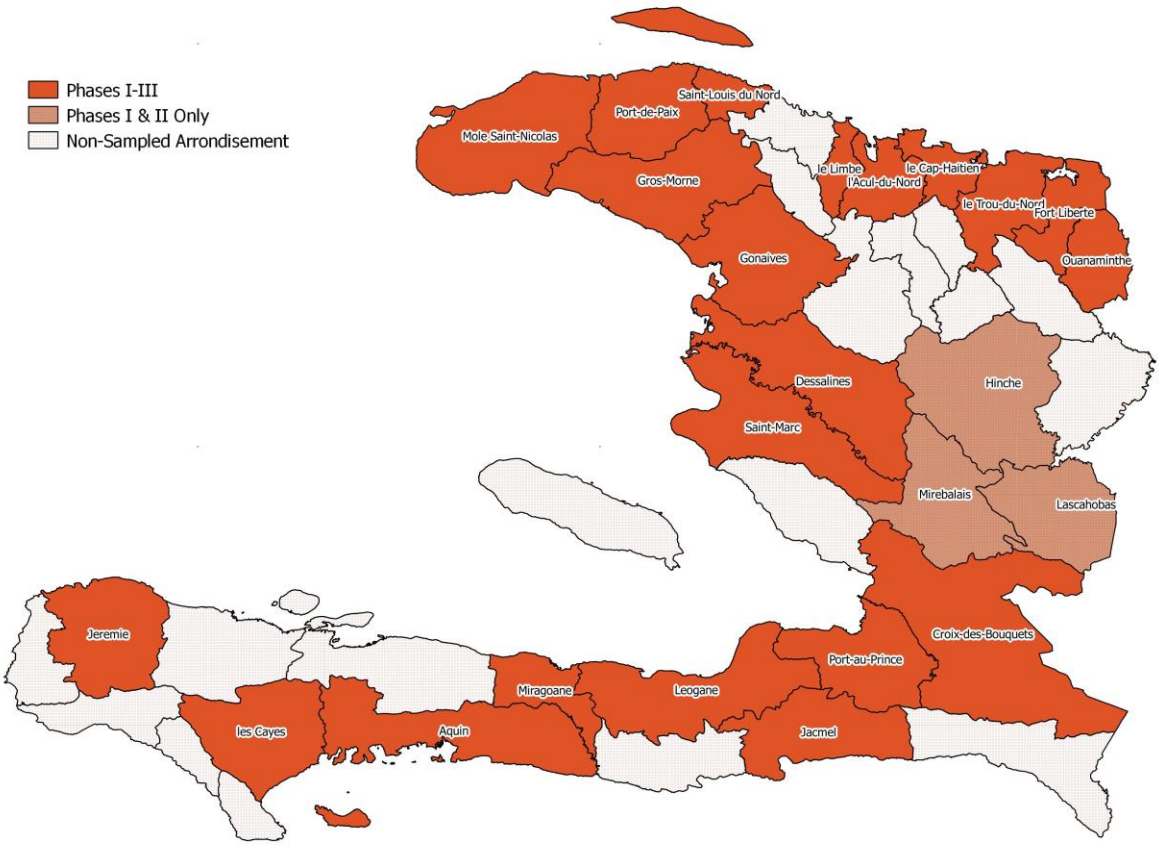


Figure 3. Map of Arrondisements Sampled for Inclusion in PLACE 2016

Phase I: Community Informant Interviews

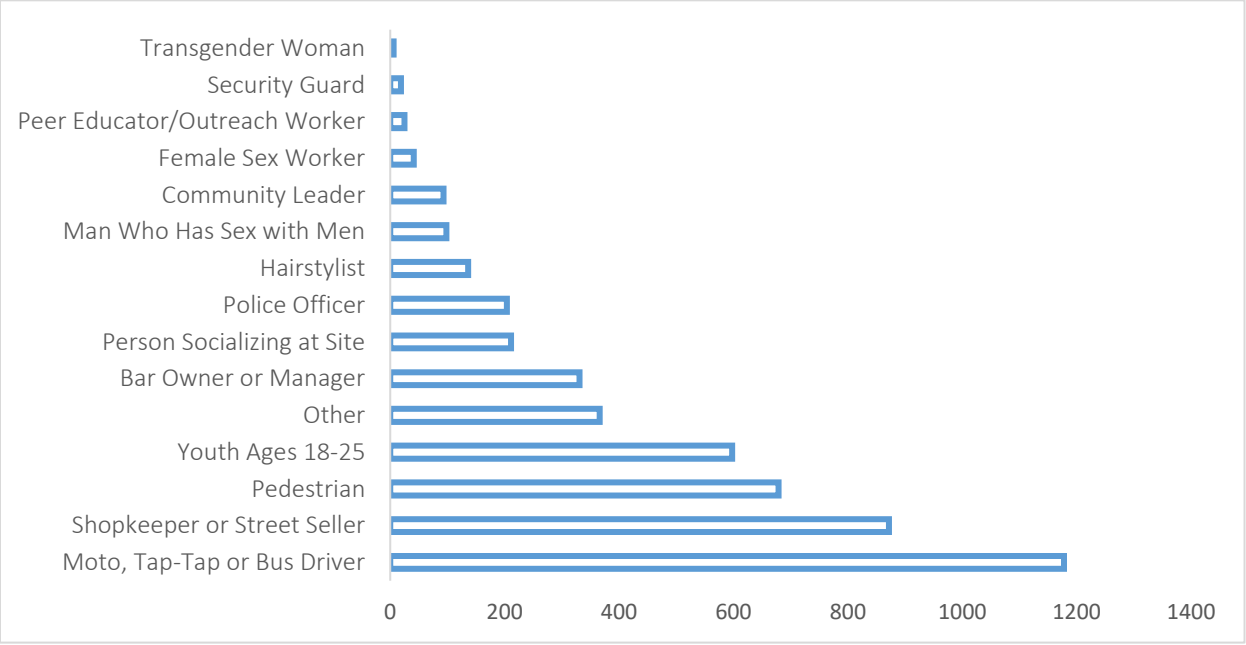
Table 3 shows the total number of community informants interviewed, by department.

Table 3. Number of Community Informants Interviewed by Department, PLACE 2016

Department	Number of Community Informants Interviewed
Artibonite	812
Centre	202
Grand'Anse	89
Nippes	67
Nord	352
Nord'Est	132
Nord'Ouest	446
Ouest	2,474
Sud	254
Sud'Est	204
Total	**5,032**

Figure 4 shows the types of community informants interviewed. The largest category of informants was moto, tap-tap, or bus drivers. These individuals are very knowledgeable about the places where people socialize in their communities. Street sellers were also knowledgeable informants, as were shop and bar owners. Some members of KPs were interviewed, including FSWs, MSM, and transgender women, as well as peer educators and outreach workers who work with KPs.

Figure 4. Types of Community Informants Interviewed, PLACE 2016



Question Used to Identify Hot Spots

Are there any places or events in this community where people go to meet new sexual partners?

Table 4 shows the number of unique hot spots identified by community informants by department. In Phase II, all reported hot spots were visited to validate whether they in fact exist, are unique, and are currently in operation.

Table 4. Number of Hot Spots Identified by Community Informants, by Department, PLACE 2016

Department	Number of Hot Spots Identified
Artibonite	636
Centre	144
Grand'Anse	60
Nippes	42
Nord	256
Nord'Est	126
Nord'Ouest	303
Ouest	1,739
Sud	160
Sud'Est	146
Total	**3,612**

Table 5 shows the number of hot spots identified by community informants, by arrondisement, as well as the density of hot spots, defined as the number of hot spots per population of 10,000.

Table 5. Total Number and Density of Hot Spots Reported by Community Informants, by Arrondisement, PLACE 2016

Department	Arrondisement	Number of Hot Spots Identified by Community Informants	Hot Spots per 10,000 Population
Centre	Hinche	61	2.3
	Mirebalais	83	4.3
Grand'Anse	Jeremie	60	2.5
Artibonite	Dessalines	136	3.3
	Gonaives	306	6.8
	Gros-Morne	34	1.5
	Saint-Marc	160	3.6
Nippes	Fort-Liberte	28	4.6
	Miragoane	42	4.6
Nord	Grande-Riviere du Nord	20	3.1
	Acul-du-Nord	42	3.3
	Cap-Haitien	156	4.4
	Limbe	37	3.5
Nord-Est	Trou-du-Nord	65	5.7
	Ouanaminthe	33	2.3
Nord-Ouest	Mole Saint-Nicolas	62	2.5
	Port-de-Paix	169	5.0
	Saint-Louis du Nord	72	7.6
Ouest	Croix-des-Bouquets	244	5.1
	Leogane	188	3.7
	Port-au-Prince	1,554	6.6
Sud	Aquin	50	2.1
	Cayes	110	3.2
Sud-Est	Jacmel	146	4.3

Phase II: Hot Spot Mapping

In this section we present descriptive characteristics of the hot spots mapped during Phase II, including site type and location, amenities, busy days and times, characteristics of site patrons, and types of prevention services available on site.

What are the characteristics of places where people meet new sexual partners in Haiti?

Location and Type of Hot Spots

Across the 10 geographical departments of Haiti, 2,339 hot spots were validated. Artibonite and Ouest departments have the most hot spots, representing 23 percent and 43 percent of those validated, respectively.

Table 6. Distribution of Validated Hot Spots, by Department, PLACE 2016

Department	Frequency	Proportion
Artibonite	537	23%
Centre	90	4%
Grand'Anse	23	1%
Nippes	49	2%
Nord	110	5%
Nord-Est	115	5%
Nord-Ouest	152	7%
Ouest	1,001	43%
Sud	170	7%
Sud-Est	92	4%
Total	**2,339**	**100%**

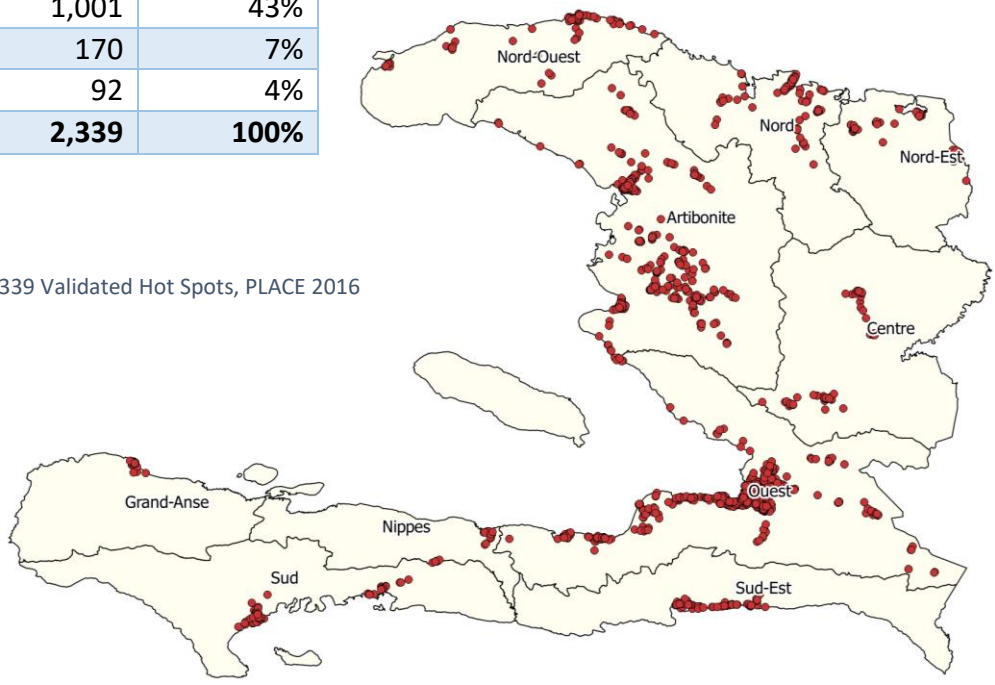


Figure 5. Map of 2,339 Validated Hot Spots, PLACE 2016

The majority of hot spots were bars, night clubs, hotels, and brothels. *Baz* and cartels, which are specific hot spots for MSM, represent 5.5 percent of the validated hot spots.

Table 7. Distribution of Validated Hot Spots by Type of Site, PLACE 2016

Type of Site	**Frequency**	**Proportion**
Bar	419	17.9%
Night Club	477	20.4%
Brothel	216	9.2%
Hotel	520	22.3%
Guesthouse	10	0.4%
Baz	109	4.7%
Cartel	19	0.8%
Street where FSWs Work	51	2.2%
Other Street Site	33	1.4%
Beach	109	4.7%
Park	26	1.1%
Public Market	6	0.3%
Tourist Attraction	6	0.3%
Cultural Event	69	3.0%
Saint Day	51	2.2%
Other Event	23	1.0%
Private House	77	3.3%
Other	118	5.1%
Total	**2,339**	**100.0%**

Years in Operation, Busiest Days and Times

Most of the hot spots had been in operation for more than two years (77 percent). Table 8 also shows that 40 percent of the sites have Saturday as their busiest day, followed by Sunday with 38 percent. In terms of the busiest time, the interval 8 to 11 p.m. is the most common (38 percent), followed by 5 to 8 p.m. (32 percent).

Table 8. Years in Operation, Busiest Days and Times of Validated Hot Spots, PLACE 2016

Years in Operation	**Frequency**	**Proportion**
< 1 year	177	8%
1-2 Years	266	11%
More than 2 Years	1794	77%
Not Applicable/Don't Know	85	4%
Busiest Day		
Monday	53	2%
Tuesday	55	2%
Wednesday	39	2%
Thursday	94	4%
Friday	278	12%
Saturday	928	40%
Sunday	875	38%
Busiest Time		
11 a.m. – 2 p.m.	180	8%
2 p.m. – 5 p.m.	403	17%
5 p.m. – 8 p.m.	732	32%
8 p.m. – 11 p.m.	877	38%
11 p.m. – 2 a.m.	130	6%

Physical Characteristics and Amenities

Only 46 percent of the hot spots reported having tap water, while 72 percent reported having functional electricity. The majority (67 percent) have an indoor toilet, and 47 percent have beds on site.

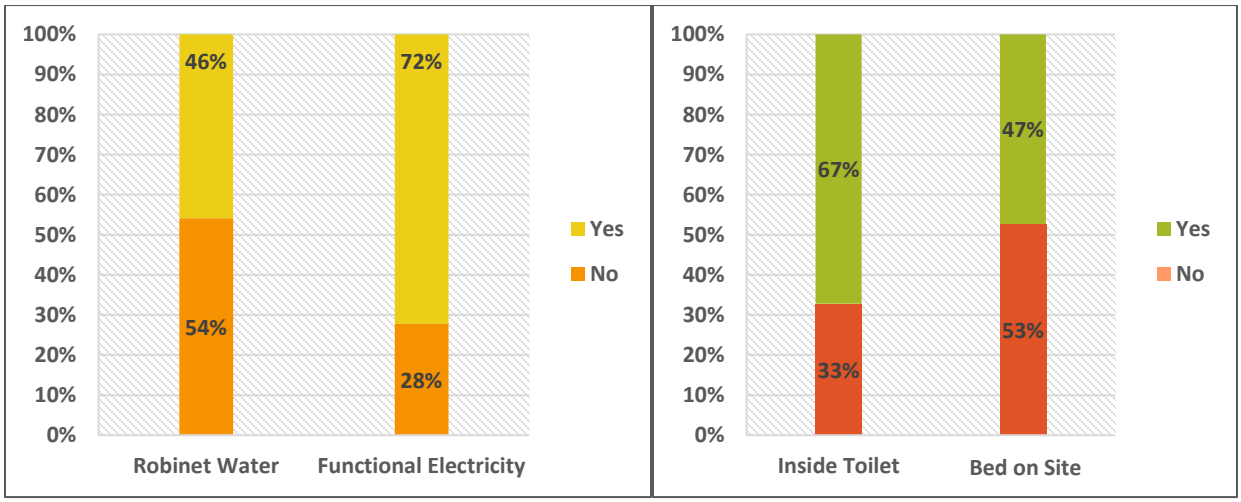


Figure 6. Availability of Tap Water, Electricity, Toilets, and Beds at Hot Spots, PLACE 2016

Sex Work at Sites

Figure 7 reports the proportions of hot spots where KP members live, where people have sex, and where someone is available to help people to find sex partners on site. KP members live at 13 percent of the sites mapped, and people have sex at more than half of the sites mapped. A person who helps people find sex partners is present at 11 percent of the sites.

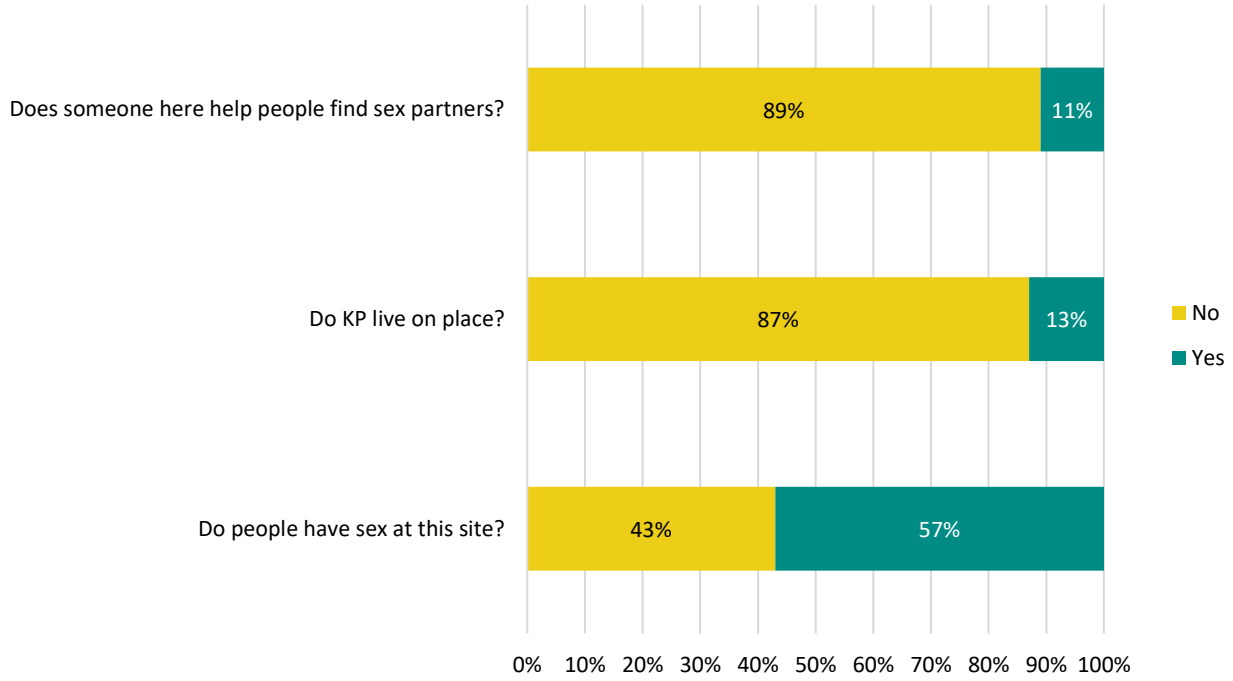


Figure 7. Sexual Activity at Hot Spots, PLACE 2016

Availability of HIV Prevention Services at Sites

Figure 8 shows the proportion of sites that have had various types of prevention services available on-site, as reported by site informants. Only 20 percent of sites had some type of HIV/AIDS prevention service available within the past six months. Free distribution of condoms was the most common prevention service available (33 percent), while condoms were available for sale at only 16 percent of hot spots. HIV testing was uncommon; people were tested for HIV at only 10 percent of sites in the past six months. Only 15 percent of the sites had been visited by outreach workers within the past six months, and only 12 percent had received safer sex education by outreach workers.

Figure 8. HIV Prevention Activities at Hot Spots, PLACE 2016

Figure 9 shows that only 2 percent of hot spots have HIV/AIDS and condom promotion posters on display. Moreover, condoms and lubricant are visible at 20 percent and 3.5 percent of hot spots, respectively.

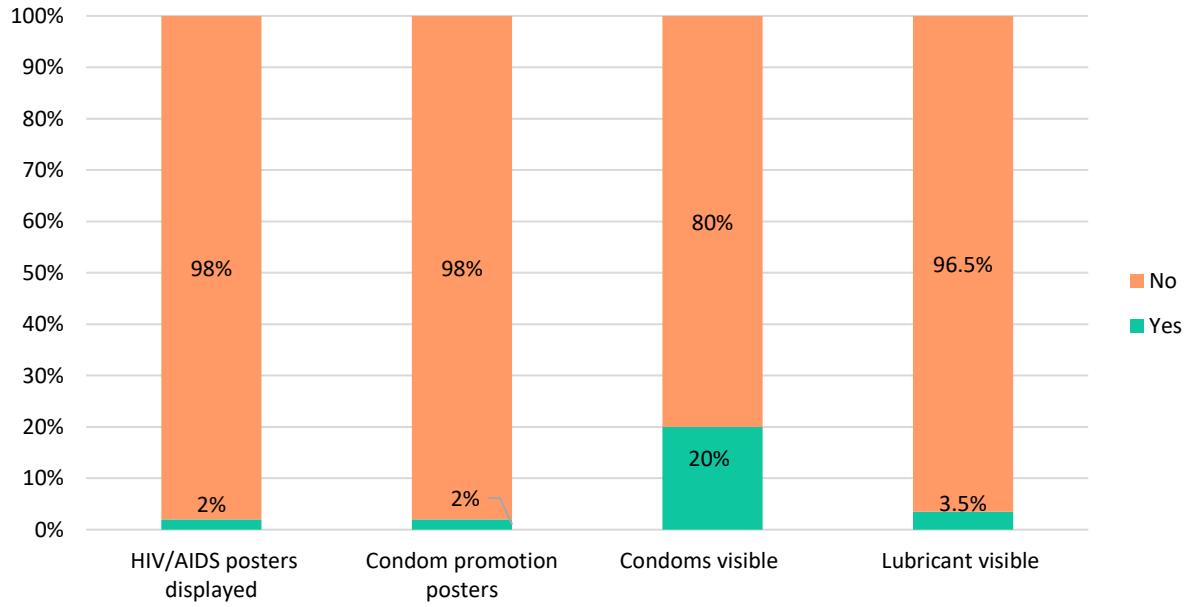
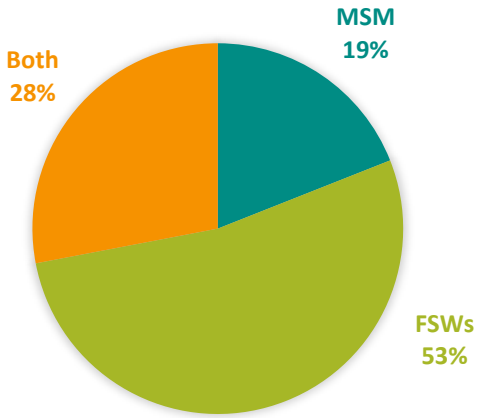


Figure 9. HIV Prevention Messages and Tools at Hot Spots, PLACE 2016

Hot Spot Patrons

Of the 2,339 validated hot spots, 1,103 are frequented by KPs according to site informants. Of those, 19 percent are frequented only by MSM, 53 percent are frequented only by FSWs, and 28 percent are frequented by both MSM and FSWs.



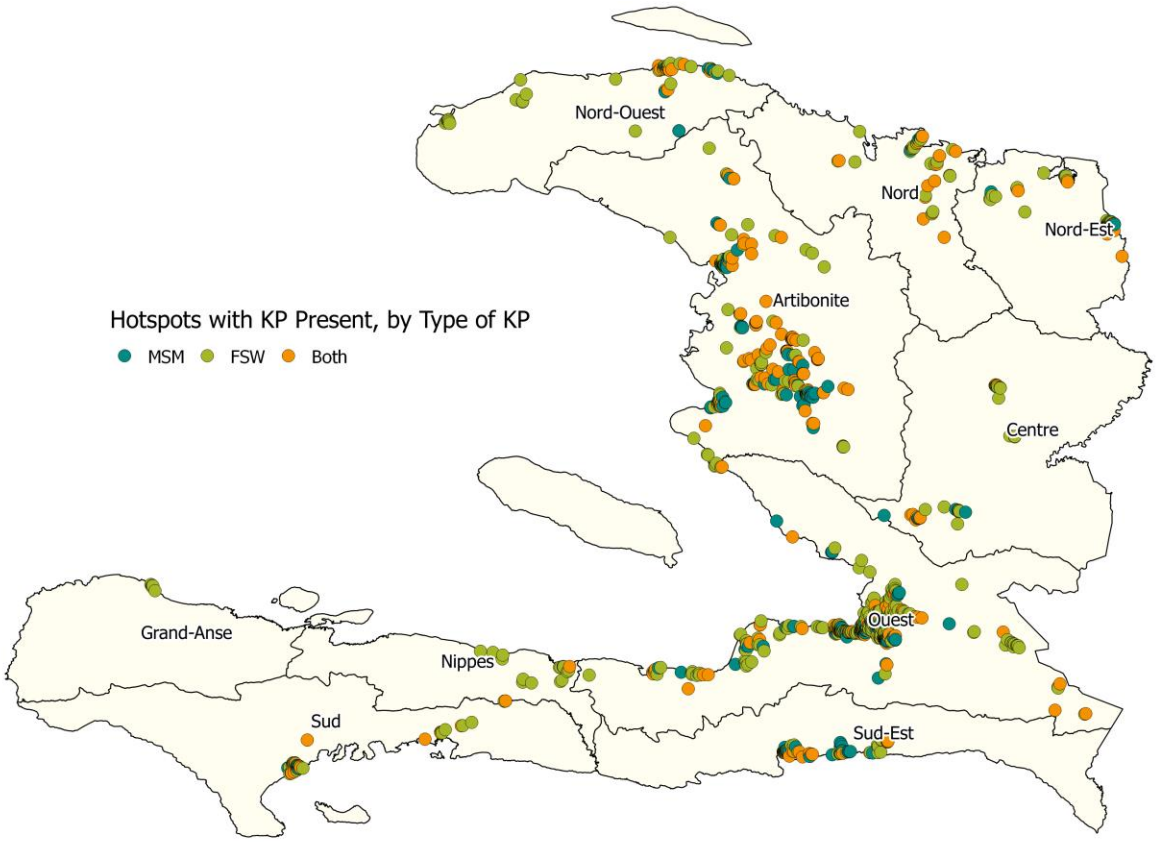
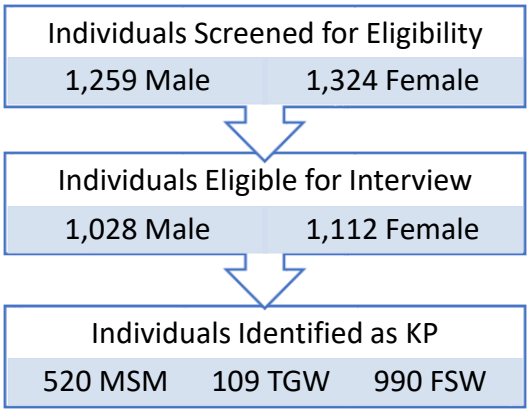


Figure 10. Hot Spots Frequented by Key Populations, by Type of KP, PLACE 2016

Phase III: Individual Interviews and Testing

Between September 2016 and February 2017, 2,140 women and men participated in individual interviews and testing. Of those, 990 were female sex workers (FSWs), 520 were men who have sex with men (MSM), and 109 were transgender women (TGW).



Refusal Rate

Of individuals approached, **9.2 percent** declined to participate in the interview and testing process. Accepting to be tested was a requirement of participation. Refusal was most common among female sex workers who had been tested in the past three months, or who declined to be tested without written documentation of their test results.

Table 9 shows the number of participants by department, disaggregated by study population. The majority of participants were interviewed in the Ouest and Artibonite departments.

Table 9. Number of Participants by Department and Type of KP

	KP			*Non-KP*		*Total*
Department	MSM	TGW	FSW	At-Risk Men	At-Risk Women	All Participants
Artibonite	238	29	182	137	35	621
Grande-Anse	10	5	7	11	3	36
Nippes	21	1	32	15	5	74
Nord	23	4	56	39	2	124
Nord-Est	49	13	44	37	4	147
Nord-Ouest	25	5	62	6	2	100
Ouest	120	39	529	140	65	893
Sud	20	2	34	5	0	61
Sud-Est	14	11	44	9	6	84
Total	520	109	990	402	122	2,140

Table 10 shows the number of hot spots validated, the number of hot spots sampled for individual interviews, and the number of KP members interviewed in each arrondisement where data were collected.

Table 2. Number of hot spots validated, number of hot spots selected for individual interviews, and number of key population members interviewed by arrondisement, PLACE 2016

Department	Arrondisement	No. Hot Spots Validated	No. Hot Spots Visited for Individual Interviews *(%)*	No. MSM Interviewed	No. TGW Interviewed	No. FSWs Interviewed
Artibonite	Dessalines	178	27 *(15%)*	202	14	20
	Gonaives	40	14 *(35%)*	21	3	84
	Gros Morne	187	3 *(2%)*	0	0	4
	Saint-Marc	132	19 *(14%)*	15	12	74
Centre	Hinche	41	-	-	-	-
	Mirebalais	49	-	-	-	-
Grande-Anse	Jeremie	23	4 *(17%)*	10	5	7
Nippes	Miragoane	49	16 *(33%)*	21	1	32
Nord	L'Acul du Nord	9	1 *(11%)*	3	0	11
	Cap Haitien	79	9 *(11%)*	18	4	40
	Grande Riviere du Nord	8	0 *(0%)*	0	0	0
Nord-Est	Limbe	14	2 *(14%)*	2	0	5
	Fort-Liberte	13	4 *(31%)*	41	7	12
	Ouanaminthe	75	13 *(17%)*	8	6	17
	Trou du Nord	27	5 *(19%)*	0	0	15
Nord-Ouest	Mole Saint Nicolas	26	1 *(4%)*	0	0	5
	Port-de-Paix	97	12 *(12%)*	24	5	53
	Saint Louis du Nord	29	3 *(10%)*	1	0	4
Ouest	Croix des Bouquets	108	15 *(14%)*	13	7	81
	Leogane	103	18 *(17%)*	34	15	60
	Port-au-Prince	779	76 *(10%)*	63	11	380
Sud	Aquin	20	2 *(10%)*	0	0	7
	Cayes	72	9 *(13%)*	20	2	27
Sud-Est	Jacmel	170	16 *(9%)*	14	11	44

Definitions of Key Populations

Men who have sex with men (MSM) are individuals whose sex at birth was male, whose current gender identity is male, and who have had any male sexual partners in the past year.

Transgender women (TGW) are individuals whose sex at birth was male and whose current gender identity is female.

Female sex workers (FSWs) are individuals whose sex at birth was female and who have received any money, gifts, or favors in exchange for sex in the past year.

Descriptive Characteristics

The following tables present descriptive characteristics of men who have sex with men (MSM), transgender women (TGW), and female sex workers (FSWs). These estimates and their accompanying confidence intervals represent the populations of MSM, transgender women, and FSWs at the national level in Haiti.

Demographics

	MSM	TGW	FSWs
Age			
Median	23	23	25
(IQR)	*(22-29)*	*(21-24)*	*(21-29)*
Level of Education			
None	0.6% *(0%-0.4%)*	0.1% *(0%-0.8%)*	3.4% *(1.4%-8.0%)*
Primary	16.1% *(3.1%-53.3%)*	8.3% *(0.9%-47.4%)*	20.4% *(9%-39.9%)*
Secondary or Higher	83.8% *(46.7%-96.8%)*	91.6% *(53.8%-99%)*	76.2% *(54.5%-90%)*
Relationship Status			
% in a Primary Relationship	63.2%	57.2%	51.4%
(95% CI)	*(29.6%-87.5%)*	*(30.4%-80.4%)*	*(37.4%-65.2%)*
Employment Status			
% with Any Source of Income	63.0%	66.5%	79.7%
(95% CI)	*(41.9%-80.0%)*	*(48.6%-80.6%)*	*(59.0%-91.4%)*
LGBTQ			
% LGBTQ-Identified	73.0%	91.2%	10.4%
(95% CI)	*(30.8%-94.2%)*	*(52.3%-99.0%)*	*(5.2%-19.5%)*

Risk Behaviors

	MSM	TGW	FSWs
Age at First Sex			
Median	12	11	15
(IQR)	*(10-14)*	*(10-14)*	*(14-16)*
Sexual Partners in Past 12 Months			
Men Only	6.5%	54.6%	90.3%
(95% CI)	*(2.8%-14.7%)*	*(25.4%-80.9%)*	*(80.8%-95.4%)*
Men & Women	93.5%	45.4%	9.6%
(95% CI)	*(93.5%-97.2%)*	*(19.1%-74.6%)*	*(4.5%-19.2%)*
Anal Sex			
% Ever Had Anal Sex	98.5%	92.3%	9.5%
(95% CI)	*(91.5%-99.7%)*	*(51.0%-99.3%)*	*(6.4%-14.1%)*

Risk Behaviors (cont.)

	MSM	TGW	FSWs
Number of Male Sexual Partners in Past 4 Weeks			
Median	1	5	9
(IQR)	*(1-2)*	*(2-15)*	*(5-30)*
Number of Female Sexual Partners in Past 4 Weeks			
Median	3	3	0
(IQR)	*(2-5)*	*(2-5)*	*(0-2)*
Transactional Sex			
% Received Money or Gifts in Exchange for Sex in Past 12 Months	64.5%	82.3%	100%
(95% CI)	*(29.3%-88.9%)*	*(64.7%-92.1%)*	*N/A*
% Paid Others Money or Gifts for Sex in Past 12 Months	71.4%	45.8%	0.7%
(95% CI)	*(52.2%-85.0%)*	*(24.3%-69.0%)*	*(0.2%-2.5%)*
Condom Use			
% Used a Condom at Last Vaginal Sex	69.0%	77.8%	61.5%
(95% CI)	*(48.5%-84.0%)*	*(54.6%-91.1%)*	*(27.6%-87.0%)*
% Used a Condom at Last Anal Sex	74.3%	81.3%	19.3%
(95% CI)	*(43.9%-91.4%)*	*(61.0%-92.4%)*	*(7.1%-42.7%)*
Lubricant Use			
% Used Lubricant at Last Anal Sex	42.5%	72.8%	6.2%
(95% CI)	*(17.9%-71.3%)*	*(45.5%-89.5%)*	*(1.6%-21.4%)*

Knowledge and Perceived Risk

	MSM	TGW	FSWs
Access to Information			
% Received Information about HIV/AIDS from Peer Educator or Health Worker in Past 12 Months	70.0%	90.3%	69.2%
(95% CI)	*(58.4%-79.4%)*	*(52.9%-98.7%)*	*(57.6%-78.8%)*
Access to Testing			
% Know Where to Get an HIV Test	83.6%	92.0%	79.2%
(95% CI)	*(60.9%-94.4%)*	*(81.1%-96.9%)*	*(57.9%-91.4%)*
Knowledge			
% Correctly Identified Mode of Transmission of HIV	68.4%	59.8%	63.8%
(95% CI)	*(41.0%-87.1%)*	*(32.2%-82.3%)*	*(53.1%-73.3%)*
Perceived Risk of Acquiring HIV			
None	41.1%	24.4%	23.2%
Low	25.9%	45.5%	36.7%
Moderate	20.3%	18.9%	19.6%
High	4.6%	1.7%	7.0%
Don't Know	8.2%	9.5%	13.5%

Access to Services

	MSM	TGW	FSWs
Access to Condoms			
% Received Free Condoms in Past 12 Months	95.5%	83.9%	83.5%
(95% CI)	*(89.0%-98.2%)*	*(63.5%-94.0%)*	*(78.7%-87.4%)*
% Purchased Condoms in Past 12 Months	63.2%	54.8%	72.7%
(95% CI)	*(30.4%-87.1%)*	*(36.6%-71.8%)*	*(56.4%-84.6%)*
Access to Lubricants			
% Received Free Lubricants in Past 12 Months	48.6%	75.2%	26.2%
(95% CI)	*(22.3%-75.7%)*	*(49.4%-90.4%)*	*(10.3%-52.2%)*
% Purchased Lubricants in Past 12 Months	17.7%	14.9%	5.2%
(95% CI)	*(4.2%-51.4%)*	*(5.0%-36.8%)*	*(1.7%-14.9%)*

Access to Services (cont.)

	MSM	TGW	FSWs
Access to Contraception			
% Use a Method other than Condoms			
None	N/A	N/A	49.1%
Oral Contraceptive			3.3%
Injection			42.5%
Implant			4.4%
Access to HIV Testing			
% Ever Tested	85.1%	99.1%	79.1%
(95% CI)	*(74.7%-91.7%)*	*(95.9%-99.8%)*	*(62.5%-89.6%)*
% Tested in Past 3 Months	48.1%	61.9%	42.3%
(95% CI)	*(21.0%-76.4%)*	*(29.2%-86.5%)*	*(26.6%-59.7%)*

Physical Symptoms

	MSM	TGW	FSWs
STI Symptoms			
% Currently Have Any STI Symptoms	10.2%	16.0%	48.3%
(95% CI)	*(6.2%-16.6%)*	*(5.5%-38.4%)*	*(37.7%-59.0%)*

Vulnerability

	MSM	TGW	FSWs
Food Insecurity			
% Did Not Always Have Enough Food to Eat in Past 12 Months			
(95% CI)	40.4% *(31.5%-50.1%)*	32.1% *(11.1%-64.2%)*	38.3% *(23.5%-55.7%)*
Economic Insecurity			
% Not Always Able to Pay Basic Expenses in Past 12 Months			
(95% CI)	57.3% *(27.3%-82.7%)*	48.9% *(25.0%-73.3%)*	50.3% *(28.7%-71.8%)*
Homelessness			
% Ever Homeless in Past 12 Months	15.6%	23.7%	29.7%
(95% CI)	*(4.9%-39.7%)*	*(10.4%-45.3%)*	*(24.1%-35.9%)*

Discrimination and Violence

	MSM	TGW	FSWs
Stigma & Discrimination in Healthcare System % Mistreated by Healthcare Worker or Avoided Seeking Care for Fear of Discrimination *(95% CI)*	5.8% *(2.7%-12.1%)*	1.6% *(0.3%-7.7%)*	6.3% *(2.5%-15.1%)*
Physical Violence % Victim of Any Physical Violence in Past 12 Months *(95% CI)*	15.5% *(5.0%-38.9%)*	32.2% *(17.8%-50.9%)*	30.9% *(16.7%-49.8%)*
Intimate Partner Violence % Victim of Physical Violence by an Intimate Partner in Past 12 Months *(95% CI)*	15.7% *(5.1%-39.1%)*	26.0% *(5.7%-67.0%)*	31.5% *(23.8%-40.4%)*
Rape % Ever Forced to Have Sex Against Will or Without a Condom *(95% CI)*	39.6% *(17.1%-67.6%)*	76.5% *(48.8%-91.8%)*	54.8% *(43.7%-65.4%)*
Imprisonment % Ever Spent a Night in Prison *(95% CI)*	15.1% *(4.5%-40.2%)*	16.6% *(6.7%-35.4%)*	13.0% *(4.7%-31.1%)*
Police Abuse % Ever Beaten by a Police Officer *(95% CI)*	5.6% *(1.7%-17.0%)*	9.2% *(1.2%-45.5%)*	7.5% *(2.3%-21.7%)*

Test Results

Note that the syphilis test results reported in the following table do not represent confirmed active syphilis. These estimates should not be interpreted as syphilis prevalence, but rather the proportion of the population with syphilis antibodies indicating probable syphilis.

	MSM	TGW	FSWs
HIV % Positive *(95% CI)*	2.2% *(0.3%-12.4%)*	27.6% *(4.5%-75.6%)*	7.7% *(6.4%-9.3%)*
Syphilis % with Positive Screening Test *(95% CI)*	4.2% *(1.1%-14.4%)*	33.4% *(10.2%-68.9%)*	16.4% *(12.4%-21.4%)*

HIV Treatment Cascade

The following graph shows the estimated treatment cascade among KPs in Haiti. The bars can be interpreted as the estimated proportion of individuals at a given step along the treatment cascade of all those who are HIV positive, by KP. The leftmost bar represents the global 90-90-90 targets. Data on diagnosis and current treatment are self-reported. Viral load testing was performed using dried blood spots (DBS) with a lower limit of detection of 1,360 copies per mL.

The error bars represent 95 percent confidence intervals, which are very wide due to the low sample size of study participants who were HIV positive. Only 23 men who have sex with men, 88 female sex workers, and 53 transgender women who participated in PLACE were HIV positive.

Table 11 shows the actual number of PLACE participants at each step in the cascade, by KP. The corresponding sample proportions differ from the estimated population proportions reported in Figure 11. This is because the estimates in Figure 11 are generalized using sampling weights to the broader populations of MSM, FSWs, and transgender women. In general, study participants were more likely to be infected and less likely to know their status compared to the broader populations of MSM, FSWs, and transgender women. This can be explained by the sampling strategy utilized in PLACE. When sampling hot spots for interviews and testing, those hot spots where we expected to find more key populations relative to other male and female patrons were prioritized, based on data from Phase II. Thus, the majority of study participants were reached at hot spots considered risky for the transmission of HIV. By extension, the individuals socializing at those hot spots may be more likely to be infected and less likely to know their status than those at less risky hot spots.

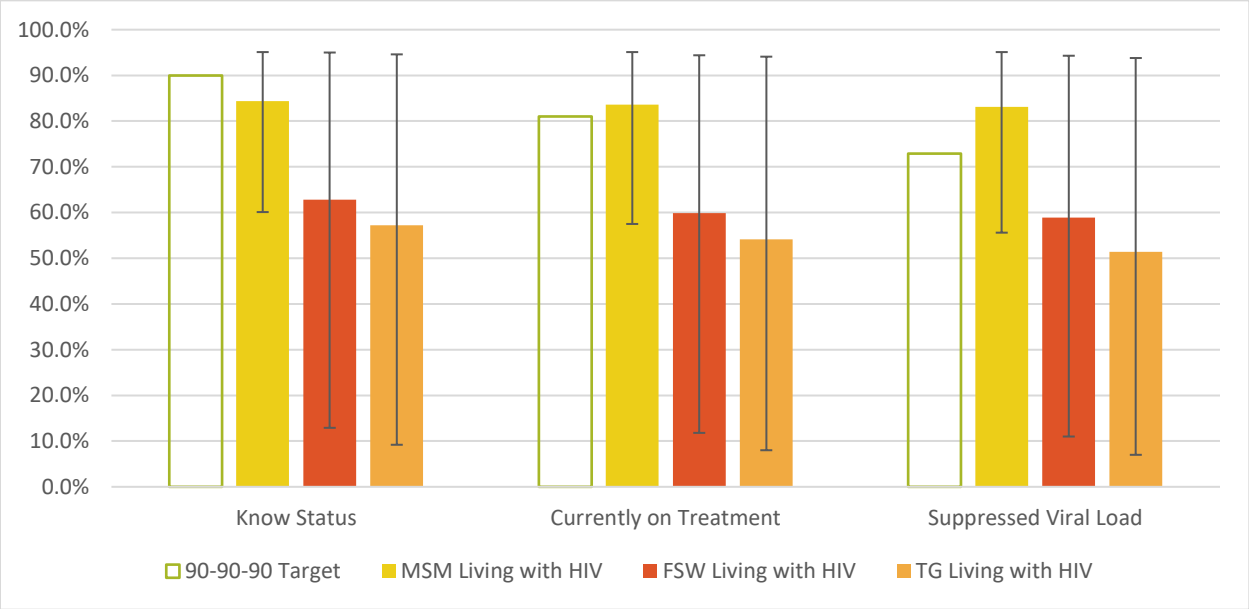


Figure 11. Estimated Proportion at Each Step along the Treatment Cascade of All PLHIV, by Key Population, PLACE 2016

Table 3. Treatment Cascade among Study Participants by Key Population, PLACE 2016

	MSM		FSWs		TGW	
	Number	%	Number	%	Number	%
Of Those Tested, Number HIV+	23	4.7%	88	9.2%	53	51.0%
Of Those HIV+, Number Who Know their Status	6	26.1%	30	34.1%	17	32.1%
Of Those Who Know Status, Number Currently on Treatment	5	83.3%	21	70.0%	13	76.5%
Of Those on Treatment, Number Virally Suppressed	4	80.0%	17	81.0%	6	46.2%

Figure 12 shows the proportion of HIV-positive study participants who had an undetectable viral load, defined as fewer than 1,360 copies per mL. Overall, 54 percent of all persons living with HIV had an undetectable viral load.

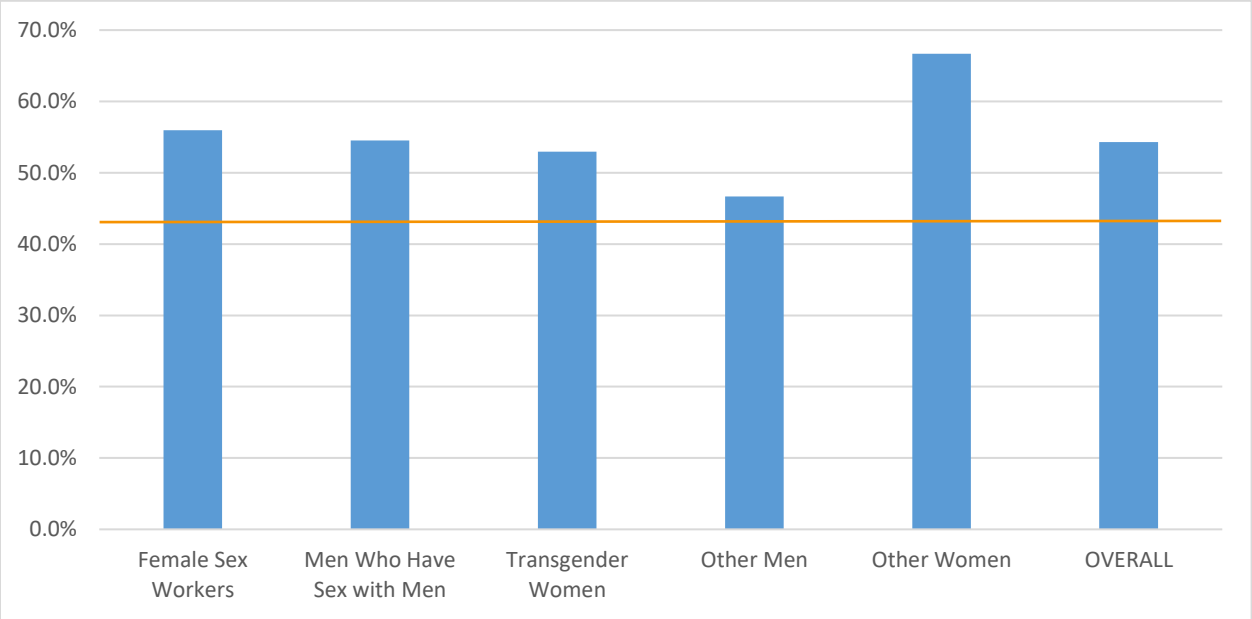


Figure 12. Proportion with Undetectable Viral Load of All Persons Confirmed HIV+, PLACE 2016

Coinfection with Syphilis and HIV

Table 12 shows the overlap in positive test results for syphilis and HIV by KP. Having syphilis antibodies was associated with a higher prevalence of HIV among transgender women and MSM. No association existed between syphilis and HIV among FSWs, despite the high prevalence of syphilis among this group.

Table 4. Association between HIV and Probable Syphilis Infection by KP, PLACE 2016

	MSM	TGW	FSWs
Prevalence of HIV in KP			
With Probable Syphilis	44.9% (5% - 92%)†	72.9% (19.4%-96.8%)†	9.0% (2% - 32%)
Without Probable Syphilis	0.2% (0.1%-0.8%)	3.7% (0.5%-23.0%)	7.4% (5.2%-10.6%)
Prevalence of Probable Syphilis in KP			
With HIV	90.0% (75.0%-96.4%)†	90.8% (64.0% - 98.2%)†	19.2% (5.0%-52.0%)
Without HIV	2.4% (0.4%-12.7%)	12.4% (8.5%-17.8%)	16.2% (10.9%-23.4%)

†Significant association between syphilis and HIV (α=0.05).

Risk Factors for HIV

Table 13 presents the prevalence of HIV in the general population in Haiti by age group and sex based on data from the EMMUS-V, alongside test results for FSWs, MSM, and transgender women who participated in PLACE. HIV yield data for at-risk women and at-risk men are also presented. These are men and women who were socializing at hot spots and reported engaging in risk behaviors, making them eligible to participate in PLACE although they are not KP members. Overall, the group of study participants with the highest proportion of individuals testing HIV positive was transgender women at 51.0 percent. Of note, men who were socializing at hot spots and eligible to participate in PLACE were more likely to be infected with HIV than the general population of men ages 15–49. However, there was no apparent difference in HIV risk between women who were socializing at hot spots and eligible to participate in PLACE and the general population of women ages 15–49.

Figure 13 examines the trend in HIV risk by age in each study group and in the general population of men and women ages 15–49. Among the general population of women in Haiti, HIV prevalence increases dramatically with age between the ages of 15 and 29, and then levels off between ages 30 to 49. Among men, prevalence increases steadily up to age 44.

Among PLACE participants, the proportion of FSWs who were HIV positive did not increase between the ages of 15 and 34, whereas the proportions of MSM and transgender women who were HIV positive did increase dramatically with age between the ages of 15 and 34.

Table 5. HIV Infection by Population and Age Group, EMMUS-V (2012) and PLACE (2016)

	HIV Prevalence *Source: EMMUS-V (2012)*		HIV Yield *Source: PLACE (2016)*									
Age Group	Females	Males	FSW	*n*	MSM	*n*	TGW	*n*	At-Risk Women	*n*	At-Risk Men	*n*
15 to 19	0.5%	0.2%	9.1%	*77*	1.2%	*164*	40.0%	15	0.0%	30	0.0%	70
20 to 24	2.1%	0.7%	8.7%	*253*	5.5%	*182*	37.5%	42	2.4%	42	4.7%	127
25 to 29	4.2%	1.1%	8.5%	*316*	5.6%	*89*	66.7%	22	4.0%	25	4.6%	88
30 to 34	3.5%	2.2%	8.5%	*189*	11.5%	*26*	83.3%	12	0.0%	15	4.1%	49
35 to 39	3.8%	3.3%	11.3%	*80*	7.7%	*13*	57.1%	7	33.3%	3	4.0%	25
40 to 44	3.9%	4.4%	20.7%	*29*	28.6%	*7*	50.0%	4	0.0%	1	11.8%	17
45 to 49	3.1%	4.2%	8.3%	*12*	0%	*5*	100%	2	0.0%	1	0.0%	4
Ages 15 to 49	**2.7%**	**1.7%**	**9.2%**	***956***	**4.7%**	*486*	**51.0%**	*104*	**2.6%**	***117***	**3.9%**	***380***

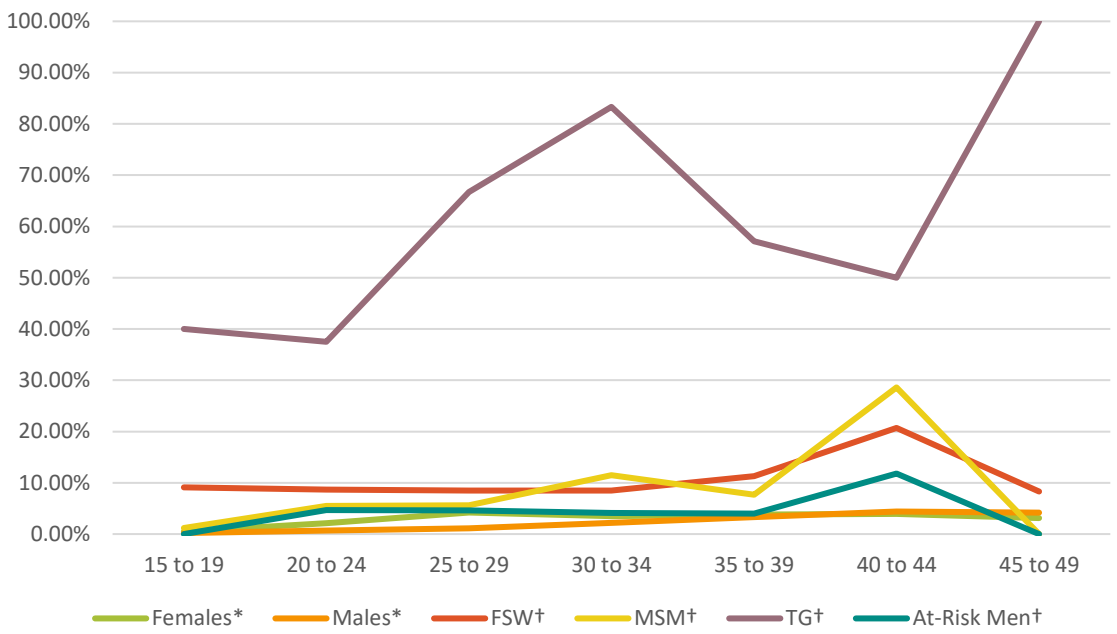


Figure 13. HIV Infection by Age, Gender, and Population, EMMUS-V (2012) and PLACE (2016)

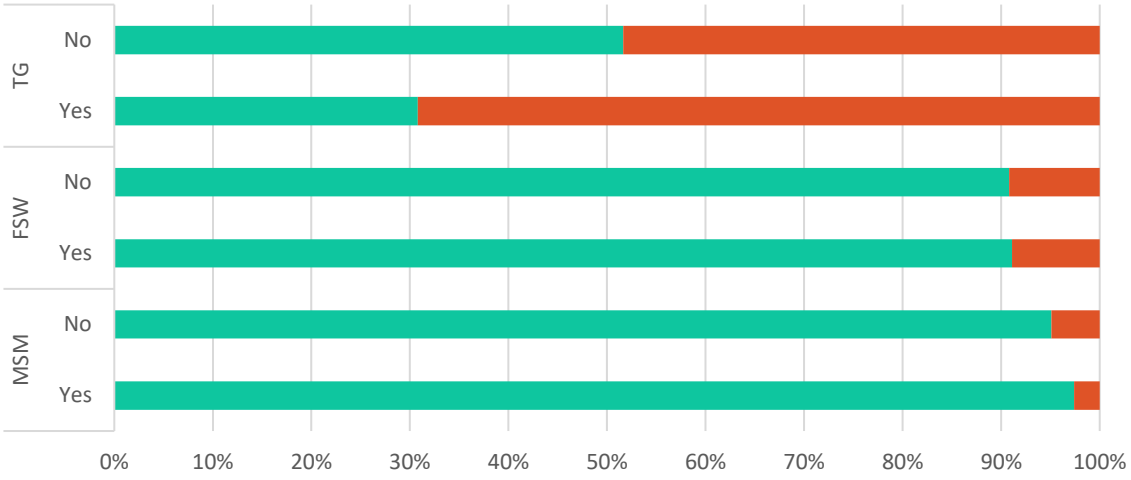
*Source: EMMUS-V (2012) †Source: PLACE (2016)

In the general population, HIV prevalence is lower among men and women who have attained a secondary or higher level of education, compared to those with a primary level of education or no formal education. This trend is also true among the FSWs who participated in PLACE. However, there is no evidence that education has a similar protective effect among MSM. Five percent of MSM with a secondary or higher level of education were HIV positive, compared to 3.1 percent of those who had a primary level of education. Transgender women with a primary level of education had a higher prevalence than those with a secondary or higher level of education, however the sample size in this stratum is very small.

Table 14. HIV Infection by Level of Education, EMMUS-V (2012) and PLACE (2016)

	HIV Prevalence *Source: EMMUS-V 2012*		HIV Yield *Source: PLACE 2016*					
Education Level	Females	Males	FSW	*n*	MSM	*N*	TGW	*n*
None	2.8%	3.9%	32.7%	52	0%	6	0%	1
Primary	3.4%	2.0%	12.7%	221	3.1%	64	62.5%	8
Secondary or More	2.1%	1.1%	6.3%	685	5.0%	418	50.5%	95
All	**2.7%**	**1.7%**	**9.2%**	**958**	**4.7%**	**488**	**51.0%**	**104**

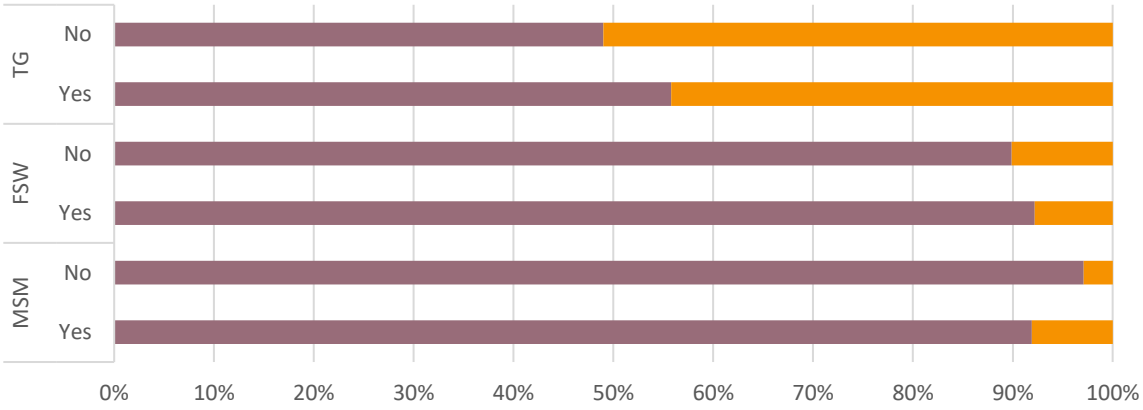
Transgender women in the study sample who had experienced discrimination by a health care provider were more likely to be seropositive, whereas MSM who reported discrimination were slightly less likely to be seropositive, and no difference existed among FSWs.



	MSM		FSW		TG	
	Yes	No	Yes	No	Yes	No
HIV-	97.4%	95.1%	91.1%	90.8%	30.8%	51.7%
HIV+	2.6%	4.9%	8.9%	9.2%	69.2%	48.4%

Figure 14. HIV Infection by Experience of Discrimination among KP, PLACE 2016

MSM who had dealt with economic insecurity in the past year were more likely to be seropositive than those who reported always having enough money to cover their basic needs. This relationship does not seem to hold true for transgender women or FSWs.



	MSM		FSW		TG	
	Yes	No	Yes	No	Yes	No
HIV-	91.9%	97.1%	92.2%	89.9%	55.8%	49.0%
HIV+	8.1%	2.9%	7.8%	10.1%	44.2%	51.0%

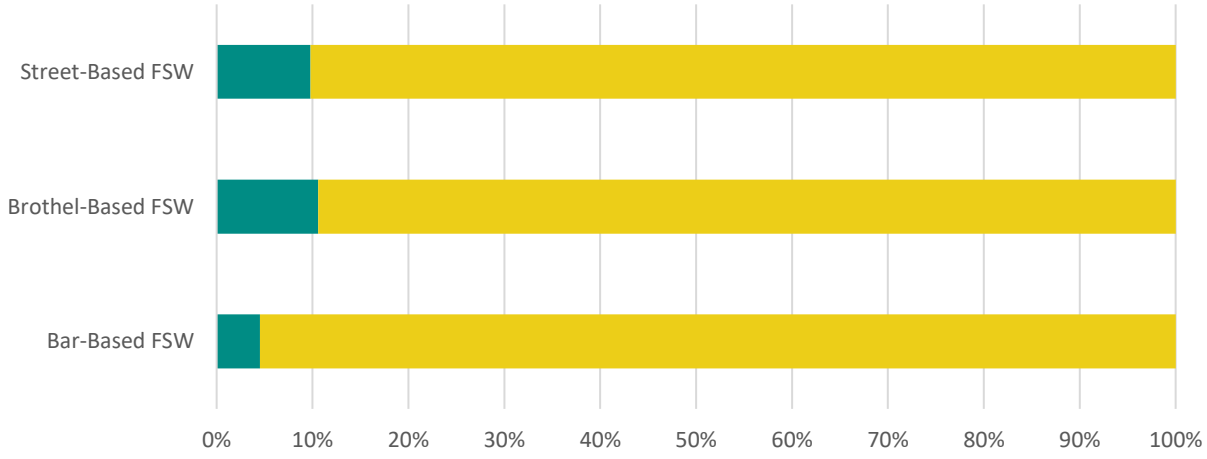
Figure 15. HIV Infection by Economic Insecurity among KP, PLACE 2016

Table 15 indicates that 13 percent of the FSWs, 4 percent of the MSM, and 55 percent of the transgender women who were tested for the first time during this survey tested positive for HIV.

Table 6. HIV Infection by History of Testing and Knowledge of HIV

	MSM		FSW		TGW	
	HIV-	**HIV+**	**HIV-**	**HIV+**	**HIV-**	**HIV+**
Ever Tested						
No	95.7%	4.3%	86.7%	13.3%	45.4%	54.6%
Yes	95.1%	4.9%	91.0%	9.0%	49.5%	50.5%
Know Where to Get Tested						
No	96.5%	3.5%	90.9%	9.1%	46.7%	53.3%
Yes	94.7%	5.3%	90.8%	9.2%	49.4%	50.6%
Knowledge about HIV						
Poor	95.1%	4.9%	90.4%	9.6%	45.6%	54.4%
Good	95.7%	4.3%	91.4%	8.6%	55.6%	44.4%

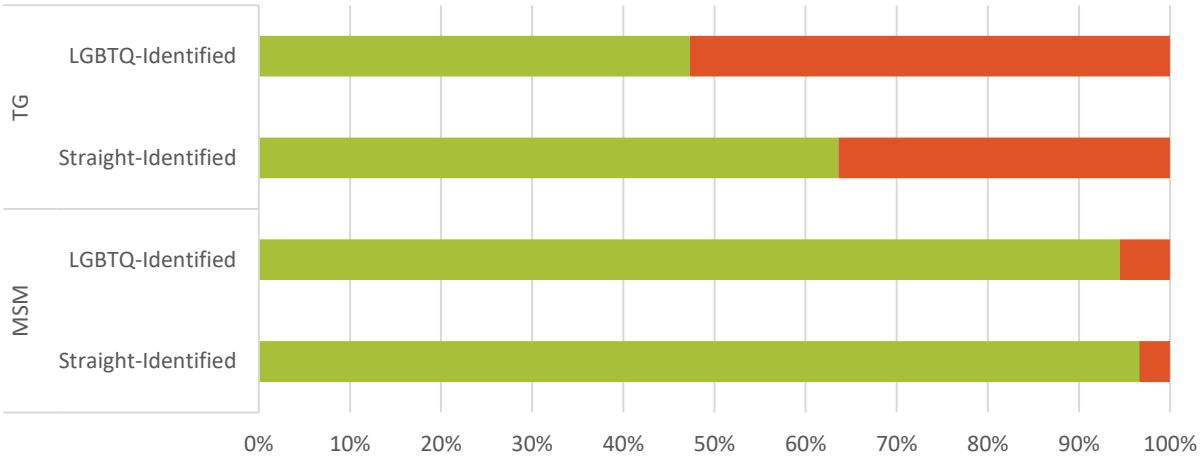
Figure 16 shows the difference in the proportion of FSWs who were seropositive by type of workplace. Of the FSWs tested, 107 were tested at bars, 395 at brothels, and 164 at street sites. No difference was found in the proportion of street-based or brothel-based FSWs who were seropositive; yield in both groups was approximately 10 percent. The yield among bar-based FSWs was much lower at 4.5 percent.



	Bar-Based FSW	Brothel-Based FSW	Street-Based FSW
HIV+	4.5%	10.6%	9.8%
HIV-	95.5%	89.4%	90.2%

Figure 4. HIV Infection among FSWs by Type of Workplace, PLACE 2016

Among both transgender women and MSM, sexual orientation was a significant predictor of HIV infection. Sixty-four percent of the MSM and 89 percent of the transgender women who participated in PLACE self-identified as lesbian, gay, bisexual, transgender or queer (LGBTQ). HIV infection was more common among those who self-identified as LGBTQ compared to those who did not.



	MSM		TG	
	Straight-Identified	LGBTQ-Identified	Straight-Identified	LGBTQ-Identified
HIV-	96.6%	94.5%	63.6%	47.3%
HIV+	3.4%	5.5%	36.4%	52.7%

Figure 5. HIV Infection by LGBTQ Identity, PLACE 2016

Key Population Size Estimates

Table 16 shows the crude size estimates for all arrondisements where data were collected. The estimates presented were calculated using the minimum, midpoint, and maximum number of KP members reported to be present at the hot spot at a busy time, based on data from hot spot validation visits. Size estimates are shown separately for FSWs and MSM. Size estimates were not calculated for transgender women because site informants could not reliably estimate the number of transgender women at hot spots. In fact, because having a female gender identity does not necessarily translate to female gender expression in Haiti, it is likely that most site informants could not distinguish transgender women from MSM. As a result, the size estimates for MSM should be interpreted with caution as they may in fact be partially or fully inclusive of the population of transgender women.

The crude size estimates presented in Table 16 were reviewed for validity in light of the reality that the study team encountered in the field. In a few cases, data collectors had difficulty finding knowledgeable and cooperative informants. For example, hot spots were less accessible in the gang-controlled areas of Cité Soleil, and hot spot managers were less cooperative and forthcoming with data collectors in the affluent neighborhood of Pétionville. In such cases, we chose to use the maximum instead of the midpoint estimate to avoid underestimating KP size. Arrondisements for which we used the maximum estimate include Limbe, Saint Louis du Nord, Cayes, Mole Saint-Nicolas, and Port-au-Prince.

In addition, in a few arrondisements, the crude size estimates derived from general site informant reports were unreasonably low in comparison to the number of KP members actually interviewed as part of PLACE. For example, although general site informants reported a maximum of 56 FSWs and 14 MSM in Gonaives, we were able to identify and interview 84 FSWs and 24 MSM. For this reason, we chose to exclude Gonaives from the extrapolation model in Step 3. Other arrondisements excluded from the model were Acul du Nord for FSWs, and Acul du Nord and Jeremie for MSM. In all these cases, we simply replaced the observed size estimates with values predicted by the model. This approach was analogous to a hierarchical shrinkage model in which estimates are pulled toward the model-predicted mean in cases with sparse or unreliable data.

For all other arrondisements, we used the midpoint of the range reported by the general site informant summed across all validated hot spots as an estimate of the typical number of KP members present across all hot spots in the arrondisement at the busiest times for those hot spots.

At the hot spot level, crude size estimates can be useful for program planning insofar as they estimate the number of people who can be reached at a given hot spot at a specific busy time. However, crude size estimates are not ideal for use as denominators for program planning and tracking, for several reasons. First, site informants may have difficulty estimating the number of KP members who visit a hot spot, especially if the hot spot is very large or its boundaries amorphous. Furthermore, site informants may tend to minimize or exaggerate the number of KP members present at the hot spot depending on their own perceptions and biases. And, perhaps most crucially, the crude size estimate does not account for the fact that individuals may visit multiple hot spots in the same geographic area, which can result in a significantly inflated size estimate when the population is very mobile. We sought to overcome these limitations by adjusting the crude size estimates based on data from individual KP interviews.

Table 7. Crude size estimates for arrondisements where data were collected, calculated using the minimum, midpoint, and maximum number of KP members at each hot spot at a busy time as reported by general site informants, PLACE 2016

Department	Arrondisement	FSWs			MSM		
		Min.	Midpoint	Max.	Min.	Midpoint	Max.
Artibonite	Dessalines	1113	1473	1833	854	1400.5	1947
	Gonaives	25	40.5	56	8	11	14
	Gros Morne	775	1264.5	1754	469	950.5	1432
	Saint-Marc	992	1324	1656	725	852.5	980
Centre	Hinche	127	203	279	18	24	30
	Mirebalais	257	431	605	161	361	561
Grande-Anse	Jeremie	111	151	191	0	0	0
Nippes	Miragoane	1105	1152	1199	710	862.5	1015
Nord	L'Acul du Nord	3	3.5	4	0	0	0
	Cap Haitien	316	520.5	725	165	255.5	346
	Grande Riviere du Nord	34	112	190	25	67.5	110
Nord-Est	Limbe	58	85	112	20	25	30
	Fort-Liberte	230	396	562	516	524	532
	Ouanaminthe	716	860.5	1005	430	625	820
	Trou du Nord	21	40	59	12	20.5	29
Nord-Ouest	Mole Saint Nicolas	68	177	286	1	1.5	2
	Port-de-Paix	206	335	464	110	178.5	247
	Saint Louis du Nord	20	44	68	25	61.5	98
Ouest	Croix des Bouquets	374	540.5	707	97	208	319
	Leogane	496	874	1252	409	565	721
	Port-au-Prince	2474	3822.5	5171	861	1310	1759
Sud	Aquin	1194	1324.5	1455	735	912.5	1090
	Cayes	160	278	396	66	141	216
Sud-Est	Jacmel	362	578	794	215	363.5	512

Tables 17 and 18 show the series of calculations done to reach the adjusted size estimates. Column (*a*) shows the crude size estimate after adjustment for the iceberg effect. Columns (*b*), (*c*), and (*d*) are adjustment factors multiplied against (*a*) to produce the adjusted size estimate in column (*e*). The final column shows the adjusted size estimate as a proportion of the total male or female population aged 15–49.

Table 8. Calculation of Adjusted Size Estimates by Department, Female Sex Workers (FSWs), PLACE 2016

$$e = a \times b \times c \times d$$

Department	Crude Size Estimate	(a) Crude Size Estimate Adj. for Iceberg Effect	(b) General Site Informant Bias Adj. Factor	(c) Double Counting Adj. Factor	(d) Month Adj. Factor	(e) Adjusted Size Estimate	Est. % of Female Population Aged 15-49
Artibonite	5,547	5,951	0.74	0.96	2.84	12,000	2.8%
Centre	1,306	1,399	0.74	0.89	2.47	2,300	1.2%
Grande-Anse	672	717	0.74	0.89	2.47	1,200	1.0%
Nippes	1,607	1,659	0.74	0.89	2.47	2,700	3.2%
Nord	1,967	2,095	0.74	0.89	2.47	3,400	1.3%
Nord-Est	1,459	1,519	0.74	0.89	2.47	2,500	2.5%
Nord-Ouest	689	780	0.74	0.89	2.47	1,300	0.7%
Ouest	7,071	7,720	0.74	0.93	1.70	9,100	0.9%
Sud	2,133	2,211	0.74	0.89	2.47	3,600	1.9%
Sud-Est	1,244	1,402	0.74	0.89	2.47	2,300	1.4%
Total	23,695	25,453	--	--	--	40,400	1.5%

Table 9. Calculation of Adjusted Size estimates by Department, Men Who Have Sex with Men (MSM), PLACE 2016

$$e = a \times b \times c \times d$$

Department	Crude Size Estimate	(a) Crude Size Estimate Adjusted for Iceberg Effect	(b) General Site Informant Bias Adj. Factor	(c) Double Counting Adj. Factor	(d) Month Adj. Factor	(e) Adjusted Size Estimate	Est. % of Male Population Aged 15-49
Artibonite	4,114	4,350	1.01	0.81	2.40	8,500	2.0%
Centre	855	918	1.01	0.78	3.21	2,300	1.2%
Grande-Anse	1,320	1,328	1.01	0.78	3.21	3,300	2.9%
Nippes	1,176	1,218	1.01	0.78	3.21	3,100	3.6%
Nord	1,195	1,283	1.01	0.78	3.21	3,200	1.2%
Nord-Est	1,282	1,323	1.01	0.78	3.21	3,300	3.4%
Nord-Ouest	279	336	1.01	0.78	3.21	800	0.5%
Ouest	2,836	3,244	1.01	0.91	2.61	7,800	0.8%
Sud	1,401	1,451	1.01	0.78	3.21	3,700	1.9%
Sud-Est	822	911	1.01	0.78	3.21	2,300	1.5%
Total	15,279	16,363	--	--	--	38,300	1.4%

After adjusting for plausible and measurable sources of bias, the resulting KP size estimates are 40,400 FSWs, representing approximately 1.5 percent of the female population aged 15–49, and 38,300 MSM, representing approximately 1.4 percent of the male population aged 15–49. These estimates should be interpreted as the number of KP members who can be reached by programs at places where people meet new sexual partners over the course of a given month, throughout the 10 geographic departments of Haiti.

Table 19 summarizes the distribution of key populations by department, suggesting that more than half of FSWs and nearly half of MSM can be reached in the Artibonite and Ouest departments.

Table 10. Final adjusted size estimates by department, Female Sex Workers (FSW) and Men Who Have Sex with Men (MSM), PLACE 2016

Department	FSWs	MSM
Artibonite	12,000	8,500
Centre	2,300	2,300
Grande-Anse	1,200	3,300
Nippes	2,700	3,100
Nord	3,400	3,200
Nord-Est	2,500	3,300
Nord-Ouest	1,300	800
Ouest	9,100	7,800
Sud	3,600	3,700
Sud-Est	2,300	2,300
Total	40,400	38,300

SUBNATIONAL RESULTS

In this section, we present the characteristics of hot spots mapped in each of the 10 geographic departments of Haiti.

In addition, we present the number of individuals interviewed and tested by department, and the proportion who tested positive for HIV. HIV yield should not be interpreted as population prevalence at the department level because the sample of study participants was not designed to be representative at subnational levels. The study sample is representative at the national level, and national prevalence estimates are reported above.

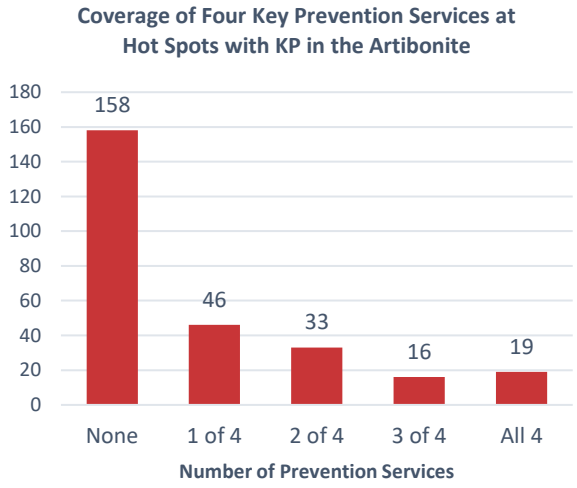
Artibonite

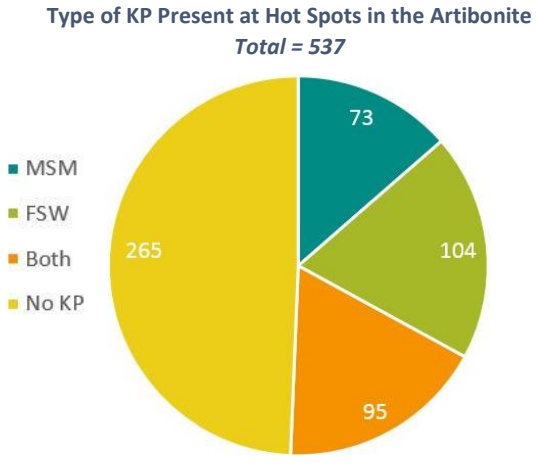
	FSWs	MSM	TGW
Population Size Estimate	12,000	8,500	--
No. Interviewed and Tested	182	238	29
Proportion HIV+	*13%*	*4%*	*61%*

- ✓ **812** community informants were interviewed
- ✓ **537** unique hot spots were mapped
- ✓ **199** of these hot spots were reported to be frequented by FSWs, and **168** by MSM

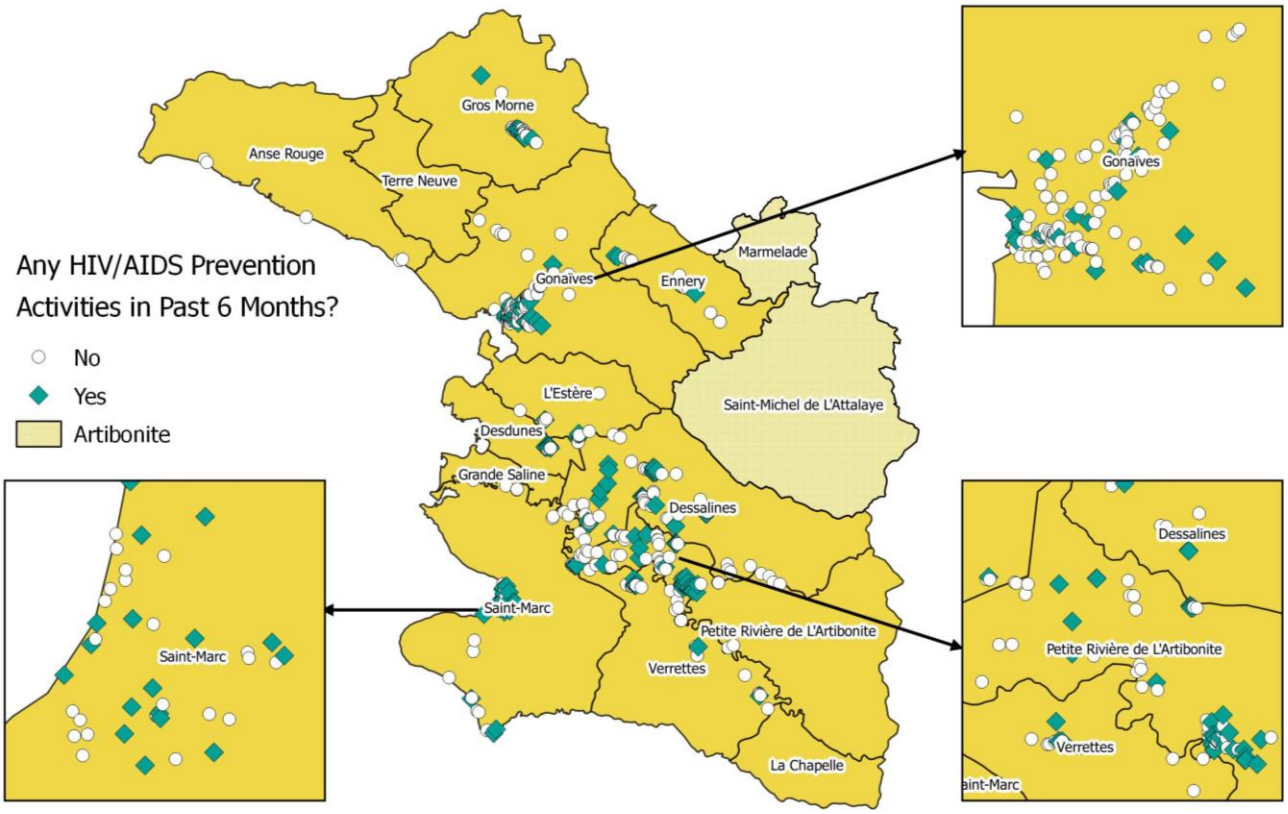
Characteristics of Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Type of Hot Spot		
Bar or Club	26.6%	22.6%
Hotel	4.5%	3.6%
Brothel	14.6%	1.8%
Street	6.0%	1.2%
Park, Beach, or Market	6.5%	4.8%
Baz	6.5%	13.1%
Tourist Attraction	1.0%	0.6%
Private Home	3.5%	16.1%
Event	19.1%	20.8%
Other	11.6%	15.5%
Hot Spot with Sex on Site	65.8%	53.0%
Hot Spot with Key Populations Living on Site	25.6%	24.4%

Coverage of Four Key Prevention Services at Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Condoms Visible	19.1%	25.0%
Lubricant Visible	6.5%	15.5%
Outreach Worker Visited in Past 6 Months	21.6%	31.0%
HIV Testing in the Past 6 Months	18.1%	23.8%





Of the 537 hot spots in the Artibonite, 272 are frequented by KPs. More than half of these hot spots had received no prevention services in the past six months. Only 19, or 3.5 percent, had received a full package of services including condoms, lubricant, a visit by an outreach worker, and on-site testing for HIV.



Of the 537 hot spots in the Artibonite, 70 percent had not received any type of HIV/AIDS prevention services in the six months prior to the survey. The majority of hot spots in need of prevention services in the Artibonite are in the communes of Gonaives, Saint-Marc, Petite Rivière de l'Artibonite, and Dessalines.

Hot Spots Reporting any HIV Prevention Activities in the Past Six Months in the Communes of the Artibonite Department, PLACE 2016

Commune	No	Yes	Don't Know	Total
Anse-Rouge	5	0	-	5
Desdunes	6	7	1	14
Dessalines	42	27	1	70
Ennery	16	4	-	20
Gonaïves	119	25	2	146
Gros-Morne	25	10	-	35
L'Estère	17	4	-	21
Petite Rivière de l'Artibonite	59	34	1	94
Saint-Marc	69	29	3	101
Verrettes	22	9	-	31
Total for Artibonite	**380**	**149**	**8**	**537**

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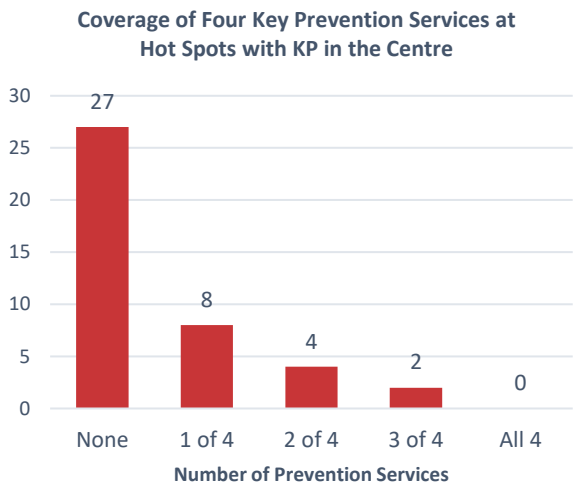
Centre

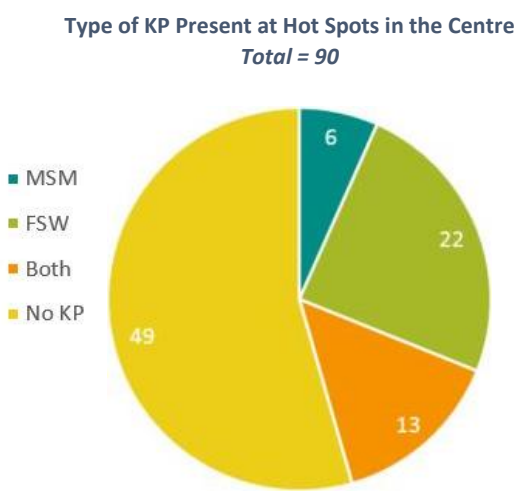
	FSWs	MSM	TGW
Population Size Estimate	2,300	2,300	--
No. Interviewed and Tested	--	--	--
Proportion HIV+	*N/A*	*N/A*	*N/A*

- ✓ **202** community informants were interviewed
- ✓ **90** unique hot spots were mapped
- ✓ **35** of these hot spots were reported to be frequented by FSWs, and **19** by MSM

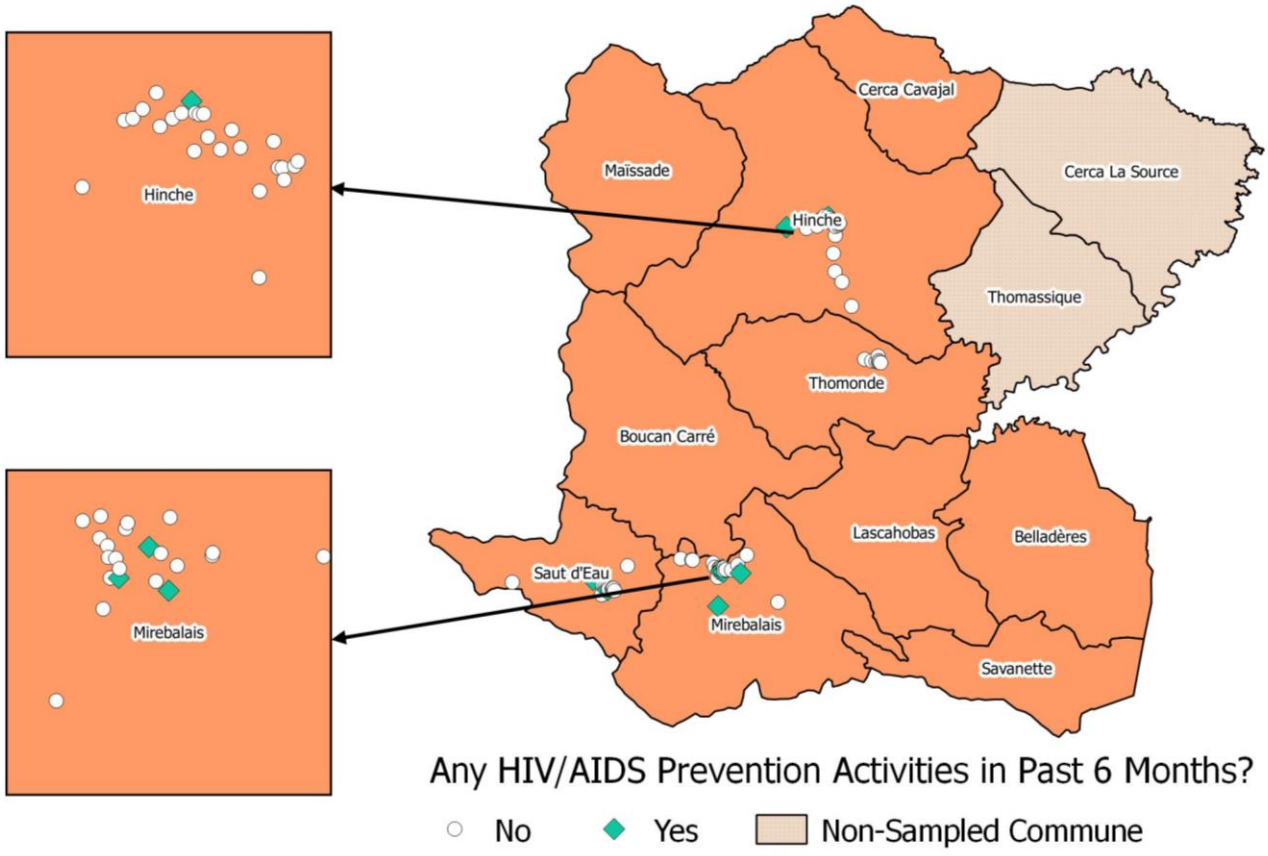
Characteristics of Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Type of Hot Spot		
Bar or Club	28.6%	36.8%
Hotel	14.3%	21.1%
Brothel	20.0%	5.3%
Street	2.9%	0%
Park, Beach, or Market	5.7%	0%
Baz	5.7%	5.3%
Tourist Attraction	5.7%	15.8%
Private Home	2.9%	0%
Event	11.4%	15.8%
Other	2.9%	0%
Hot Spot with Sex on Site	62.9%	68.4%
Hot Spot with Key Populations Living on Site	28.6%	10.5%

Coverage of Four Key Prevention Services at Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Condoms Visible	28.6%	15.8%
Lubricant Visible	5.7%	10.5%
Outreach Worker Visited in Past 6 Months	17.1%	15.8%
HIV Testing in the Past 6 Months	5.7%	23.8%





Of the 90 hot spots in the Centre, 41 are frequented by KP. Two in three of these hot spots had received no prevention services in the past six months. No hot spots had received a full package of services including condoms, lubricant, a visit by an outreach worker, and on-site testing for HIV.



Of the 90 hot spots in the Centre, nearly 90 percent had not received any type of HIV/AIDS prevention services in the six months prior to the survey. The majority of hot spots in need of services are in Hinche and Mirebalais.

Hot Spots Reporting any HIV Prevention Activities in the Past Six Months in the Communes of the Centre Department, PLACE 2016

Commune	No	Yes	Don't Know	Total
Hinche	30	2	1	33
Mirebalais	28	5	1	34
Saut-d'Eau	12	2	1	15
Thomonde	8	-	-	9
Total for Centre	**78**	**9**	**3**	**90**

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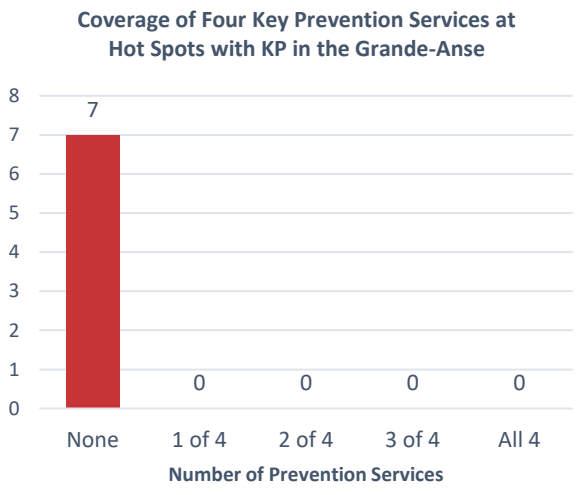
Grande-Anse

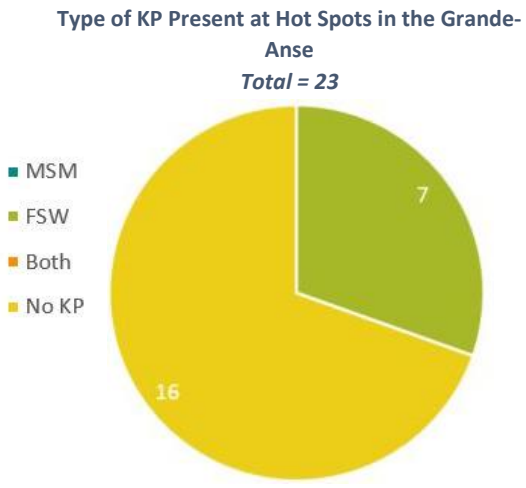
	FSWs	MSM	TGW
Population Size Estimate	1,200	3,300	--
No. Interviewed and Tested	7	10	5
Proportion HIV+	*14%*	*30%*	*80%*

- ✓ **89** community informants were interviewed
- ✓ **23** unique hot spots were mapped
- ✓ **7** of these hot spots were reported to be frequented by FSWs, and **0** by MSM

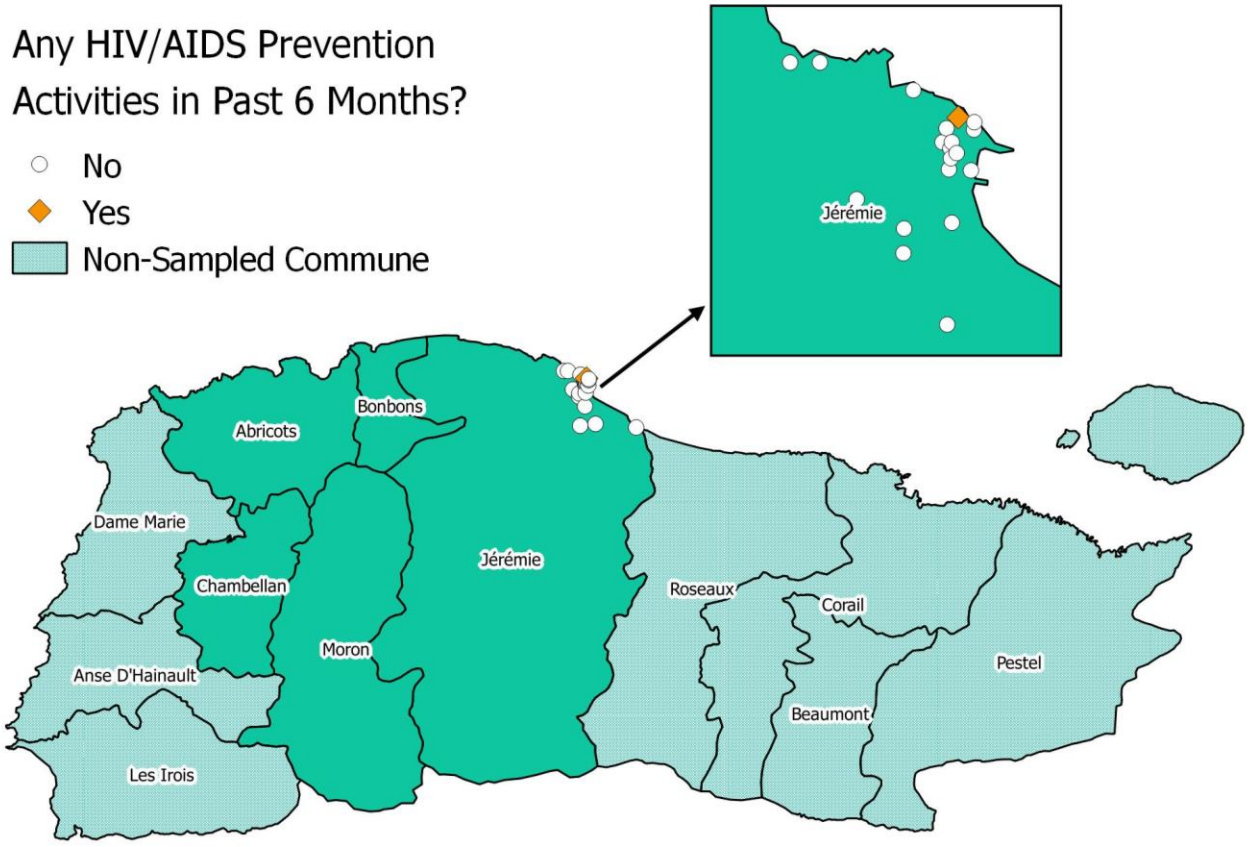
Characteristics of Hot Spots	**Hot spots Frequented by FSWs**	**Hot spots Frequented by MSM**
Type of Hot Spot		
Bar or Club	57.1%	--
Hotel	14.3%	
Brothel	14.3%	
Street	0%	
Park, Beach, or Market	0%	
Baz	0%	
Tourist Attraction	0%	
Private Home	0%	
Event	14.3%	
Other	11.6%	
Hot Spot with Sex on Site	28.6%	--
Hot Spot with Key Populations Living on Site	28.6%	--

Coverage of Four Key Prevention Services at Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Condoms Visible	0%	--
Lubricant Visible	0%	--
Outreach Worker Visited in Past 6 Months	0%	--
HIV Testing in the Past 6 Months	0%	--





Of the 23 hot spots in the Grande-Anse, seven are frequented by KPs. None of these hot spots had received any condoms, lubricant, outreach testing, or visits by an outreach worker in the past six months.



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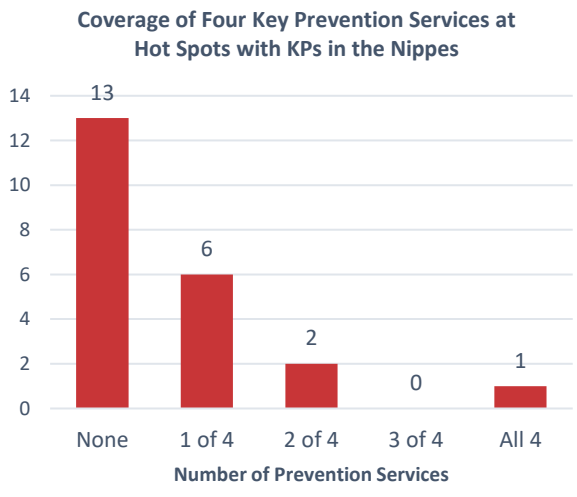
Nippes

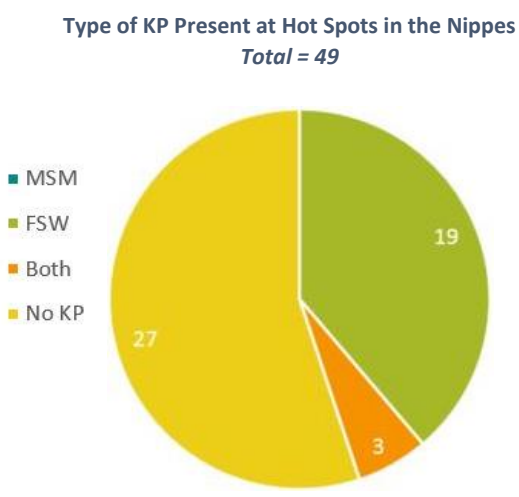
	FSWs	MSM	TGW
Population Size Estimate	2,700	3,100	--
No. Interviewed and Tested	32	21	1
Proportion HIV+	*6%*	*5%*	*0%*

- ✓ **67** community informants were interviewed
- ✓ **49** unique hot spots were mapped
- ✓ **22** of these hot spots were reported to be frequented by FSWs, and **3** by MSM

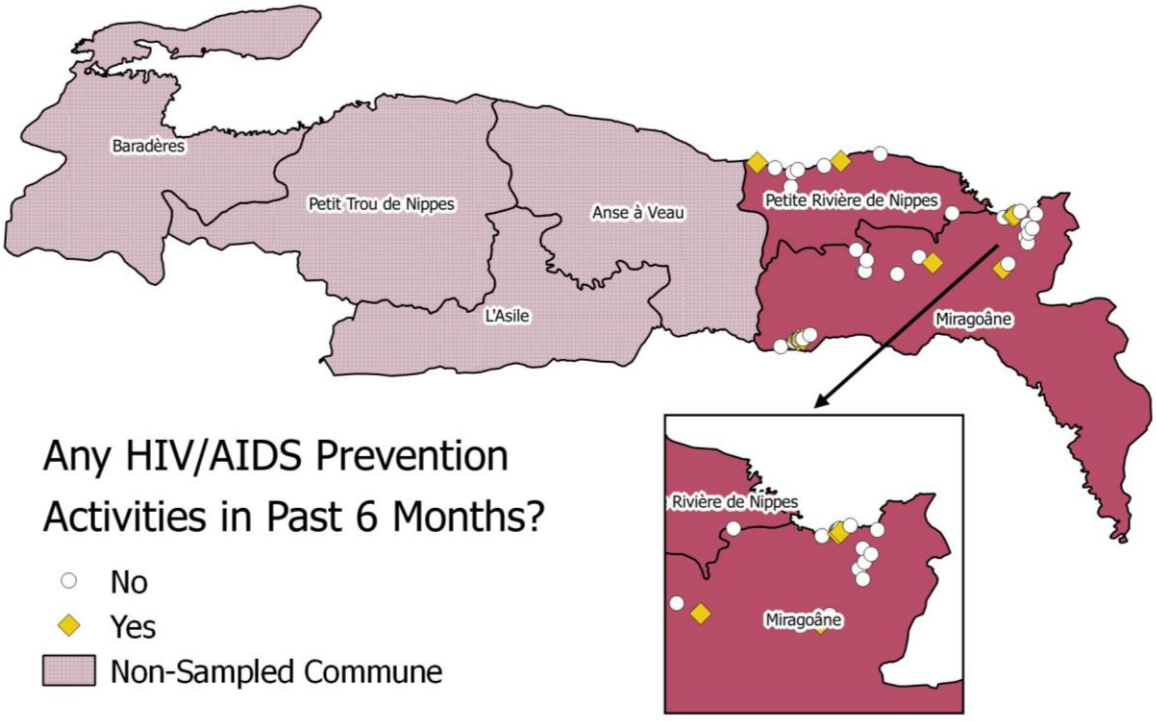
Characteristics of Hot Spots	**Hot spots Frequented by FSWs**	**Hot spots Frequented by MSM**
Type of Hot Spot		
Bar or Club	18.2%	0%
Hotel	0%	0%
Brothel	68.2%	0%
Street	0%	0%
Park, Beach, or Market	4.6%	33.3%
Baz	0%	0%
Tourist Attraction	0%	0%
Private Home	0%	0%
Event	9.1%	66.7%
Other	0%	0%
Hot Spot with Sex on Site	90.9%	100%
Hot Spot with Key Populations Living on Site	72.7%	0%

Coverage of Four Key Prevention Services at Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Condoms Visible	9.1%	0%
Lubricant Visible	4.6%	0%
Outreach Worker Visited in Past 6 Months	22.7%	0%
HIV Testing in the Past 6 Months	27.3%	23.8%





Of the 49 hot spots in the Nippes, 22 are frequented by KPs. More than 50 percent of these hot spots had received no prevention services in the past six months. Only one hot spot had received a full package of services including condoms, lubricant, a visit by an outreach worker, and on-site testing for HIV.



Of the 49 hot spots in the Nippes, 80 percent had not received any type of HIV/AIDS prevention services in the six months prior to the survey. The majority of hot spots in need of services are in Fonds-des-Nègres.

Hot Spots Reporting any HIV Prevention Activities in the Past Six Months in the Communes of the Nippes Department, PLACE 2016

Commune	No	Yes	Don't Know	Total
Fonds-des-Nègres	22	5	1	28
Miragoâne	2	-	-	2
Paillant	9	1	-	10
Petite-Rivière-de-Nippes	6	3	-	9
Total for Nippes	**39**	**9**	**1**	**49**

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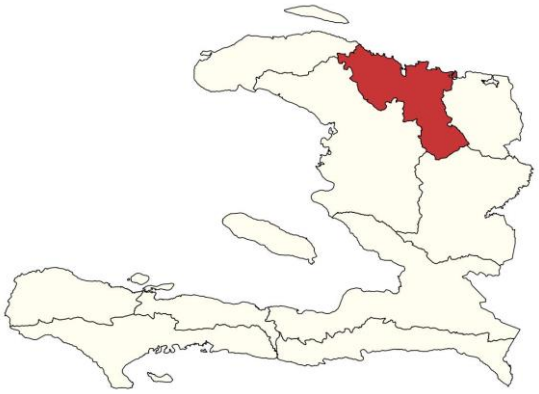
Nord

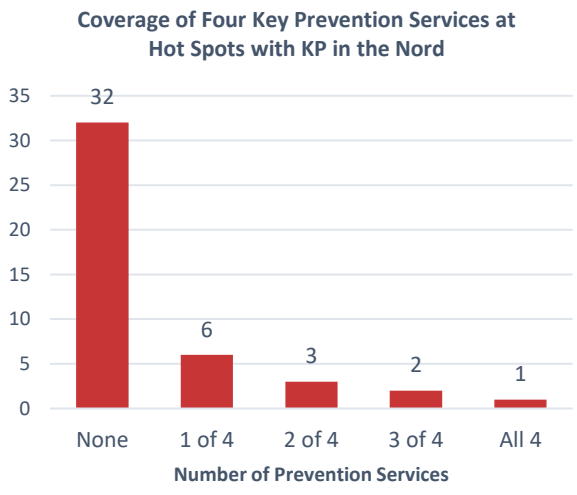


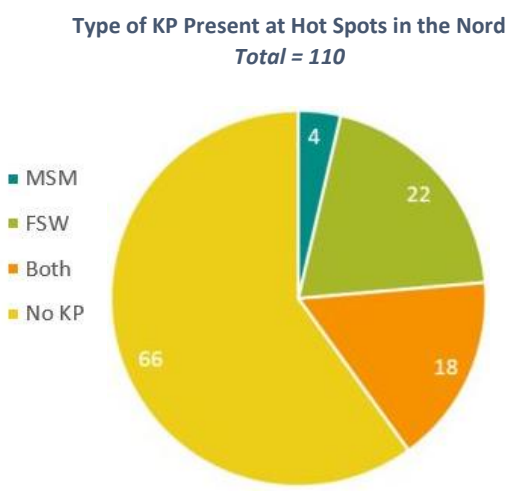
	FSWs	MSM	TGW
Population Size Estimate	3,400	3,200	--
No. Interviewed and Tested	56	23	4
Proportion HIV+	*11%*	*4%*	*0%*

- ✓ **352** community informants were interviewed
- ✓ **110** unique hot spots were mapped
- ✓ **40** of these hot spots were reported to be frequented by FSWs, and **22** by MSM

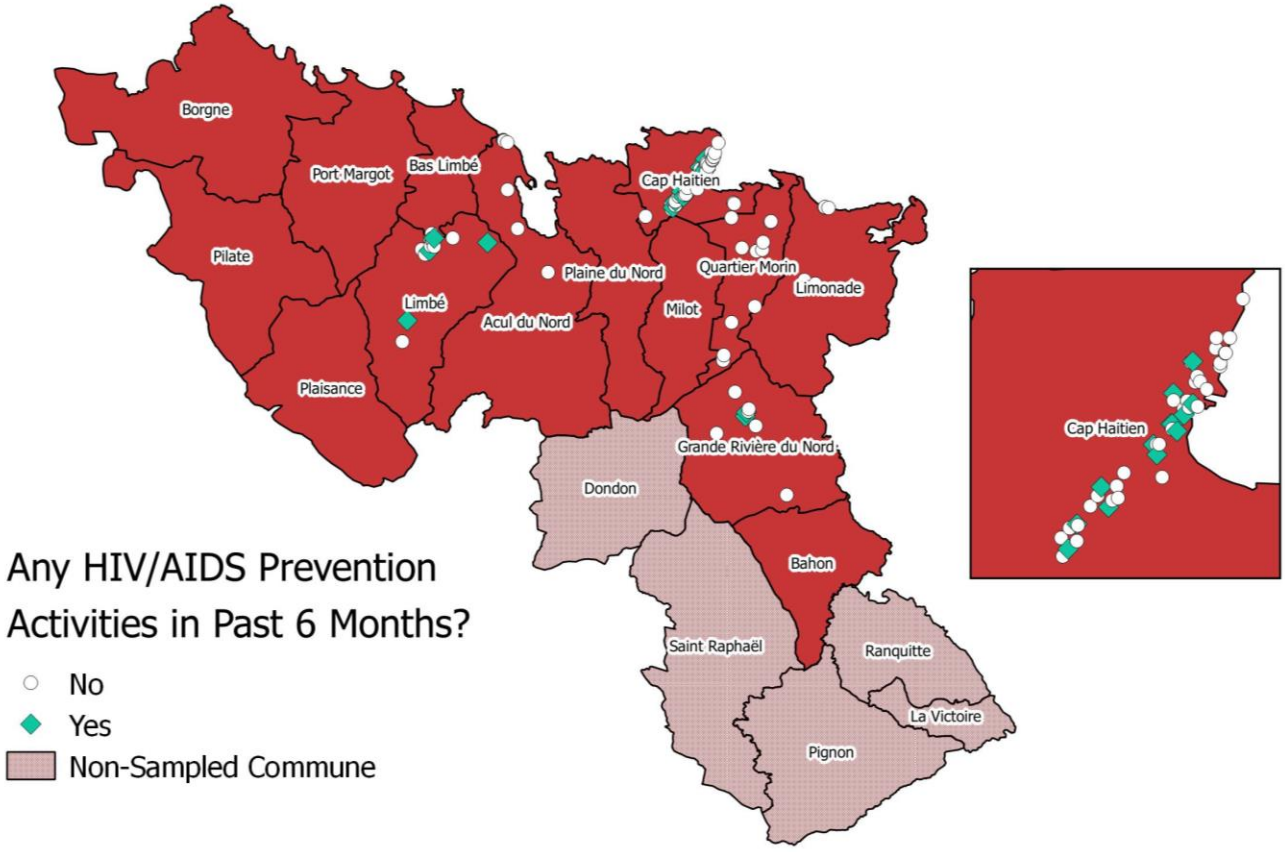
Characteristics of Hot Spots	**Hot spots Frequented by FSWs**	**Hot spots Frequented by MSM**
Type of Hot Spot		
Bar or Club	22.5%	18.2%
Hotel	12.5%	13.6%
Brothel	22.5%	0%
Street	2.5%	0%
Park, Beach, or Market	2.5%	0%
Baz	0%	0%
Tourist Attraction	0%	0 %
Private Home	2.5%	0%
Event	32.5%	59.1%
Other	2.5%	9.1%
Hot Spot with Sex on Site	77.5%	68.2%
Hot Spot with Key Populations Living on Site	28.2%	9.5%

Coverage of Four Key Prevention Services at Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Condoms Visible	20.0%	9.1%
Lubricant Visible	2.5%	0%
Outreach Worker Visited in Past 6 Months	17.5%	9.1%
HIV Testing in the Past 6 Months	15.0%	23.8%





Of the 110 hot spots in the Nord, 44 are frequented by KPs. Nearly 75 percent of these hot spots had received no prevention services in the past six months. Only one hot spot had received a full package of services including condoms, lubricant, a visit by an outreach worker, and on-site testing for HIV.



Of the 110 hot spots in the Nord, more than 80 percent had not received any type of HIV/AIDS prevention services in the six months prior to the survey. The majority of hot spots in need of prevention services are in Cap-Haïtien.

Hot Spots Reporting any HIV Prevention Activities in the Past Six Months in the Communes of the Nord Department, PLACE 2016

Commune	No	Yes	Total
Acul-du-Nord	9	0	9
Cap-Haïtien	39	13	52
Grande-Rivière-du-Nord	6	2	8
Limbé	10	4	14
Limonade	16	0	16
Quartier-Morin	11	0	11
Total for Nord	**91**	**19**	**110**

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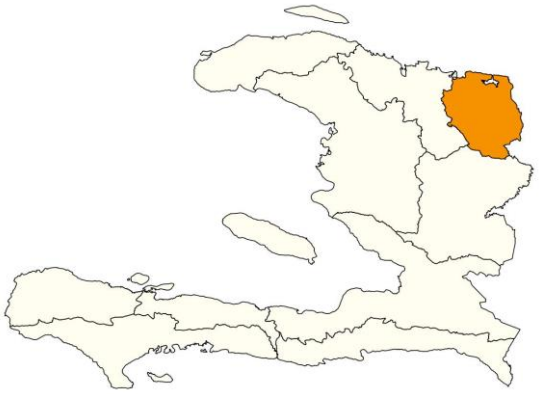
Nord-Est



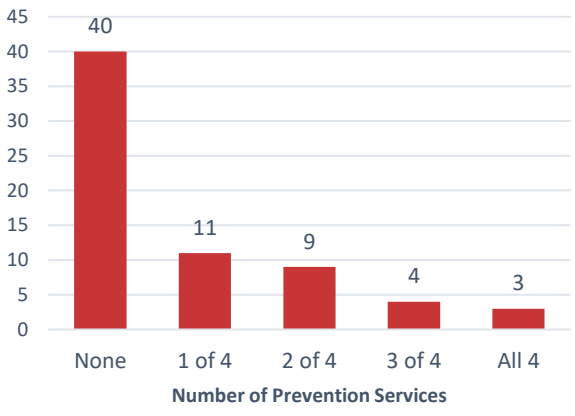
	FSWs	MSM	TGW
Population Size Estimate	2,500	3,300	--
No. Interviewed and Tested	44	49	13
Proportion HIV+	*11%*	*0%*	*17%*

- ✓ **132** community informants were interviewed
- ✓ **115** unique hot spots were mapped
- ✓ **57** of these hot spots were reported to be frequented by FSWs, and **37** by MSM

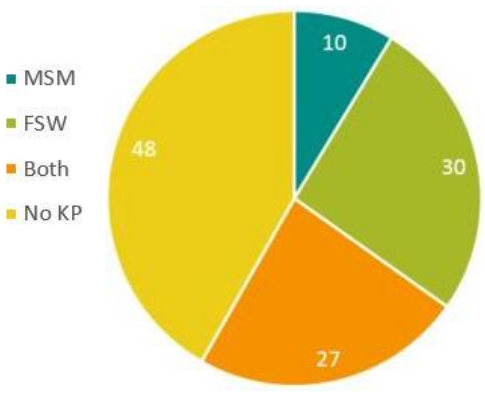
Characteristics of Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Type of Hot Spot		
Bar or Club	31.6%	27.0%
Hotel	7.0%	5.4%
Brothel	17.5%	0%
Street	5.3%	8.1%
Park, Beach, or Market	5.3%	5.4%
Baz	8.8%	8.1%
Tourist Attraction	0%	0%
Private Home	5.3%	18.9%
Event	12.3%	18.9%
Other	7.0%	8.1%
Hot Spot with Sex on Site	68.4%	64.9%
Hot Spot with Key Populations Living on Site	28.6%	22.2%

Coverage of Four Key Prevention Services at Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Condoms Visible	14.0%	16.2%
Lubricant Visible	0%	8.1%
Outreach Worker Visited in Past 6 Months	26.3%	18.9%
HIV Testing in the Past 6 Months	26.3%	23.8%

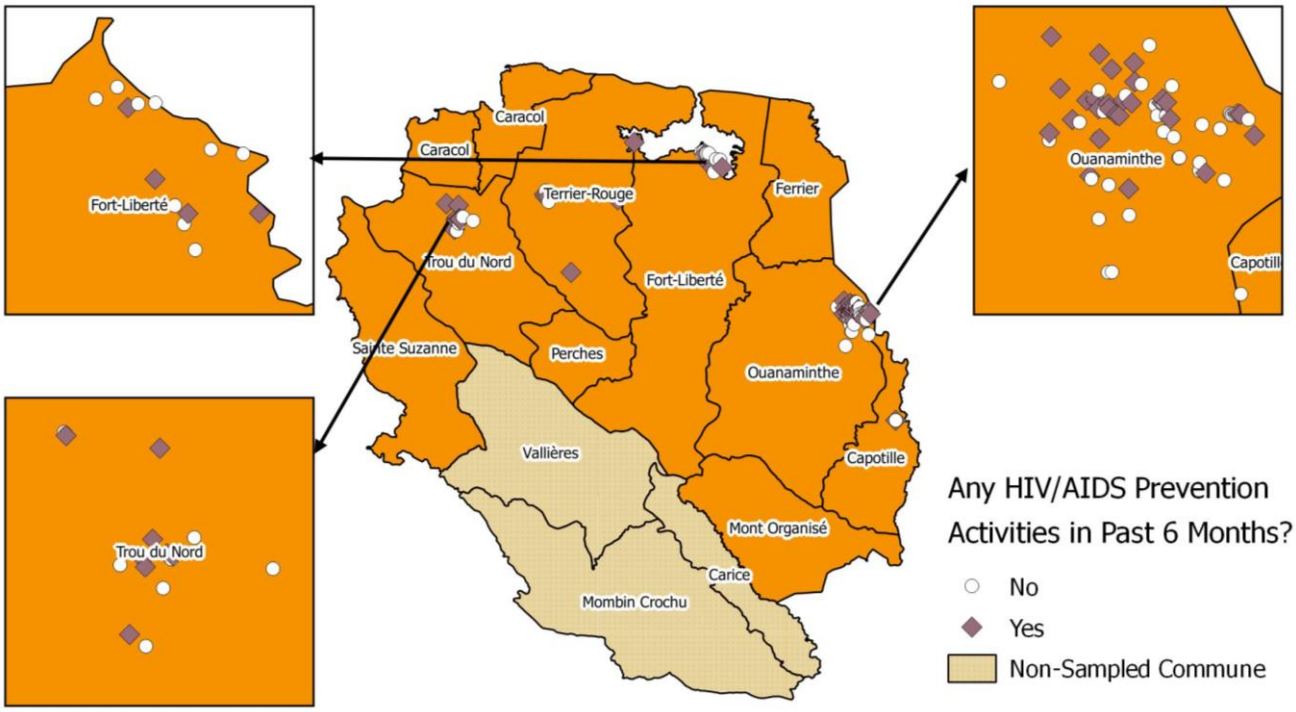
Coverage of Four Key Prevention Services at Hot Spots with KP in the Nord-Est



Type of KP Present at Hot Spots in the Nord-Est
Total = 115



Of the 115 hot spots in the Nord-Est, 67 are frequented by KPs. Sixty percent of these hot spots had received no prevention services in the past six months. Only three, or 5 percent, had received a full package of services including condoms, lubricant, a visit by an outreach worker, and on-site testing for HIV.



Of the 115 hot spots in the Nord-Est, 50 percent had not received any type of HIV/AIDS prevention services in the six months prior to the survey. The majority of hot spots in need of services are in Ouanaminthe, Trou-du-Nord, and Fort-Liberté.

Hot Spots Reporting any HIV Prevention Activities in the Past Six Months in the Communes of the Nord-Est Department, PLACE 2016

Commune	No	Yes	Don't Know	Total
Capotille	1	0	-	1
Fort-Liberté	9	4	-	13
Ouanaminthe	37	28	9	74
Terrier-Rouge	3	6	-	9
Trou-du-Nord	10	8	-	18
Total for Nord-Est	**60**	**46**	**9**	**115**

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Nord-Ouest

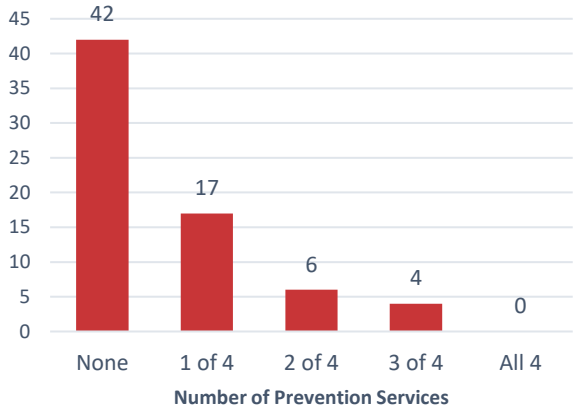
	FSWs	MSM	TGW
Population Size Estimate	1,300	800	--
No. Interviewed and Tested	62	25	5
Proportion HIV+	*2%*	*4%*	*80%*

- ✓ **446** community informants were interviewed
- ✓ **152** unique hot spots were mapped
- ✓ **58** of these hot spots were reported to be frequented by FSWs, and **28** by MSM

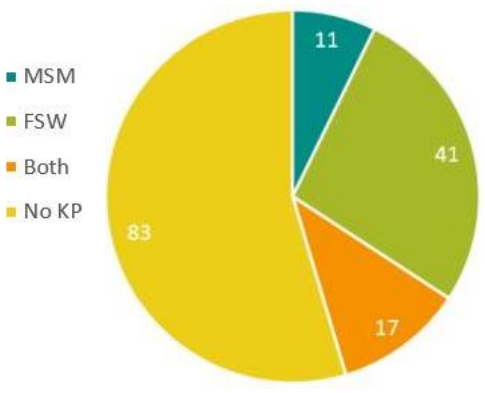
Characteristics of Hot Spots	**Hot spots Frequented by FSWs**	**Hot spots Frequented by MSM**
Type of Hot Spot		
Bar or Club	29.3%	25.0%
Hotel	17.2%	7.1%
Brothel	19.0%	7.1%
Street	0%	0%
Park, Beach, or Market	10.3%	7.1%
Baz	1.7%	3.6%
Tourist Attraction	0%	0%
Private Home	6.9%	17.9%
Event	12.1%	28.6%
Other	3.5%	3.6%
Hot Spot with Sex on Site	65.5%	53.6%
Hot Spot with Key Populations Living on Site	24.1%	10.7%

Coverage of Four Key Prevention Services at Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Condoms Visible	24.1%	14.3%
Lubricant Visible	1.7%	3.6%
Outreach Worker Visited in Past 6 Months	31.0%	21.4%
HIV Testing in the Past 6 Months	12.1%	23.8%

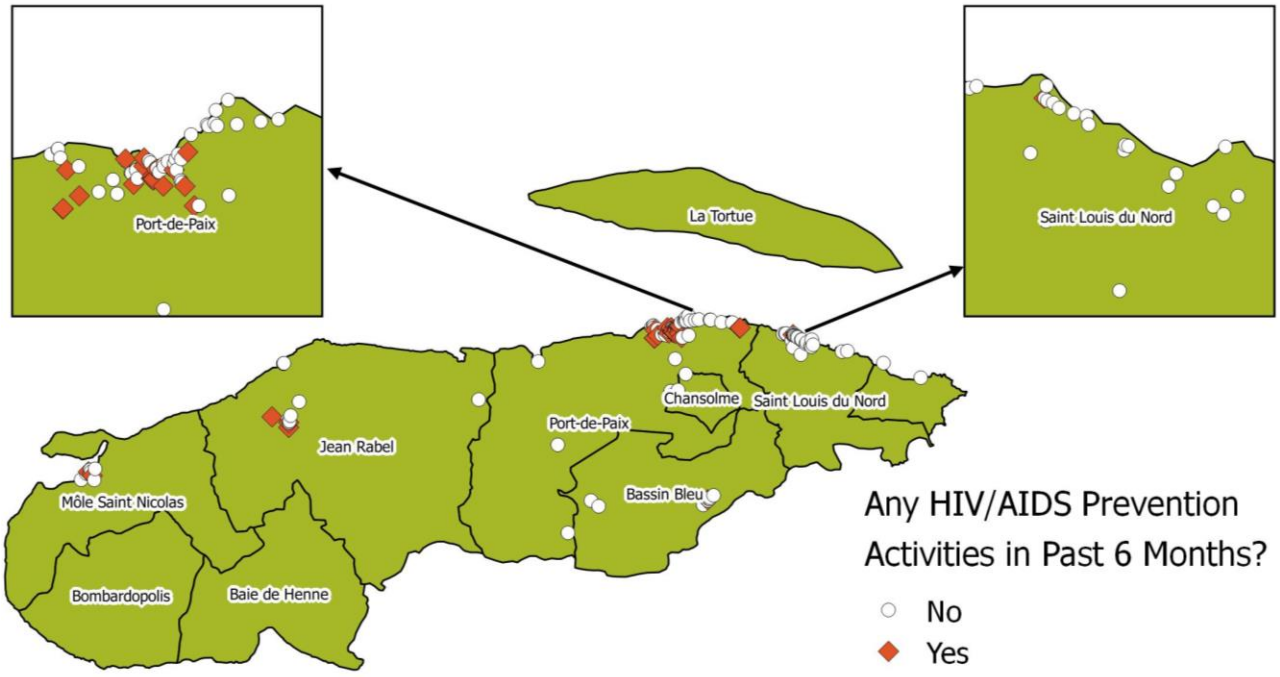
Coverage of Four Key Prevention Services at Hot Spots with KP in the Nord-Ouest



Type of KP Present at Hot Spots in the Nord-Ouest
Total = 152



Of the 152 hot spots in the Nord-Ouest, 69 are frequented by KPs. Sixty percent of these hot spots had received no prevention services in the past six months. No hot spot had received a full package of services including condoms, lubricant, a visit by an outreach worker, and on-site testing for HIV.



Of the 152 hot spots in the Nord-Ouest, 75 percent had not received any type of HIV/AIDS prevention services in the six months prior to the survey. The majority of hot spots in need of services are in Port-de-Paix and Saint-Louis-du-Nord.

Hot Spots Reporting any HIV Prevention Activities in the Past Six Months in the Communes of the Nord-Ouest Department, PLACE 2016

Commune	No	Yes	Don't Know	Total
Bassin-Bleu	7	1	-	8
Chansolme	4	-	-	4
Jean-Rabel	11	3	-	14
Môle-Saint-Nicolas	8	4	-	12
Port-de-Paix	57	24	4	85
Saint-Louis-du-Nord	27	1	1	29
Total for Nord-Ouest	**114**	**33**	**5**	**152**

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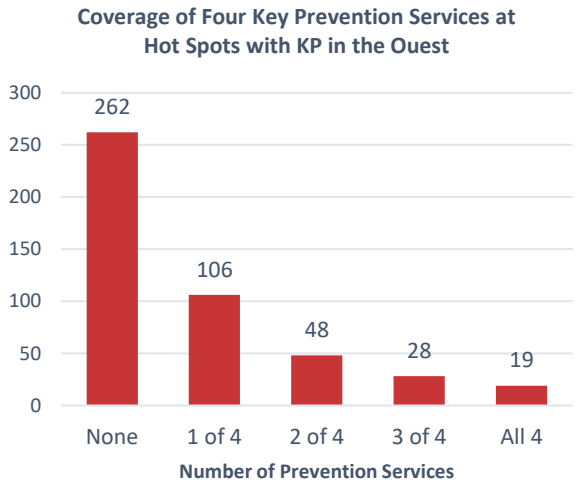
Ouest

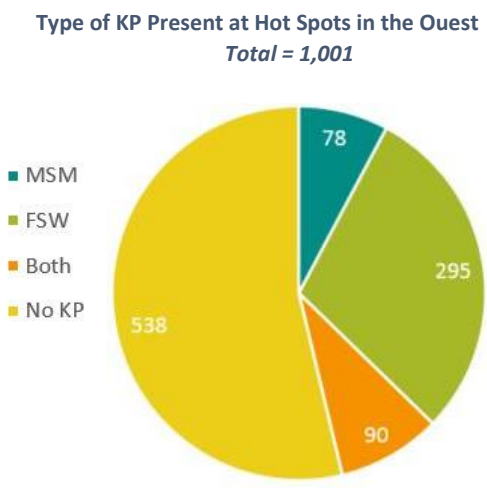
	FSWs	MSM	TGW
Population Size Estimate	9,100	7,800	--
No. Interviewed and Tested	529	120	39
Proportion HIV+	*9%*	*6%*	*53%*

- ✓ **2,474** community informants were interviewed
- ✓ **1,001** unique hot spots were mapped
- ✓ **385** of these hot spots were reported to be frequented by FSWs, and **168** by MSM

Characteristics of Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Type of Hot Spot		
Bar or Club	39.2%	39.3%
Hotel	9.1%	10.7%
Brothel	21.8%	4.8%
Street	13.3%	3.0%
Park, Beach, or Market	6.0%	6.6%
Baz	1.8%	1.8%
Tourist Attraction	0.3%	0.6%
Private Home	1.6%	15.5%
Event	2.6%	8.3%
Other	4.4%	9.5%
Hot Spot with Sex on Site	67.5%	53.6%
Hot Spot with Key Populations Living on Site	24.6%	26.1%

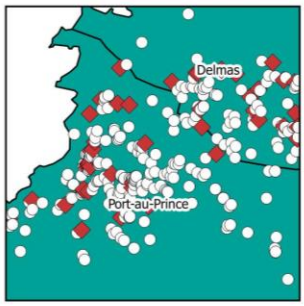
Coverage of Four Key Prevention Services at Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Condoms Visible	29.6%	26.8%
Lubricant Visible	4.7%	10.7%
Outreach Worker Visited in Past 6 Months	22.3%	19.6%
HIV Testing in the Past 6 Months	19.7%	23.8%

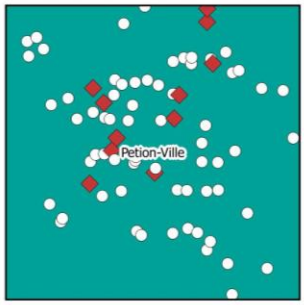


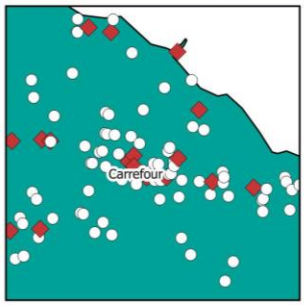


Subnational Results: Ouest Department

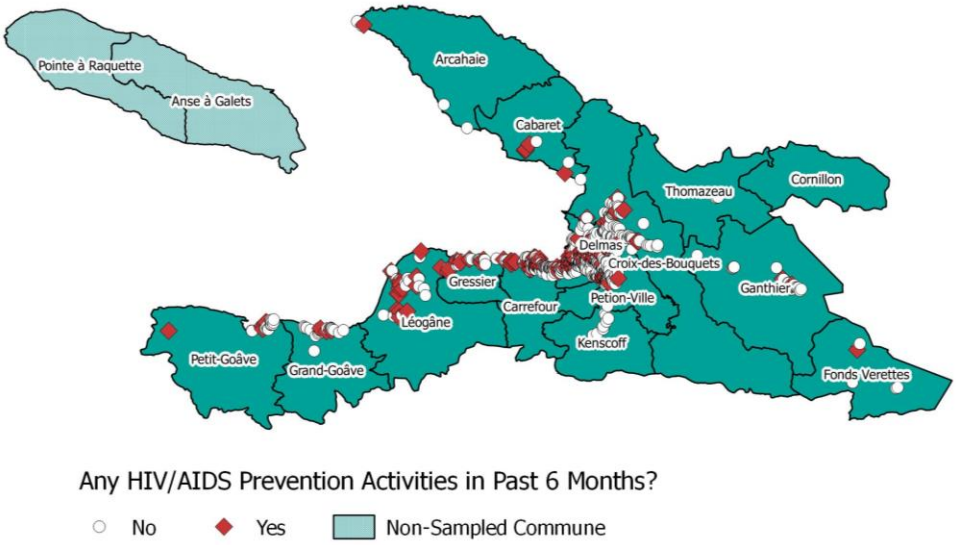
Of the 1,001 hot spots in the Ouest, 463 are frequented by KPs. Nearly 60 percent of these hot spots had received no prevention services in the past six months. Only 19, or 4 percent, had received a full package of services including condoms, lubricant, a visit by an outreach worker, and on-site testing for HIV.







Of the 1,001 hot spots in the Ouest, over 80 percent had not received any type of HIV/AIDS prevention services in the six months prior to the survey. The majority of hot spots in need of prevention services are in the communes of Port-au-Prince, Petion-Ville, Carrefour, and Delmas.



Hot Spots Reporting any HIV Prevention Activities in the Past Six Months in the Communes of the Ouest Department, PLACE 2016

Commune	No	Yes	Don't Know	Total
Arcahaie	1	-	-	1
Cabaret	3	4	-	7
Carrefour	99	19	2	120
Cite Soleil	30	5	-	35
Croix-des-Bouquets	64	11	-	75
Delmas	94	33	1	128
Fonds-Verrettes	8	1	-	9
Ganthier	19	2	-	21
Grand-Goâve	30	4	2	36
Gressier	33	18	-	51
Kenscoff	9	-	-	9
Léogâne	23	17	1	41
Petion-Ville	116	12	-	128
Petit-Goâve	21	6	-	27
Port-au-Prince	235	32	8	275
Tabarre	33	1	1	35
Thomazeau	3	-	-	3
Total for Ouest	**821**	**165**	**15**	**1,001**

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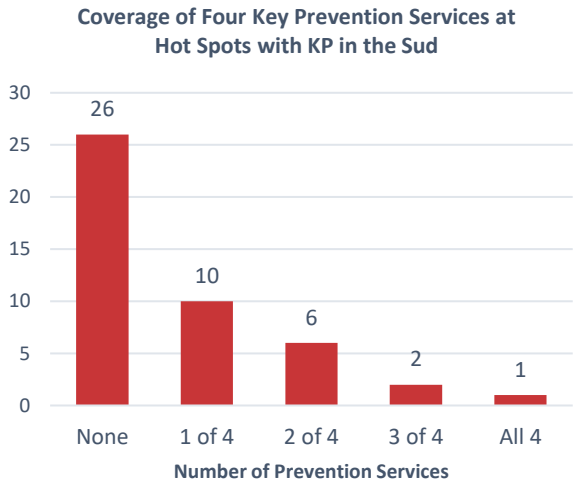
Sud

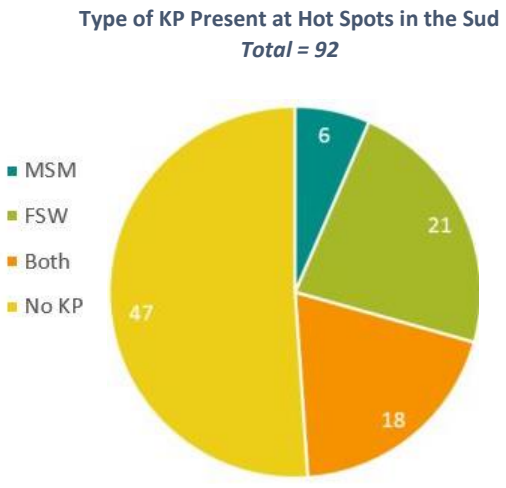
	FSWs	MSM	TGW
Population Size Estimate	3,600	3,700	--
No. Interviewed and Tested	34	22	2
Proportion HIV+	*15%*	*5%*	*50%*

- ✓ **254** community informants were interviewed
- ✓ **92** unique hot spots were mapped
- ✓ **39** of these hot spots were reported to be frequented by FSWs, and **24** by MSM

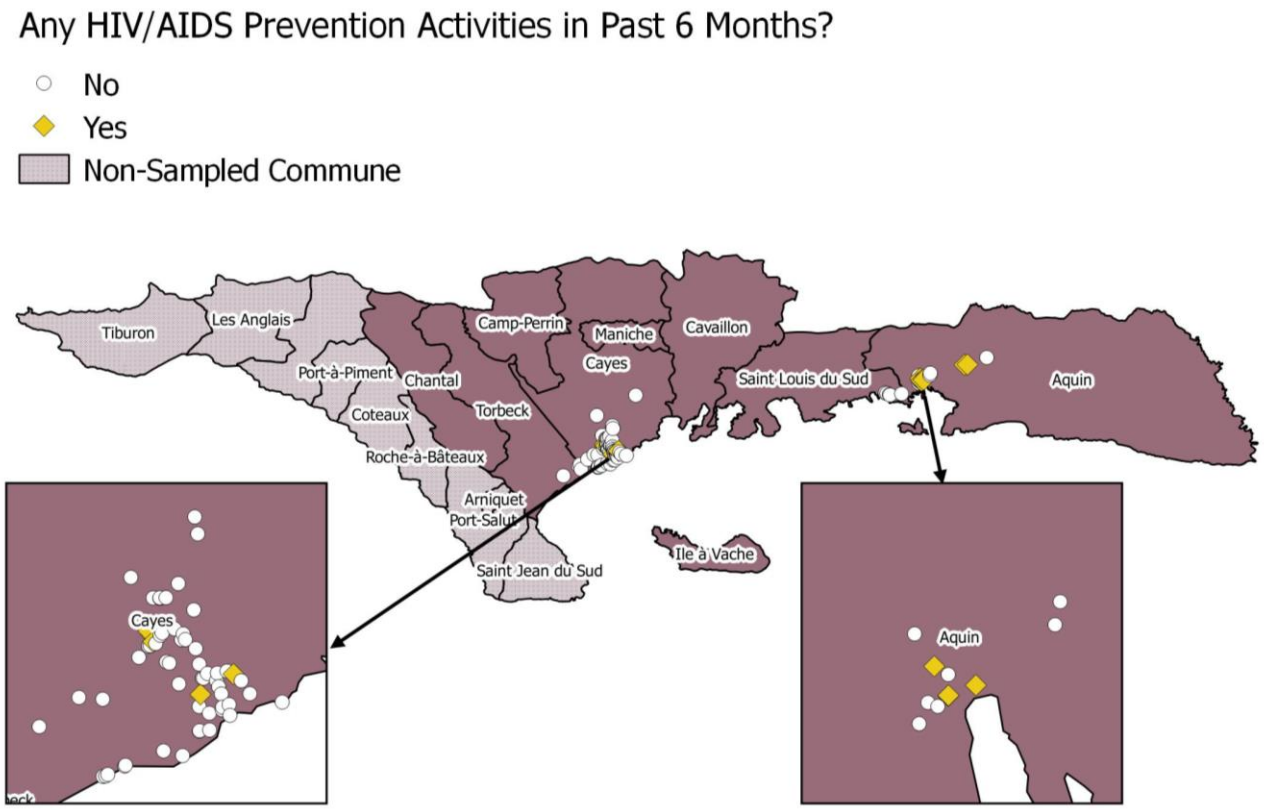
Characteristics of Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Type of Hot Spot		
Bar or Club	53.1%	28.0%
Hotel	8.2%	16.0%
Brothel	10.2%	0%
Street	2.0%	0%
Park, Beach, or Market	6.1%	10.0%
Baz	2.0%	0%
Tourist Attraction	0%	0%
Private Home	0%	2.0%
Event	12.2%	18.0%
Other	6.1%	26.0%
Hot Spot with Sex on Site	63.3%	46.0%
Hot Spot with Key Populations Living on Site	18.4%	4.2%

Coverage of Four Key Prevention Services at Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Condoms Visible	18.4%	8.0%
Lubricant Visible	0%	0%
Outreach Worker Visited in Past 6 Months	8.2%	4.0%
HIV Testing in the Past 6 Months	8.2%	23.8%





Of the 170 hot spots in the Sud, 45 are frequented by KPs. More than 50 percent of these hot spots had received no prevention services in the past six months. Only one hot spot had received a full package of services including condoms, lubricant, a visit by an outreach worker, and on-site testing for HIV.



Of the 92 hot spots in the Sud, over 80 percent had not received any type of HIV/AIDS prevention services in the six months prior to the survey. The majority of hot spots in need of services are in Cayes.

Hot Spots Reporting any HIV Prevention Activities in the Past Six Months in the Communes of the Sud Department, PLACE 2016

Commune	No	Yes	Don't Know	Total
Aquin	13	6	1	20
Cayes	64	4	4	72
Total for Sud	**77**	**10**	**5**	**92**

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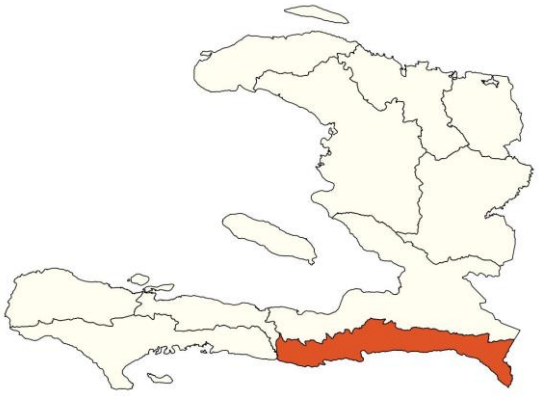
Sud-Est

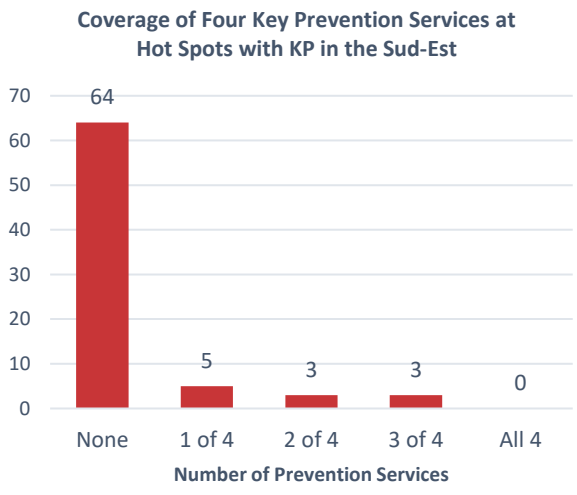
	FSWs	MSM	TGW
Population Size Estimate	2,300	2,300	--
No. Interviewed and Tested	44	14	11
Proportion HIV+	*2%*	*0%*	*45%*

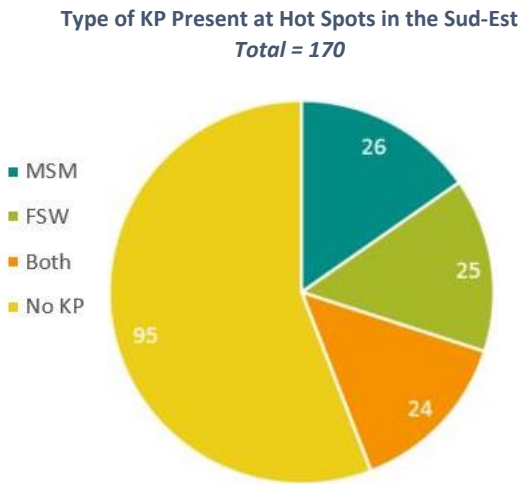


- ✓ **204** community informants were interviewed
- ✓ **170** unique hot spots were mapped
- ✓ **49** of these hot spots were reported to be frequented by FSWs, and **50** by MSM

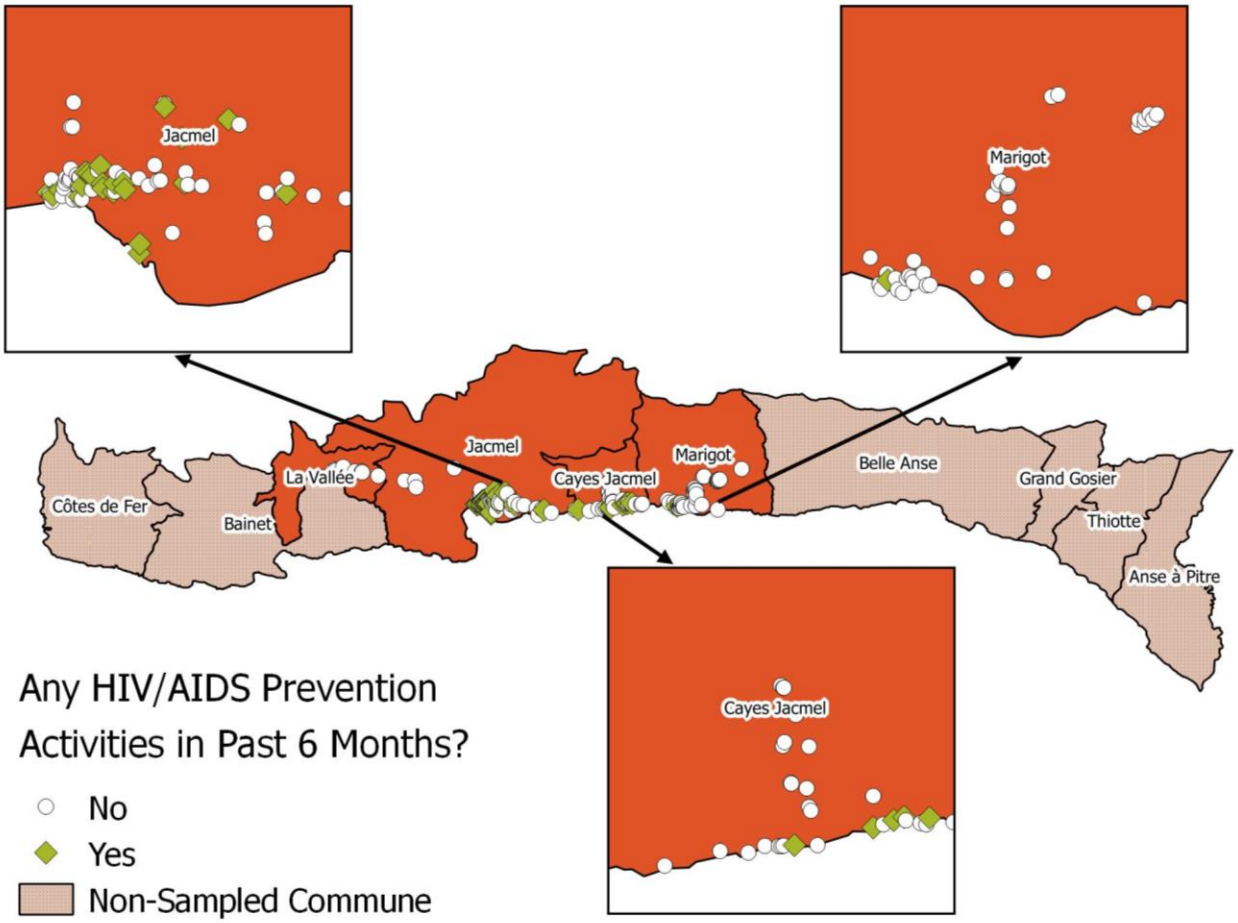
Characteristics of Hot Spots	**Hot spots Frequented by FSWs**	**Hot spots Frequented by MSM**
Type of Hot Spot		
Bar or Club	12.8%	16.7%
Hotel	12.8%	4.2%
Brothel	23.1%	0%
Street	7.7%	4.2%
Park, Beach, or Market	10.3%	16.7%
Baz	2.6%	4.2%
Tourist Attraction	0%	0%
Private Home	0%	4.2%
Event	28.2%	45.8%
Other	2.6%	4.2%
Hot Spot with Sex on Site	76.9%	58.3%
Hot Spot with Key Populations Living on Site	25.6%	4.2%

Coverage of Four Key Prevention Services at Hot Spots	**Hot Spots Frequented by FSWs**	**Hot Spots Frequented by MSM**
Condoms Visible	18.0%	4.2%
Lubricant Visible	2.6%	4.2%
Outreach Worker Visited in Past 6 Months	28.2%	16.7%
HIV Testing in the Past 6 Months	25.6%	23.8%





Of the 170 hot spots in the Sud-Est, 75 are frequented by KP. Eighty-five percent of these hot spots had received no prevention services in the past six months. No hot spot had received a full package of services including condoms, lubricant, a visit by an outreach worker, and on-site testing for HIV.



Of the 169 hot spots in the Sud-Est, 80 percent had not received any type of HIV/AIDS prevention services in the six months prior to the survey. The majority of hot spots in need of services are in Jacmel, Marigot, and Cayes-Jacmel.

Hot Spots Reporting any HIV Prevention Activities in the Past Six Months in the Communes of the Sud-Est Department, PLACE 2016

Commune	No	Yes	Don't Know	Total
Cayes-Jacmel	34	7	1	42
Jacmel	47	22	3	72
La Vallee	13	-	-	13
Marigot	41	1	-	42
Total for Sud-Est	**135**	**30**	**4**	**169**

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DISCUSSION

This is the first study to map hot spots, characterize and estimate the size of key populations across all 10 geographic departments of Haiti. The results are likely to be of great relevance to understanding the nature of the HIV epidemic in Haiti, as well as improving the delivery of services to KPs and other groups at risk for HIV. The data may be particularly useful as baseline estimates for the stakeholders intervening in the public health and human rights sectors in Haiti.

In Haiti, the majority of key population members are in their twenties, have at least a secondary level of education, are in a primary relationship, and have some source of income. Their exposure to HIV is heightened compared to that of the general population through a combination of structural factors, lack of access to prevention services, engagement in behaviors associated with higher risk of infection such as having multiple partners and having sex without condoms, and exposure to other STIs.

HIV prevalence among FSWs, estimated at 7.7 percent (6.4–9.3 percent), is nearly three times the prevalence of all women ages 15–49. Prevalence is higher among FSWs ages 35-44, among those with no formal education, and among those who work at brothels and street sites compared to those who work at bars. HIV prevalence among MSM, estimated at 2.2 percent (0.3–12.4 percent), is 30 percent higher than the prevalence among all men ages 15–49. Prevalence is higher among MSM ages 20-34, among those with a secondary or higher level of education, and among those who had experienced economic insecurity in the past year.

To our knowledge, this is the first study to examine the prevalence of HIV among transgender women in Haiti. The data suggest that this is an extremely high-risk population, with more than one in four transgender women in Haiti infected with HIV. Because this population is defined based on gender identity, which does not correlate perfectly with gender expression, transgender women may be a hidden population in societies with either very rigid or very fluid gender norms. For example, in the 2016 report *Counting Trans People In*, the International Reference Group on Transgender People and HIV/AIDS (IRGT) cites the "fluidity and overlap of culturally specific gender and sexual identities" in Asia and the Pacific, noting that it can be "challenging to enforce rigid operational definitions of transgender" in this context. "Stakeholders from the region observed that in some Pacific nations, communities do not differentiate between sexual and gender minorities, and find the distinction requested by researchers to be an imposition." Yet, the IRGT cautions that the failure to collect disaggregated information on transgender women not only makes this population and their health needs invisible, but "aggregated analyses of data from MSM and trans women reduce the quality and validity of data on MSM and may inflate estimates of HIV prevalence among MSM." This may be why previous studies conducted in Haiti, such as the 2014 IBBS, estimated a higher prevalence of HIV for MSM.

Through biobehavioral interviews, this study examined several behavioral and environmental risk factors for HIV. We found that the age of sexual debut is 10–14 for most transgender women and MSM, and 14–16 for most FSWs. Transactional sex is not limited to FSWs but is also practiced by 82 percent of transgender women and 65 percent of MSM.

Additionally, social and economic vulnerability contribute to the spread of HIV among KPs. About a third of key population members struggle with food insecurity, half do not always have enough money to cover basic expenses, and homelessness affects an estimated 16 percent of MSM, 24 percent of transgender women, and 30 percent of FSWs. This environment of insecurity, combined with stigma

and discrimination, may contribute to the high incidence of physical and sexual violence among KPs. Sixteen percent of MSM, 26 percent of transgender women, and 32 percent of FSWs have been victims of intimate partner violence in the past year, and a staggering 40 percent of MSM, 77 percent of transgender women, and 55 percent of FSWs have ever been raped.

In addition to biobehavioral interviews with key populations, this study identified and mapped 2,339 hot spots, or places where people meet new sexual partners, throughout the 10 geographic departments of Haiti. This represents a significant increase in the number of hot spots identified and mapped compared to the last hot spot identification exercise realized by PSI in 2011. The effort to find and map hot spots is useful in that it permits programs to explore potential pockets of high HIV yield among KPs, provides new insights into sexual networking in Haiti, and establishes a baseline of prevention service coverage so that future interventions can be properly monitored and evaluated.

By taking prevention services directly to hot spots, programs can efficiently reach those at highest risk of infection and interrupt the transmission of HIV. Unfortunately, only 2 percent of the hot spots mapped had received a full package of prevention services in the past six months including distribution of condoms and lubricant, a visit by a peer educator, and on-site testing for HIV. While the coverage of prevention services at hot spots was relatively low, the majority of key population members did report receiving some prevention services in the past year, most commonly condoms and voluntary counseling and testing. This incongruity between the availability of services at hot spots and uptake of services by key populations indicates that KPs are coming to programs for services, rather than programs taking their services to the community. When considered together with the high proportion of new positives identified at hot spots by PLACE, this observation indicates an opportunity for programs to maximize their resources by shifting their focus to delivering services to hot spots.

Access to lubricant is a key gap in prevention service coverage in Haiti. An estimated one in four FSWs, one in two MSM, and three in four transgender women have access to lubricant. Six percent of FSWs used lubricant the last time they had anal sex, compared to 43 percent of MSM, and 73 percent of transgender women. Another notable gap is routine testing for HIV. We estimate that only 42 percent of FSWs, 48 percent of MSM, and 62 percent of transgender women had been tested in the past three months. Access to family planning services is also lacking among FSWs. Half of FSWs are not using any method of contraception other than condoms.

Of all KPs tested as part of PLACE, 23 MSM, 53 transgender women, and 88 FSWs were infected with HIV. Given these relatively low sample sizes, it was difficult to estimate the treatment cascade with great precision. We estimate that 84 percent of MSM, 57 percent of transgender women, and 63 percent of FSWs know their status, of all those living with HIV. However, the confidence intervals around these estimates are wide.

In contrast, only 26 percent of MSM, 32 percent of transgender women, and 34 percent of FSWs in the study sample knew their status, of all those who tested positive for HIV. The difference between these sample statistics and the weighted population estimates can be attributed to differences between the pool of study participants and the broader populations that they represent. In this case, study participants were more likely to be infected and less likely to know their status compared to the broader

populations of MSM, transgender women, and FSWs. This is further evidence that targeting KPs at high-risk hot spots can be a strategy to reach more individuals living with untreated HIV.

Among all KP members living with HIV, syphilis antibodies were also present in 90 percent of transgender women and MSM, and 20 percent of FSWs. This finding suggests a high prevalence of syphilis coinfection, especially among transgender women and MSM. Integrating syphilis screening and treatment into existing services is essential to provide comprehensive prevention, treatment, and care services for transgender women, MSM, and FSWs living with HIV. These data suggest that treating syphilis may serve as an important entry point for other services, improve HIV treatment outcomes, and help reduce the onward transmission of HIV.

The first study designed to obtain KP size estimates was the Integrated Biological and Behavioral Surveillance (IBBS) Survey conducted by PSI in 2014. This study used respondent-driven sampling (RDS) to recruit key population members to participate in interviews and HIV testing at five study sites in the Artibonite, Nord, Nord-Est, Ouest, and Sud departments. A unique object multiplier method was used to estimate KP size. In this method, a unique object such as a bracelet or a purse is distributed widely in the target population prior to the beginning of data collection, and individuals recruited to participate in the study are asked to present the unique object at the time of the interview. A population size estimate was calculated using a simple formula based on the total number of individuals who received unique objects and the proportion of study participants who presented them at the time of the interview. Table 20 shows the resulting size estimates alongside those derived from PLACE.

Table 11. *Comparison of National Key Population Size Estimates from the IBBS (2014) and PLACE (2016)*

	FSWs		MSM	
	Size Estimate	Est. % of Female Pop. Aged 15-49	Size Estimate	Est. % of Male Pop. Aged 15-49
IBBS (2014)[2]	112,300	4.1%	54,700	2.0%
PLACE (2016)	40,400	1.5%	38,300	1.4%

As detailed in the study report, there were several issues with the size estimates calculated using the unique object multiplier method. First, the lack of a screening process and monetary incentive to participate made it difficult to determine whether all participants were in fact members of key populations. Second, field supervisors suspected that many participants who had received unique objects were not presenting them at the time of the interview, which would significantly inflate the resulting size estimates. Third, the number of participants presenting unique objects was so low that it was not possible to calculate size estimates in some departments where data were collected. UNAIDS later calculated size estimates for those departments, as well as the five departments where no data

[2]These estimates were calculated by UNAIDS by extrapolating study data from the limited areas covered by the IBBS. The estimates are highly influenced by the extrapolation model, as study data were only sufficient to provide direct estimates for the Artibonite, Nord-Est, and Sud for FSWs, and for the Artibonite, Nord-Est, Sud, and Ouest for MSM.

were collected, using an extrapolation model. As a result, the national estimates rely heavily on limited data and model assumptions and should be expected to vary on the order of +/-20 percent.

Table 21 compares the size estimates derived from PLACE in Haiti to those from a recent PLACE study in the Dominican Republic. MSM size estimates in Haiti and the Dominican Republic are fairly comparable as proportions of the overall population, both under 1.5 percent. The size estimate of FSWs is higher in the Dominican Republic (DR). This difference may be explained by the higher prevalence of tourism and other markets for sex work in the DR.

Table 21. *Comparison of Size Estimates from PLACE in Haiti and the Dominican Republic (2016)*

	FSWs		MSM	
	Size Estimate	Est. % of Female Pop. Aged 15-49	Size Estimate	Est. % of Male Pop. Aged 15-49
Dominican Republic				
2016 PLACE	87,782	3.3%	32,416	1.2%
Haiti				
2016 PLACE	40,400	1.5%	38,300	1.4%

These national size estimates should not be interpreted as the total number of FSWs or MSM who live in Haiti. This is because some KP members may not socialize at places where they can be reached by programs. For example, subgroups of KPs who are more economically privileged are less likely to socialize at public places and are less likely to be beneficiaries of organizations providing health services to KPs. The estimates in this document should be interpreted as estimates of the size of KPs reachable by programs throughout the 10 geographic departments of Haiti. In addition, the size estimate for MSM should be interpreted with caution as it may in fact include part or all of the population of transgender women in Haiti. The fluidity of categories of gender and sexual minorities in this context make it difficult to estimate the sizes of these two populations separately.

Strengths and Limitations

This study was designed to overcome many of the limitations of previous studies of KPs in Haiti. The protocol was designed to identify and map an exhaustive universe of hot spots and to recruit a representative sample of KPs from those hot spots. To ensure data quality throughout this process, we took several measures including specific and careful training sessions for the interviewers and nurses, pilot tests of the questionnaires, close supervision of fieldwork throughout each of the three phases, and daily debriefing with the field teams. Yet, we faced many challenges in the field. In particular, the refusal rate for individuals interviews and testing was 9.2 percent. Refusals were most common among FSWs who reported that they had been tested recently or who refused to participate without written documentation of their test results. This latter phenomenon is linked to the practice of providing written test results to brothel owners, who then expel sex workers with a positive test result. For this reason, we were ethically unable to provide written documentation of test results to study participants. The

resulting refusal rate may have biased the study sample if, for example, those who refused were more likely to be positive and know their status or be negative and adhere to routine testing.

Another challenge was the recruitment of MSM and transgender women during the weeks following the cancellation of the MassiMadi Festival, a cultural event organized by the LGBTQ community in Haiti. The prospect of the festival had caused considerable controversy in public spaces, through the media and social networks, and the event was ultimately banned by the government. The surrounding controversy provoked direct attacks against members of the LGBTQ community throughout Haiti, and especially in Port-au-Prince. This had a negative impact on participant recruitment during the period of September to October 2016. As a direct result, the study team was not able to recruit the expected sample size of MSM and transgender women in the Ouest Department.

The size estimation protocol presented in this document was designed to address the methodological limitations of previously available size estimates, and a major strength is that it draws on several different data sources including interviews with knowledgeable community members, interviews with KP members themselves, and actual counts of the numbers of KP members present at a statistical sample of hot spots at busy times. Triangulation of multiple data sources yields size estimates that are much more reliable than estimates based on a single data source. Furthermore, these estimates are based on data collected throughout all 10 departments, rather than data from a few purposively selected departments extrapolated to the rest of Haiti.

However, these size estimates also have limitations. First, they are based on information from site informants about the numbers of KP members present at hot spots. When possible, KP members were interviewed as site informants, but in many cases site informants were hot spot owners, managers, or other knowledgeable community members. As a result, site informants may have underestimated or overestimated the number of KP members present at the hot spot at a busy time. We attempted to correct for this source of measurement bias by adjusting the crude size estimates using information about the number of KP members who were actually present at hot spots at the time of individual interviews. Ideally, interviews were conducted on the day and time that was reported as busiest for each individual hot spot. The fieldwork team made an exceptional effort to follow this guideline, including meeting with hot spot staff in advance to schedule the visit. However, due to time constraints, individual interviews may not have been conducted at the reported busiest times for all hot spots. In addition, individual interviews were conducted at a limited number of validated hot spots, and as a result this adjustment factor is subject to a margin of error.

Additionally, the equation used to calculate crude size estimates assumes that the number of KP members who visit any given hot spot at the busiest time and on the busiest day of the week is stable enough that it can be estimated by general site informants. In reality, the number of people who visit a given hot spot may vary from week to week or from season to season. We know that KPs tend to be mobile. In Haiti, many people travel to attend regional festivals, especially MSM and FSWs. If migration from department to department is seasonal or otherwise non-random, then the timing of data collection by department may influence the resulting size estimates. For example, we might have had a larger size estimate for the Ouest Department if we had collected data during carnival season in February. The more mobile KPs are, the more difficult it is for general site informants to give accurate size estimates, and the more difficult it is to adjust those estimates based on individual site visiting behavior.

Furthermore, most of the adjustment factors we calculated were national averages. There may in fact be differences in hot spot visiting behavior between departments. We attempted to allow for regional variation in hot spot visiting behavior by calculating separate adjustment factors for the Ouest and Artibonite. However, the sample sizes of smaller departments were not large enough to estimate department-specific adjustment factors. This introduces some error into the adjusted size estimates at the department level, which should smooth out at the national level.

A final limitation is related to the model used to extrapolate size estimates to areas where data were not collected. Our model uses several independent variables to predict the size of KPs in arrondisements where data were not collected. These independent variables should ideally include all variables that both differ between sampled and non-sampled areas and are associated with KP size. The variables included in the model were selected by members of a National Steering Committee, and we believe they are associated with KP size in Haiti. However, we have no way of knowing whether we included all such variables. A more robust understanding of the specific factors associated with KP size in Haiti would help to improve the extrapolation model.

Finally, analysis of the study data revealed several specific risk factors associated with HIV among KPs in Haiti. However, we were not able to capture all the contextual factors that explain certain risk behaviors or environmental exposures, nor measure the variations in risk by geographic area or population subgroup. In the future, such analyses may be useful for developing a more robust understanding of the epidemic and identifying specific opportunities for intervention to stop the spread of HIV.

RECOMMENDATIONS

If the data from this study are properly understood and used, it is likely that significant progress will be made toward controlling the HIV/AIDS epidemic among KPs in Haiti. The approach of the PLACE method and the results found are specifically pertinent for countries like Haiti that are constrained by a lack of resources and interested in using targeted, venue-based strategies for HIV prevention.

Prior to LINKAGES, most programming targeting KPs focused on behavior change as prevention. Projects such as PrevSIDA focused on promoting the consistent use of condoms and lubricant, routine testing, and reducing the number of sexual partners of FSWs and MSM. Building on these efforts, there is a need to increase the supply of prevention services to match demand. For example, lubricant is still not widely available in Haiti. The prevalence of untreated STIs seems to be quite high, especially among transgender women and FSWs, and only about two-thirds of key populations are engaged in routine testing for HIV.

Comprehensive programming for KPs should include, at a minimum, free condom and lubricant availability, screening and treatment of STIs, gender-based violence and stigma mitigation, and peer navigator accompaniment. However, increasing the supply and demand of health services is only part of the solution. Halting the HIV epidemic among key populations will not be possible without structural interventions to address the fundamental causes of disease. Specifically, a lack of resources including money, access to information, and power drive the disparity in disease burden between key populations and the general population in Haiti. In addition, discrimination and its psychosocial consequences exacerbate the risk for HIV among key populations.

Risk factors related to a lack of resources include economic instability, lack of political power, and low perceived risk or limited knowledge about HIV. For example, about a third of KP members reported not always having enough food to eat in the past year. This situation could be pragmatically addressed by programs to perhaps reduce the frequency of transactional sex occurring among KPs.

Risk factors related to discrimination include lack of social support, avoidance of health care settings due to fear of discrimination, and lack of recourse for victims of violence and rape. For example, 15 percent of key populations had ever spent a night in prison, and an even greater proportion had been homeless in the past year. The vulnerability of key populations is something that could be addressed through interventions to mitigate stigma and prevent gender-based violence. This initiative will require working with all sectors of society including health care, law enforcement, and others to ensure that the human rights of key populations are respected and protected.

A key finding of this study is the disproportionate burden of HIV among transgender women in Haiti. We recommend further study to better understand the explanation for this disparity. In the meantime, programs should consider adopting strategies to target this extremely high-risk population to maximize their resources.

Another way for programs to maximize their resources may be to shift from facility-based to venue-based prevention strategies. Coverage of prevention services at venues where people meet new sexual partners is currently very low in Haiti. Moreover, we found that individuals reached at high-risk

venues were more likely to be HIV positive and less likely to know their status than the broader populations of transgender women, MSM, and FSWs. Shifting from a facility-based approach to delivering prevention services such as condoms, lubricant, routine testing for HIV, and screening for other STIs directly to hot spots may allow programs to reach individuals at higher risk of HIV.

Finally, the data demonstrate the urgency of identifying individuals with undiagnosed HIV. Rates of both treatment initiation and subsequent viral suppression were relatively high among individuals who knew their status prior to the survey. This finding indicates that focusing on the first bar of the treatment cascade could be an effective strategy for achieving the 90-90-90 targets. Finding those individuals with undiagnosed HIV and linking them into the treatment cascade would go a long way toward reducing the burden of HIV among key populations in Haiti.

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APPENDIX A: FORM A

A. Date:	_____/_____/_____	E. Interviewer:	
B. Department:		F. Interviewer Code:	
C. Commune:		G. Type of Informant:	
D. Communal Section:		H. Locality:	
I. Are there any places or events in this community where people go to meet new sexual partners? □ YES □ NO			If NO, thank the respondent and end the interview.

RECORD UP TO 10 HOT SPOTS PER COMMUNITY INFORMANT

J. Num.	K. Name of Place or Event:	L. Description:
____		
M. Address:		N. Landmark:

O. Type of Hot Spot	P. Busiest Day	Q. Busiest Time	R. Number of People Present at Busiest Time
Enter one code from the list below. _____	Monday **1** Tuesday **2** Wednesday **3** Thursday **4** Friday **5** Saturday **6** Sunday **7** N/A **9**	11 AM – 2PM **1** 2 PM – 5 PM **2** 5 PM – 8 PM **3** 8 PM – 11 PM **4** 11PM – 2 AM **5**	< 30 **1** 30-100 **2** 101-200 **3** > 200 **4**

Do any of the following groups of people visit this hot spot?	Yes	No	DNK
S. Women Who Have Sex for Money	1	2	8
T. Transgender People	1	2	8
U. People Who Inject Drugs	1	2	8
V. Men Who Have Sex with Men	1	2	8

	Yes	No	DNK
W. Do people have sex at this hot spot?	1	2	8

Informant Type Codes

Taxi Driver 1	MSM 8	NGO Staff 15
Truck Driver 2	FSW 9	Peer Educator 16
Bar Owner or Employee 3	Hairdresser 10	Community Health Worker 17
Individual Socializing at Hot Spot 4	Community Leader 11	Business Person 18
Security Guard 5	Youth in School 12	Street Vendor 19
Transgender Person 6	Youth out of School 13	Unemployed Person 20
Person Who Injects Drugs 7	Military or Police 14	Other 21

APPENDIX B: FORM B

PART I : COMPLETE PRIOR TO ARRIVAL AT HOT SPOT		
	Date:	_____/_____/_____
B1	Hot Spot ID:	
B2	Hot Spot Name:	
B3	Department:	
B4	Commune:	
B5	Locality:	
B6	Address:	
B7	Landmark:	
B8	Hot Spot Type:	

Hot Spot Type Codes		
Bar 1	Street with Sex Work 8	Fête Patronale/Champêtre 15
Nightclub 2	Other Street Site 9	Other Event 16
Brothel 3	Beach 10	Internet Site 17
Hotel 4	Park 11	Telephone 18
Guesthouse 5	Market 12	Social Network 19
Baz 6	Tourist Attraction 13	Other (Specify) 20
Cartel 7	Cultural or Religious Event 14	

PART II : COMPLETE AT HOT SPOT		
B11	Interviewer:	
B12	Was the hot spot found?	Not Found 1 Found and Operational 2 Temporarily Closed 3 Permanently Closed 4 Duplicate 5 Other (Explain) 6

B13	Community informants called this hot spot <B2>. Is that name correct?	Yes 1 No 2
B13A	<IF B13=2> What is the correct name?	
B14	Community informants said that this hot spot is in <B4>. Is that the correct commune?	Yes 1 No 2
B14A	<IF B14=2> What is the correct commune?	
B15	Community informants said that this hot spot is in <B5>. Is that the correct locality?	Yes 1 No 2
B15A	<IF B15=2> What is the correct locality?	
B16	Community informants said that the address of the hot spot is <B6>. Is that the correct address?	Yes 1 No 2
B16A	<IF B13=2> What is the correct address?	
B17	Community informants said that the hot spot can be found near <B7>. Is that the correct landmark?	Yes 1 No 2
B17A	<IF B17=2> What is the correct landmark?	
B18	Community informants said that this hot spot is a <B8>. Is that the correct hot spot type?	Yes 1 No 2
B18A	<IF B18=2> What is the correct hot spot type?	

READ: Hello. My name is _____ and I am working on a research study, the objective of which is to improve HIV prevention and treatment programs in Haiti. I would like to ask you a few questions about this place. I can offer you this fact sheet which contains more information about the study. This will take about 15-20 minutes.

B19	Are you willing to answer my questions?	Yes 1 No 2
B20	Are you at least 18 years old?	Yes 1 No 2

IF THE RESPONDENT IS UNWILLING OR TOO YOUNG TO PARTICIPATE, END THE INTERVIEW AND FIND ANOTHER INFORMANT.

PART III : INTERVIEW WITH HOT SPOT INFORMANT		
B21	**INTERVIEWER**: What is the sex of the respondent?	Male 1 Female 2

B22	Do you work here?	Yes 1 No 2
B23	How long has this hot spot been in operation?	<1 Year 1 1-2 Years 2 >2 Years 3 Do Not Know 4
B24	Which days is this hot spot closed? *Select all days when hot spot is closed.*	Monday __ Tuesday __ Wednesday __ Thursday __ Friday __ Saturday __ Sunday __
B25	In the past week, what day was the busiest?	Monday 1 Tuesday 2 Wednesday 3 Thursday 4 Friday 5 Saturday 6 Sunday 7
B26	On <B25>, what was the busiest time?	11AM – 2PM 1 2PM – 5PM 2 5PM – 8PM 3 8PM – 11PM 4 11PM – 2AM 5
B27A	On <B25> at <B26>, how many men were here?	NUMBER:
B27B	On <B25> at <B26>, how many women were here?	NUMBER:
READ: Now I am going to ask you a few questions about the men and women who come to this place.		
B28	Do women come here who are willing to accept money in exchange for sex?	Yes 1 No 2
B29A	Do men come here to look for male sexual partners?	Yes 1 No 2

B29B	Do gay men ever come here to hang out?	Yes 1 No 2
B30A	<IF B28=1> What is the most likely day to find women here who are willing to accept money in exchange for sex?	Monday 1 Tuesday 2 Wednesday 3 Thursday 4 Friday 5 Saturday 6 Sunday 7
B30B	<IF B28=1> What is the most likely time on <B30A> to find women here who are willing to accept money in exchange for sex?	11AM – 2PM 1 2PM – 5PM 2 5PM – 8PM 3 8PM – 11PM 4 11PM – 2AM 5
B31	<IF B28=1> How many of these women might be here at <B30B> on <B30A>? *INTERVIEWER: Prompt respondent for a minimum and maximum.*	_____ - _____
B32A	<IF B29A=1 OR B29B=1> What is the most likely day to find gay men or men who are looking for male sexual partners here?	Monday 1 Tuesday 2 Wednesday 3 Thursday 4 Friday 5 Saturday 6 Sunday 7
B32B	<IF B29A=1 OR B29B=1> What is the most likely time on <B32A> to find gay men or men who are looking for male sexual partners here?	11AM – 2PM 1 2PM – 5PM 2 5PM – 8PM 3 8PM – 11PM 4 11PM – 2AM 5
B33	<IF B29A=1 OR B29B=1> How many of these men might be here at <B32B> on <B32A>? *INTERVIEWER: Prompt respondent for a minimum and maximum.*	_____ - _____

B34	Do people have sex at this place?	Yes 1 No 2
B35	Is there someone here who helps people find sexual partners?	Yes 1 No 2
READ: We are interested to know what types of HIV prevention activities have occurred here in the past 6 months. Have any of the following activities occurred at this place in the past 6 months?		
B36A	Any HIV/AIDS prevention activities?	Yes 1 No 2 Do Not Know 8
B36B	Distribution of male condoms?	Yes 1 No 2 Do Not Know 8
B36C	Distribution of female condoms?	Yes 1 No 2 Do Not Know 8
B36D	Distribution of lubricant?	Yes 1 No 2 Do Not Know 8
B36E	Condoms for sale?	Yes 1 No 2 Do Not Know 8
B36F	People tested for HIV?	Yes 1 No 2 Do Not Know 8
B36G	Sexual education by an outreach worker?	Yes 1 No 2 Do Not Know 8
B36H	Visit by an outreach worker?	Yes 1 No 2 Do Not Know 8
B37	Can you show me a condom available here, either for free or for sale?	Condom Available 1 No Condom Available 2

READ: We would like to know about any violence that happens at this place, such as fights between clients, rape, or interventions by the police.		
B38	Are there ever physical fights between clients or workers at this place?	Yes, Often 1 Yes, Sometimes 2 Yes, Rarely 3 No, Never 4 Do Not Know 8
B39	Do people ever experience sexual violence or rape at this place?	Yes, Often 1 Yes, Sometimes 2 Yes, Rarely 3 No, Never 4 Do Not Know 8
B40	Is there ever police violence at this place?	Yes, Often 1 Yes, Sometimes 2 Yes, Rarely 3 No, Never 4 Do Not Know 8
B41	Are there any special nights at this place (such as Ladies Night, Latin Night, LGBT Night)?	
B42	We are interested in bringing health services to this place in the future. Is there a phone number for this place that we can call to schedule a visit?	
READ: This is the end of the interview. Thank you for your patience.		

PART IV: INTERVIEWER OBSERVATION		
Does this hot spot have…		
B43A	…electricity?	Yes 1 No 2
B43B	….running water?	Yes 1 No 2
B43C	…indoor toilets?	Yes 1 No 2
B43D	…beds?	Yes 1 No 2
B43E	…key populations living on site?	Yes 1 No 2
B43F	…posters about HIV/AIDS?	Yes 1 No 2
B43G	…condom promotion posters?	Yes 1 No 2
B43H	…condoms visible?	Yes 1 No 2
B43I	…lubricant visible?	Yes 1 No 2
INTERVIEWER: TAKE THE GPS COORDINATES OF THE HOT SPOT		

APPENDIX C: FORM C

	Date:	_____/_____/_____
C1	Interviewer:	
C2	Hot Spot ID:	
C3	Hot Spot Name:	
C4	Department:	
C5	Arrondisement:	
C6	Commune:	

RECRUITMENT OF RESPONDENTS		
READ: Hello. My name is _____. I am working with LINKAGES, a project that is working with the Ministry of Health to improve HIV prevention and treatment programs in Haiti. We are currently conducting a research study to better understand what the needs are at the community level regarding the prevention of HIV. I would like to give you a description of this study, and then you can decide if you want to participate. You must be at least 15 years old to participate, and you must be willing to give two drops of blood to be tested for syphilis and HIV. If you decide to participate, your responses will be anonymous. Your name will not be linked to your responses, and no one will know that you participated in this study.		
C7	Are you willing to answer the questions I will ask you and give two drops of blood to be tested for syphilis and HIV?	Yes 1 No 2
C7A	<IF C7=2> Why do you prefer not to participate?	
C7B	<IF C7A=1> Where did you already participate?	
C7C	<IF C7A=5> Other Reason:	
IF RESPONDENT DECLINES TO PARTICIPATE, END THE INTERVIEW. THIS PERSON DOES NOT NEED TO BE TESTED, BUT MAY BE TESTED AT THEIR REQUEST.		
C8	**INTERVIEWER**: How many people avoided talking to you before this person agreed to participate? In other words, how many people declined to participate but did not answer question C7?	

DEMOGRAPHICS & SCREENING		
C10	**INTERVIEWER**: What is the sex of the respondent?	Male 1 Female 2
C11	What is your age?	Age in Years:
C12	Do you live in this department?	Yes 1 No 2

C72	<IF C12=2> What department do you live in?	
C71	Do you live in this arrondisement?	Yes 1 No 2
C73	<IF C71=2> What arrondisement do you live in?	
C13	Do you live in this commune?	Yes 1 No 2
C74	<IF C13=2> What commune do you live in?	
C14	What is your current relationship status?	Married/Cohabitating 1 In a Relationship 2 Not in a Relationship 3
C15	What level of education have you completed?	None 0 Primary 1 6ème 2 5ème 3 4ème 4 3ème 5 2ème 6 Rheto 7 Philo 8 University 9
C16	Are you currently working?	Yes 1 No 2
C17	<IF C16=1> What type of work do you do?	State Employee 1 Private Sector Employee 2 Construction Worker 3 Farmer 4 Security 5 Military/Police 6 Musician/Dancer 7 Driver 8 Vendor 10 Outreach Worker 11 Health Worker 12 Domestic Worker 13 Bartender 14 Sex Worker 15 Other 88
C18	<IF C17=88> Other Type of Work	

READ*:* Now I am going to read you a list of behaviors. You do not have to tell me which of these behaviors you did. Just tell me if you have done any of them in the past three months.		
SCREEN	In the past 3 months, have you: 1) had three or more sexual partners, 2) had anal sex with anyone, OR 3) had sex with someone you met at a public festival?	Yes 1 No 2
IF NO TO ALL: THANK THE RESPONDENT, END THE INTERVIEW. THIS PERSON DOES NOT NEED TO BE TESTED, BUT MAY BE TESTED AT THEIR REQUEST.		

SITE VISITING & RISK BEHAVIORS		
READ: Now I am going to ask you some questions about how often you come here.		
C19	How frequently do you come to this site?	Daily 1 4-6 Times Per Week 2 2-3 Times Per Week 3 Once a Week 4 2-3 Times Per Month 5 Once a Month 6 Less Than Once a Month 7 This is My First Time Here 8
C19	Before today, when is the last time you came here? How many days ago?	
C20	Besides this place, how many other places have you already gone today to socialize, drink alcohol, or look for a person to have sex with?	
C21	How many other places do you plan to go to today to socialize, drink alcohol, or look for a sexual partner?	
C22	Now I am going to ask you about places you went to socialize, drink alcohol, or look for a sexual partner in the past week. For example, did you go out yesterday?	Yes 1 No 2
C22A	<IF C22=1> Where did you go? **INTERVIEWER:** *Prompt the respondent to mention each place he or she went to socialize, drink alcohol, or look for a sexual partner.*	
C23	What about the day before yesterday? Did you go anywhere to socialize, drink alcohol, or look for a sexual partner?	Yes 1 No 2

23A	<IF C23=1> Where did you go? **INTERVIEWER:** *Prompt the respondent to mention each place he or she went to socialize, drink alcohol, or look for a sexual partner.*	
C24	What about on [three days ago]? Did you go anywhere to socialize, drink alcohol, or look for a sexual partner?	Yes 1 No 2
C24A	<IF C24=1> Where did you go? **INTERVIEWER:** *Prompt the respondent to mention each place he or she went to socialize, drink alcohol, or look for a sexual partner yesterday.*	
C25	What about on [four days ago]? Did you go anywhere to socialize, drink alcohol, or look for a sexual partner?	Yes 1 No 2
C25A	<IF C25=1> Where did you go? **INTERVIEWER:** *Prompt the respondent to mention each place he or she went to socialize, drink alcohol, or look for a sexual partner yesterday.*	
C26	What about on [five days ago]? Did you go anywhere to socialize, drink alcohol, or look for a sexual partner?	Yes 1 No 2
C26A	<IF C26=1> Where did you go? **INTERVIEWER:** *Prompt the respondent to mention each place he or she went to socialize, drink alcohol, or look for a sexual partner yesterday.*	
C27	What about on [six days ago]? Did you go anywhere to socialize, drink alcohol, or look for a sexual partner?	Yes 1 No 2
C27A	<IF C27=1> Where did you go? **INTERVIEWER:** *Prompt the respondent to mention each place he or she went to socialize, drink alcohol, or look for a sexual partner yesterday.*	

READ: Now I am going to ask you a few questions about your sexual behaviors. Remember that all your answers are confidential.

C28	How old were you the first time you had sex?	
C29	In the past 12 months, have you had sex with men, women, or both?	Men 1 Women 2 Both 3
C30	<IF C29=1 or 3> In the past four weeks, how many men have you had sex with?	
C30A	<IF C29=1 or 3> How many of these [C30] men were men you had sex with for the first time in the past four weeks?	
C31	<IF C29=2 or 3> In the past four weeks, how many women have you had sex with?	
C31A	<IF C29=2 or 3> How many of these [C31] women were women you had sex with for the first time in the past four weeks?	

C32	Think about all the people you had sex with in the past 12 months. In total, how many different people did you have sex with in the past 12 months?	
C33	Do you currently have a primary sexual partner, such as a husband or wife, boyfriend or girlfriend, someone you live with, or another primary partner?	Yes 1 No 2
C34	Sometimes people receive money in exchange for sex. Have you ever received money in exchange for sex?	Yes 1 No 2
C34A	<IF C34=1> When was the last time you received money in exchange for sex?	Past 30 Days 1 2-3 Months Ago 2 4-6 Months Ago 3 6-12 Months Ago 4 > 1 Year Ago 5
C34B	<IF C34=1> The last time you received money in exchange for sex, did you use a condom?	Yes 1 No 2
C34C	<IF C34=1> How old were you the first time you received money in exchange for sex?	AGE IN YEARS:
C35	Sometimes people receive gifts or favors in exchange for sex, such as phones, jewelry, clothes, drinks, or transportation. Have you ever received gifts or favors in exchange for sex?	Yes 1 No 2
C35A	<IF C35=1> When was the last time you received gifts or favors in exchange for sex?	Past 30 Days 1 2-3 Months Ago 2 4-6 Months Ago 3 6-12 Months Ago 4 > 1 Year Ago 5
C35B	<IF C35=1> The last time you received gifts or favors in exchange for sex, did you use a condom?	Yes 1 No 2
C36	Sometimes people receive economic assistance in exchange for sex, such as help paying the rent, utility bills, or school fees. Have you ever received economic assistance in exchange for sex?	Yes 1 No 2
C36A	<IF C36=1> When was the last time you received economic assistance in exchange for sex?	Past 30 Days 1 2-3 Months Ago 2 4-6 Months Ago 3 6-12 Months Ago 4 > 1 Year Ago 5
C36B	<IF C36=1> The last time you received economic assistance in exchange for sex, did you use a condom?	Yes 1 No 2
C37	<IF C34=1, C35=1 or C36=1> Has anyone ever talked to you about the legal rights that people who receive money or gifts in exchange for sex have?	Yes 1 No 2
C37A	<IF C37=1> Who talked to you about that?	
C38	In the past twelve months, have you paid anyone to have sex with you?	Yes 1 No 2
C38A	<IF C38=1> The last time you paid someone to have sex with you, did you use a condom?	Yes 1 No 2

C39	Have you ever given someone a gift in exchange for sex, such as a phone, jewelry, clothes, drinks, or any type of economic assistance?	Yes 1 No 2

ACCESS TO SERVICES		
READ: Now I am going to ask you a few questions about the health services that are available in this area.		
C40	Do you know where to go to get tested for HIV?	Yes 1 No 2
C40A	<IF C40=1> Where?	
READ: In the past twelve months, have you received information about HIV/AIDS…		
C41A	…from a peer educator or community health worker?	Yes 1 No 2
C41B	…at a clinic, hospital or pharmacy?	Yes 1 No 2
C41C	…on the radio?	Yes 1 No 2
C41D	…from a friend or family member?	Yes 1 No 2
READ: Can any of the following actions transmit HIV?		
C42A	Drinking from the same glass as someone infected with HIV.	Yes 1 No 2
C42B	Shaking hands with someone infected with HIV.	Yes 1 No 2
C42C	Having sex without a condom with someone infected with HIV.	Yes 1 No 2
C42D	Hugging someone infected with HIV.	Yes 1 No 2
C43	What do you think are the chances that you might become infected with HIV?	Impossible 1 Low 2 Moderate 3 High 4 Do Not Know 5 NA (Already Infected) 6
READ: Now I am going to ask you a few questions about the availability of condoms and lubricant in this area.		
C44	Have you received any condoms for free in the past 12 months?	Yes 1 No 2
C45	Have you received any lubricant for free in the past 12 months?	Yes 1

		No 2
C46	Have you purchased any condoms in the past 12 months?	Yes 1 No 2
C47	Have you purchased any lubricant in the past 12 months?	Yes 1 No 2
C48	If you wanted a condom, would it be difficult to find one quickly?	Yes 1 No 2
C49	If you wanted lubricant, would it be difficult to find some quickly?	Yes 1 No 2
C51	<IF C10=2> Besides condoms, do you use any type of family planning?	No 0 Yes, Pills 1 Yes, Injection 2 Yes, IUD 3 Yes, Implant 4 Yes, Other 5
C52	<IF C50=5> Other Method:	
C53	<IF C50>0> Where do you obtain your family planning?	
C54	The last time you had vaginal sex, did you use a condom?	Yes 1 No 2 Never Had Vaginal Sex 3
C55	The last time you had anal sex, did you use a condom?	Yes 1 No 2 Never Had Anal Sex 3
C56	The last time you had anal sex, did you use lubricant?	Yes 1 No 2 Never Had Anal Sex 3

STIGMA AND VULNERABILITY		
READ: Now I am going to ask you a few questions about the problems people face in their lives.		
C57	In the past 12 months, have you always had enough food to eat?	Yes 1 No 2
C58	In the past 12 months, have you always had enough money to support yourself?	Yes 1 No 2
C59	In the past 12 months, have you ever been homeless?	Yes 1 No 2

C60	In the past 12 months, have you ever been mistreated by a health care worker? Or have you avoided seeking health care because you knew you would not be received well on account of who you are or the work that you do?	Yes 1 No 2
C61	In the past 12 months, have you been the victim of any physical violence?	Yes 1 No 2
C62	In the past 12 months, have you suffered any physical violence from a sexual partner, spouse, boyfriend, or girlfriend?	Yes 1 No 2
C63	Have you ever been forced to have sex against your will?	Yes 1 No 2
C64	Have you ever been forced to have sex without a condom?	Yes 1 No 2
C65	Have you ever spent a night in jail or prison?	Yes 1 No 2
C66	Have you ever been beaten by the police?	Yes 1 No 2
C67	How many children are you currently taking care of?	Number:
C68	Do you see yourself as a man or as a woman?	Man 1 Woman 2
C69	Do you identify as LGBT?	Yes 1 No 2
INTERVIEWER: TAKE THE PARTICIPANT TO A NURSE WHO WILL COMPLETE THE SECTION BELOW BEFORE ADMINISTERING PRE-TEST COUNSELING, RAPID TESTING FOR HIV AND SYPHILIS, AND POST-TEST COUNSELING		

SYMPTOMS AND TEST RESULTS		
THIS SECTION IS ADMINISTERED BY A NURSE		
R1	In the past 12 months, have you been tested for tuberculosis?	Yes 1 No 2
R2	<IF R1=1> In the past 12 months, have you been given a diagnosis of tuberculosis?	Yes 1 No 2
R3	In the past two weeks, have you had a cough, fever, night sweats, or unexplained weight loss?	Yes 1 No 2
R4	Are you circumcised?	Yes 1 No 2 Do Not Know 3 N/A 8
R5	Do you currently have an unusual discharge from your penis, vagina, or anus?	Yes 1 No 2

R6	Do you currently have sores around your penis, vagina, or anus?	Yes 1 No 2
R7	Before today, have you ever been tested for HIV?	Yes 1 No 2
R8	<IF R7=1> Before today, when was the last time you were tested for HIV?	Past 3 Months 1 Past 6 Months 2 Past Year 3 > 1 Year Ago 4
R9	<IF R7=1> Has a health worker ever told you that you have HIV?	
R10	<IF R9=1> Have you taken any medication for HIV?	
R11	<IF R10=1> Are you currently taking medication for HIV?	
R12	<IF R11=1> During the past week, how many days did you take medication for HIV?	0 Days 1 or 2 Days 3 or 4 Days 5 or 6 Days Every Day
R13	<IF R10=1> Where do you obtain medication for HIV?	
R14	ENTER HIV TEST RESULT	Positive 1 Negative 2 Indeterminate 3
R15	ENTER SYPHILIS TEST RESULT	Positive 1 Negative 2 Indeterminate 3
R16	<IF R14=1> ENTER HIV CONFIRMATION TEST RESULT	Positive 1 Negative 2 Indeterminate 3 N/A 8
R17	<IF R14=1> ENTER NUMBER OF DRIED BLOOD SPOTS OBTAINED	Two 2 Three 3 Four 4 Five 5 N/A 8