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Reducing HIV transmission among
female sex workers in Mali: a
retrospective evaluation of prevention
interventions among female sex workers
in Mali from 2000 to 2013

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BOSTON UNIVERSITY
SCHOOL OF PUBLIC HEALTH

Dissertation

**REDUCING HIV TRANSMISSION
AMONG FEMALE SEX WORKERS IN MALI:
A RETROSPECTIVE EVALUATION OF PREVENTION INTERVENTIONS
AMONG FEMALE SEX WORKERS IN MALI FROM 2000 TO 2013**

by

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**REDUCING HIV TRANSMISSION
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A RETROSPECTIVE EVALUATION OF PREVENTION INTERVENTIONS
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ABSTRACT

Background

Female Sex Workers (FSW) in Mali are highly vulnerable to HIV. Their prevalence in 2009 was nine times higher (24.2%) than that among pregnant women (2.7%). The aim of this study was to document the effectiveness of HIV prevention programming targeting FSW between 2000 and 2013 funded by the U.S. Government (USG) in Mali.

Methods

The content, scope and coverage of interventions were assessed through a document review and key informant interviews with FSW peer educators and program managers. Data from the Integrated Sexually Transmitted Infection (STI) Prevalence and Behavior Surveys (ISBS) conducted in 2000, 2003, 2006, and 2009 were analyzed to measure changes in outcomes over time. Multivariate logistic regression was used to control for changes in FSW demographics and to analyze sub-groups.

Results

From 2000 to 2013 the USG was the key partner to the government of Mali (GOM) for

HIV testing, surveillance, STI treatment, and behavior change communication (BCC) targeting FSW. The USG spent over \$42 million on HIV programming between 2003 and 2013. Since 2001, programming for FSW covered most urban areas and transport hubs in Mali. USG partners exceeded their goals, making over 1.3 million BCC contacts with FSW and their sexual partners. However, outcomes were negatively impacted by frequent stock-outs of medications to treat STIs between 2006 and 2011. Also, evidence suggests that interventions were of insufficient intensity and coverage. Finally, M&E system was rudimentary and inconsistent, which made it impossible to link outcomes with programming with confidence.

Nevertheless, important positive changes in outcomes occurred. Between 2003 and 2009, HIV prevalence dropped from 44.14% to 28.49% ($P < 0.0001$) among Malian FSW, from 21.33% to 12.71% ($P = 0.0082$) among Nigerian FSW, and from 43.42% to 33.67% ($P = 0.0442$) among FSW from other countries. Between 2000 and 2009 HIV testing increased (40% to 76% $P < 0.0001$). Consistent condom use with clients improved for Malian FSW (72.3% to 81.5% $P = 0.0092$). Consistent condom use with boyfriends was low and improved only for Nigerian FSW (9.8% to 28.4% $P = 0.0003$). Factors associated with HIV prevalence in the multivariate model were older age, study year (2003 and 2006), nationality, lack of education, mobility, STI symptoms, gonorrhea prevalence, and younger age at first sex.

Conclusions

This study documents progress in the fight against HIV among FSW in Mali, but coverage and intensity must be increased and the quality and diversity of interventions

must be expanded. The different vulnerabilities to HIV of different nationality FSW should be addressed in future programming and research. Program adoption of and adherence to Mali's new M&E plan for key populations would do much to facilitate the necessary improvements.

PREFACE

Research objectives: The aim of this study was to document the effectiveness of HIV prevention programming targeting FSW between 2000 and 2013 funded by the U.S. Government (USG) in Mali. To do so, we evaluated changes in HIV-related knowledge and behaviors as well as HIV and STI prevalence (outcomes) among Malian sex workers (FSW) from 2000–2009. In addition, the study documented the content, scope and coverage of interventions and attempted to show how those interventions could have led to the positive changes in outcomes observed.

Background and significance of research: Female Sex Workers (FSW) in Mali are highly vulnerable to HIV. Their prevalence in 2009 was nine times higher (24.2%) than that among pregnant women (2.7%) in the general population in the country. In low prevalence countries like Mali, HIV transmission between FSW, their clients and partners and these men's spouses represent a large proportion of transmissions and can sustain general population prevalence rates. Thus, understanding the HIV epidemic among FSW and their sexual partners is essential to understanding how that epidemic will evolve. In addition, HIV prevention and treatment interventions for FSW are thus critical not only to protect the health of FSW and their partners, but also to control HIV/AIDS in the general population.

Methods: Data from the Integrated Sexually Transmitted Infection (STI) Prevalence and Behavior Surveys (ISBS) conducted in Mali in 2000, 2003, 2006, and 2009 were analyzed to measure changes in FSW demographics and in outcomes over time. The key outcomes we analyzed were HIV-prevention knowledge and behaviors, including HIV

testing and condom use, and HIV and STI prevalence. We used multivariate logistic regression to identify the key factors associated with HIV positive serostatus and condom use with both clients and non-paying partners (boyfriends) and to control for potential confounding. As the data were collected from randomized clusters, clusters being determined by bar/brothel, we used Generalized Equalizing Equations (GEE) models (in the logistic regressions) to control for potential bias due to possible statistical similarity of subjects within clusters.

A document review was conducted of 166 program reports, other documents and monitoring data to construct a narrative and timeline describing prevention activities for FSW in Mali from 2000 to 2013. In particular, we gathered information on the nature and scope of programming, strategies employed, funding levels, successes and challenges, and program outputs. These included numbers of FSW reached, condoms distributed, and numbers tested and counseled for HIV. We conducted individual in-depth qualitative interviews with 23 key informants, including program managers and policymakers (13) and peer educators (10) to more deeply explore program strategies, scope and coverage, challenges and lessons learned.

Key findings: The USG (USAID and CDC) spent over \$42 million on HIV prevention from 2003 to 2013 at a consistent \$4 million per year before 2009 and \$4.5 million after. Since 2001, HIV prevention activities for FSW covered most urban areas and transport hubs in Mali. USG implementing partners exceeded their goals, making over 1.3 million behavior change communication (BCC) contacts with FSW, their clients and partners. The USG was the key partner for the Government of Mali (GOM) for HIV testing, STI

treatment, BCC programming targeting FSW and the general population and HIV surveillance. However, the M&E system was rudimentary and inconsistent. Before 2011, the USG did not track data on individual FSW. Also, no population size estimates were conducted. This made it impossible to link outcomes with programming with confidence. Some evidence suggests that interventions were of insufficient intensity and coverage. Also outcomes were negatively impacted by frequent stock-outs of medications to treat STIs between 2006 and 2011.

Sex work in Mali is characterized by high levels of internal and international migration. Of the FSW surveyed in the ISBS, 40.8% were from Nigeria, 36.8% were Malian, and 22.4% were from neighboring countries. FSW from other countries had higher mean ages than Malians (25.6 years) and Nigerians (26.4 years): Burkina Faso: 27.5 years (n=155); Cote d'Ivoire: 27 years (n=99); Senegal: 32.8 years (n=56); Ghana: 35.8 years (n=89); and "other": 28.6 years (n=132). Due to their similarities and to increase statistical power for analysis, FSW from these countries were all combined into an "other" nationality group (mean age 29.5 years). Between 2000 and 2009, the proportion of FSW who were Malian nationals increased from 31% to 41%. The proportions of FSW from Nigeria decreased from 52% to 31%. The proportion of those from other West African countries grew slightly from 17% to 24%.

FSW of different nationality groups had distinct HIV vulnerability profiles. In most cases, Malian nationality FSW were the most vulnerable while Nigerian FSW were the least: HIV prevalence for Malian FSW was 35%; they were younger (median 24 years old); had both their sexual debut and first paid sex at younger ages (median age: 15 and

20 years old, respectively); and were less likely to have attended school (48%). In contrast, Nigerian FSW were less vulnerable: 18% were HIV positive. Most (85%) had attended school for a median of six years. Median age of sexual debut was eighteen and most had their first paid sex at age 23. Nigerian FSW reported the least time in sex work (two years).

A number of positive changes in outcomes occurred. HIV prevalence decreased among FSW of all nationality groups from 2003 to 2009: 44.1% to 28.5% ($P < 0.0001$); among Malian FSW, from 21.3% to 12.7% ($P = 0.0082$) among Nigerian FSW; and from 43.4% to 33.7% ($P = 0.0442$) among FSW from other countries. Older age, study year (2003 and 2006), nationality, lack of education, mobility, STI symptoms, gonorrhea prevalence, and younger age at first sex were associated with HIV prevalence in the multivariate model. The multivariate models showed that the decreases in HIV prevalence between 2003 and 2009 remained even when controlled for other factors. Between 2000 and 2009 condom availability in sex work sites increased for FSW of all nationality groups (89.2% to 99.3% $P < 0.0001$) as did HIV testing (40.0% to 74.7% $P < 0.0001$). Consistent condom use with clients improved for Malian FSW (72.3% to 81.5% $P = 0.0092$). Consistent condom use with boyfriends was low and improved only for Nigerians (9.8% to 28.4% $P = 0.0003$).

Of particular concern is the fact that FSW who had been in sex work for 3 months or less already had an HIV prevalence of 10.9% and those who had been in sex work for 3–6 months had an HIV prevalence of 21.4%. By nine months, prevalence was 27.6%.

This could indicate rapid acquisition of HIV or that many FSW enter sex work already HIV-positive, or both.

Conclusions and Recommendations: This study documents progress in the fight against HIV among FSW in Mali, but coverage and intensity must be increased and the quality and diversity of interventions must be expanded. The different vulnerabilities to HIV of different nationality FSW should be addressed in future programming and research.

Program adoption of and adherence to Mali's new M&E plan for key populations would do much to facilitate the necessary improvements. Based on these findings, we propose programmatic recommendations for funders and implementers which will modernize interventions, policy recommendations and recommendations for future research, including recommendations for future versions of the ISBS surveys.

Programmatic recommendations

While programmatic recommendations are specifically for program implementers, the activities must be planned, funded and evaluated by the Government of Mali, the USG (CDC and USAID) as well as the Global Fund to fight AIDS, TB and Malaria and its principal recipients. In that sense, they are relevant for all of these actors.

- Provide high intensity of HIV prevention programming to FSW wherever they are.

FSW's high rates of HIV prevalence, rapid acquisition of HIV upon entry to sex work (10.9 percent were already HIV positive after three months in sex work) and high mobility call for *high intensity and high coverage* so that new FSW are immediately provided with services. From 2000–2013, neither coverage nor intensity was likely adequate. Fortunately, these services are being scaled up in Mali with the launch of

the Global Fund's prevention project for FSW led by Plan-Mali (after 5 years of suspension) and the intensified focus of USAID and CDC on FSW programming. The efficiencies created by 2013 coordination agreement between the USG and the Global Fund produces further opportunities for expansion into zones not previously covered with high-intensity services.

- Provide strong linkages to high-quality ART, adherence support and positive health, dignity and prevention for HIV-positive FSW. As one quarter of FSW are HIV positive, programs must *ensure strong linkages with ART services for FSW and their partners* both for their own health and for HIV prevention. The GOM and GFATM must *resolve the current crisis of availability of CD4 and viral load testing in Mali* to ensure that ART has an impact both on health outcomes and reduced HIV transmission. Also, for FSW to have the best outcomes possible, *make positive health, dignity and prevention services, including adherence counseling and support a central part of the minimum package.*
- Tailor programming to a highly diverse group of FSW in terms of nationality and language. The population of FSW in Mali is highly diverse, even compared with other countries in the region, and FSW from different nationalities have different needs in terms of HIV prevention services. This *necessitates targeted and differentiated programming* for FSW of different languages and nationality groups. In addition, we recommend that NGOs continue to *recruit peer educators and animators from various nationality groups* capable of communicating with FSW peers in various languages. Provide prevention messages and materials in English to Nigerian and Ghanaian FSW.

- Tailor programming to a highly diverse group of FSW in terms of education. Many FSW have never been to school and many of those who have did not finish primary school, especially Malian FSW. For this reason, it is critical to *provide HIV prevention messaging that is easy to understand using oral and pictorial supports in Bambara* (the most common Malian language). In addition, provide *training in life skills, basic literacy and numeracy and income generation*. On the other hand, most Nigerian FSW have been to school and many have completed secondary school. *Provide written materials (pamphlets, posters) using more complex concepts supplementing peer education for Nigerian FSW.*
- Use gender empowerment motivational interviewing as a HIV prevention strategy. Many FSW in Mali, particularly Malian nationality FSW, had their sexual debut at very young ages (median 15 years for Malian FSW) and many had their first paid sex as minors under the age of 18. These young ages (as well as high levels of non-schooling) suggest large power imbalances with clients, non-paying partners and bar managers. The Women's Co-op Project in South Africa (W. M. Wechsberg et al. 2006; W. Wechsberg et al. 2011) achieved excellent outcomes by *increasing awareness and consciousness about gender power* among a highly vulnerable group of FSW.
- Use strategies that facilitate FSW's access to services in the context of their high mobility. FSW in Mali are extremely mobile. Other nationality FSW had been in location for a median of 5 months (2–24); 55.3% had travelled to another town in the last 12 months. Nigerian FSW had been in location for a median of 12 months (6–14); 36% had travelled to another town in last 12 months. Malian FSW had been in

location for a median 24 months (5–60); 47% had travelled to another town in last 12 months. Peer educators and program managers reported that FSW mobility was a major challenge for behavior change, for maintaining HIV-positive FSW on ART and for recruiting and keeping peer educators. Positive health, dignity and prevention services (including adherence counseling and support) for HIV-positive FSW must help them to *create strategies for treatment adherence when they change location*. Mali's ART sites must coordinate so that FSW can access treatment easily at multiple treatment sites. A portable medical record could facilitate this. Do not allow trained peer educators to be lost when they migrate within Mali; instead, *adopt a portable peer education certificate to facilitate peer educators being integrated quickly in new locations*.

- Continue to ensure access to condoms and emphasize/promote consistent and correct condom use with all kinds of clients. While condom use with clients (and regular clients) is high, there is still room for improvement, especially among Malian FSW. Also, as new FSW are constantly entering sex work, *promotion of consistent and correct condom use with clients will always be a top priority*. In addition, our study showed that availability of condoms in sex work locations was highly associated with condom use with clients. We recommend that programs *conduct and report on site spot checks on condom availability*.
- Scale-up and institutionalize efforts to document and respond to violence and other human rights abuses against FSW. In our study, 20–25% of FSW reported having been beaten by a client. Violence against FSW was also reported by program managers and

peer educators. *Document and help FSW to address cases of violence, rape, arbitrary arrests and other human rights violations per WHO guidance (WHO 2014). As Mali's National HIV/AIDS Plan and National M&E plan for Key Populations include objectives on these activities, include them in all programs for FSW. Support NGOs such as Soutoura and ARCAD-SIDA document abuses, help victims, and work to create a safer environment for FSW.*

- Continue to ensure an uninterrupted supply of medications to treat STIs at all levels. Sharp increases occurred in gonorrhea and chlamydia prevalence among Malian FSW in 2009 (17% and 22%, respectively). Key informants reported severe stock outs in STI medications after the Canadian-funded SIDA-3 project ended in 2006 and stopped providing these. The rupture in commodity supply from 2006–2011 likely led to high STI rates in 2009. USAID began to purchase these supplies in 2011, which was much appreciated by the key informants. We recommend that USAID *continue to ensure supply of these essential commodities*. In addition, we recommend that programs and funders engage the MOH to assume more responsibility to ensure availability of STI diagnosis and treatment in the public health system.
- Continue to ensure an interrupted supply of HIV testing kits. The proportion of FSW who had tested for HIV increased from 51% to 76% between 2000 and 2009. This is a good programmatic result. However key informants reported stock-outs of HIV test kits in CSCOMs between 2006 and 2010. USAID would do well to *continue to ensure supply of these essential commodities* to its programs.

- Budget appropriately for vehicles, avoid short-term contracts with local NGOs and pay on time. Programmatic challenges included short-term contracts for local NGOs (which led to lack of continuity and predictability) and projects not budgeting effectively for vehicles, vehicle maintenance and fuel. In addition, late payments held up activities and forced the NGOs to have to implement too much activity in short periods of time. Short-term contracts provide a less than ideal environment for local actors to succeed in influencing long-term public health problems. We recommend that USAID and other funders *aim for 3–5 year programs* with local NGOs. *Budget appropriately for vehicles* and their maintenance as these are key limiting factors in programs. Finally, *pay on time*.
- Make the behavior change theory underlying programming explicit so that all actors understand how activities result in outcomes. Behavior change theories are supported by decades of evaluation. This best practice has been linked to good outcomes in many studies but has not been established practice in Mali. This likely had negative impacts on program quality, particularly after 2008.
- Utilize and support the Malian National M&E plan for key populations in programming for FSW. Program documents showed that USG partners exceeded their goals, making over 1.3 million BCC contacts with FSW, their clients and partners. This is a positive program result. However, the M&E system was not consistent and did not track individual FSW until 2011. Indicators that were tracked were very rudimentary. The recently validated national M&E plan for key populations is based on WHO recommendations (WHO 2014) and is comprehensive but not overly

burdensome. All funding partners should support implementers in incorporating the national M&E system into their programming.

- Use STI tests or presumptive treatment rather than syndromic management for FSW.

Of women who tested positive for either chlamydia or gonorrhea in the ISBS, only 28.9% (61 out of 211 women) reported symptoms. The remaining 71.1% (150 women) (P=0.0008) who had one or both of the diseases did not report symptoms. Syndromic management misses too many asymptomatic cases of gonorrhea and chlamydia. Rapid assays or presumptive treatment should be used instead.

- Develop effective strategies to reduce HIV transmission risk between FSW and their

boyfriends. Condom use with boyfriends at last sex or “always” was low. NGOs

reported this as a key challenge, even “hopeless”. Women who had been sex workers for longer periods of time were less likely to report condom use with boyfriends

although this trend was not consistent for every level of time in sex work. Also,

women who volunteered “condoms” as an HIV prevention method were more likely to use condoms with their boyfriends (both at last sex and “always”). Lower price of sex

was also correlated with less condom use with boyfriends. These factors could indicate lower levels of personal power to negotiate condoms. It is important to note that FSW

often intend in some cases to form a family and become pregnant with their intimate

partners. *Clinical interventions such as treatment as prevention and pre-exposure*

prophylaxis to prevent HIV transmission between FSW and their partners are urgently

needed.

Recommendations for future ISBS surveys

Mali's fifth ISBS survey is planned for late 2015 or early 2016. Funding from the Global Fund to Fight AIDS, TB and Malaria has been allocated to Plan-Mali and the United Nations Development Program in Mali for implementation. These recommendations are specifically for the Mali ISBS, but many of these suggestions would be relevant in other contexts.

- Perform analysis by subgroup (nationality) and over time. Without controlling for nationality, the ISBS surveys showed a rising HIV prevalence peaking in 2006. However, by controlling for nationality, we found that HIV prevalence actually went down for all groups between 2003 and 2009 and the “peak” was actually due to shifting proportions of nationality groups. Analysis by nationality is critical for understanding the HIV epidemic among FSW in countries like Mali with high levels of international migration among FSW.
- Perform multivariate analysis. The multivariate analyses that were a part of this study resulted in important findings that otherwise would have been missed. We recommend that this step not be omitted in future ISBS surveys in Mali and elsewhere.
- Include comprehensive questions on the human rights environment for FSW including other kinds of violence and perpetrators. The ISBS surveys asked FSW if they had been beaten by a client. However, FSW are often victims of other kinds of violence and other human rights violations (rape, trafficking and extortion) by different kinds of perpetrators (police, partners, pimps other FSW). Mali's national M&E plan for key populations, based on WHO guidance (WHO 2014), requires programs to report on

violence and other human rights violations. As fear of violence (as well as strategies FSW use to avoid these) are important to FSW's HIV risk, future ISBS surveys need to include this information.

- Ask the five questions on HIV knowledge from the United Nations General Assembly Special Session on HIV/AIDS (UNGASS) on HIV prevention knowledge. The questions on HIV prevention knowledge were worded too ambiguously to be useful and are not comparable with research elsewhere.
- Ask FSW about their reproductive intentions and family planning needs. Reproductive intention is an important factor influencing risk behavior and HIV acquisition but the ISBS did not collect this information, which is needed to better plan for HIV prevention, family planning, and PMTCT services.
- Ask more comprehensive questions about HIV history, knowledge of HIV serostatus and positive prevention strategies. In an analysis limited to FSW with less than three months in sex work in 2006 and 2009 only, we found that 5.56% of Nigerians, 9.23% of Malians and 22.22% of FSW of “other” nationality were already HIV positive. This could suggest that FSW rapidly acquire HIV once they enter sex work or that women are entering sex work out of necessity after the death (from AIDS) of their husbands or after being divorced after an HIV positive diagnosis. This ambiguity could be resolved if the ISBS asked FSW if they knew their serostatus. It is also important also to know what treatment and prevention services HIV positive FSW already access or what they do (if anything) to avoid further transmission. *Ask women who had been tested for HIV what the result was, what services they received if HIV positive, and their ART service*

needs. Ask HIV-positive FSW what they do to prevent further transmission to clients, partners or mother to child. Ask HIV positive FSW if they were already HIV positive upon entry to sex work.

- Ask FSW more precise questions regarding which services FSW have received and from which service providers. Although the data shows many improved outcomes and scaled up service access, we were unable to definitively link those outcomes with programming. FSW in the ISBS surveys were asked from which channels they had received HIV prevention information. However, this question was too ambiguous and there were many possible answers. More specific questions would be extremely useful for evaluation.
- Include questions on alcohol and drug use. Alcohol and drug use are important factors regarding HIV risk. The ISBS did not collect this information.
- Ask more indirect questions about condom use. FSW may overstate condom use due to social desirability bias. Other studies have used more indirect questions to overcome this problem. For example, many studies ask FSW if they sometimes have unprotected sex with clients who offer to pay more for it.

Recommendations for other future research

In addition to future ISBS studies, this evaluation uncovered other gaps in knowledge that are important to future HIV prevention planning but are not appropriate for ISBS methods.

- Collect and use knowledge, attitude, and practices (KAP) data to guide programming. USG-funded programs collected knowledge, attitudes and practices (KAP) data and

used this data to adjust messaging and programming. This stopped in 2006. *Collect and use KAP data to guide programming.* This is best practice for behavior change communication.

- Conduct in-depth research to develop effective strategies to reduce HIV transmission risk between FSW and their boyfriends. Future qualitative research is needed *to explore more deeply FSW relationships with these men in order to develop new strategies to protect both from HIV transmission* in these high-risk relationships. *Pilot studies on using clinical interventions such as treatment as prevention and pre-exposure prophylaxis with FSW are urgently needed.*
- Test “stay HIV-free until you go back home” messaging. Most FSW in Mali do not intend to stay long in the business and many, especially Nigerian FSW, intend only to remain in Mali for a short period of time and then return home. Even many Malian FSW are migrants far from home following demand for sex work. We recommend testing this messaging with FSW in Mali to increase healthy HIV prevention behaviors.
- Continue to monitor the HIV/AIDS epidemic in Mali but update current tools to reflect best practice and new prevention and treatment options. The USG funded most surveillance research on HIV (not just for FSW) in Mali between 2000 and the present. The information provided by the DHS, ANC and ISBS surveys are comprehensive and provide an excellent model of best practice in HIV surveillance in Africa. We recommend that the ISBS surveys should focus on populations at high risk for HIV and collect recommended data for best practice.

- Test messaging on staying healthy to care for children. Over 60% of FSW in Mali have children and many may also care for other dependents. Peer educators we interviewed expressed great pride in putting children through school and otherwise being the principal source of income for their families. In Mexico, motivating women to stay healthy because their children depended on them was an effective technique (T. L. Patterson et al. 2008). However, our analysis found no differences in outcomes between FSW with children and those without. Motivational messaging such as that used in Mexico might be effective.
- Determine if child marriage is associated with entry to sex work. A concerning finding was that 44.9% of Malian FSW had had their first sex at age 14 or less. This is double the rate of sexual debut at age 14 or less for women of comparable age in the DHS 2012 (21%).
- Determine the size of the population of informal “clandestine” FSW and their importance to the HIV/AIDS epidemic. The ISBS surveys were conducted in formal sex work venues (bars and brothels). However, very little is known about informal sex workers (who work on the streets, hotels and by telephone and internet) and few services are offered to them.

Recommendations for policymakers in Mali

This final set of recommendations are specifically for policymakers in Mali.

- Promote school attendance for girls as a top public policy priority. School attendance had a powerful independent protective effect against HIV prevalence in the bivariate and multivariate models, similar to that observed in studies worldwide. The HIV

prevalence rate for FSW who had attended school was 24% vs. 39% for FSW who had not.

- Train police and justice officials about the importance of human rights for key populations and actively prosecute and deter violations. Mali has committed to protecting the human rights of key populations such as FSW in the National HIV/AIDS plan and in the 2004 Declaration. In our study, 20–25% of FSW reported having been beaten by a client. Violence, rape and extortion against FSW (sometimes at the hands of police) were reported by program managers and peer educators. In addition, violent occurrences were revealed as key challenges to providing services to FSW in the documents reviewed.
- Ensure the supply of STI commodities as well as the presence of staff well trained in STI management in public clinics and hospitals. As noted, there were very high rates of chlamydia and gonorrhea in the ISBS 2009. Project documents noted that the GOM did not prioritize this service after the CDC had provided much of the technical assistance and training so that the Malian health system could treat STIs in the regions. Interviews and documents from HIV programs noted that FSW referred to public sites for STI treatment were often turned away for lack of supply after the Canadian SIDA-3 stopped providing these.
- Improve options/rights for women in cases of divorce, widowhood or becoming HIV positive. More data is necessary, but many studies in Africa have shown that women often enter sex work because they have no other options after being divorced, widowed or becoming ostracized after becoming HIV positive. Women have few

rights in the case of divorce, child custody, and inheritance. The law allows marriage of girls aged 16 and over and there are widespread reports of judges ignoring even this rule (US Dept. of State 2011).

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LIST OF ABBREVIATIONS

ADF – French Development Agency

AIDS – acquired immunodeficiency syndrome

ANC – antenatal clinic

AOR – adjusted odds ratio

ARR – adjusted rate ratio

ARCAD-SIDA Association of Research of Communication and Accompaniment a the
home of people living with HIV

ART – antiretroviral therapy

ARV – antiretroviral

AV – ambulatory vendor

BCC – behavior change communication

BUSPH-Boston University School of Public Health

CD4 – cluster of differentiation 4 helper T-cell

CDC – US Centers for Disease Control and Prevention

CFA – West and Central African Franc (*Communauté Financiere Africaine*)

CI - confidence interval

CIDA – Canada International Development Agency

CNIECS - National Center for Health Information, Education, and Communication
(Mali)

COC – Corridors of Change project

CPS/MS – Center for Planning and Statistics in the Ministry of Health

CSCOM – community health center in Mali

CSLS/MS-Coordinating Committee of the Sectorial Division to Fight HIV/AIDS in the
Ministry of Health

CSREF – hospital of the first reference in Mali

DHS – Demographic and Health Survey

DPT3 –diphtheria, pertussis, tuberculosis vaccine

FSW – female sex worker/commercial sex worker (s)

GEE – generalized estimating equations

GFATM – Global Fund to Fight AIDS, TB and Malaria

GHFP-II Global Health Fellows Program-II

GOM – Government of Mali

GP / SP – *Groupe Pivot/Santé Population*

HCNLS – National High Council to Fight AIDS/*Haut Conseil National de Lutte contre
SIDA*

HIV – human immunodeficiency virus

HR – hazard ratio

HSV – Herpes Simplex Virus

HSA – Health Surveillance Assistants

IEC – information education communication

INRSP – Mali Institute for Public Health Research

IQR – interquartile range

ITN – insecticide-treated bednet

ISBS – Integrated Sexually Transmitted Infection Prevalence and Behavior Survey

KAP – knowledge attitudes practices

KFW – German Development Bank

LIC – low-income country(ies)

LMIC – low- and middle-income country(ies)

MAP – Multisectorial AIDS Program (World Bank)

MARPs – most at risk populations

MSM – men who have sex with men

MTCT – mother-to-child transmission (of HIV)

NGO – non-governmental organization

OI – opportunistic infection

OR – odds ratio

PE – Peer educator (s)

PEPFAR – President’s Emergency Plan for AIDS Relief

PHC – primary health care

PHDP – positive health dignity and prevention

PHI – Public Health Institute

PKC – Project *Keneya Ciwara*

PLWHA – person(s) living with HIV/AIDS

PMTCT – prevention of mother-to-child transmission (of HIV)

PPP – purchasing power parity

PSA – prostate specific antigen

PSAMAQ - *Prévention du SIDA sur les Axes Migratoires de l'Afrique de l'Ouest* project

PTH – Pathways to Health project

PWP – prevention with positives

PY – person year

RCT – randomized clinical trial

RR – relative risk

SD – standard deviation

STD/STI – sexually transmitted diseases/infections

SW – Sex work

TB – tuberculosis

TRA – Theory of Reasoned Action

UNAIDS – Joint United Nations Program on HIV/AIDS

UNDP – United Nations Development Programme

USAID – United States Agency for International Development

USG – United States Government

VCT – voluntary counseling and testing

WAPCAS - West African Project to Combat AIDS and STI's

WHO – World Health Organization

CHAPTER 1: BACKGROUND: THE HIV EPIDEMIC IN MALI

I. Introduction

A public health evaluation is a “systematic investigation into the merit, worth, or significance of public health actions in order to improve and account for them” (p. 2) (U.S. CDC 1999). To that end, the goal of this dissertation is to establish the merit, worth, and significance of HIV prevention programming financed by the U.S. Government between 2000 and 2013 in Mali targeting female sex workers (FSW). This mixed-methods evaluation was designed to answer four research questions (from the research proposal):

1. What were the underlying theory, strategies, scope, coverage, successes, and challenges of HIV prevention programming for FSW in Mali between 2000 and 2013?
 - a. Describe community planning processes prior to implementation.
 - b. Describe underlying theory of behavior change and how this was incorporated in program messages and channels of communication.
 - c. Describe the coverage expected and achieved.
 - d. Describe training for program staff and peer educators and message fidelity.
 - e. Describe successes and challenges of the program.
 - f. Describe key changes in the environment, program strategy, or program resources that may have affected program outcomes.

This question was answered through a document review and key informant interviews in Mali. Results are presented in Chapters 5–8.

2. What changes in HIV-related knowledge, attitudes, and behaviors and HIV prevalence (outcomes) occurred among Malian FSW from 2000 and 2009 and can these be associated with HIV prevention programming?
 - a. How and to what extent did FSW HIV prevention knowledge change?
 - b. How and to what extent did FSW consistent condom use change with regular and non-regular clients and non-paying partners?
 - c. To what extent did HIV prevalence change among sex workers?
 - d. Do the trends observed in FSW outcomes remain when controlled for FSW demographics, such as age and nationality?
 - e. Did outcomes differ as a result of exposure to programming?

This question was answered using bivariate and multivariate analyses of the Integrated STI/HIV Behavioral and Surveillance (ISBS) surveys conducted in Mali in 2000, 2003, 2006 and 2009. Results are presented in Chapters 9–11.

3. Were these interventions appropriate and sufficient to address the epidemic in this population?
 - a. How and to what extent were the underlying theory, messages, and strategies evidence-based and appropriate to the Malian context?
 - b. Was the coverage sufficient to affect HIV transmission in Mali?
 - c. What important lessons can be gleaned for future programming?

This question was answered by comparing the interventions with international standards and is treated in Chapter 12: discussion and conclusion.

4. How were changes among Malian sex workers different or similar to those among other populations within Mali and in neighboring West African countries?

This question was answered by examining changes among similar populations in Mali and elsewhere in West Africa and is treated in Chapters 12: discussion and conclusion.

Findings from this study have resulted in reports, articles, and a workshop informing public health practice and policy regarding HIV prevention for FSW in Mali and the West Africa region. This evaluation report contains four sections:

1. Background
 - a. Chapter 1 provides background on HIV/AIDS epidemic in West Africa, the Malian socio-cultural context, and the Malian HIV/AIDS epidemic.
 - b. Chapter 2 discusses sex work in Africa and health risks FSW face, including their substantial vulnerability to HIV/AIDS.
 - c. Chapter 3 gives the normative standards for programming for FSW and highlights several model programs in low and middle-income countries.
2. Study Methods (Chapter 4)
3. Results/Findings:
 - a. Chapter 5 offers more detail on how the HIV epidemic changed over time in Mali between 2000 and 2013 and how the Malian government responded.
 - b. Chapter 6 provides the strategies used and promoted by the U.S. Government to prevent HIV transmission among FSW in Mali between 2000 and 2013, their scope and coverage, challenges, successes and lessons learned.

- c. Chapter 7 offers insight on these questions from the perspective on FSW peer educators collected during key informant interviews.
 - d. Chapter 8 presents the results of key informant interviews with program managers/policymakers on these questions.
 - e. Chapter 9 presents the demographics of FSW in Mali and how the population of FSW changed over time as measured by the four ISBS surveys.
 - f. Chapter 10 examines the changes in outcomes among FSW such as condom use and HIV prevalence as measured by the four ISBS surveys.
 - g. Chapter 11 presents the results of the multivariate analysis of the ISBS data: which factors were associated with HIV prevalence and condom use when controlling for other factors.
4. Discussion and Conclusion
- Chapter 12 (discussion) discusses how the Malian FSW data (both qualitative and quantitative) compares with that of other countries and what this research contributes to our knowledge of FSW and programming for them. Chapter 12 also answers our evaluation questions in order to establish the merit, worth, and significance of HIV prevention programming in Mali targeting female sex workers between 2000–2013. Finally, recommendations were offered for future programming and research.

II. HIV/AIDS in West Africa

A. The Global HIV Epidemic

Doctors in the United States first became aware of AIDS, the disease caused by the HIV virus, in 1981 (Gottlieb et al. 1981). Since that time the virus has infected over 60 million people, 25 million of whom have died of AIDS (UNAIDS and Organization 2010) (Hemelaar 2012).

At the end of 2013 there were 35 million people living with HIV/AIDS (PLWHA). Of these, 19 million did not know their status. In 2013, 2.1 million people were newly infected with the disease, and out of 35 million PLWHA who needed lifesaving antiretroviral treatment, 22 million PLWHA were not accessing it (UNAIDS 2014).

While the HIV/AIDS epidemic is unparalleled in human suffering, there are reasons to be optimistic. In 2014, more people than ever (12.9 million) had access to treatment worldwide. The proportion of HIV-positive persons needing treatment but *not* receiving it had dropped from 90% in 2006 to 63% in 2013. As a result, AIDS-related mortality fell by 35% since 2005. In addition to saving lives and reducing morbidity, HIV treatment also reduces HIV transmission (both sexual and mother-to-child). Also, HIV prevention works. People all over the world have changed behaviors that lead to infection, resulting in lower HIV incidence. The rate of new infections has been falling: by 38% between 2001 and 2013. Ten countries have seen reductions in incidence by over 75%, while 27 have seen drops in new infections of more than 50%. In 2013, an estimated 240,000 children were newly infected, a 58% reduction since 2002, the peak year when 580,000

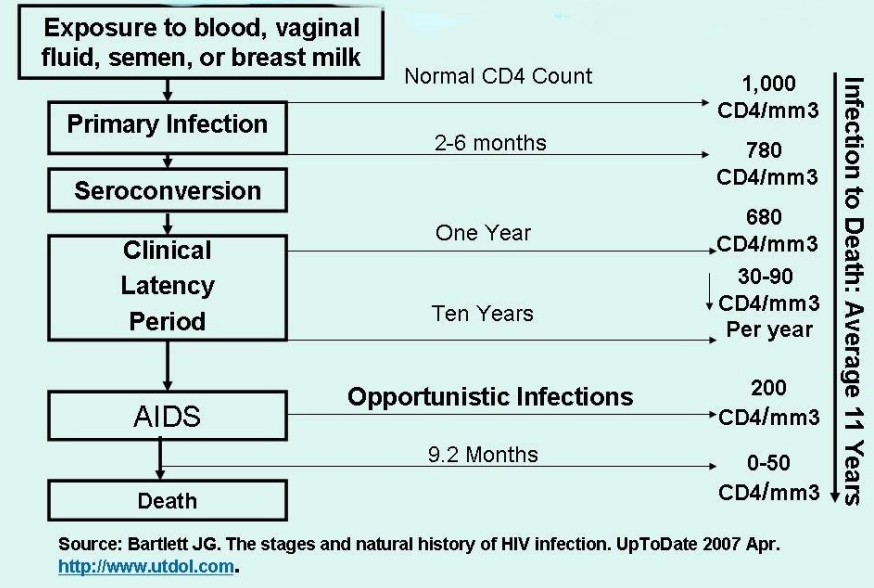
children were infected (UNAIDS 2014).

B. Clinical Description of HIV/AIDS

Human immunodeficiency virus (HIV) attacks and kills CD4 cells, destroying the immune system's ability to fight disease. Acquired immunodeficiency syndrome (AIDS) is the late stage of HIV infection, when enough CD4 cells have been destroyed to allow for opportunistic infections (OIs) to develop, illnesses which take advantage of the person's weakened immune system, and eventually lead to death without treatment (U.S. CDC).

Figure 1.1 (below) presents the stages of HIV infection in a person without treatment. Within three to six months of infection, HIV antibodies are detectable in the blood, which is called seroconversion. At this time, the patient enters the clinical latent period, during which time the immune system keeps the virus in check for a period of years and the person has few or no symptoms. CD4 levels continue to drop by 30–90 CD4/mm³ per year (Bartlett and Hirsch 2010). Median time from seroconversion to clinical AIDS is 10 years. Once AIDS occurs, if no treatment is given, the median time to death is 9.2 months (Morgan et al. 2002).

Figure 1.1 Clinical Stages of HIV



C. HIV Transmission

Risk of transmission of HIV depends on: 1. Efficiency of transmission during each contact; 2. Number of HIV-infected partners; and 3. Number of unprotected contacts with each infected partner. Proxy markers (number of partners, inconsistent condom use) have been found to be associated with HIV transmission in many studies (WHO 2011a).

HIV transmission can be made more efficient per contact by high quantities of virus (viral load) in the blood and seminal and vaginal fluids. Viral load is highest during the primary infection stage (before the immune system has mounted a defense to the virus) and in the late/AIDS stages (when the immune response has been compromised by years of onslaught by the virus). Primary infection has been proposed as being responsible for an inordinately high proportion of infections. Anti-retroviral therapy, which greatly reduces viral load, also greatly reduces the probability of transmission (Royce, Sena, and Jr 1997; Quinn et al. 2000).

The presence of some sexually transmitted infections (STIs) also increases the likelihood of sexual HIV transmission (Kapiga et al. 2007)(Ghys, Fransen, and Diallo 1997). STIs can disrupt mucous membranes in the vagina. In men, they can increase the seminal viral load. They also increase contact to blood, especially when genital ulcers are present (WHO 2011a; Royce, Sena, and Jr 1997).

Biologically, women are up to 2.5 times more likely to be infected by HIV during heterosexual intercourse than a man (Heise and Elias 1995; Fox and Fidler 2010). Male circumcision has been found to further significantly reduce (up to 70%) transmission of HIV from women to men during heterosexual sex (Royce, Sena, and Jr 1997; Auvert et al. 2005; Gebremedhin 2010).

Receptive anal sex with an HIV-positive partner (whether the receptive partner is a man or a woman) is a particularly effective mode of HIV transmission. The probability of transmission during a single instance of receptive anal intercourse with an HIV-positive partner is estimated to be at about 1–4%, 18 times greater than that of a woman who has vaginal intercourse with an HIV-positive male partner (Beyrer et al. 2012).

Transmission also occurs through blood transfusions, accidental needle sticks in medical settings and sharing injecting drug equipment. In cases where an HIV-negative individual received HIV-positive blood in a transfusion, transmission occurred between 80–100% of cases. Sharing needles for injection drug use is also a very effective mode of HIV transmission: an estimated 0.8% (CI 0.46–2.4%) chance of transmission per contact (Baggaley et al. 2006).

Perinatal (mother to child) transmission can occur before birth, during birth, or

through breast milk. There are various mechanisms for perinatal transmission, but in the absence of interventions approximately twelve percent of transmission occurs prior to 36 weeks, while 29% occurs between 36 weeks and labor, 20% occurs during delivery, and 39% from breastfeeding. Without prevention interventions, the overall probability of HIV transmission from mother to infant is about 41%. However, provision of antiretroviral therapy and caesarian section can reduce this to a mere one percent (Kourtis et al. 2006).

D. Key Populations

Despite the positive news regarding prevention and treatment, the epidemic continues to rage unabated among specific vulnerable and high-risk groups. For these key populations, “social, legal, structural and other contextual factors both increase vulnerability to HIV and obstruct access to HIV services. Such factors include punitive legislation and policing policies, stigma and discrimination, poverty, violence and high levels of homelessness” (WHO 2014) (p. 3.). Because of their high vulnerability, HIV prevalence rates and bridging factors, an effective AIDS response depends on reducing transmission among key populations (WHO 2014).

The WHO currently lists five groups as “key populations”: female sex workers (FSW), men who have sex with men (MSM), persons who inject drugs (PWID), the incarcerated and transgender persons. Multiple analyses have found that these populations living in low and middle income countries have HIV prevalences over ten times that of the general populations (Dolan et al. 2007; B. Mathers et al. 2008; S. Baral et al. 2012; Beyrer et al. 2010; S. D. Baral et al. 2013; WHO 2014) Worldwide, HIV prevalence among FSW is much higher than among women in the general population (S.

Baral et al. 2012). The elements of HIV vulnerability among FSW are discussed in detail in Chapter 2.

In much of the world, HIV prevalence is on the increase among MSM. In North, Central and South America, as well as in Africa and Asia, HIV prevalence among MSM averaged 14–18%. The high HIV prevalence among MSM is due to the high per act probability of HIV transmission during receptive anal sex. In addition, many MSM populations have high numbers of casual and transactional partners and high sexual networking, which facilitates rapid spread of the disease. Also, many MSM take both the insertive and receptive roles during sex, which could facilitate HIV transmission in MSM networks in a more effective way than heterosexual networks (in which men's lower biological vulnerability to transmission during heterosexual sex results in some herd immunity protective to women) (Beyrer et al. 2012).

Approximately 15.9 million people (11 – 21.2 million) are estimated to inject drugs worldwide. Of these 3 million (0.8–6.6 million) are likely to be infected with HIV. While data on PWID is scarce in many countries, HIV related to injection drug use is a growing public health problem in many regions (B. Mathers et al. 2008). PWID are highly vulnerable to HIV due to the efficiency of HIV transmission during needle-sharing, the extreme low access to health services for these populations, stigma, discrimination and incarceration (Vlahov, Robertson, and Strathdee 2010). Mortality among PWID varies by study and by context, but one meta-analysis suggested mortality among PWID was 14.8 times that of the general population, with the most common causes of death being overdose and AIDS (B. M. Mathers et al. 2013).

HIV is a serious health problem in prisons worldwide and HIV prevalence among prison populations is typically higher than in the general population. One reason for this is that PWIDs and FSWs often find themselves incarcerated. However the high turnover of inmates, prison staff, and visitors also contribute to the spread of HIV. Few prisons offer HIV prevention options to inmates such as condoms, clean needles or methadone (Dolan et al. 2007).

Transgender women, (male to female transgender individuals) are highly vulnerable due to the high biological transmissibility during receptive anal sex as well as the high background prevalence of their sexual networks (which often include MSM and PWID in countries where the HIV epidemic is driven by those factors). In addition, these populations report high rates of depression and substance use and sex work as well as social and economic exclusion. Finally, access to health services, including HIV/AIDS prevention and treatment, is rarely available at the levels needed for these populations. Their pooled worldwide prevalence (based on 15 countries with data on the population in North America, Latin America, Europe, Australia and South-east Asia) was 19.1%, 48.8 times that of the general population in those countries. Individual country odds ratios of HIV prevalence among transgender women compared with the general population ranged from 9.9 to 208 (S. D. Baral et al. 2013).

E. Sub-Saharan Africa, the epicenter of the epidemic

Sub-Saharan Africa is the region of the world most affected by the HIV/AIDS epidemic. While sub-Saharan Africa accounts for only 12% of the world's population (UNAIDS 2011), it is home to 70.6% of people living with HIV/AIDS (PLWHA): 24.7 million men,

women, and children. Almost one in 20 adults in sub-Saharan Africa is living with HIV. In 2013, 1.7 million people began antiretroviral treatment and 37% of people living with HIV in the region were receiving treatment. As a result of increased treatment access, AIDS-related mortality in the region has fallen by 39% since 2005 (UNAIDS 2014).

HIV got its start in Africa, likely from a species of chimpanzee in Cameroon. Humans first became infected, probably through hunting for bush meat, in the early 20th century and the disease progressively traveled to Kinshasa, in the current Democratic Republic of Congo, where the epidemic became established. Blood samples with HIV from patients in Kinshasa have been found as early as the 1950s. This is one of the key reasons why HIV is so widespread in Africa: it has been there much longer (Hemelaar 2012). In addition, it is possible that sub-type C, which is predominant in Southern Africa where prevalence is highest, may be more easily transmitted through heterosexual sex than other sub-types (Rodriguez et al. 2009; C. Fraser et al. 2014).

High rates of untreated STIs in sub-Saharan Africa also contribute to the region's high HIV prevalence (Corbett et al. 2002; Kapiga et al. 2007). Africa has the highest prevalence rates of syphilis (3.5% for women and 3.9% for men) and gonorrhea (2.3% for women and 2.0% for men) in the world as well as relatively high prevalences of chlamydia (2.6% for women and 2.1% for men) and *trichomonas vaginalis* (20.2% for women and 2.0% for men) (WHO 2008). Prevalence of genital herpes virus (simplex 2) is also the highest in the world, with 70% of women and 55% of men infected in their lifetimes (Looker, Garnett, and Schimd 2008). Women in this region also have the highest prevalence (24.0%) of cervical human papillomavirus (HPV) in the world (Bruni

et al. 2010). In addition, genital ulcers attributable to schistosomiasis, a common infection in Africa caused by a tiny worm living in bodies of water, could also facilitate HIV transmission (Hotez et al. 2011).

Efforts to explain Africa's high HIV rates by sexual behavior are controversial. Some researchers suggest that high levels of multiple partners and concurrent partners (when people have more than one partner at a time) have caused HIV to spread quickly through sexual networks. If people have multiple concurrent partners, new HIV infections could spread rapidly during the primary infection stage in which high viral load makes transmission more likely (Drain et al. 2004; Halperin and Epstein 2007; Mah and Halperin 2010; Powers et al. 2011). Other research, however, suggests that sexual behavior in Africa is not in fact very different from sexual behavior in other regions of the world (Wellings et al. 2006) and that there is currently not enough evidence to conclude that concurrency is an important factor in sub-Saharan Africa's HIV/AIDS epidemic (Lurie and Rosenthal 2010).

The majority of HIV transmissions in sub-Saharan Africa occur through unprotected heterosexual sex or from mother to child. A great deal of transmission occurs within committed relationships, and most PLWHA do not know they are infected (WHO 2011b). Some estimates show that 60–95% of new HIV infections in Africa occur between co-habiting or married couples (Coates, Richter, and Caceres 2008).

Africa is the poorest and least developed continent on earth, and poverty and lack of access to resources contributed to the spread of HIV in Africa and hindered the response: African countries were the least prepared to respond to the epidemic. The

eighteen least developed countries on the planet are in Africa, as are 32 of the 42 nations considered to have “low human development” by the United Nations Development Program (UNDP) in its human development index, which combines measurements of health, education, and income to estimate the levels of human poverty.(UNDP 2014) The link between HIV and poverty in Africa is complex, however. Some of the wealthiest countries on the continent have the highest prevalences, and several studies have shown that in some countries HIV prevalence is higher among wealthier Africans (Gupta et al. 2008; Wilson and Halperin 2008).

Women in Africa fare particularly poorly on every scale measuring gender equality. Seventeen of the twenty countries ranked at the very bottom of the UNDP’s gender equality index, which combines women’s income, access to education, political participation and health, are found in Africa (UNDP 2014). It is not surprising, then, that women in this region are at particular risk for HIV. Sixty-five percent of adults living with HIV in sub-Saharan Africa are women (approximately 16 million) (UNAIDS 2014) (Papworth et al. 2013). In fact, in Southern and Eastern Africa, between 25 and 30 percent of young women (under 30) are infected with HIV. Women’s vulnerability to HIV is due to many factors related to gender inequality, including women’s lower income and relative poverty, power dynamics between men and women, gender-based violence, and lower access to education (Pettifor, McCoy, and Padian 2012; Baird et al. 2012; Gupta et al. 2008). However, paradoxically, African countries scoring lower on gender equality measures often have lower HIV prevalence (Wilson and Halperin 2008). This may be partially because of high circumcision rates in West Africa where gender equality

measures are lowest (Halperin and Epstein 2007).

While most sub-Saharan African epidemics are generalized, key populations in the region are even more vulnerable to HIV transmission and are important epidemiologically. African FSWs have been found to have 5–40 times the odds of being infected with HIV than other women (S. Baral et al. 2012). Chapter 2 will discuss African FSW's vulnerability to HIV in greater detail.

MSM in Africa have, on the average, an HIV prevalence rate that is four times greater than that of other men in their respective countries (S. D. Baral et al. 2011). In 2011 one study found a pooled HIV prevalence of 17.9% among MSM in the region, over 3 times that of the pooled prevalence in the general population (5%) (Beyrer et al. 2012). Epidemics of HIV among MSM occur in sub-Saharan African countries with large generalized epidemics. In addition, a large proportion of MSM in Africa also report sex with women. In Kenya, for example, the HIV prevalence among MSM in 2010 was 15.2%, twice that of the general population (7.5%). At that time over 50% of MSM reported also having sex with women (Beyrer et al. 2010). Very little information on transgender women exist in Africa (Beyrer et al. 2010; Papworth et al. 2013).

Information about PWID in Africa is scarce. One 2008 systematic review only found information about *any* injection drug use in 13 African countries and only three (Kenya, South Africa, and Nigeria) had HIV prevalence data among PWIDs. PWID had an estimated HIV prevalence of 42.9% (36.3–49.5%) in Kenya, 5.5% (0–11%) in Nigeria and 12.4% (4.8%–20%) in South Africa. Applying these data to the rest of sub-Saharan Africa, the authors estimated (with great caution given the paucity of data) that

approximately 221,000 PWIDs (between 26,000 and 572,000) could be living with HIV. The authors note, however, that many factors suggest that increasing HIV epidemics among PWID is a considerable risk. These factors include Africa's well-established populations of PWID, high levels of poverty and conflict, increasing trafficking of illegal substances, and high general population HIV-prevalence (B. Mathers et al. 2008). Another review found studies reporting high rates (6–86%) of needle-sharing among PWID in five African countries (Reid 2009). Information about HIV in prisons in Africa is also not frequently available but a number of studies have found high HIV prevalence (11%–74%) in prison environments (Dolan et al. 2007).

F. HIV in West Africa

The West and Central sub-region of Africa (made up of 24 countries) is the most populous, with over 350 million inhabitants. French is the colonial language spoken in most of West Africa (Papworth et al. 2013). The sub-region is also among the world's least developed. Twelve of the twenty least developed countries in the world (measured by the UNDP's Human Development Index) are in West and Central Africa (in order from the bottom): Niger, Democratic Republic of Congo, Chad, Sierra Leon, Burkina Faso, Guinea, Guinea-Bissau, Mali, Liberia, Gambia, and Cote D'Ivoire. Another six West and Central African countries are also in the low human development category: Togo, Benin, Senegal, Mauritania, Nigeria, and Cameroon. Equatorial Guinea, Sao Tome and Principe, Ghana, Cape Verde, and Gabon are considered medium human development countries. No West African country is considered to have high or very high levels of human development (UNDP 2014).

With regards to health and opportunities for women, the situation in West and Central Africa is bleak even compared with the rest of the continent. Fourteen of the twenty lowest-ranking countries on the UNDP's gender inequality index are found in West and Central Africa (in order from the bottom): Chad, Niger, Mali, Democratic Republic of the Congo, Liberia, Central African Republic, Cote d'Ivoire, Mauritania, Sierra Leon, Gambia, Cameroon, Benin, Burkina Faso, Togo, and Ghana (UNDP 2014). Female genital mutilation (FGM) is quite common in the sub-region, especially in predominately Muslim countries, which can cause severe medical and psychological problems for women. One analysis found that in 6 of 10 countries in the region, over 40% of women had experienced FGM (Sipsma et al. 2012).

The HIV prevalence in West and Central Africa among adults ages 15–49 is low compared to the high prevalence (10% or higher) in many countries in Southern and Eastern Africa (Papworth et al. 2013). Adult HIV prevalence was estimated at 2% or under in 12 countries in the region in 2012: Mauritania (0.4%); Senegal (0.4%); Niger (0.5%); Liberia (0.9%); Mali (0.9%); Benin (1.1%); Burkina Faso (1.0%); Democratic Republic of the Congo (1.1%); Gambia (1.3%); Ghana (1.4%); Sierra Leone (1.5%); and Guinea (1.7%); The prevalence of HIV was highest in Cameroon (4.5%), Gabon (4.0%), Guinea Bissau (3.9%) Côte d'Ivoire (3.2%), Nigeria (3.1%), Togo (2.9%), and the Republic of the Congo (2.8%). Nigeria, Cameroon, the Democratic Republic of Congo and Cote d'Ivoire, with their large populations, are home to the largest numbers of PLWHA: 3.4 million, 600,000, 480,000, and 450,000, respectively (UNAIDS 2013). A critical factor in the West African epidemic is the protective effect of almost universal

male circumcision in the region (UNAIDS; Halperin and Epstein 2007).

In West Africa the vast majority of couples in which one partner is HIV positive are sero-discordant, with usually the woman being HIV positive. It is likely that the high circumcision rates of men and women's previous marriages are responsible for this difference (Catherine Lowndes et al. 2008). In West Africa, 70–80% of HIV transmission occurs within stable relationships (UNAIDS and The World Bank 2010; Chemaitelly et al. 2012).

Due to the comparatively low HIV prevalence, most West African HIV epidemics are considered concentrated, mixed, or only borderline generalized. In this sense, they are more similar to epidemics in Latin America and Asia than those in Southern and Eastern Africa (Papworth et al. 2013; UNAIDS 2013; Wilson and Halperin 2008). Recent modeling suggests that West African epidemics are not “generalized” but are largely driven by key populations. If this is the case, the modes of transmission analyses (discussed below) may actually underestimate the importance of key populations in West African epidemics (Boily et al. 2015; Wheeler et al. 2015). Sex work contributes a very high proportion of HIV transmission in West Africa where FSW have an average HIV prevalence of 17% (Gouws and Cuchi 2012; UNAIDS 2013). The HIV epidemic among FSW in West Africa will be treated in much more detail in Chapter 2.

MSM contribute up to 20% of total HIV transmission (including transmission to female partners) in West Africa. Data on MSM also show high numbers of partners, and high incidence of transactional sex. MSM in the region have very low levels of HIV information, knowledge of HIV serostatus, and condom use (Catherine Lowndes et al.

2008; UNAIDS and The World Bank 2010). One analysis found Western and Central Africa to have the highest HIV prevalence among MSM in the world (19%) (UNAIDS 2013; Beyrer et al. 2012). In Ghana, where HIV prevalence among MSM was 20% in 2010 and 1.6% in the general population, MSM may be the most important driver of the epidemic overall (Beyrer et al. 2010). A systematic review specific to West Africa found an HIV prevalence of 17.7% (CI 16.5–18.9) among MSM in Nigeria, Senegal, and Cote D'Ivoire (Papworth et al. 2013). Very little information is available on transgender women in the region (MacAllister et al. 2015).

West Africa is known for its role in drug trafficking to Europe (largely cocaine from Latin America but also heroin from Asia). The size of the trade is debated, and even less information is available on actual drug use in the region (Csete and Sanchez 2013; Ralston 2014). Information on PWID in the region is very limited, but more has become available in recent years. One 2013 study in Nigeria found that HIV prevalence was 3.8% among PWID, slightly higher than the 3.2% prevalence in the general population (Papworth et al. 2013; Eluwa et al. 2013). In a later analysis of eight countries in the region, only Ghana and Nigeria had data on the estimated size of populations of PWID, their HIV prevalence, and the package of services available for them (MacAllister et al. 2015). Recently, a study in Kumasi, Ghana noted high rates of needle sharing (53.3%) among the 30 PWIDs interviewed (L. J. Messersmith et al. 2015).

In West Africa, studies prior to 2001 found high HIV prevalence among prison populations: 9% in Nigeria, 11% in Burkina Faso, 15% in Cameroon, 6.3% among men and 21.4% among women in Gabon and 27.5% in Cote d'Ivoire. However, relatively low

HIV prevalence was reported in Niger (0.5%), Senegal (2.7%), and Guinea (3.4%) (Dolan et al. 2007).

III. Health and Development in Mali

A. Historical context

Mali, a landlocked country in West Africa, became independent of France in 1960. Its surface covers 478,841 sq. miles, about the size of Texas. Much of the landscape is Sahara desert or Sahel, with light vegetation and few water sources. Ninety percent of the country's population of 15.8 million live in the southern half of the country (US Army War College 2015). The Niger River passes through the country for over 1,000 miles passing through five of Mali's seven major towns: Bamako, Ségou, Mopti, Timbuktu, and Gao. The river is fundamental to social and economic life: it makes agriculture possible and is also a transport route (Baker and Clark 2014).

Mali was considered a stable democracy due to its four successful presidential elections (1992, 1997, 2002, and 2007) and its respect for freedom of speech, the press, and political expression. However, since early 2012, Mali has faced various security crises, starting with the Tuareg rebellion beginning in northern Mali in January 2012.

(The Tuaregs are an ethnic group making up the majority of the population of the Kidal region and a significant minority of the population in the Gao and Timbuktu regions.)

The Malian Army was poorly equipped and the Tuaregs had benefitted from the fall of Muammar Quaddafi in Libya by increasing their ranks with over 2000 fighters who had returned from that country with modern weapons. As a result, the Tuareg forces easily captured the three northern regions, defeating government forces in several key battles

(Heacock 2013; US Army War College 2015; Gaasholt 2015).

The public dismay regarding the government's inability to respond to the Tuareg rebellion led to the March 17, 2012 coup d'état. Following this, Islamist Tuareg and Arab groups, including many foreign fighters took control of northern Mali from secular Tuareg leaders and then proceeded to commit numerous human rights violations. The turmoil forced over 300,000 people from these regions as refugees and internally displaced persons and occurred at the same time as a severe food crisis (Carson et al. 2012; International 2012; Heacock 2013; Gaasholt 2015). The coup leaders became isolated after that January 2013 arrival of French forces and later, a UN security force who came to stabilize the country and successfully drive the Islamist forces out of power in northern Mali (Heacock 2013; US Army War College 2015; Gaasholt 2015).

Mali is currently in a post-crisis phase beginning with the installation of its democratically elected president Ibrahim Boubacar Keita in September of 2014. However, the country still faces many challenges to its stability, including the continued conflict in the north, droughts and food insecurity and widespread bad governance (Bado 2013; Heacock 2013; US Army War College 2015; Gaasholt 2015). Currently, the Malian government and the secular Tuareg groups are at an impasse over a peace plan (Bensimon 2015).

B. Socioeconomic and Cultural context

Three fourths of Malians live a rural life in small villages of between 100–600 inhabitants, surrounded by fields and land for cattle. A fourth live in urban areas. Most of Mali's population lives along the Niger River. The Bambara is the largest ethnic group.

Other important groups include the Fulani, Soninke, Malinke, Songai, Dogon, Bozo, and Tuareg. While French is the official language, only a minority of Malians speaks it. Nine tenths of Mali's 15.5 million (est. 2011) are Sunni Muslims. The rest are Christians or follow African traditional beliefs (Baker and Clark 2014).

Malian Islam is known for being open and tolerant: music and dance play a large role in Malian culture; many Malians smoke cigarettes and drink alcohol; and men and women are not segregated. A system called "joking cousins" in which Malians from different ethnicities and religions joke with each other contributes to Malians' openness (Heacock 2013).

Mali is classified by the UNDP as a low-development country. It is ranked #176 on the UNDP's human development index, eleventh from the bottom. This low rank is due to its low income levels (estimated at \$1,499 per capita using purchasing power parity (PPP)), its life expectancy of 55 years and the mean duration of schooling for adults (2 years), although today's children can expect to be in school for 8.6 years (UNDP 2014). Four-fifths of Malians live by subsistence agriculture and by raising livestock. However, frequent droughts and low technology limit agriculture. Industry employs less than 20% of Malians. Mali also exports fish, gold, livestock and cotton (Baker and Clark 2014).

C. Gender Inequality in Mali

Mali also has one of the lowest levels of empowerment for women in the world, ranking 148, fifth from the bottom, on the United Nations Development Programs "Gender Inequality Index", which includes women's health, education, seats in parliament and labor participation. Only in Chad, Niger, Afghanistan and Yemen is the situation for

women worse (UNDP 2014). Both Malian law and traditional custom require women to obey their husbands. Women have few rights in the case of divorce, child custody, and inheritance. The law allows marriage of girls aged 16 and over and there are widespread reports of judges ignoring even this rule (US Dept. of State 2011). In addition, Malian women hold only 10.2% of seats in parliament (UNDP 2014).

In Mali, 14.8% of girls are married before they turn 15 years old (12% in urban areas vs. 16% in rural areas) and 60.8% before they turn 18 (45.7% in urban areas vs. 67% in rural areas). Also, 43% of women are in polygamous marriages (31% in urban areas vs. 47% in rural areas). Over 60% of women are in marriages with a man ten or more years older, and over 90% with a man five or more years older. Most women (88%) have undergone female genital mutilation usually as adolescents older than 14 years of age. Most women believe that their husbands have the right to beat them for minor things such as talking back (CPS/SSDSPF and INSTAT 2011).

Men in Mali have higher access to education than women do. Only 24% of young women between the ages of 15–24 years are literate (14% in rural areas vs. 43% in urban areas). (CPS/SSDSPF and INSTAT 2011) In Mali, there are 88 girls in primary school and 72 girls enrolled in secondary school for every 100 boys (The World Bank 2015). Mali is slightly lower than the average in sub-Saharan Africa of 92 girls/100 boys for primary school and quite a bit worse than the sub-Saharan average of 79 girls in secondary school for every 100 boys (United Nations 2011). Only 7.7% of women have a secondary education, compared to 15.1% of men (UNDP 2014).

D. Health and nutrition in Mali

Maternal and child health in Mali (Table 1.1) remains among the worst in the world. The efforts of the Government of Mali (GOM), the USG, and other donors have resulted in dramatically lower infant and maternal mortality rates, though still much needs to be done. The most dramatic improvement is seen in bed net ownership and use. In Mali, malaria is endemic and the number one reason why Malians seek out health care, representing 42% of medical consultations. On the other hand, child nutrition is woefully inadequate and rates of malnourishment and stunting remain high. In addition, uptake of family planning is very slow, especially in rural areas, and Mali's fertility rates are among the highest in the world. Health status of Malians is much better than that of rural Malians. As three-fourths of Malians live in rural areas, rural health is a critically important challenge in the country (Mali.CPS/MS and ICF Int. 2014).

Table 1.1 Trends in key health indicators in Mali			
Key Health Indicators	DHS 2001	DHS 2006	DHS 2012–13
Infant mortality rate (deaths/1,000 live births) [urban/rural]	126.2 [105.9 / 131.9]	96 83 / 122]	56 [43 / 68]
Under-5 mortality rate (deaths/1,000 live births) [urban/rural]	238.2 [184.6 / 253.2]	191 [158 / 234]	95 [64 / 113]
Maternal mortality ratio (deaths/100,000 live births)	582	468	368
Total fertility rate (births/woman) [urban/rural]	6.8 [5.5 / 7.3]	6.6 [5.4 / 7.2]	6.1 [5.0 / 6.5]
% of adolescents (<20 years) who have given birth or were pregnant when surveyed [urban/rural]	40.4% [27.9% / 49.3%]	35.5.0% [25.6% /41.9%]	39.3% [25.1% / 45.8%]
Modern current contraceptive prevalence rate (% women 15–49 years in union)	5.7% [14.7% / 2.8%]	6.9% [13.0% / 4.2%]	9.9% [21.8% / 6.8%]
Unmet need for family planning (% women 15–49 years in a union)	28.5% [31.4% / 27.6%]	31.2% [32.4% /30.7%]	26% [24.9 / 19.5]
Access to improved drinking water source (% population – total) [urban/rural]	41.8% [70.4% / 32.5%]	55.9% [78.0% /45.9%]	66% [93% / 59%/]
Access to improved/non-shared toilets (% population – total) [urban/rural]	15.0% [32.9% – 9.1%]	Indicator not comparable	23.8% [45.2% / 17.9%]
DPT3 immunization coverage (% children < 1 yr) [urban/rural]	39.6 [68.4% / 30.1%]	67.6% [75.8% / 4.3%]	63.1% [78.5% / 59.1%]
Exclusive breastfeeding of children <6 mos	25.1%	37.8%	32.9%
Antenatal care \geq 4 visits (% pregnant women)(2010) [urban/rural]	29.9% [57.4% / 21.0%]	35.4% [54.8% /27.6%]	41.2% [66.6% / 34.6%]
Skilled birth attendance (% deliveries) [urban/rural]	41% [83.7% / 27.8%]	49.0% [80.0% /37.6%]	58.6% [92.4% / 50.7%]
Children underweight, WHO standard (% \leq -2 standard deviations weight/age) [urban/rural]	33.2% [20.2% / 37.1%]	26.7% [20.1% /29.3%]	25.5% [16.8% / 27.5%]
Children with stunting, WHO standard (% \leq -2 standard deviations height/age) [urban/rural]	38.2% [24.0% 42.5%]	37.7% [26.1% /42.1%]	38.3% [23.2% / 41.9%]
% of households with at least one insecticide-treated mosquito net [urban/rural]	54.4% [57.7% / 53.4%]*	50.0% [53.9% /48.4%]	84.4% [81.9% / 85.1%]
Children sleeping under an ITN previous night (%) [urban/rural]	68.4%† [75.2% / 66.0%]	27.1% [37.1% / 36.0%]	69.0% [68.0% / 69.2%]
*†Note bed net indicators were not consistent in the three DHSs. 2001 only had any bed net. 2006 had self-treating and bed nets you had to treat (indicator shown is for pre-treated bed nets). 2012 was only pre-treated bed nets.			

E. Mali's Health System

In 1987, after Mali hosted the Bamako Initiative conference, it created a decentralized health system dependent on user fees for most services. Some key services are free to patients, such as HIV treatment, caesarians, and malaria treatment for children and pregnant women. Some studies have shown that the user fees are a barrier to care (Johnson et al. 2012).

Since 1987, the base of the health system is its network of over 1,000 primary health care clinics (*Centres de Santé Communautaires*, or CSCOMs). The CSCOMs provide a minimum package of essential health services. One of the key accomplishments of the health system since 1987 is the extension of CSCOMs so that today almost 60% of Malians live within five kilometers of one. Finally, over 2,000 community health workers and community health volunteers provide a basic community-level package of services (Mali.CPS and Mali.MOH 2011).

The next level of health system is its 59 government district referral hospitals (CSREFs). Tertiary-level services are provided at the 7 regional hospitals and five national hospitals located in Bamako (Mali.CPS and Mali.MOH 2011). Mali also has a large private health sub-sector which employs fifty percent of Mali's 2,546 physicians. Ninety percent of physicians work in urban areas and most CSCOMs (all except about 200) are staffed by nurses. The low level of trained health care staff in rural areas is a key challenge to the health system (Lamiaux, Rouzard, and Woods 2011).

The main goals of the Mali's current national health plans are linked to the millennium development goals: aiming to reduce child malnutrition, child and maternal

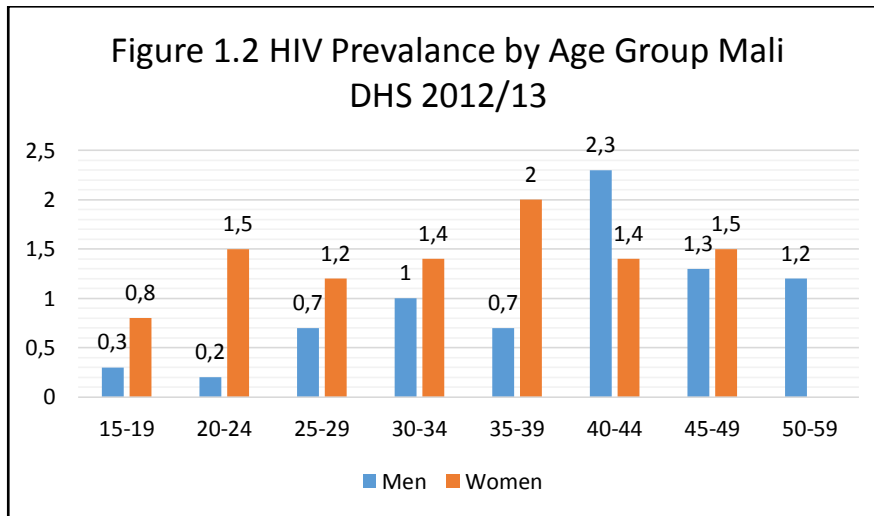
mortality, and HIV prevalence and increasing vaccine coverage, rates of births attended by trained birth attendants, and antenatal coverage. Finally, the country plans to further extend health coverage into rural areas (Lamiaux, Rouzard, and Woods 2011) (Mali.CPS and Mali.MOH 2011).

F. HIV in Mali

As shown in Table 1.2, Mali's HIV epidemic appears to be stabilizing. HIV prevalence in the general population measured by the Demographic and Health Surveys (DHS) dropped from 1.7% in 2001, to 1.3% in 2006, and to 1.1% in 2012. HIV prevalence is higher in urban areas, where it actually increased somewhat between 2006 and 2012/13. HIV prevalence is also consistently higher in women than men (Mali.CPS/MS et al. 2006)

Table 1.2 HIV Prevalence Adults age 15–49 in Mali			
	DHS 2001	DHS 2006	DHS 2012–13
Adult HIV Prevalence (men/women)	1.7% [1.3% / 2.0%]	1.3% [1.0% / 1.5%]	1.1% [0.8% / 1.3%]
Adult HIV Prevalence in Rural Areas [men/women]	1.5% [1.1% / 1.9%]	0.9% [0.6% / 1.2%]	0.9% [0.6% / 1.1%]
Adult HIV Prevalence in Urban Areas [men/women]	2.2% [1.9% / 2.5%]	1.6% [1.3% / 1.8%]	1.9% [1.6% / 2.2%]

As shown in figure 1.2 below, HIV prevalence is higher among younger women and in older men. It is important to note that the average age is younger for women for both sexual debut (17 years vs. 21.7 years for men) and first marriage (18 years vs. 26.2 years for men), so intergenerational transmission is likely important from men to women (Mali.CPS/MS and ICF Int. 2014).



The total number of PLWHA is estimated at 97,000, of whom 29,260 currently receive anti-retroviral therapy (ART) largely funded by the Global Fund to Fight AIDS, TB, and Malaria (GFATM) (“UNAIDS Mali Country Profile” 2015).

Key risk factors for HIV infection in the 2012/2013 DHS included the number of lifetime sexual partners, which increased the likelihood of sero-positivity for both men and women. For instance, women who said they had 3–4 partners in their lifetime had a prevalence of 4.6% while men who had 10 or more partners had an HIV prevalence of 3.3%. In addition, men who said they had visited a FSW in the last twelve months had an HIV prevalence of 5.6%. Most PLWHA in Mali have never tested for HIV and do not know their HIV status (81% of women and 90% of men). Eighty percent of Malian PLWHA who were tested as a couple during the DHS 2012/2013 were in discordant relationships (Mali.CPS/MS and ICF Int. 2014).

Over half of HIV-positive patients in care have never been to school and have a monthly income of less than \$40. Over 70% are currently married or otherwise have a

regular partner but only 30% of these use condoms systematically, regardless of partners' HIV status. Additionally, 30% had an STI the previous year (PSI 2013).

Prevalence among pregnant women in urban and peri-urban antenatal care (ANC) sites fell from 3.8% in 2002 to 3.4% in 2005, to 2.8% in 2007 and 2.7% in 2009 (Mali.CSLS/MS 2010). However, the most recent (2012) Mali HIV Sentinel Surveillance survey in antenatal care (ANC) found that 2.9% of pregnant women were HIV-positive (3.8% in urban and 1.7% in rural areas). The change from 2.7% in 2010 to 2.9% in 2012 was not statistically significant. (Mali.CSLS/MS, Mali.CPS, and CDC 2013). Mali has just recently adopted Prevention of Mother to Child Transmission Option B+ (treatment for life for all HIV+ pregnant women regardless of CD4 count). However, the national PMTCT program is relatively weak due to the lack of trained human resources, challenges with commodities logistics, access to PMTCT sites, and refusal by women to participate due to stigma. Of 216,856 women seen in antenatal care in 2013, only 111,367 (54.86%) were tested for HIV. Of the 1,876 women who tested positive (1.69%), only 1,291 (68.82%) were retained in treatment throughout their pregnancy (Mali.DNS/MSHP 2014).

Pockets of higher prevalence exist among key populations at risk for HIV infection, particularly FSW (24.2%). FSW in Mali are also much more vulnerable to HIV than other women. In Mali, the Integrated HIV/STI Surveillance and Behavior Surveys (ISBS) in 2000, 2003, 2006, and 2009 tracked HIV and STIs, demographics, and behaviors among FSW and reported crude rates. Their mean HIV prevalence among FSW was 24.2% in 2009 (Mali.CSLS/MS et al. 2010), nine times higher than among

pregnant women (2.7%) that year (Mali.CSL/MS 2010).

MSM are also highly vulnerable to HIV in Mali. A 2009 survey by the Population Council found an HIV prevalence of 16% (Mali.HCNLS 2012) and a CDC study using respondent driven sampling in 2014 found a prevalence of 14.6% among a sample of mostly young MSM in Bamako (Mali.CSL/MSHP, CDC, and INRSP 2015).

In Mali, homosexual relations are not criminalized and neither is sex work, although owning a brothel and solicitation for prostitution in public are prohibited. However, social stigma, discrimination, and violence against MSM, FSW, and PLWHA have been documented and are key barriers to accessing services, partner notification, and retention in care for these populations (ARCAD-SIDA and AMDH 2015).

Mali's prisons house approximately 5,800 prisoners and 2,522 pretrial detainees (US Dept. of State 2011). There are no data on HIV prevalence among prisoners in Mali, though a CDC-funded program in two prisons found less than 1% prevalence in this population. In addition, there is little or no information on transgendered Malians or their HIV prevalence, though this author has encountered a few transgendered Malians in Bamako and in Ségou. A qualitative study in 2010 located a community of PWID in Bamako (Castle 2010), and this author has met small communities of them in Sikasso and in Mopti.

IV. Summary

In conclusion, West Africa is an area of the world afflicted with severe poverty and very low gender equity. However, largely due to almost universal circumcision, the region has been spared the high HIV prevalences in general populations of southern and eastern

Africa. However, the disease affects very high proportions of key populations in the region, particularly MSM and FSW. Mali is no exception to these general statements: it is an impoverished state with severe security issues. The topic of the HIV epidemic in Mali and the national response will be discussed in greater detail in Chapter 5. Chapter 2 will examine sex work in Africa and the health risks sex workers face, including HIV.

CHAPTER 2: BACKGROUND: SEX WORKERS IN AFRICA AND THEIR HEALTH RISKS

Chapter 2 provides an in-depth review of what we know about the lives of sex workers and their HIV risk. First, the chapter provides background information on sex work with an emphasis on West Africa. This section emphasizes the data about what we know about these women, their lives and their families. Then, literature on the health risks faced by sex workers, such as violence, depression and alcoholism will be presented. Finally, greater detail will be given on the reasons for their high risk for HIV infection.

I. Sex work in Africa

A. Definition of sex work in Africa

UNAIDS, in its “Guidance Note on HIV and Sex Work” defines sex workers as “female, male and transgender adults and young people who receive money or goods in exchange for sexual services, either regularly or occasionally” (p. 3) (UNAIDS 2010a). According to a literature review on HIV prevention for FSW in Africa by the World Health Organization, there is great variation in the structure of sex work around the world, and even within countries. In general, “formal” sex work is more organized and involves more control by intermediates between the sex worker and the client, such as pimps, madams, and brothel managers, than informal sex work. In contrast, “informal” sex workers are more independent and meet their clients on the streets, in their own homes, by telephone or on the internet (UNAIDS 2010a; WHO 2011a).

Sex work typically exists in places where a certain number of social and economic conditions meet. “The context in which it usually takes place includes: a

concentration of a sexually active population, sufficient anonymity, a high ratio of males to females and, more importantly, the socioeconomic disparities that make sex work affordable by the client and an economic opportunity for the worker” (p. 4) (UNAIDS 2002).

Sex workers often perceive sex work as just that, work. A study in South Africa found that most women perceived themselves as wives, girlfriends, and mothers while sex work was a business. However, the definition of sex work in Africa can be confused with transactional sex, which is very common. Women who may take money and gifts on occasion in exchange for sex in different kinds of relationships often do not perceive themselves as sex workers (WHO 2011a; Dunkle et al. 2004). This issue of identity vs. behavior is important as risks to women’s health is linked to vulnerabilities specific to each woman (Day and Ward 1997).

B. Factors promoting entry to sex work

While sex work is highly diverse between areas, sex workers are usually poor women in urban areas (though many rural women migrate to cities and sell sex there). “Growing inequalities of wealth within and between countries, rapid urbanization, and economic restructuring have shaped the contemporary sex industry. The traditionally disadvantaged have been disproportionately recruited into prostitution” (p. 162) (Day and Ward 1997).

Sex workers frequently cite poverty and food insecurity as key reasons for entering sex work. Others site divorce or separation while some escaped unwanted marriages and hard work on farms or in homes. The link with poverty is complex, however, as FSW often have higher incomes than other women in their communities

(WHO 2011a). One systematic review of 128 peer reviewed articles on FSW in Africa (Scorgie et al. 2012) notes that life events such as divorce or the death of parents often precipitate the entry of African women into sex work. On the other hand, some studies have shown this in more positive light: FSW as entrepreneurs or as escaping from drudgery and forced marriage. Women can also be pushed into sex work by political unrest and natural disasters or the need to pay off debts (Rekart 2005).

Women often report entering sex work after traumatic life events which leave them without means or even after being driven from their families as a result of divorce, pregnancy out of wedlock, HIV/AIDS, being unable to have a child, the death of a husband, or being raped. One study in Nairobi found that most FSW there were women forced to drop out of school because of a pregnancy. In Niger, Uganda, and the Central African Republic, women became FSW after being forced from their homes due to infertility that may, ironically, have been caused by untreated STIs contracted from their husbands (Heise and Elias 1995).

Numerous studies in Africa have found rates of divorce and widowhood of over 50%, including in Zimbabwe (Ray et al., (2001), Mombasa, Kenya (Luchters et al. 2010) and six regions of and rural Kenya. In one qualitative study, almost all the FSW began their stories with a statement about having become a widow or being left by their husbands and started sex work because they were destitute. Some women in polygamous marriages also said they were neglected in favor of their husband's other wives (Nyagero et al. 2010). In West Africa, studies in Guinea, Senegal, Benin, and Niger found that 40% to 50% of FSW were divorced or widowed (Aho et al. 2010; Laurent et al. 2003; Godin

et al. 2008; N. Fraser et al. 2015)

A study in Burkina Faso with 698 FSW suggested that sex workers who started sex work as minors under the age of 18 might have done so because of the deaths of one or both parents. In fact, 15.6% said that this was why they had turned to sex work. In Bobo Dioulasso, more than half of FSW who started sex work as minors had lost one (38.8%) or both (20.0%) parents. In Ouagadougou, 49.4% had lost one (37.5%) or both (11.9%) parents. (Grosso et al. 2015). In Nigeria and Cote d'Ivoire, studies found approximately 20% of FSW to be divorced, separated or widowed (Oyefara 2007; Schwartz et al. 2015). W. M. Wechsberg et al., (2006) noted that 29% of FSW in Pretoria, South Africa said that their first sexual encounter had not been consensual, showing the entry to sex work can be linked to prior violent experiences. Two thirds (32%) had been the victims of physical violence and 55% said they had been sexually assaulted before the age of 17.

Many women who find themselves in the sex work industry have little or no education and thus few occupational options. For such women, sex work may be the only choice they have for earning an income (De Zaluondo 1991). In Africa, many FSW have never been to school and do not possess skills needed even for work in the informal sector (Wechsberg et al. 2006; Scorgie et al. 2012). In Rwanda, Braunstein and Ingabire, (2011a) found that 21% of FSW there had never entered school, compared with 16% of female VCT clients. Another 41% had attended some primary school. In West Africa, the educational attainment of FSW is even worse than in Africa as a whole. For example, Aho et al., (2010) and Godin et al., (2008) found that around 40% of FSW in Guinea,

Senegal and Benin had no education. Schwartz et al., (2015) and Oyefara, (2007) found that most (more than 80%) in Cote D'Ivoire and Nigeria had been to school.

C. Venues

Scorgie et al., (2012) found that FSW in Africa do not commonly work in large brothels that are characteristic of sex work in Asia. In contrast, home-based, street-based, and bar-based sex work is more common. African FSW usually work without pimps and other controllers and are paid directly by their clients. However, they sometimes have contracts with bar/brothel owners that stipulate divisions of earnings. In addition, the venue often depends on the FSW's social status, with higher-status/higher-earning sex workers working through the internet, at expensive hotels, or as call-girls (Scorgie et al. 2012; WHO 2011a).

In Kenya and Zimbabwe, FSW work in public places such as side streets and cars, transport routes, bars, nightclubs and brothels. Many work from their homes and others walk the street. In addition, some work in hotels and others (usually higher priced FSW) are reachable by phone as escorts. They often have established territories and know each other (Muraguri et al. 2010; Elmore-Meegan, Conroy, and Agala 2004; Luchters et al. 2010; Ray et al. 2001). In Benin, Senegal, Guinea and Nigeria most FSW work out of bars and brothels. Nevertheless, many also work the street, cafes, hotels and their own homes (S Diabaté et al. 2011; Dugas et al. 2015; Laurent et al. 2003; Godin et al. 2008; Oyefara 2007).

D. Age, length of time in sex work and age at entering sex work

Young women in the general population in Africa are at high risk for HIV infection, due to high levels of transactional sex and intergenerational sex. This relationship with age is also important to vulnerability for FSW who are, on the average, 25 years old (WHO 2011a). Scorgie et al., (2012) found that the median FSW ages in African studies were between 24 and 31 years. In addition, sex work has very high turnover in Africa: medium duration of sex work was three to four years. This is likely because sex work is often the work of last resort, and women actively seek other sources of stability, such as relationships with clients.

The 2010 AMREF study in Kenya found an average age of 30 (Nyagero et al. 2010) while in Tanzania average age was 29 years (Makyao et al. 2011). In West Africa, Schwartz et al., (2015) found that few FSW in Cote d'Ivoire (15.2%) were over 35 years old. Most (46.4%) were between the ages of 25–34. Studies in Rwanda (Braunstein and Ingabire 2011a), Zimbabwe (Ray et al., (2001), and Kenya (Luchters et al. 2010; Nyagero et al. 2010; Makyao et al. 2011) found median time in sex work to be between 3–5 years. However, two other Kenyan studies found mean duration of sex work to be 7 years (Fonck et al. 2000) and 10 years (EN Ngugi et al. 2007).

Women who began sex work as minors under the age of eighteen are particularly vulnerable. In West Africa, (Grosso et al., (2015) noted that 27.8% of FSW in Burkina Faso started selling sex as adolescents under the age of 18. These FSW were twice as likely to not use a condom if a client offered more money. This study did not find that FSW who had initiated sex work early had higher HIV prevalence rates. However,

confounding by age could be one explanation for this. In Cote d'Ivoire, Schwartz et al., (2015) found that half (44.6%) of FSW entered sex work between the ages of 18–24, and almost a third (28.6%) entered sex work as minors under the age of 18. Only a fourth (26.8%) entered sex work over the age of 25 years.

E. Migration and mobility of FSW

In general, migrants and other mobile individuals are at higher risk for HIV than non-mobile people. Migrants fleeing areas of conflict or food insecurity are often focused on meeting short-term needs (such as food and shelter) rather than longer-term needs such as HIV prevention. In Africa, borders, transportation links, migration routes and other hubs of high mobility are often the places with the highest HIV transmission rates. Migrants may have barriers accessing health services, including not speaking the language of the country in which they are living (WHO 2011a). In Africa, migrant women often enter sex work out of necessity. On the other hand, FSW frequently migrate within and between countries to follow demand for sex work. Most cohort and experimental studies of FSW have high loss to follow-up, due to their high mobility (Scorgie et al. 2012). The rate of migration is so high that this is an issue in evaluation of programs for FSW, since interventions need to address the needs of a constant influx of new women (Ford and Wirawan 2002; Peter Ghys et al. 2001).

International migration is a key component of sex work in the West African sub-region, where in many cases foreigners make up the majority or a large minority of FSW. For example, Dugas et al., (2015) found that 65.2% of FSW in Benin were from outside of the country. Schwartz et al., (2015) found that 23% of FSW in Abidjan, Cote D'Ivoire

were from Nigeria while 75.5% were Ivoirians and 1.5% were of other nationalities.

Grosso et al., (2015) found that 23.7% of FSW in Burkina Faso had been born outside of the country. Godin et al., (2008) reports that in Benin most formal FSW were foreigners while in Senegal and Guinea, most were nationals of those respective countries.

F. Size estimations of FSW populations

Only a handful of methodologically rigorous estimations of the size of FSW populations have been conducted in sub-Saharan Africa. However, these estimations are becoming more common as they are essential for services planning (Fraser et al. 2015). These studies are difficult because FSW are hidden due to social stigma and the illegality of sex work. Estimations taken using population survey methods are usually higher than those using specialized methods such as capture-recapture, possibly because transactional sex is counted as sex work. The complexity of sex work and the high prevalence of transactional sex make these estimates even more difficult (Scorgie et al. 2012; WHO 2011a). One systemic review in Africa found that seven percent of HIV-positive women had been paid for sex while only three percent of HIV-negative women had. For African men, 31% of HIV-positive men and 18% of HIV-negative men reported having paid for sex (Chen et al. 2007). In Madagascar, one study at an urban port city using “capture-recapture” methodology found that 12% of women aged 15–29 were sex workers (Feldblum et al. 2005). Another study along truck routes in Kenya found 5,600 sex workers in over 50 hot spots (Ferguson and Morris 2007) .

Data suggests that fewer women are FSW in West Africa than in Eastern and Southern Africa (WHO 2011a). A study in Accra, Ghana, found 5000 sex workers (1.1%

of women of reproductive age) and that 0.5% of women in a provincial town are sex workers (Cote et al. 2004). A study in Cape Town found 107 brothels and several street areas where sex workers congregated. This study estimated the presence of 1209 sex workers (964 brothel-based and 245 street-based), or 0.03% of the population of the city (Gould, C., Fick 2009). A study in Niger estimated there were 28,000 FSW in that country, though a mapping activity only found 3,200 (Fraser et al. 2015).

G. Relationships

Many FSW are either married or in relationships of varying levels of stability and longevity with non-paying partners. Often, they support these partners financially (WHO 2011a). Braunstein and Ingabire, (2011a) found that one third of Rwandan sex workers reported having boyfriends or other long-term relationships. In Nairobi, 57% of sex workers were living with a stable partner (Elmore-Meegan, Conroy, and Agala 2004). In the AMREF study in Kenya, 61% of FSW were currently in a union (Nyagero et al. 2010).

In West Africa, a large study of 2,500 sex workers in Cameroon found that 35–40% reported regular, non-paying partners (Weir et al. 1998). In Abidjan, Cote d'Ivoire, only 20.8% of FSW reported *not* being in a relationship while 57.9% were in a relationship with one partner and 21.3% reported being in a relationship with two or more partners (Schwartz et al. 2015).

H. Children

FSW frequently describe the need to support children and other dependents as a reason why they are in sex work. Many are also either married or in relationships of varying

levels of stability and longevity with non-paying partners (WHO 2011a). In the Dominican Republic, FSW reported an average of two children each (Kerrigan et al. 2003). A study with 81 FSW in Mexico also found that most sex workers were supporting children (Patterson et al. 2005).

Over two thirds of FSW in Africa support children or other dependents (Scorgie et al. 2012). In a study in South Africa, most of the 93 FSW surveyed supported children or other family members (Wechsberg et al. 2006). Braunstein and Ingabire, (2011a) noted that 43% of FSW in Rwanda were breastfeeding at the time of the study and only 7% had never been pregnant. Elmore-Meegan et al., (2004) found that over 90% of FSW in Nairobi, Kenya were living with dependent children. In Mombasa, only 14% of women had no children at all, 27.2% had one child, 40.45 had two or three, and 18.4% had four or more (Luchters et al. 2010). In the AMREF study in Kenya, 94% of the sex workers had at least one child, with the average being 2.6. In addition, 35% had three or more children. One sex worker was supporting ten children (Nyagero et al. 2010). In a cohort study in Nairobi, 30% of the sex workers became pregnant during the course of the 2-year study (Kaul et al. 2004).

A study in Burkina Faso compared FSW who had biological children with those who did not. The study found that the need to provide for children may lead a woman to enter sex work, to have unprotected sex, and reduce her ability to find other sources of income. Three fourths (76.6%) had at least one biological child and 39.2% had two. FSW with children were more likely to have boyfriends (AOR 1.73 CI 1.20–2.49) and were less likely to have used condoms with their boyfriends in the last 30 days (AOR 1.49 CI

1.13–1.96). They were less likely to have had unprotected sex with new clients in the last 30 days (0.80 CI 0.65–0.97). They were also more likely to have had been tested for HIV (AOR 1.89 CI 1.55–2.31), perhaps because of HIV testing during antenatal care. Mothers also sold sex longer and were more likely to subsist solely on sex work, even after adjustment for age (Papworth et al. 2015).

I. Clients of Sex Workers

While few data exist for clients of FSW in sub-Saharan Africa, they seem to come from many strata of the African population. Mobile men report visiting sex workers, but residents of the local areas do as well. Having disposable income and being separated from families are predictors of the demand for paid sex. Seasonal agricultural workers, miners, ship-workers, and transport workers are often clients of FSW. Most clients have other partners (Scorgie et al. 2012; WHO 2011a; Ferguson and Morris 2007). Other studies in West Africa suggest that 13–33% of men had paid for sex in the previous year (Lowndes et al. 2008).

Studies show that great variation exists in the number of men a sex worker sees in a day or a week, though local demand, price, and number of sex workers in the area will influence this. Two to three to up to 34 clients per week has been reported (Scorgie et al. 2012). Studies in Rwanda (Braunstein and Ingabire 2011b), Zimbabwe (Ray et al., (2001) and Kenya (Fonck et al. 2000; Elmore-Meegan, Conroy, and Agala 2004; Nyagero et al. 2010) found that FSW in those countries reported an average of four to ten clients per week.

In West Africa several studies found much more variety. Diabaté et al., (2011)

found a mean number of clients in the last week to be 26.4 (SD 26.1) in Benin. A study in Niger found brothel and bar based sex workers had over 20 clients per night but street FSW had fewer clients (Fraser et al. 2015). In Cote d'Ivoire, 36.1% of FSW said they had had more than fifty clients during the past month, while 11.4% said they had had 31–50 (Schwartz et al. 2015). Laurent et al., (2003) found a mean number of weekly clients of 1.8 in unregistered sex workers and five clients among registered FSW in Senegal.

J. Human Trafficking and Sex Work

Some women are “trafficked” into sex work, in which case their human rights are violated and they are denied control over their own persons. In addition, sex work by individuals under the age of 18 is considered trafficking under international law and conventions. However, many women freely choose sex work and do not wish to leave it (UNAIDS 2010a).

Trafficking can be defined as the “recruiting and transporting women across national borders for work or services by means of violence or threat or abuse of authority or other forms of coercion” (p. 141) (Outshoorn 2005). The key question is “Is all ‘trafficking’ forced or is it prostitution-related immigration?” (p. 142) (Outshoorn 2005) In a broader sense, is prostitution itself inherently dehumanizing and violent or is it a valid economic choice for women? These questions lead academics and policy stakeholders to different conclusions about whether prostitution should be legalized and regulated or criminalized and abolished. The view of abolitionists is that all prostitution is exploitive and *any* migration for the purpose of sex work is trafficking, while those who maintain that women may choose to migrate to sell sex insist that only coercive migration

should be defined as trafficking (Outshoorn 2005).

Farley (firmly in the abolition camp) makes the point that sex work is so linked with violence and desperation that it should be equated with trafficking. Her study of over 800 sex workers in nine countries found widespread violence and rape and only 11% who did not want leave sex work (Farley et al. 2004).

On the other hand, Agustin calls for a more pragmatic approach utilizing the harm reduction model. She has done a wide range of qualitative work with migrant FSW in Europe and Latin America since 1994. She points out that many women's testimonies show agency and decision (they know exactly what they are doing in the choices they make) and that considering them victims who have been forced into prostitution is not accurate. Her work of FSW migrating to Western Europe led her to conclude that their illegal immigration status was the root of their difficulties and not the selling of sex (Agustin 2005).

Gould, in a study of 164 sex workers in Cape Town, found that "force and deception in the process of recruitment are not common features of the sex work industry in Cape Town..." However, the research did find "...widespread evidence that sex workers based in brothels are subject to various forms of coercion by brothel owners, mainly to force them to remain in the industry and thus to maintain the brothels' income" (p. 7). One quarter of brothel-based FSW said that a brothel owner had at one time threatened them to stay in the brothel. Only eight women had been trafficked, and this had occurred in the past. (Gould, C., Fick 2009)

II. Health risks sex workers face

A. Violence

“Sex work is an extremely dangerous profession” (p. 2123) (Rekart 2005).

Violence is a common problem reported by FSW. This is especially problematic in contexts where sex work is criminalized, where FSW have little legal recourse when they are victimized by clients, co-workers, controllers, and the police. Violence may also be related to their low social status, as well as the fact that FSW do not fit gender norms. The punishments imposed on sex workers are typically more severe than those imposed on clients (Shannon and Csete 2010). In addition to high morbidity and mortality, violence in sex work has been shown to cause emotional and mental health problems, as well as increased HIV vulnerability (Rekart 2005). Even in rich countries, violence against sex workers is pervasive. One study in Switzerland found that 25.9% of 193 sex workers reported being the victims of violence and 19.7% reported being raped in sex work settings (Rössler et al. 2010).

Another, multi-country study (Farley) conducted in Canada, Colombia, Germany, Mexico, South Africa, Thailand, Turkey, the United States, and Zambia found that 71% of over 900 sex workers interviewed had been physically assaulted while in sex work and another 63% had been raped. When asked an open-ended question about health problems the women believed resulted from violence, 12% of the women reported physical injuries, including neurological problems resulting from head injury (Farley et al. 2004).

In Moscow, where sex work was controlled by pimps and where trafficking was common, 75.9% of the 147 FSW interviewed reported violence from clients in the past

12 months. In this study, 36.6% also reported coercive sex perpetrated by police, 8.2% reported physical violence from pimps, and 3.5% reported sexual violence from pimps. Sex workers who were exposed to violence had three times the likelihood of being HIV positive (AOR 3.65 CI¹ 1.09 – 8.99) (Decker et al. 2012). In Thailand, one study of 915 FSW found that 14.6% had been victims of violence within the last week alone. Women who had been victimized had higher rates of condom failure (19.6% vs. 12.3% ARR² 1.92 CI 1.24–2.95) (adjusted by all demographic variables assessed) and client refusal to use condoms (85.7% vs. 69.0% ARR 1.24 CI 1.14 – 1.35) (Decker et al. 2010).

An ethnographic study of 193 FSW in Mexico found that 27% of the FSW had been victims of violence at the hands of a client, resulting in PTSD, depression, substance abuse, and STIs. The study also found that the types of violence were different depending on the setting of sex work. Avoiding violence was a very high priority for FSW, who used multiple strategies to avoid violence such as working with third parties and carefully choosing locations to meet clients and have sex (Katsulis et al. 2010). A study in India of 100 FSW *who had been victims of violence* found that 76% had experienced physical violence from clients and 73% had been raped by clients. In addition, 87% had been the victims of violence by their intimate partners (Panchanadeswaran et al. 2010). This study suggests that FSW may have more personal power in relationships with clients than with their intimate partners.

Violence is also pervasive in FSW's lives in sub-Saharan Africa, where it has also been shown to have an impact their risk for HIV and other STIs. Where sex work is

¹ Confidence interval

² Adjusted risk ratio

criminalized (almost everywhere in Africa except for Senegal), FSW are often afraid to go the police when they experience rape or other violence. Violence is linked to anxiety, depression, and low self-image. Often, it is the police themselves who perpetrate violence against sex workers, in addition to rape asking for sex as a bribe. Informal sex workers, on the streets or in their homes, are often even more vulnerable due to their isolation (Scorgie et al. 2012).

In a qualitative study with 36 FSW in Uganda, Gysels et al., (2002) found that those who had sex in the clients' space, such as a car or at their home reported a greater possibility of attacks. In addition, women who had some financial independence (from owning small bars) felt more empowered to control sexual relationships. W. M. Wechsberg et al., (2006) noted that 29% of FSW in Pretoria, South Africa 61% had been physically abused by a boyfriend and 44% had been physically abused by a client in the past year. In addition, 27% reported having been raped by a client, 19% had been raped by a boyfriend, and 15% had been gang raped.

A small (N=93) study of sex workers in Namibia, Zambia, and Botswana, where sex work is criminalized, found frequent and brutal abuse by the police, including rape, beatings, being pepper-sprayed in the vagina, and shot with rubber bullets (Arnott, J, Crago 2009). Gould found that 47% of 118 FSW interviewed in Cape Town had been threatened with violence by police, while 12% had been raped by police. Thirty percent of street-based FSW and 20% of brothel-based FSW said that they had been the victims of violence at the hands of clients (usually for refusing to comply with client requests) and 13% of street-based FSW said they were afraid of gangsters, or "Skollies" who hurt

and rob them (Gould, C., Fick 2009).

In West Africa, in a qualitative study in Cameroon with 31 interviewees, FSW reported that violence at the hands of clients often relates to clients negotiating for one thing but then wanting more. In addition, clients who were drunk or doing drugs were more of a risk. Finally, FSW reported that police and clients forced unprotected sex on FSW. The subjects in this study felt that violence, not HIV was their most important risk. Also, the FSW reported that non-paying partners played a protection role, and so they were unlikely to ask them to use condoms, even though they knew these men had sex with other FSW (Lim et al. 2015).

In Niger, FSW who had been victims of violence were more likely to be HIV positive (32% vs. 14%) (N. Fraser et al. 2015). In Burkina Faso and Togo a study of 1,380 FSW found that 47% of FSW had been victims of physical violence and 33.0% had been victims of rape in their lifetimes. Of the latter, 48.3% had been raped once, while 33.5% had been raped two or three times and 18.2% had been raped four or more times. In 34.5% of cases, the perpetrator was a new client. In 33.4% the perpetrator was an intimate partner and in 33.4% the person was a stranger. This again highlights the power differential between FSW and their non-paying partners and the risk of violence in these relationships. In 18% of cases, the person was a regular client and in 12.1% of cases, the perpetrator was a police officer. The experience of violence made sex workers more vulnerable than they already were to HIV risks. FSW who had been victims of forced sex were more likely to feel that negotiation of condom use was difficult (35.4% vs. 15.7% $P<0.001$) and were more likely to report unprotected vaginal sex in the last 30 days

(36.2% vs. 17.7%) (Wirtz et al. 2015).

In Benin, in a study with a sample size of 981 FSW, 17.2%, 13.5%, and 33.5%, respectively had been victims of physical, sexual and psychological violence who had, respectively 1.45 times (CI 1.05–2.00), 1.42 times (CI 1.02–1.98), and 1.41 times (CI 1.08–1.41) higher HIV prevalence than those who had not (Toukara et al. 2014).

B. Unplanned pregnancy and unsafe abortion

Women in sex work often underutilize contraception and are at risk for unplanned pregnancy. Elmore-Meegan et al., (2004) found that 86% sex workers in seven communities in Kenya had at least one abortion in their lifetime and 50% reporting having had two or more. A cohort study in Madagascar with 935 FSW found that only 16% were using contraception other than condoms (similar to the general contraceptive prevalence rate in Madagascar). Only 13% reported no unprotected sex at all with clients or boyfriends. At eighteen months of follow up, 250 (26.7%) became pregnant: an incidence rate of 0.227 at 12 months. Of these, 13% reported an induced abortion (Feldblum et al. 2007). One cohort study in Rwanda found a 24% annual incidence in pregnancy among sex workers who had previously said they did not want to get pregnant (Price and Cates 2011; Braunstein and Ingabire 2011a).

Very little data exists on the morbidity and mortality of unsafe abortion among sub-Saharan African FSW. Abortion is illegal in every country in sub-Saharan except Zambia and South Africa and in seven other countries it is permissible only to preserve the life of the mother. Most abortions occur in unsafe conditions. An estimated 6.4 million induced abortions occur in the region annually, approximately 30/1000 women/year, 97% of

which are unsafe. Worldwide, unsafe abortion leads to an estimated 13% of maternal mortality, but can be up to 50% in countries where most abortions are unsafe (Sedgh et al. 2012). In Africa, nearly 7/1000 abortions leads to the death of the woman, as well as much higher rates of morbidity and disability. One modeling exercise estimated that 50% of maternal mortality in Ethiopia and 30% in Tanzania could be eliminated by access to safe abortion (Baggaley, Burgin, and Campbell 2010).

In West Africa, Schwartz et al., (2015) found 69.1% of FSW in Abidjan Cote d'Ivoire had had at least one unplanned pregnancy and only 12.7% said they were trying to get pregnant. Other than condoms, only 34.8% were using contraceptives: 21.2% were using pills and 13.8% were using long acting methods, such as implants and intrauterine devices. The majority (63.9%) had had at least one abortion. In this study, 23.8% said they had terminated one pregnancy while 21.2% had terminated two. Finally, 18.9% of FSW had terminated three or more pregnancies. As abortion is illegal in Cote D'Ivoire, it is unlikely that these abortions occurred safely. In fact, 44% had had an abortion in their own homes and 6.1% by traditional healers while 49.9% had gone to medical facilities. One third of women who terminated a pregnancy reported complications such as heavy bleeding, severe and enduring pain and/or illness, being unable to move, and infertility. Obviously women who had died were not able to be included in the survey. Oyefara, (2007) reports that 60% of FSW in Lagos said they had become pregnant while FSW and 99% had had an induced abortion. In this study, 53% said they had had only one abortion, while 25% had had two, and 23% had had more than two.

C. Mental Health

Studies outside of Africa have found high rates of psychological/emotional disorders among FSW, although this has not been studied extensively within Africa. The relationship between violence, mental health problems, and sex work itself is complex: it is difficult to say one causes the other. The largest study on this issue, Rössler et al., 2010, conducted in Switzerland with 193 sex workers, used a standardized, validated assay of psychological/ emotional disorders. As noted earlier, rates of violence were high in this population, and 30% reported feelings of shame and guilt. This population frequently reported “yes” to questions related to social isolation. For instance, 143 (74%) said they “had no one to trust” (p. 148). Many (60%) said they felt excluded by acquaintances and by society. Based on their responses to the survey, 50% of sex workers were diagnosed with at least one psychological/emotional disorder in the last year and 63% reported lifetime prevalence. This is much higher than the 12% annual prevalence of these disorders in the general population of Swiss women. The most common disorders were major depression (24.4% in the last year), phobias (17.6%), PTSD (13%), dysthymia (11.9%), sleep disorders (10.4%), panic disorder (8.8%), and social phobias (7.3%). Isolation and hopelessness, violence, and being non-European were highly correlated with disorders. The vast majority of women in the study reported more disorders once they had become FSW. It concludes that in this population, the burden of being a sex worker exacerbated psychological/emotional disorders, not the other way around (Rössler et al. 2010). Using the standard PTSD checklist (PCL) questionnaire, Farley found that 68% of FSW met criteria for PTSD and that the severity of these

symptoms was strongly associated with sexual and physical violence. The level of severity on the PCL was between 49 and 58, similar to other studies with highly traumatized individuals, such as Vietnam War veterans. Finally 75% of these FSW had been homeless during their lives and 89% wanted to escape prostitution but did not feel they had alternatives (Farley et al. 2004).

Several studies (again, outside of Africa) have been conducted on FSW quality of life. One study in Nicaragua found very low “subjective well-being” among sex workers. In this study, most were isolated street-based FSW at night but cared for children during the day. These had close to the lowest possible score on the 7-point “Satisfaction with Life Scale”: mean 1.6 compared with 3.6 for “dump dwellers”, 4.4 for both urban and rural poor and 5.2 for university students, even though the FSW had higher incomes than the dump dwellers and rural poor. They had the lowest satisfaction with possessions, income, housing, food, social life (far lower), friends, family, romantic (far lower), self, moral, intelligence, and appearance. This is one of the lowest levels of life satisfaction found in the literature. The Nicaraguan sex workers responded more negatively at a statistically significant level than all other groups in seven domains: family, social life, friends, romantic life, self, their morality, and their intelligence. A follow-up study by the same author argues that their extreme unhappiness is partially attributable to the intense shame and stigma they experience in the traditionally catholic cultural milieu in Nicaragua. They hid their sex work from family members. Similarly, a Detroit study found 2.1 out of 7 for street level sex workers. This is quite different from a study of Calcutta sex workers, whose subjective well-being was only slightly below normal.

Brothel sex work may provide more safety and structured community (in Calcutta for example) (Cox 2011; Biswas-Diener and Diener 2006) .

D. Alcohol and other substances

Alcohol is often abused in the sex industry. It is associated with violence, unsafe sex, HIV infection and liver damage (Rekart 2005). One large systematic review of alcohol and sex work (Li et al., 2010) identified 70 articles, seven of which were conducted in Africa. The majority of FSW in these studies were frequent drinkers, with 82–100% having “ever” used alcohol and about 75% having used it in the past month. Between 12% and 78% of FSW worldwide (median 33%) were daily drinkers. Frequent binge drinking is common. The same is true across the literature for male clients of FSW: they are often heavy drinkers and often choose to pay for sex while under the influence. FSW widely report using alcohol to cope stress. In addition, FSW frequently report much higher levels of exposure to alcohol at home (either their own or heavy alcohol use in parents and spouses) prior to entry into sex work. In addition to violence (both sexual and physical), alcohol has been associated with fatigue, sleep disorders, liver disease, and mental health problems in FSW. One study in the U.S. found 9% of deaths in a cohort of FSW were directly associated with alcohol. Alcohol was widely associated with unprotected sex, STIs, and HIV (Q. Li, Li, and Stanton 2010).

Alcohol consumption has a negative effect on personal judgment. Men who have had alcohol take longer to have an orgasm. The extra time needed for sex can facilitate HIV transmission through more abrasions of the vagina or anus during unprotected sex (UNAIDS 2002). FSW commonly report not using condoms due to having been

intoxicated (WHO 2011a).

Alcohol use is also linked to other STIs and violent episodes in Africa (Scorgie et al. 2012). Braunstein and Ingabire, (2011a) found that 48% of sex workers in Rwanda reported frequent alcohol use. A study in South Africa of cocaine-using FSW found that 47% said they had been too high to demand using condoms with clients at least once (Wechsberg et al. 2006). Ray et al., (2001) noted that 8% of FSW in Harare, Zimbabwe reported “being too drunk” as the reason for not using condoms.

E. Sexually transmitted infections and cervical cancer

Sex workers in sub-Saharan Africa have high rates (sometimes 50–75%) of STIs. These include genital ulcers, syphilis, gonorrhea, chlamydia, chancroid, and herpes simplex. In addition, sex workers often do not refuse sex with a client with a visible STI for economic reasons or fear of violence (Scorgie et al. 2012). Ray et al., (2001) found that 34% of FSW in Harare were infected with gonorrhea, chlamydia, trichomonas, and/or syphilis. A study of 169 FWS in Ibadan, Nigeria found 24.9% prevalence of bacterial vaginitis (often an STI), 21.9% gonorrhea, 16.6% genital ulcers, and 4.1% syphilis (Bakare et al. 2002). Makyao et al., (2011) found a 2.1% prevalence of syphilis, a 10% prevalence of gonorrhea, and a 6.9% prevalence of chlamydia in FSW in Dar es Salaam, Tanzania.

In addition to increasing the risk of sexual transmission of HIV by 6–8 times, STIs can also cause infertility, maternal mortality and ectopic pregnancies due to pelvic inflammatory disease (Day and Ward 1997; Rekart 2005).

FSW are also at high risk for infection with Human Papillomavirus (HPV), the

cause of all cases of cervical cancer (WHO 2006). Ninety-two percent of HPV infections simply go away, but 8% of infections become long-term. Fifteen percent of women who become infected with HPV develop minor lesions (dysplasia) on the cervix. These also usually disappear. However, in some cases they become more severe, at which time they are called high-grade or moderate/severe dysplasia. While these can disappear as well, about half progress to cervical cancer if untreated (Alliance for Cervical Cancer Prevention 2009). Whether or not a woman progresses to cervical cancer likely depends on the viral type, being infected with more than one virus, and the amount of virus present. Along with HPV, secondary co-factors of cervical cancer include long-term use of hormonal contraceptives, high parity, smoking, HIV, chlamydia, herpes simplex virus type 2, immunosuppression, and dietary deficiencies (WHO 2006).

Every year, 466,000 new cases of cervical cancer occur among women (Alliance for Cervical Cancer Prevention 2009) and approximately 274,000 women die worldwide. Most (83%) new cases of cervical cancer and 85% of mortality occur in low and middle income countries (Milliez 2008). In the developing world, 95% of women have never been screened for the disease (WHO 2006). In the developed world, a woman diagnosed with cervical cancer has a 70% chance of survival. Due to poor access to treatment, probability of survival is much lower in sub-Saharan Africa: only 21% (Milliez 2008).

FSW are at high risk for all factors leading to cervical cancer. Yet very few studies have explored HPV and cervical cancer in FSW. One exception by Luchters, in Kenya, surveyed 820 FSW of whom 35.2% were HIV infected. In this study, 45% of HIV-negative women and 73.3% of HIV-positive women tested positive for the most

dangerous HPV subtypes. More than a quarter (27%) of HIV-positive women and 8% of HIV-negative women had abnormal cytology (Luchters et al. 2010).

III. HIV risks for female sex workers

As discussed in Chapter 1, the transmission of HIV depends on: the efficiency of transmission during each contact; the number of HIV-infected partners; and the number of unprotected contacts with each infected partner. FSW in Africa suffer high rates of STIs, have frequent sex and have anal sex, all of which increase efficiency of transmission. They have many partners, so they are more likely to have sexual encounters with HIV-positive men. Finally, the research shows that many FSW often have unprotected sex with clients and non-paying partners. In addition to making sex workers at high risk of HIV themselves these factors also facilitate transmission to and from clients and their other partners and spouses which makes sex work a key driver in most (or all) HIV epidemics (WHO 2011a).

A. Very High HIV Risk

FSW around the world are highly vulnerable to HIV infection. One important systematic review and meta-analysis found an average worldwide prevalence of HIV among FSW to be 11.8% (CI 11.6–12.0%). Also, FSW were 13.5 times more likely to be HIV positive than other women of reproductive age in their respective countries. In countries with high HIV prevalence, sex workers had a pooled prevalence of 30.7% (CI 30.2%–31.3%) and were 11.6 times more likely to be HIV positive than all women of reproductive age (Baral et al. 2012) .

In sub-Saharan Africa, where background prevalence was pooled at 7.42%, FSW

prevalence was 36.9% (CI 36.2%–37.5%), and FSW were 12.4 times more likely to be HIV positive than other women of reproductive age (Baral et al. 2012). In Rwanda, HIV prevalence among sex workers (59%) was over seven times the general population prevalence of 8%, and 47% of HIV infection in that country may be related to sex work (Price and Cates 2011; Braunstein and Ingabire 2011a). In Harare, Zimbabwe, 86% of the sex workers were HIV positive (Ray et al. 2001). Makyao et al., (2011) found an HIV prevalence of 30.7% among FSW in Dar es Salaam, Tanzania, more than three times higher than the general population (9.3%).

UNAIDS' modes of transmission analyses have suggested that sex work contributes a very high proportion of HIV transmission in West and Central Africa. In these countries, 10–32% of new infections are believed to be linked to sex work and sex workers in the sub-region have an average HIV prevalence of 17% (Gouws and Cuchi 2012; UNAIDS 2013). An estimated 0.6–1.0% of women are sex workers. Three to seventeen percent of men visit FSW, which is the number one risk factor for HIV transmission for men, and 4–11% of women are the sexual partners of men who visit sex workers (UNAIDS and The World Bank 2010). One systematic review of studies in West Africa found a 34.9% (CI 34.4–35.4) overall HIV prevalence among FSW and a 7.3% (CI 6.6%–8.0%) HIV prevalence among clients of FSW. The HIV prevalence among clients of FSW is generally more than double HIV prevalence among men in the general population. As more broadly in sub-Saharan Africa, FSW in West Africa have from five to forty times higher HIV prevalence than among women in the general population in their respective countries (Papworth et al. 2013).

In West Africa, sex workers in Senegal had a pooled prevalence of 19.9% (CI 18.0–21.9), 23.7 times the background prevalence among women of reproductive age (1.0%), and 11.5% of HIV infections in Senegal are among FSW. In Guinea, the pooled HIV prevalence for sex workers was 36.7% (CI 33.6–39.8%). Against a general HIV prevalence of 1.72% among women of reproductive age, FSW were 33.1 times more likely to be HIV positive and were estimated to represent 2.5% of HIV infections. In Benin, FSW had a prevalence of 40.9% (CI 37.5%–44.3%) against a background prevalence among women of 1.54%. They were 44.2 times more likely to be HIV positive and make up 15.9% of HIV infections in the country. Finally, in Nigeria (where many Malian sex workers come from), FSW had an average prevalence of 33.7% (CI 32.1–35.3%). Against a background HIV prevalence of 4.54% among women, Nigerian sex workers were 10.7 times more likely to be HIV positive and represent 4.5% of HIV infections (Baral et al. 2012). Two cross-sectional studies of female sex workers in Nigeria found HIV prevalence rates of 29.6% (Lawan, Abubakar, and Ahmed 2012) and 34.3% (Bakare et al. 2002). In a study in Benin of 397 sex workers, 149 (37.5%) were HIV positive (Diabaté et al. 2011). A study in Niger found that while HIV prevalence has declined among FSW in that country (from 25.6% in 2002 to 20.9% in 2008 and 17.3% in 2011), it is 40 times that of the general population prevalence of 0.4% and sex work may be linked to 37% of new HIV transmissions (Fraser et al. 2015).

B. Biological factors contributing to high HIV risk for FSW

STIs, in the sex worker or in her clients or partners, facilitate the effectiveness of HIV transmission in a number of ways. STIs can disrupt mucous membranes in the vagina. In

men, they can increase the seminal viral load. They also increase exposure to blood, especially in the case of active genital ulcers (WHO 2011a).

STI symptoms and gonorrhea (but not chlamydia) have been associated with higher HIV rates in Africa (Sobéla et al. 2009; Braunstein and Ingabire 2011b; Ghys 1995). In HIV-positive individuals, both symptomatic and asymptomatic STIs increase the amount of virus in genital tracts. In addition, HIV-positive individuals are at increased risk for STIs because of their compromised immune systems. Finally, HIV-positive people with STIs are more likely to develop ulcers. In HIV-negative people, STIs increase HIV transmission risk as well (Kaul et al. 2004). HSV-2 is particularly dangerous. One large cohort study of women (N=4,531) in Uganda and Zimbabwe found that HIV-negative women testing positive for HSV-2 at baseline or subsequently were 4 times more likely to contract HIV. Bacterial STIs in this study were associated with a two-fold increase in HIV incidence. In addition, reproductive tract infections bacterial vaginiasis and vaginal yeast infections were also associated to HIV infection (van de Wijgert et al. 2008). A study in Cote d'Ivoire found much higher levels of vaginal HIV virus in sex workers with chlamydia and gonorrhea (Ghys, Fransen, and Diallo 1997).

While some research in Africa has suggested a causal link between STIs and HIV (Kapiga et al. 2007) other explanations are possible (Sexton, Garnett, and Rottingen 2005; Gray and Wawer 2008). Clinical trials of STI treatment have not consistently reduced HIV transmission (Grosskurth et al. 2000; Kaul et al. 2004). STIs may instead simply be more prevalent among people having more high-risk sexual behavior (Damacena et al. 2011; Aho et al. 2010).

C. Behavioral factors contributing to high HIV risk for FSW

Many studies have shown that consistent condom use has a strong protective effect for FSW. Refusal to use condoms by clients is the most important reason why FSW do not consistently use condoms. Pressure from pimps and other “controllers” can also lead to FSW not using condoms consistently. Clients frequently pay more for unprotected sex. FSW who are less educated also are less likely to use condoms (Scorgie et al. 2012). Studies in Kenya (Nyagero et al. 2010), Tanzania (Makyao et al. 2011) and Niger (Fraser et al. 2015) have also underscored that client refusal is the most common reason for non-use of condoms (WHO 2011a). In Benin, client refusal was the number one reason for lack of consistent condom use, the key reason reported by 46% of sex workers (Diabaté et al. 2011). In Niger, 72% of FSW had unprotected sex with clients who refuse condoms (Fraser et al. 2015).

While interventions often have high rates of success in increasing protected sex with clients, studies consistently show lower use of condoms, even after interventions, with their non-paying partners. Sex workers often report intimacy and trust as reasons for not using condoms with these partners (WHO 2011a). Intimacy is negatively associated with condom use. In the Dominican Republic, while 70% of sex workers were likely to use condoms with their regular partners with whom they had been with for less than 6 months, this dropped to 50% with those partnerships who had been together for longer. This study also found that in relationships in which the sex workers had “low” intimacy, condom use was 76%. But in relationships with “high” intimacy, condom use was 40% (Kerrigan et al. 2003).

FSW in Africa rarely use condoms with intimate partners (Eluwa et al. 2012; Heise and Elias 1995; Feldblum et al. 2007; Kerrigan et al. 2003) as condom negotiation is more difficult with these partners because of their higher levels of power in the relationship compared to FSW (Heise and Elias 1995). Also, they desire trust and intimacy, and wish to distinguish their intimate partners from clients (Scorgie et al. 2012; Feldblum et al. 2005; Messersmith et al. 2000). However, boyfriends present a significant risk for HIV infection for FSW and are also a bridge for HIV into the general population. In South Africa, half of FSW said their boyfriends had other concurrent partners (Wechsberg et al. 2006).

In West Africa, a study in Cameroon with 2,500 FSW found that while 45–50% used condoms with clients, only 20% did with their regular partners (Weir et al. 1998). FSW in Cameroon have reported that they exchange sex with non-paying partners for protection, which is a higher priority for them than avoiding HIV (Lim et al. 2015). In Niger, condom use was lowest among intimate partners, known as “boyfriends” (Fraser et al. 2015).

In West Africa, unprotected sex with non-paying partners is very risky for FSW. In Benin and Guinea, 70% of boyfriends of FSW reported having sex with FSW other than their girlfriends (Voeten et al. 2007). Boyfriends of FSW in Benin had twice the HIV prevalence as clients (16% vs. 8%) (Lowndes et al. 2007; WHO 2011a).

Godin et al., (2008) interviewed both FSW and regular partners/boyfriends in Benin, Guinea, and Senegal. Half of both boyfriends and sex workers reported condom use at last intercourse. Interesting, this study drew out the power differential: sex workers

were on the average 2.5 years younger than their boyfriends, much more likely to be divorced or widowed (43% vs. 5%), and much more likely to have no schooling (36% vs 15%). Boyfriends were more likely to have secondary or greater education (45% vs 27%).

As discussed in the previous chapter, anal receptive intercourse is highly effective in HIV transmission. While the data are limited, African sex workers report anal sex, and in one study sex workers that had had anal sex were 3.5 times more likely to get HIV (Scorgie et al. 2012). In a study in Nairobi, 14% of sex workers practiced anal sex (Fonck et al. 2000). Sex workers often do not understand that anal sex carries HIV risk. In one study in Kenya, sex workers reported that they offered anal sex when a client wanted to have sex without a condom because they believed it was safer (Nyagero et al. 2010). This lack of knowledge regarding the risks of anal sex has been reported in other studies in Africa. Some studies have suggested oral sex as a less-risky alternative, and have found lower HIV rates among sex workers who practice oral sex (Scorgie et al. 2012).

In a cohort-longitudinal study in Cote d'Ivoire, sex workers who reported anal sex during the study period were over three times more likely to become infected with HIV than those who did not (Ghys et al. 2001). In contrast, oral and hand sex can be substituted for vaginal sex. One study in South Africa found lower rates of HIV among sex workers who practice oral sex (Dunkle et al., 2005; Scorgie et al., 2012 World Health Organization, 2011). However, in contrast, a Thailand study found a higher rate among women who reported oral sex (RR 3.3 CI 1.1–8.1) (Kilmarx et al. 1998). One study in

Mombasa, Kenya, found very low (3%) levels of anal sex in FSW (McClelland, Lavreys, et al. 2006). Another, in Nairobi, found almost 30% of FSW had anal sex with boyfriends, regular clients and casual clients. These sex workers consistently used condoms less than those who did not have anal sex.

Common vaginal practices in Africa, such as douching and dry sex, may increase efficiency of HIV transmission (WHO 2011a). In many parts of Africa, partners and clients request “dry sex”, in which powders are used to cause a tighter, dry vagina. This can cause bleeding (Wechsberg et al. 2006). In addition, dry sex can also facilitate condoms breaking (Ray et al. 2001). Sex during menstruation can also carry with it a higher risk of HIV transmission. One study in Thailand found a 3.3 relative risk of this practice (Kilmarx et al. 1998). A large cohort study of over 4,500 women (not FSW) in Uganda and Zimbabwe found vaginal drying/tightening associated with HIV infection (HR³ 1.49 CI 1.03–2.15 adjusted for various demographic factors). However, this result did not remain robust in multivariate analysis (van de Wijgert et al. 2008).

Vaginal douching, a common practice among African women, including FSW, has been found in observational studies to increase HIV transmission. One 10-year cohort study with 1000 Kenyan FSW found that 71% used soap and water and 23% used water only to wash their vaginas. The women who used only water to clean the vagina had a nearly three-fold (HR 2.64 CI 1.00–6.97) HIV incidence compared with those who did not. Those who used soap and water had a nearly four-fold increased incidence (3.84 HR CI 1.51–9.77) (McClelland, Lavreys, et al. 2006). A cohort study in South Africa found

³ Hazard Ratio

that women (not sex workers) who practiced vaginal douching were 1.5 times more likely to be HIV positive at entry to the study, but that vaginal washing then had no effect on HIV incidence among women who were HIV negative at entry. The authors suggest that as women with HIV have more frequent vaginal infections and discharge, this may lead them to more frequent washing to relieve their symptoms (Myer et al. 2006). On the other hand, the large Uganda/Zimbabwe cohort found that while two thirds of women engaged in vaginal cleansing, it was not associated with HIV infection. The authors note that these women, who were not sex workers, engaged in vaginal washing much less frequently than those in the Kenya cohort (van de Wijgert et al. 2008).

D. Environmental / Structural factors contributing to high HIV risk

“Much of the elevated risk sex workers experience is integrally linked to the circumstances and settings in which sex work takes place in sub-Saharan Africa” (p. 928) (Scorgie et al. 2012). Sex workers’ risk for HIV in sub-Saharan Africa is increased by stigma and social isolation. Sex work is criminalized almost everywhere in Africa. Safer sex programming rarely occurs in sex work environments in the region and the FSW themselves have little control over their client’s behavior. Their need for income promotes FSW seeing as many clients as possible (Scorgie et al. 2012). “Lack of civil and workers’ rights deny sex workers minimum standards of occupational health and safety including the ability to enforce risk-reduction measures” (p. 161) (Day and Ward 1997).

Sex workers are often the victims of stigma and discrimination and are blamed for HIV and STI transmission. Not only does stigma and discrimination lead to low self-

esteem, but also to violence and denial of services (Rekart 2005). Ironically, demanding safer sex requires an element of personal power, but the lack of power and economic options is exactly what pushes women into sex work in the first place. “The life circumstances that compel people into sex work, at whatever age, are commonly the same circumstances that contribute to their general lack of personal power; yet personal power is essential to negotiating condom use and other forms of safe sex” (p. 7) (UNAIDS 2002).

The violence that FSW fear has been consistently linked to HIV (Shannon and Csete, 2010; Muraguri et al., 2010; Shahmanesh et al., 2008; UNAIDS, 2010). In Rwanda, FSW who had been raped were over twice as likely to be HIV infected than those who were not (Braunstein and Ingabire 2011a). In Niger, FSW who had been victims of violent acts had over twice the HIV prevalence of those who had not (32% vs. 14%) (Fraser et al. 2015). Female genital mutilation is very common in West Africa and it is plausible biologically that it could increase HIV risk, though this hypothesis has not been tested extensively (Monjok, Essien, and Holms 2007).

One study in the Dominican Republic found that younger FSW, FSW with higher incomes, and more highly educated FSW (all with more power to negotiate with clients) had higher levels of consistent condom use. FSW scoring highly on “self-efficacy” measures were almost twice as likely to report consistent condom use (OR⁴ 1.8 CI 1.13–3.02). This study also looked at factors related to environmental-structural support for condom use: 70% of FSW who reported “high support” for condom use reported

⁴ Odds ratio

consistent condom use while this was only 48% among FSW who reported low support (OR 2.52 CI 1.54–4.13) (Kerrigan et al. 2003).

In most countries in Africa, either procuring sex work (the client, brothel owner, or pimp) or soliciting sex work (the sex worker) is illegal. In West Africa, Burkina Faso, Cote D'Ivoire, Equatorial Guinea, Gabon, Ghana, and Guinea and Nigeria forbid both procuring and soliciting. Procuring, but not soliciting, is illegal in Liberia and Mali while soliciting, not procuring is illegal in The Gambia and Mauritania. However, in most cases sex work is tolerated. (Dutta and Maiga 2011) In Guinea, it is illegal but generally tolerated, while in Benin it is neither criminal nor fully legalized (Godin et al. 2008). In both Burkina Faso and Togo, solicitation of sex work is illegal. In addition, FSW frequently report being arrested, harassed and/or blackmailed by police when they had not actually solicited (Duvall et al. 2015). Senegal is the only country in Africa where sex work is legal and officially tolerated (regulated) among women over 21. They must register and attend monthly STI screening. However, many sex workers do not register, often because they are too young or are unaware of the system (Laurent et al., 2003; Dutta and Maiga, 2011; Mgbako and Smith, 2011).

Criminalization increases HIV risk for FSW in many ways. Shields et al., 2012 found that in South Africa, Kenya, Zimbabwe and Namibia, police have confiscated and destroyed FSW' condoms and used them as justification for arrest and as evidence in court. In addition, police harassed and extorted FSW and HIV workers who serve them using possession of condoms as a pretext. Where sex work is criminalized and justice systems weak, FSW have little or no recourse in the case of harassment or abuse by the

police. This has a damaging effect on FSW' most important asset to protect them against HIV. FSW in this study said that they stopped carrying and in some cases, using condoms as a result. Obviously, FSW who have been harassed and extorted by the police will be unlikely to turn to them in cases of violence. This contributes to FSW' willingness to have unprotected sex in order to avoid violent acts.

In one qualitative study in Cameroon, FSW said that that the police saw them as nothing, so felt free to abuse them, rape them, and take their money. They recommended decriminalization of prostitution, because they did not have anywhere to go when victims of violence (Lim et al. 2015).

As noted earlier, FSW in West Africa have very low levels of education. School attendance has been shown to have powerful independent protective effect against HIV infection in many in studies worldwide (Baral et al. 2012) and in Africa (Scorgie et al. 2012), including Nigeria (Eluwa et al. 2012) and Senegal (Wang et al. 2007).

IV. Summary

Chapter Two presents the many vulnerabilities and challenges faced by female sex workers in West Africa. These women are most often very poor and have few options due to life circumstances and lack of education. In addition to their high HIV and STI risks, they are frequently victims of brutal violence at the hands of their clients, their partners and the police. Chapter Three will describe best practices in addressing the needs of these highly vulnerable women. It will emphasize the key elements of HIV prevention programming for FSW and will highlight several model programs in developing countries.

CHAPTER 3: BACKGROUND: THEORY AND RESEARCH BASE FOR HIV PREVENTION WITH FEMALE SEX WORKERS

Chapter 2 provided information on sex work in Africa and the health risks that FSW face, particularly risks for HIV. Chapter 3 focuses on the theory and research base for programming that aims to maximize health and well-being for this population. One objective of this evaluation is to determine the degree to which Malian HIV prevention programs have met the standards of international best practice by incorporating key guidance on HIV programming for FSW in the developing world, guiding principles from these documents, essential elements of programming, and model programs for HIV prevention for FSW in low and middle-income countries. Chapter 12 (discussion) will address the extent to which Malian interventions were reflective of best practice while chapter 13 (conclusion) will make recommendations for future programming based on the most up-to-date evidence.

During the time period concerned with this evaluation, there have been three major international guidance documents on HIV prevention services for FSW:

1. UNAIDS. (2002). *Sex work and HIV/AIDS: UNAIDS technical update*;
2. UNAIDS. (2010). *UNAIDS guidance note on HIV and sex work*;
3. WHO. (2014). *Consolidated guidelines on HIV prevention, treatment and care for key populations*.

Each of these guidance documents includes key principles upon which to build FSW programming, HIV prevention and clinical services, and “service pillars” or “core

elements” that include prevention and clinical interventions but also emphasize structural interventions to improve the environment in which FSW live and work.

I. Guiding principles for HIV prevention with FSW

Table 3.1 presents guiding principles of the three documents side by side, which shows that there has been little change in the underlying assumptions for high-quality FSW interventions. Health-sector interventions are critical but not sufficient to address the vulnerabilities that make FSW at such high risk for HIV infection. A human rights-based approach, safer environments for FSW to work, community mobilization and public policy have been and continue to be best practice.

Table 3.1 Guiding principles from UN agencies on FSW programming		
UNAIDS 2002	UNAIDS 2010	WHO 2014
Develop personal skills		
Reorient health services to be more holistic	HIV prevention is for life, service delivery needs a long-term outlook	
Strengthen community actions	Community participation	Meaningful participation by affected communities / include all stakeholders
Build healthy public policy	Comprehensive: full range of policy and programmatic interventions	Ethical and rights-based approach
Create supportive environments	Human rights-based (including gender)	Human rights & access to justice
	Evidence based	Evidence-based
	Locally adapted to relevant context	Coordination, openness and transparency
	Sufficient coverage, scale, intensity	Equity, efficiency, sustainability

A. Human rights based approach

A human rights-based approach, protecting the dignity and self-determination of each individual, is essential for working with vulnerable groups who routinely experience discrimination. When human rights are protected, fewer individuals are infected and PLHIV and their families have better quality of life (Elliott 2006).

Human rights is “the cornerstone of an effective response to HIV and sex work” (p. 6) (UNAIDS 2010a). Documents that lay out international human rights standards include the 1948 Universal Declaration of Human Rights, the 1966 International Covenant on Civil and Political Rights, the 1966 International Covenant on Economic, Social, and Cultural Rights, the 1979 Convention on the Elimination of All Forms of Discrimination against Women, and the 1989 Convention on the Rights of the Child (UNAIDS 2010a). Human rights that are particularly important for FSW programming include protection from violence against one’s person, freedom from unlawful detention and police harassment, access to health care and education (Elliott 2006). As noted in the previous chapter, the fact that many of the rights are not fully realized by FSW greatly increases their vulnerability to HIV.

Model programs such as Songachi and Avahan in India (described in greater detail at the end of this chapter) have provided FSW with legal services and training on their rights in the cases of violence, rape, police harassment and trafficking. In addition, these and other programs have organized FSW into collectives to empower them to work

together to protect their rights (Basu et al. 2004; Swendeman et al. 2009; Deering, Bhattacharjee, et al. 2011).

B. Gendered approach

Because of women's greater relative poverty, poorer access to education, and lower personal power, it is recommended to tailor FSW programs to overcome women's greater vulnerability to HIV/AIDS.

“Ultimately, empowering women to have more control over their sexual lives will require a fundamental change in the dynamics of male/female relations and a concerted effort to eliminate the inequities that leave women economically dependent on men. In a large measure, women's vulnerability to HIV infection derives from their low status in society. Reducing their vulnerability will mean changing the cultural beliefs and gender stereotypes that perpetuate the belief that women are inferior to men” (p.931) (Heise and Elias 1995).

The Women's Coop project in South Africa, which will be described in detail, is one example of a program that used an explicitly gendered approach to improve outcomes among FSW(Wechsberg et al. 2006; Wechsberg et al. 2011)

C. Addressing stigma and non-judgmental attitudes in service sites

Fear of stigma, prosecution, and violence results in FSW being isolated from potential sources of information and assistance relevant to HIV prevention. Feelings of worthlessness, anxiety, and low self-worth as a result of stigma are major barriers to self-protection, often leading to self-destructive risk-taking, including alcohol and drug abuse (Baral et al. 2011; WHO 2011c).

FSW frequently report stigma and discrimination from health care providers, which discourages them from using public health services. FSW will not seek out services if they are not treated respectfully and non-judgmentally by health workers (Day and Ward

1997). The WHO recommends that individuals who are incapable of maintaining a non-judgmental attitude not be retained to work with FSW. Training and sensitization of health care workers to understand the issues FSW face is good practice (WHO 2013a).

“Given that sex work is illegal virtually throughout Africa and that FSW experience high levels of stigma, violence, and social exclusion, the importance of the ‘do no harm’ principle in research with these populations should not be underestimated” (p. 929) (Scorgie et al. 2012). Projects must ensure that strong measures are taken to protect beneficiaries from risks such as unwanted disclosure of HIV status or involvement in sex work. WHO recommends that a confidentiality and privacy policy should be signed by all staff and strictly enforced (WHO 2013a). Sadly, shortly after the release of a study of FSW and HIV infection in Rwanda, (in which sex workers faithfully participated for years), a highly restrictive criminal law with years of prison time for FSW was passed by the parliament (Price and Cates 2011).

D. Community involvement and empowerment

When individuals and communities are proactively involved in ensuring their well-being, success is more likely to occur. UNAIDS and WHO recommend that affected communities such as FSW be involved in all aspects of project design, implementation, and M&E. Beneficiaries are highly motivated to protect themselves and are part of the solution. In addition, facilitators who come from the affected community are effective channels for HIV prevention messages (WHO 2013a). “Sex workers have amply demonstrated their willingness and ability to be active partners” (p.8) (UNAIDS 2010a)

in HIV prevention efforts. Where FSW have been engaged with health and social services, behavior change happens and HIV transmission declines (UNAIDS 2010a; Rekart 2005; Overs and Hawkins 2011). Health is not the only thing FSW are concerned about. It is critical to offer services that they want and in the way they want them (Day and Ward 1997).

Songachi and Avahan are two of the most well-known examples of programs that empower FSW not only to advocate for respect of their human rights, but also to improve conditions in the bars and brothels where they work. In these programs FSW also work together to refuse unprotected sex, save money, open small businesses and provide child-care services (Basu et al. 2004; Swendeman et al. 2009; Deering, Bhattacharjee, et al. 2011).

E. High coverage and intensity of services

As noted earlier, because of high partner change and large numbers of sexual contacts, sex workers, their clients and partners, and *their* partners often represent large proportions of transmission in African countries. High coverage and high intensity interventions are therefore critical. However, it is estimated that only one third of sex workers in Africa have access to these services. Interventions have generally been project-based, without high levels of coverage. To be successful, these interventions need to be nationally led with more leadership from FSW themselves (WHO 2011a).

One analysis in 2012 found that only 50 low and middle income countries (out of 145) had good surveillance data on HIV among FSW (Baral et al. 2012). Resources for FSW are rarely in line with their importance to the epidemic. For example, while 37% of

transmission in Niger was linked to sex work, less than 1% of funding went for programming for FSW (Fraser et al. 2015).

The Thai 100% condom program is one example of a program that emphasized the importance of high coverage (all brothels in the country) of services, which needed to reduce HIV prevalence in this population. (UNAIDS and AIDS Division Thailand Ministry of Public Health 2000; Hanenberg and Sokal 1994).

II. Prevention Services

Table 3.2 highlights the prevention services recommended for FSW in the guidance documents. All three suggest condom availability and promotion, harm reduction for alcohol and drugs, behavior change communication for safer sex and HIV prevention with clients. In 2010 post-exposure prophylaxis (PEP) was added, while in 2014 treatment as prevention (TasP and pre-exposure prophylaxis (PrEP)) were added to the list of biomedical interventions that reduce viral load and significantly reduce the risk of transmission (WHO 2014).

UNAIDS 2002	UNAIDS 2010	WHO 2014
Condom availability and correct use	Condom and lubricant promotion	Condoms and lubricants
Only mentions harm reduction for FSW who inject drugs	Harm reduction for alcohol and drug abuse	Harm reduction for PWID
Promotion of safer sexual behavior (focus on peer education)	Behavior change communication	Behavioral interventions
Prevention with clients	Prevention with clients	Prevention with clients
	PEP only	ARV-related prevention (PEP, PrEP, TasP)
		Prevention of transmission in health-care settings

A. Condoms availability and promotion

Condoms are the “single most effective available technology to reduce the sexual transmission of HIV and other sexually transmitted infections” (p.12) (UNAIDS 2010a). Access to male and female condoms and lubricants is an essential component of HIV prevention programming for sex workers (UNAIDS 2010a). Condoms should be made easily available to FSW (Wariki et al. 2012; Bradley et al. 2010). In one RCT in Nicaragua, protected sex went up when condoms were made freely available in the rooms where sex occurred (Egger et al. 2000; Shahmanesh et al. 2008). Condom unavailability was cited by 8% of sex workers as a reason for not using them in Zimbabwe (Ray et al. 2001).

FSW in sub-Saharan Africa who use condoms consistently have a much lower risk for HIV (Scorgie et al. 2012). There are numerous examples of programs that have greatly increased consistent condom use among sex workers (WHO 2011a; Foss et al. 2007). One study in South Africa, with 295 sex workers, found increasing frequency of condom use associated with lower rates of HIV infection. Women whose level of condom use was “moderate” were five times less likely to become HIV positive than those who did not use condoms (OR 0.21 CI 0.09–0.5). Women whose level of condom use was “high” were seven times less likely to become HIV positive (OR 0.14 CI⁵ 0.06–0.34) (Dunkle et al. 2005).

Consistent condom use with regular partners of FSW remains a key challenge. Forthright discussions about sex between men and women are uncommon in Africa,

⁵ Confidence Interval

which makes condom negotiation difficult (Heise and Elias 1995; Caldwell 1989). Condoms can be perceived as symbols of distrust and lack of intimacy and can evoke violence and abandonment. Paradoxically, since sex work implies a negotiation, FSW may have an easier time negotiating for condoms than other women (Heise and Elias 1995). Data from male clients in Nigeria suggests that for men too, unprotected sex occurs much less often with FSW than with other kinds of partners. In addition, men usually do not want to use condoms either in relationships characterized by trust and intimacy (Messersmith et al. 2000). Some research in Africa suggests that non-paying partners of FSW have positive impacts on their health and suggest possible harm-reduction programs with FSW and their partners. In Kenya, Ngugi et al. (2012) found that women with stable partners had fewer clients and higher condom use with clients. Foss et al. (2007) found that programs often do have some modest success in promoting condoms to couples in high-risk groups, such as FSW, from very low levels to around 30%.

Lubricant is important as well. FSW sometimes complain that condoms lengthen the time it takes for men to ejaculate, causing sores (Heise and Elias 1995). Lubricant also helps to prevent condom breakage. Bradley et al. (2012) explored condom breakage with a sample of 291 FSW in Bangalore, India. In this study, 34% of sex workers reported at least one condom breakage in the previous month. Condom breakage was associated with paying clients, the size of the penis being too large, the condom being too small and rough sex. In addition to lubricant, programs could offer FSW different sized condoms. In Africa, Wechsberg et al. (2006) found that 42% of FSW in Pretoria, South

Africa reported a condom breakage in the past week. Ray et al. (2001) reported that 73% of FSW in Harare, Zimbabwe experienced at least one condom breakage in the past 3 months.

Data has shown that behavior change communications programs, particularly condom practice, reduce errors made in condom use. A study in Armenia found that most sex workers (73%) reported condom use errors associated with alcohol use, the FSW putting the condom on the client, and depression (Lang et al. 2011). In West Africa, a study in Benin found that only 11% of FSW and their clients were able to use condoms correctly. Most did not open the package correctly nor did they hold the tip to prevent air entering the condom. FSW who did not do well on the demonstration reported more condom breakage (Mukenge-Tshibaka et al. 2005).

Female condoms are acceptable for FSW because they are strong and are controlled by the woman. They are made of polyurethane, so can be used with the oil-based lubricants which can damage male condoms. However, they are more costly (Rekart 2005) and more complicated to use. In one study in Central America, FSW had to practice two to ten times before feeling comfortable to use them with a client. Positive aspects included their strength, lubrication, size and comfort, while negatives included “scaring clients away” (p. 149) and unfamiliarity (Mack et al. 2012). An intervention in Cambodia emphasized the importance of introducing the female condom and providing education on how it is used. FSW were able to debate and discuss its utility and practice it and 16% decided to use the female condom (Busza and Baker 2004).

A study in Thailand found that giving women the choice of male or female

condoms increased by 17% the proportion of sex acts during which condoms were used and noted a 24% reduction in STIs when women could choose between the two methods. Many women reported that the female condoms slipped during the first few weeks of use, underlying the importance of practice and skill building but this no longer occurred once they became used to it. They also could use the female condom with violent or drunk clients (Fontanet et al. 1998).

Studies on female condoms in Africa are few, but high acceptability has been found in Zimbabwe and Malawi (Scorgie et al. 2012). Ray et al. (2001) found that 68% of FSW preferred the female condom to the male condom because it gave them more control, was stronger, more comfortable, and easier to use when partners refused to use condoms or were too drunk. In addition, providing male and female condoms to sex workers was more effective in reducing unprotected sex than male condoms alone (Wariki et al. 2012).

B. Behavior change communication

Accurate and comprehensive information on HIV and HIV prevention for FSW, clients, and others involved in the sex work industry is recommended (UNAIDS 2010a). It is also important to give sex workers guided practice for condom negotiation and for refusing clients demanding unprotected sex. Wechsberg et al. (2011) found skill building for both condom negotiation and avoiding/responding to violent situations resulted in increased condom use and reduced violent episodes and HIV/STI rates (Wechsberg et al. 2011; WHO 2011a).

The assumption underlying behavior change communication is that FSW will take risk reduction decisions if they understand their risk and how to protect themselves. This

assumption is often correct. Dramatic changes in sex worker behavior have been documented and are linked to decreases in HIV infection (Day and Ward 1997).

Peer education is a component of almost all effective programs for FSW and their clients (Foss et al. 2007). It has been used in programs that successfully impacted either behavioral or biologic outcomes in Madagascar (Feldblum et al. 2005), India (Bhave et al. 1995; Gutierrez et al. 2010) and elsewhere (Shahmanesh et al. 2008). Peer education is a powerful intervention because it uses other FSW as the channel for health communication as well as empowers FSW to take control of their own health. It also focuses on normative beliefs/standards of the group, which can have a profound effect on individual behavior (Ghys et al. 2001). In addition, peer education can greatly expand the number of FSW reached (Day and Ward 1997).

A study in the Philippines found that peer education, especially when linked to manager training, increased a variety of knowledge and attitudinal variables, in addition to improving HIV testing and condom use (Chiao et al. 2009). Peer education with provision of condoms increased condom use in two studies in India (Bhave et al. 1995). An intervention in Singapore found that women in the group with peer educators were twice as likely to refuse unprotected sex as those who were not exposed to peer education (RR 1.9 CI 1.22–2.94). At two years, 90.5% of FSW in the intervention group refused unprotected sex, and there was a corresponding decline in gonorrhea (Wong, Chan, and Koh 1998).

A study in Madagascar found that clinic-based counseling made no improvement over less-intensive peer-led counseling (Hoke et al. 2007). Peer education has been

essential to successful programs in Kenya and Zimbabwe, where sustained increases in condom use among sex workers and their clients have been coupled with sustained reduction in HIV prevalence (Ngugi et al. 1996). However, it is critical to emphasize fidelity to the program messages with peer educators, as some studies have found that they are not always the most reliable channels (Nyagero et al. 2010). For peer education programs to work, they need good standards and codes of conduct, training, and supervision. Many studies have emphasized that peer educators are a highly cost-effective channel for prevention messages (Rekart 2005).

One approach is “motivational interviewing,” in which a trained counselor leads the FSW in motivating herself to change behavior. This approach is linked to social-cognitive theory. It often includes gender empowerment: FSW are helped to reflect on the power dynamics related to sex work in such issues as violence, substance abuse, and condom negotiation. The session typically includes condom use and negotiation skills (Markosyan et al. 2010; Wechsberg et al. 2011). In Mexico, one motivation used was helping women understand that they wanted to stay healthy because their children depended on them (Patterson et al. 2008).

C. Reduction of alcohol and drug abuse

Harm reduction for drug and alcohol use is important (UNAIDS 2010a) because substance abuse is often an important factor in HIV transmission. FSW in developing country settings report frequent substance abuse, which is often linked to lack of condom use and forced sex incidents. Screening and counseling for substance abuse is often a part of risk reduction sessions and training for FSW (Baral et al. 2011; Li, Li, and Stanton

2010).

D. Prevention with clients

As client refusal is the number one reason for lack of condom use during paid sex, involving clients is a critical component of prevention activities for FSW. Clients can help create a supportive environment for FSW by demanding safe sex and being respectful. It is also recommended to provide clients and their partners/spouses with services (UNAIDS 2010a). Motivating clients to use condoms to protect their own health and families relieves FSW of the sole burden of demanding safer sex (WHO 2011a).

In Kaolack, Senegal, a peer education intervention with clients doubled reported consistent condom use (Leonard and Ndiaye 2000). Another intervention in Mombasa reduced STI incidence among truck drivers who received VCT and condom education (WHO 2011a). A study in the Gambia found that condom use was more associated with client than with FSW characteristics, emphasizing the importance of interventions with clients (Pickering et al. 1993). A study in Benin found that using client peer educators brought client reported consistent condom use with FSW up from 39% to 86% (CM Lowndes et al. 2007).

E. Biomedical prevention interventions

Randomized clinical trials have shown high efficacy of ART for prevention purposes. Post-exposure prophylaxis (giving a course of ART after a rape, condom breakage, or unprotected sex) was recommended by the 2010 and 2014 UN guidelines (UNAIDS 2010a; WHO 2014). Also, treating HIV positive individuals who are part of a serodiscordant couple (“Treatment as Prevention” or TasP) can greatly reduce risk of

transmission to the seronegative partner (WHO 2013b). The 2014 guidance recommends that FSW in serodiscordant relationships with an HIV positive partner or partners of HIV positive FSW be offered TasP (WHO 2014). Finally, pre-exposure prophylaxis (PrEP) for high-risk HIV negative individuals is another effective strategy if adherence is high. Currently, however, PrEP is not recommended for FSW unless they are in serodiscordant relationships (WHO 2014).

III. Clinical Interventions

Table 3.3 shows the clinical services recommended by the three guidance documents. HIV testing and counseling, care, antiretroviral treatment (ART), STI diagnosis and treatment, mental health services, and screening and treatment of tuberculosis have been recognized as important service components for FSW since at least 2002. Prevention of mother to child transmission (PMTCT), family planning and services regarding viral hepatitis were added in 2010 and nutrition, abortion services, conception and pregnancy support and cervical cancer screening were not emphasized until the 2014 guidance.

UNAIDS 2002	UNAIDS 2010	WHO 2014
HIV testing and counseling	HIV testing and counseling	HIV testing and counseling
Care of PLWHA	Service linkages and referrals, social support	Linkage and enrollment in care
ART	ART	ART
STI diagnosis and treatment	STI diagnosis and treatment	STI diagnosis and treatment
Mental health	Mental health	Mental health
Tuberculosis	TB	TB
	PMTCT	PMTCT
	Family planning	Family planning
	Viral hepatitis	Viral hepatitis
		ART drug interactions
		Nutrition
		Cervical cancer screening
		Safe abortion
		Conception and pregnancy care

A. HIV testing and counseling

HIV testing and counseling is a critical component of HIV prevention programming for FSW (UNAIDS 2010a). In sub-Saharan Africa, over half of sex workers do not know their HIV status (Scorgie et al. 2012). Many people are unaware of their HIV status until AIDS symptoms develop; yet, this is problematic because it implies a critical missed opportunity for prevention. An HIV-infected person could continue to engage in risk-behaviors for ten years or longer, spreading the disease unknowingly (Marks et al. 2005). Late testing also leads to unnecessary suffering and death as well as further HIV transmission due to late initiation of treatment and its preventive effect (Jaén et al. 2008).

The effect of prevention counseling appears to be much greater for people who test HIV positive, who generally do change their sexual behavior to avoid further transmission (Marks et al. 2005; Weinhardt et al. 1998). The prevention component of the counseling during testing may not be as effective for HIV-negative individuals (Weinhardt et al. 1998; Foss et al. 2007).

A study in Miami, Florida, found that street-based FSW reduced their sex work activity, increased consistent condom use, and reduced drug use after finding out they were HIV positive (Inciardi et al. 2005; WHO 2011a). In Thailand, an analysis of ISBS data showed that FSW who had participated in VCT used condoms more consistently than those who had not (Gorbach et al. 2006). A well-designed clinical trial in China found FSW highly receptive to HIV prevention messages through VCT. Women who received VCT were 2.23 (CI 1.26–3.96) times more likely to report consistent condom use with clients at six months follow-up and less than half as likely to be infected by an

STI (X. Li et al. 2006; Wariki et al. 2012).

While the data are mixed and not exhaustive, some studies on sex workers in sub-Saharan Africa have found the same pattern: greater decrease in high-risk sexual behavior for those who test HIV positive than those who receive an HIV negative result (Scorgie et al. 2012). A study in Mombasa found that women who tested positive engaged in less risky behavior than they did before they knew their status (McClelland, Baeten, et al. 2006).

B. STI diagnosis and treatment

Treatment for STIs is an important component of HIV programming for FSW (UNAIDS 2010a; Foss et al. 2007; Wariki et al. 2012; Shahmanesh et al. 2008; WHO 2011a; WHO 2014). In Zaire, 531 HIV-negative FSW were followed for over three years in an intervention including condom promotion and monthly screening for STIs. HIV incidence was 2.7/100 person years in women who attended 91% or more of their STI clinic appointments but 7.1/100 person years among women who attended 76–90% of appointments, 20.3/100 if they attended between 50–75% of appointments and 44.1/100 person years if they attended fewer than 50%. The trends were the same after controlling for condom use and number of clients. HIV transmission was associated with inconsistent condom use (RR 1.6 CI 1.1–2.8), gonorrhea (RR 2.5 CI 1.1–6.4), trichomoniasis (RR 1.7 CI 1.1–2.8) and genital ulcers (RR 2.5 CI 1.1–6.4) (Laga et al. 1994).

In Cote d'Ivoire, 542 FSW were randomized to standard STI diagnosis and treatment with a gynecologic examination only for symptomatic women or an intensive strategy in which they received the examination regardless of symptoms. After three

years, HIV incidence was slightly lower in the intensive strategy (5.3/100 person years vs 7.6) but this was not significant ($P=0.5$). However, when comparing the HIV incidence of both groups before and after the study, HIV incidence went down from 16.3/100 person years to 6.5/100 person years, which was probably due both to increased condom use as well as lower STI prevalence (Ghys et al. 2001).

A randomized clinical trial in Kenya followed over 500 FSW. Both the control and intervention groups received condoms, condom promotion, and STI case management and treatment. In addition, the intervention group also received monthly treatment with Azithromycin. After two years, incidence of gonorrhea in the intervention group was less than half that of the control group (RR⁶ 0.46 CI 0.31–0.68 unadjusted). Risk of chlamydia and trichomonas was even lower (RR 0.38 CI 0.26–0.57 and 0.58 CI 0.40–0.78 unadjusted) (Kaul et al. 2004). In Benin, FSW in areas targeted in a large STI/HIV control program had much lower STI and HIV rates than those who did not have this programming (Mukenge-Tshibaka et al. 2002). Similarly, a cohort study in Tanzania found a drop in HIV and STI incidence by two thirds among FSW receiving regular syndromic management and screening (Riedner et al. 2006; WHO 2011a).

Screening for STIs can find individuals who are also at risk for HIV but may not be obvious members of risk groups (Wariki et al. 2012). Also, prevention counseling has been shown to be highly effective when a person has just been diagnosed with an STI (Crepaz et al. 2007).

Presumptive therapy of common STIs such as chlamydia, gonorrhea, and chancroid

⁶ Relative Risk

involves treating all FSW with inexpensive antibiotics whether or not they have symptoms (Steen et al. 2000). As FSW contract STIs very quickly, presumptive therapy must also be administered frequently to be effective (McKay, Campbell, and Gorter 2006; Shahmanesh et al. 2008). In Madagascar, the majority of FSW had STIs two months after being treated, although there was a ten to fifteen percent lower STI prevalence than at baseline. In consultation with FSW, the government adopted an algorithm in which all FSW got presumptive therapy, a vaginal exam, and syphilis screening at the first visit. On subsequent visits every three months the FSW received syphilis testing, and treatment of other STIs based on symptoms. The results of this strategy were not evaluated in this study (Behets et al. 2003).

C. Access to ART

Antiretroviral therapy (ART) reduces viral load and allows CD4 counts to return to a level where they can protect the body from opportunistic infections and AIDS (Schwartländer, Grubb, and Perriens 2006). Access to ART is an important component of programming for FSW (UNAIDS 2010a) for their own needs as well as for prevention purposes. ART programs for FSW should be sensitive, as HIV positive sex workers are often the victims of a “double stigma” (for being FSW and for being HIV positive (WHO 2011a). UNAIDS and WHO also recommend screening for tuberculosis for FSW, since they are at increased risk for the disease due to high HIV prevalence as well as their frequent poor living conditions (Rekart 2005; UNAIDS 2010a; WHO 2014).

D. Access to family planning

As discussed in Chapter 2, contraceptive use among FSW is low and therefore FSW experience high rates of unintended pregnancies. UNAIDS recommends that provision of contraception should be included in programming for sex workers (UNAIDS 2010a). Public health programs often ignore FSW own health needs and concerns, including their reproductive health needs. However, contraception is essential because of the risk of unwanted pregnancy in this population. Consequences of unintended pregnancy include maternal morbidity and mortality, dangers of illegal abortions, and mother to child transmission of HIV in HIV infected women (Feldblum et al. 2007; Schwartz et al. 2015).

In some studies, but not all, use of oral and injectable contraceptives has been associated with HIV transmission. A study in Thailand found a higher risk of HIV transmission for FSW reporting oral contraceptive use (2.5 RR; CI 1.1–5.3), but no significant higher risk for those using Depo-Provera (an injectable contraceptive) (Kilmarx et al. 1998). Two other studies in Thailand, however, found no association between contraceptives (oral or otherwise) on HIV transmission in FSW (Gray et al. 1997; Celentano et al. 1994). Neither did a study in Cote D'Ivoire (Ghys et al. 2001). In a large cohort study of 3,790 sero-discordant (mostly non FSW) couples in seven African countries found that male to female and female to male HIV transmission were associated with contraceptive use (1.98 times higher (HR⁷ 1.06–3.68) and 1.97 CI 1.12–3.45), respectively adjusted by age, time-dependent pregnancy, any sex without condoms and

⁷ Hazard Ratio

plasma HIV-1 concentrations). In this study, injectables were associated with slightly higher risk than oral contraceptives (Heffron et al. 2012).

E. PMTCT

PMTCT starts with provision of contraceptives to HIV-positive FSW to avoid unintended pregnancies (WHO 2011a). UNAIDS and WHO recommend that HIV positive FSW be included in PMTCT programs (UNAIDS 2010a; WHO 2014). Braunstein and Ingabire (2011) in Rwanda found an annual incidence of pregnancy to be 25% in FSW and 43% were currently breastfeeding. WHO recommends that all HIV-positive pregnant women be given ART for life and that their newborns be given six weeks of nevirapine treatment for prevention (WHO 2013b).

F. Care and support for HIV+ sex workers, including prevention for positives

UNAIDS recommends that HIV-positive FSW should receive care and assistance appropriate for those living with the disease, including prevention with positives (PWP) (UNAIDS 2010a). A review by the CDC found PWP highly supported by the evidence. It noted that when HIV-positive patients are screened for and counseled on risk behaviors using a non-judgmental questioning approach, they frequently take measures (such as condom use and using ART during pregnancy to prevent mother to child transmission) to protect their own health and prevent further transmission (U.S. CDC 2003).

Ray et al. (2001) promoted male and female condoms to HIV-positive FSW in Zimbabwe. The intervention included condom availability, HIV prevention counseling, STI testing and treatment and condom demonstrations. There were two groups: one which received both male and female condom and a second which only got male

condoms. In the male condom only group, consistent condom use with clients increased from 0% to 85%, but went down with boyfriends from 32 to 26%. In the male and female condom group, consistent male condom use with clients went from 0% to 60% and female condom use with clients went from 0% to 5%. With boyfriends, consistent use of male condoms increased, respectively, from 8% to 21% and from 0% to 12%.

IV. Service pillars (focus on structural interventions and critical enablers)

Table 3.4 gives the service pillars or core responses recommended by UNAIDS and WHO. All three guidance documents include health sector interventions, but also emphasize structural approaches to improve law and policy as well as address the sex work environment through legal or policy change and/or community mobilization. One element that is present in the 2002 guidance but absent in 2010 and 2014 was programming to prevent entry into sex work in the first place by addressing poverty, gender inequality, and girls' education. In later years, these structural interventions may have been considered too far up-stream from HIV prevalence in FSW even though these factors do contribute to entry to sex work as well as FSW vulnerability.

Table 3.4 Service pillars (Focus on structural interventions and critical enablers)		
UNAIDS 2002	UNAIDS 2010	WHO 2014
Preventing entry into sex work		
Protection of FSW: Reducing vulnerability and risk (individual and community approaches)	Access to HIV prevention, treatment, care, and support for all sex workers and their clients	Health sector interventions
Supportive law and policy	Action to address structural issues related to HIV and sex work	Critical enablers: law and policy
Community actions and supportive environments/ assistance in leaving sex work	Supportive environments and partnerships that facilitate universal access to services, including occupational alternatives to sex work for those who want to leave it	Critical enablers: Stigma and discrimination, community empowerment, addressing violence

Behavioral and clinical interventions alone have had only limited effect on prevalence of HIV among FSW (Shannon and Montaner 2012; Shannon and Csete 2010; Shahmanesh et al. 2008). There is a clear link between HIV risk and sex worker disempowerment, violent victimization, and criminalization. Structural interventions aim to improve the environment in which FSW work in order to reduce this vulnerability (Shannon and Csete 2010). Strategies to make the sex work environment conducive to health have better effects than programs focusing only on individual behavior change (Wariki et al. 2012).

A. Empowerment

Empowerment of FSW communities is an important component of HIV prevention. Empowerment can be on the individual level, such as the strengthening of skills, or on the community level, such as FSW joining together to make positive changes in their environment. Its purpose is to address their vulnerability (Rekart 2005). Community empowerment is also called community organization, community mobilization, or community action research. The goal of empowerment is to raise consciousness in groups of people to recognize and work together to change structural barriers to their improved health (Wariki et al. 2012).

Pressure from clients is the number one reason why FSW do not use condoms. There is good evidence that where sex workers are organized, they can help each other refuse unprotected sex with clients. Also, since FSW often agree to have unprotected sex out of economic need, in some settings FSW have organized themselves so that they all refuse unprotected sex. In such cases, they are then able to charge reasonable fees for

protected sex (Scorgie et al. 2012). In addition, some programs have organized sex workers to collectively raise their fees, reducing the number of sexual contacts needed for them to make a living (Day and Ward 1997; Heise and Elias 1995). The Cochrane meta-analysis found that community empowerment was effective in reducing unprotected sex with partners of FSW by 45% (Wariki et al. 2012; Gutierrez et al. 2010).

Programs that facilitate the organization of FSW into groups to advocate together for safer sex, access to condoms, and better management practices are much more effective than condom promotion alone. Two examples are the Songachi project in India and the program in the Dominican Republic (Shannon and Csete 2010; Cohen 2004; Kerrigan et al. 2006).

B. Supportive environments

Programming that makes the sex work environment more conducive to condom use has been shown to be effective in increasing condom use and reducing violence. Programs in which managers communicate to clients that condoms are mandatory take the sole burden of condom negotiation off the FSW themselves (Day and Ward 1997). Some projects trained bar/brothel managers to reinforce safe sex practices among sex workers (Ghys et al. 2001). One randomized clinical trial in the Philippines found manager training combined with peer education to be very helpful in improving self-regulatory factors, HIV knowledge, HIV testing, and condom use (Chiao et al. 2009; Wariki et al. 2012). One study in Bombay, India, that provided HIV education and prevention programming to both FSW and madams together increased condom use (Bhave et al. 1995; Shahmanesh et al. 2008).

C. Violence reduction

Violence can be reduced through active strategies by FSW, reducing alcohol abuse, and with structural interventions (UNAIDS 2010a). Projects may provide FSW with advice and commodities (like whistles) for FSW to help them to reduce the risk and severity of violent attacks (Rekart 2005). At the structural level, networks of FSW have often joined together to discourage violence, learn their rights, and advocate with the police. Finally, WHO recommends that women who have been victims of violent attacks be offered medical and social services. These should include post-exposure prophylaxis offered to HIV-negative FSW who have been raped to prevent HIV transmission (WHO 2011a).

D. Legal reform and policy change

“In many countries, laws, policies, discriminatory practices, and stigmatizing social attitudes drive sex work underground, impeding efforts to reach sex workers with HIV prevention, treatment, and care programs ” (p. 3) (UNAIDS 2010a). A particularly harmful policy that has often been reported is police using the possession of condoms as evidence for arrest and prosecution. Obviously, this makes FSW afraid carry condoms and thus discourages protected sex. Also, in some places FSW are not allowed to organize to advocate for their health and respond in a group to violence (Shannon and Csete 2010). In many countries, it is difficult for FSW to press charges against their attackers because the fact of being a FSW is considered evidence for the defense. This has been the case in Britain for over 150 years (Sullivan 2003).

UN agencies support the removal of criminal laws against adult FSW who have not been trafficked. In addition to keeping them from accessing services, criminal laws can

make FSW lose their freedom, their choices, and their children (Rekart 2005).

Decriminalization has been attempted in Australia, New Zealand and the Netherlands (Day and Ward 1997; Gable, Gostin, and Hodge 2009). After decriminalization in Australia, public health programs reported they had better access to FSW to provide them with services. In addition, FSW reported more participation in health projects than when sex work was criminalized (Harcourt et al. 2010).

E. Expanding Choices

Alternative employment, housing, education, legal assistance to assure control of family assets, support to return home, and microcredit can all potentially help women who want to leave sex work. These projects can be controversial, as many FSW claim that they too often target sex workers who do not want them (UNAIDS 2010a).

Microenterprise helps to finance small businesses as well as provide training and education. These programs have increased women's income, the power of women to make their own decisions in family planning and their power in households (Wariki et al. 2012). Such programs provide technical skills to populations who are low income and cannot get formal-sector jobs. One randomized clinical trial with FSW in Chennai, India gave FSW the opportunity to make and sell handbags in addition to a standard HIV prevention intervention, which the control group also received. The intervention group received 100 hours of instruction by master tailors. While HIV prevention indicators, like condom use with clients, increased equally for both groups, the women in the intervention group increased their income and 75% made and sold at least one export-quality bag. After 10 months, 65% of the women stayed in the business and decreased

their number of sex work clients per month substantially, although few left sex work altogether (Sherman et al. 2010; Wariki et al. 2012).

Other projects provide vocational training to improve women's ability to earn money outside of sex work. The AMREF project in Kenya found that 65% of women opted to participate in the income generation projects, and that these women were almost three times more likely to change behavior than those who did not (Nyagero et al. 2010).

V. Analysis of best practice

A. Systematic reviews and meta-analyses

HIV prevention interventions with FSW have been shown to be highly effective, resulting in the containment of several epidemics in South and Southeast Asia (South India, Thailand, Cambodia) and the Dominican Republic (Wilson and Halperin 2008). Five systemic reviews have been conducted of interventions for FSW in the developing world:

Rekart combined peer reviewed publications and the gray literature using the harm reduction paradigm. The review did not include a meta-analysis but instead summarized the evidence regarding harms faced by FSW as workers: criminalization, debt, discrimination, disease, drug abuse, exploitation and violence. Strategies to reduce those harms include care and treatment, decriminalization, education, empowerment, human rights, occupational health and safety and prevention. Successful programming included condoms, condom negotiation training, peer education, guidelines for brothels and self-help organizations (Rekart 2005).

A systematic review and meta-analysis by Cochrane identified 13 high-quality randomized control trials in low- and middle-income countries. It concluded that an effective, evidence-based package of services for sex workers in low-income countries was supported by the literature. Evidence from Kenya, Cote d'Ivoire, India, China, Thailand, and Cambodia provide a strong basis supporting these interventions. Seven of these studies measured biological outcomes, including three that reduced HIV incidence. This review found that the most effective intervention to reduce HIV incidence was male and female condom promotion. However, community mobilization, peer education, manager training, STI diagnosis and treatment, and voluntary HIV testing and counseling also reduced STIs and improved outcomes underlying HIV infection. Social-cognitive counseling also reduced drug use among FSW (Wariki et al. 2012).

An earlier systematic review (without a meta-analysis) by Shahmenesh et al. of HIV and STI prevention interventions in low and middle-income countries included 28 high-quality intervention studies. Four studies were included in both Shahmenesh and Wariki, though Wariki had more rigorous inclusion criteria. This systematic review included all RCTs or quasi RCTs for female sex workers, which described exposure, were conducted in resource-poor settings, and in which follow-up was longer than six months. It identified four types of studies: 1. Behavioral interventions with condom promotion; 2. Addition of microbicides (which did not work); 3. Addition of STI screening and treatment; and 4. Structural interventions.

The review concluded that “despite methodological limitations, the evidence suggested that combining sexual risk reduction, condom promotion and improved access

to STI treatment reduces HIV and STI acquisition...” (p. 659) The review also concluded that there was good evidence that empowerment, structural interventions, and policy change also reduce HIV/STI prevalence. However, the evidence was not sufficient to conclude that screening or periodic treatment of STIs provides extra protection against HIV transmission (Shahmanesh et al. 2008).

A fourth systematic review which addressed the sex work context, HIV epidemiology, and programming in Africa was conducted by the World Health Organization in 2011. In addition to published studies, this review also included gray literature. Meta-analysis was not conducted, but there were quality standards for inclusion. This review found that while model programs have been conducted across the continent, most of these were small scale, underfunded, and did not adequately include FSW in design and evaluation. The review recommended the 3-pillar framework for sex work interventions by UNAIDS 2010 (Table 3.4). The review concluded that high-quality evidence suggested that condom promotion, clinic-based risk reduction counseling, peer education, STI diagnosis and treatment, behavior change communication, VCT, and prevention with clients improved outcomes. Promising interventions that had not been tested adequately in Africa include alcohol abuse harm reduction, ART and sex worker self-help networks (WHO 2011a).

A fifth systematic review by Foss et al. (2007) looked at intervention studies in Africa and Asia to increase condom use. Of 62 studies that met the inclusion criteria (multiple designs showing pre and post effect), nineteen of the studies were among FSW, fourteen of which had a significant effect. Foss found that programs aiming to increase

condom use among FSW and their clients were highly effective. On the other hand, the evidence available in Africa and Asia in 2007 was not nearly as strong for interventions increasing condom use among any other group, such as youth. Successful interventions for FSW included condom promotion, STI diagnosis and treatment, and peer education.

B. Theory

Successful sexual behavior change interventions are based on established theories of human behavior (Wellings et al. 2006). The Centers for Disease Control (CDC)'s HIV/AIDS Prevention Research Synthesis Project concludes that the most successful HIV prevention programs make explicit their underlying behavior-change theory (U.S. CDC 2009). These theories describe why people do (or don't) make decisions to benefit their health and are supported by years of study in different contexts. Most HIV prevention interventions shown to change behavior and reduce HIV transmission are based on theories such as Social Cognitive Theory, Social Learning Theory, Information-Motivation-Behavior model, the Health Belief Model, and the Theory of Gender and Power. However, it is important to note the wide overlap between the models, and programs based on the different theories often have similar outcomes. This may be because "different models can achieve similar outcomes through different processes..." or "different models embody common factors that encourage preventive behavior, but are not necessarily emphasized by the model of behavior change used by a given intervention" (p. 400) (Rotheram-Borus and Swendeman 2009). Interestingly, meta-analyses of the use of different models in psychotherapy for a wide range of purposes has found that they are of similar efficacy. All of the theories include "provision of

information, shaping of attitudes, norms, self- efficacy, motivation, and building behavioral skills” (p. 402) (Rotheram-Borus and Swendeman 2009).

Social-Cognitive Theory, posited by Bandura, was found to be an effective theoretical construct for HIV Prevention programs for FSW in the meta-analysis by Wariki. The theory suggests behavior arises as personal, behavior, and the person’s environment interact with each other. People have beliefs and understanding about their environment, but they can also change the environment. A person controls their behavior, but this is related to personal/individual beliefs and other factors. Different people may react differently to the same situation, and the same person can react differently at different times (Wariki et al. 2012). A person’s expectation of positive results and observing others performing the behavior (modeling) are important to make change. In addition, feelings of self-efficacy, and behavioral capability are critical. Finally, attitudes towards the behavior change are also crucial (Bartholomew et al. 2006). The model emphasizes that even if the person understands rationally the severity of the disease and the efficacy of a protection behavior, translating that knowledge into the necessary action “requires social and self-regulative skills and a sense of personal power to exercise control over sexual behavior. Perceived self-efficacy is concerned with an individual’s belief in his or her ability to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over life events” (pg. 51) (Ford and Wirawan 2002). This sense of self-efficacy has been documented to be linked to condom use in sex workers in Indonesia (Ford et al. 1996; Ford and Wirawan 2002), South Africa (Wechsberg et al. 2011), Armenia (Markosyan et al. 2010) and Mexico (Patterson et al.

2005; T. L. Patterson et al. 2008; Wariki et al. 2012; Rotheram-Borus and Swendeman 2009).

The Theory of Planned Behavior & Theory of Goal-Oriented Behavior emphasize that a person's choice/intention to make the change is critical (Nyagero et al. 2010). Godin et al. 2008 notes that three factors interact to influence the intention to change behavior. First, positive attitudes, "a favorable assessment adopting a behavior" (p.442) underlie intentions. Second, people are very concerned about their perceptions of "whether groups or persons of importance to him will approve or disapprove of the adoption of the behavior" (p.442). Finally, a person's sense of the difficulty of the behavior affects his/her decision to implement it. A study with FSW and their boyfriends in Benin, Guinea, and Senegal validated the theory in these populations. Measures of intention and perceptions of self-efficacy were associated, respectively, with a fivefold and nine- fold greater likelihood of using condoms. Moral norms and attitudes were also important (Godin et al. 2008).

The Health Belief Model assumes that people make health behavior rationally, by analyzing their susceptibility to disease, the severity of the illness, and the costs and benefits of behaviors to reduce the threat to their health. The model has been widely used in the development of programming for FSW, and makes sense because of FSW's high susceptibility to HIV and STIs, the severity of the disease, as well as the effectiveness and relative low cost of condoms. Programs in South Africa (Ford and Wirawan 2002) and Kenya (Nyagero et al. 2010) were based on the Health Belief Model.

Gender Theory or the Theory of Gender and Power focuses on power imbalances

between men and women and specific stressors women face. A number of projects have increased awareness of gender differences in order to help FSW demand safer sex in South Africa (Wechsberg et al. 2006), Armenia (Markosyan et al. 2010) and Mexico (Rotheram-Borus and Swendeman 2009; Swendeman et al. 2009).

The Theory of Reasoned Action (TRA) “views intentions as the primary determinant of behavior, which are in turn determined by two underlying factors: the person’s attitudes towards performing the behavior and his or her perceptions of the social norms associated with the behavior” (p. 89) (Patterson et al. 2005) and emphasizes social influence and moral (normative) beliefs. People will often make health-related decisions based on their perception of the expectations of significant people in their lives, including authority figures such as physicians and other health professionals. However it also incorporates emotions. Worry and anxiety can both trigger positive behavior change but can also lead to avoidance, especially when levels of anxiety are high. Finally, people also consider cost and benefit (Mccaul and Tulloch 1999). TRA was an important theory of behavior change underlying the model HIV prevention programs in Mexico along the border with the United States (Patterson et al. 2005).

C. Best practice models

There are a number of best practice model programs for HIV prevention programming with FSW which have demonstrated improved outcomes through different combinations of the guiding principles, prevention services, clinical services, structural changes/critical enablers and theoretical constructs. Each of these programs has been vigorously evaluated.

1. 100% Condom program in Thailand

The 100% Condom program in Thailand is frequently cited as a model for HIV prevention with FSW. The country detected increasing HIV prevalence among FSW: from 3.1% in 1989 to 15.2% in 1991. Prevalence among young men went from 0.5% to 3.0% in the same time period, likely through contact with FSW. The 100% Condom Program began in Ratchaburi province and was predicated on the idea that to be effective, all FSW in the province had to use condoms for every sex act. Otherwise, clients would go to other FSW who did not. The program was successful: STI rates plummeted, and it was scaled nationally in 1991. The National Condom Promotion Campaign, targeting the general population, was scaled up concurrently. Availability, logistics, and quality control for condoms were key elements and 60 million free condoms were provided. The mass media campaign was blunt and explicit: men were urged to use condoms with FSW. Sex establishments were sanctioned if they did not adhere to the policy. In the beginning, police enforcement was an important component of the program, but diminished over time, and cooperation, rather than enforcement, characterized the program. STIs were vigorously screened and treated. Managers of sex work establishments were trained and materials were provided at the sites. Because all establishments had to participate, sex workers and managers would not lose money by enforcing condom use and they supported the policy (UNAIDS and AIDS Division Thailand Ministry of Public Health 2000; Hanenberg and Sokal 1994).

By 1993, consistent condom use among FSW across the country had gone up from 14% to 94%. In addition, the number of cases of major STIs dropped 79% in men

(Hanenberg and Sokal 1994). Among young men, HIV prevalence fell from 12.5% in 1993 to 6.7% by 1995. Concurrent with these reductions in HIV prevalence was an increase in reported condom use during the last contact with FSW (from 61.0% to 92.5%) and a reduction in STIs from 42.2% to 15.2%. Finally, fewer men were going to sex workers at all (81.4% to 63.8%) (Nelson et al. 1996; Celentano et al. 1998). By 1997, STI rates had fallen over 90% and condom use in brothels had increased to over 90%. Most sex workers reported “always” using condoms with “one-time” clients and with regular clients (97% and 93% respectively). Clients themselves reported slightly lower consistent condom use (91%). Even with girlfriends, men reported 40% condom use, and MSM reported 57% condom use (UNAIDS and AIDS Division Thailand Ministry of Public Health 2000).

HIV prevalence among FSW dropped more modestly. At baseline, 32% of FSW were already HIV positive in a cohort study in Chang Rai, in northern Thailand. Of the seronegative women, 10% became seropositive. Incidence slowed over the course of the study. National data in 1997 showed that HIV prevalence among FSW was still at 27% in 1997. Possible reasons were condom breakage, oral sex, high levels of STIs, or bias caused by loss to follow-up (Kilmarx et al. 1998). In Chang Rai, prevalence among FSW fell from over 60% in 1990 to about 24% in 1996, but afterwards climbed upwards again to 43% in (Kilmarx et al. 2000; Shahmanesh et al. 2008). HIV prevalence among FSW in Thailand had fallen to 11.9% in 2011, still 11.6 times that of the general population prevalence of 1.15% among women (Baral et al. 2012).

It is important to note that the 100% Condom Program in Thailand has been

replicated in many countries in Asia, including Vietnam, Laos, China, Myanmar, the Philippines, Mongolia (WHO 2004) and Indonesia. Despite the positive results cited, the programs have also been criticized for perpetuating negative attitudes about FSW as carriers of disease as well as for not including them adequately in program design and implementation. In addition, FSW who tested positive for HIV had to leave formal sex work and go into informal sex work which is more dangerous (Mgbako et al. 2008).

2. India: Avahan and Songachi

In India, prevalence among sex workers remains high (13.7%, CI 13.1%–13.3%). Sex workers are 54.3 times more likely to be HIV-positive than other women of reproductive age (S. Baral et al. 2012).

The Songachi project in Calcutta, India is a best-practice model for community empowerment and may be responsible for the relatively low HIV prevalence among FSW in Calcutta. The project was initiated in 1992 and has three components: STI/HIV prevention, treatment, and care; a FSW community-based organization; and micro-finance. Condom use with clients in Calcutta went from 3% in 1990 to 90% in 1999. The Songachi model used charismatic peer educators to build confidence and skills for community advocacy among FSW, who then advocate with madams, brothel-owners, police, and politicians. The goals of empowerment were health for the FSW, but also the well-being of their children, group solidarity, and human rights. Interventions were designed, managed, and evaluated by FSW themselves. The micro-enterprise component encouraged saving, reduced vulnerability to losses from theft, gave FSW access to accounts and has helped FSW open businesses in sewing, crafts, retail, farming, and

transportation (Basu et al. 2004; Swendeman et al. 2009; Wariki et al. 2012) By increasing sex workers' power to organize and changing the environment within their workplaces, HIV prevalence among FSW in Calcutta has remained under 10% (Shahmanesh et al. 2008).

Songachi grew to scale organically and over time, so the organization conducted a community-based randomized control trial to test its model. Two towns were randomized to either the control (standard STD/HIV care, including peer education) or to the intervention, which added empowerment and advocacy. The trial used a longitudinal design that followed FSW over time for 16 months. "Adopters" were women who reported unprotected sex with a client the last day at baseline but by the final follow up did not. "Relapsers" had not had unprotected sex with a client the last day at baseline but did in follow-up surveys. In the intervention group, 27 women (32% of the sample) became adopters while six (7.1% of the sample) were relapsers. In contrast, the control had only seven adopters (9.3%) and 19 relapsers (25% of the sample). While both the intervention and control groups had substantial improvement in consistent condom use, the addition of community empowerment resulted in an additional 40% improvement in consistent condom use, sustained over the 16 months of the study. FSW in the intervention arm also showed improvements on multiple outcomes relating to vulnerability such as risk knowledge, personal motivation, skills, empowerment, social support, and saving (Basu et al. 2004; Swendeman et al. 2009; Wariki et al. 2012)

The Avahan Initiative was an HIV prevention program for FSW and other key populations in six Indian states with high HIV prevalence. The program began in 2003

and used community mobilization with condom promotion, VCT, and screening and treatment of STIs. Peers provided education on HIV risks, condom negotiation, and demonstrations and practice on correct condom use. Finally, the program also did legal training for FSW so they understood their rights. After four years, a high-quality evaluation study in Karnataka with 775 sex workers found that consistent condom use with clients was 4.9 times higher among FSW who had ever been contacted by the program staff than those who had not and was 2.9 times higher among those who had witnessed a condom demonstration than those who did not. In addition, a dose-response relationship was also observed: the more contacts, and the longer the duration of participation in the program, the higher the odds of condom use. However, there was a threshold effect, more than 2–3 contacts in the last month did not improve outcomes. One outcome that was not greatly influenced by the intervention was condom use with spouses and co-habiting partners, which remained less than 10% (Deering, Boily, et al. 2011; Deering, Bhattacharjee, et al. 2011). Condom availability, a key component of the program, led to enough condoms being distributed for 80% of commercial sex acts to be protected (Bradley et al. 2010). Finally, interventions to reduce violence against FSW, both at the policy level and individual level, may have reduced the number of FSW reporting violent acts (Beattie et al. 2010). Avahan had very high coverage (80% of FSW) in its target sites. The FSW community was consulted in the initial data collection and placement of services, the hiring of doctors, and the design of services. FSW mobilized themselves to form violence response teams and to negotiate with the police (Laga et al. 2010).

While the Avahan and Songachi combination HIV prevention programs are being scaled up, time is needed to see if these programs have reduced HIV transmission among sex workers (S. Baral et al. 2012) .

3. Mexico/US Border programming

In Mexico along the U.S. border, a model program was implemented by the University of California, San Diego in collaboration with the Mexican National AIDS Program. Border cities such as Ciudad Juarez, Matamoros, and Tijuana had the highest prevalence of HIV in Mexico. Most FSW were from other states in Mexico or from Central America and had an average of three children each. Sex work is legal and FSW are required to be registered (Patterson et al. 2005; Patterson et al. 2008)

The Mexican intervention was based on the Social Cognitive Model and the Theory of Reasoned Action and was a single 35-minute counseling session with a health care professional who used motivational interviewing techniques to address: 1) motivations for practicing safer sex; 2) barriers to condom use, including threats of physical violence; 3) techniques for negotiating safer sex; and 4) Enhancement of social supports. As 97% of FSW had children, the most important motivator was found to be the desire to protect their health to be able to continue supporting their children. The intervention group increased condom use and reduced STIs over six months of follow-up time when compared to a control group receiving standard counseling (Patterson et al. 2005; Patterson et al. 2008). The Mexican intervention is considered one of the most rigorously designed evaluations conducted in developing countries (Wariki et al. 2012).

4. Dominican Republic

In the Dominican Republic, a randomized clinical trial replicated the 100% Condom Intervention in Thailand. One city (Puerto Plata) required 100% condom use in brothels and enforced it with penalties to brothel owners. In the other city (Santo Domingo), the intervention was self-regulated by the brothels. At the end of one year brothels were 10% more likely to abide by the policy in the intervention city (Puerto Plata), where the policy was enforced. In addition, in most improvements in outcomes were more pronounced in Puerto Plata. (Shahmanesh et al. 2008). To evaluate the program, a cross-sectional pre-and-posttest design was used that included 68 sex establishments. The intervention had five components, the first four of which were implemented in both cities: 1. Solidarity and group commitment of sex workers and managers; 2. Condom availability and environmental cues; 3. STI counseling and treatment; 4. Monitoring and encouraging adherence; 5. In Puerto Plata only, owners were responsible for enforcing the 100% condom policy and subject to sanctions. Outcomes in both cities improved, but more so in Puerto Plata.

Condom use with new clients went up from 75.3% to 93.8% in Santo Domingo and from 96.5% (already high) to 98.6% in Puerto Plata. Changes in other outcomes were statistically significant only in Puerto Plata. Condom use with regular partners was low at baseline (14.6% in Santo Domingo and 13% in Puerto Plata). It went up to 17.6% in Santo Domingo and to 28.8% in Puerto Plata. FSW in Puerto Plata were more likely to say they would reject unsafe sex if a client offered more money, showing that the enforced policy was better able to overcome the economic incentive for FSW. STI

prevalence went down in both cities, but only the 42% change (from 28.8% to 16.3%) in Puerto Plata was statistically significant (Kerrigan et al. 2006).

5. Kenya

An observational cohort in Kibera (a Nairobi slum) followed 466 HIV-negative FSW from 1998 to 2002. Initially, the study was implemented to test if monthly azithromycin would reduce HIV rates. All of the participants received peer education, syndromic management of STIs and STI screening every six months. While the azithromycin reduced STI prevalence, HIV incidence was not different between the two groups. However, HIV incidence decreased for both groups compared with baseline (Kaul et al. 2004). A questionnaire on risk behaviors was given at baseline and at every three months over two years. Condom use rose at six months from baseline: from a “2” on a 5-point scale to “4”. These results were maintained over the course of the two years for home and nightclub based FSW. For bar based FSW, it went down to a “3”, perhaps because of alcohol abuse. Interestingly, the average number of clients per week went down dramatically for all three groups: from fifteen at baseline down to three by the end of the study. The authors suggested that the FSW were able to charge higher prices and have fewer clients because they had shared information on prices during mobilization activities (Yadav et al. 2005). A follow-up behavioral survey was conducted in 2003 (a year after activities ended) to test how well the results were sustained in the absence of the intensive intervention. Price for sex had increased and the number of partners increased up to six, but was still well below 15. Condom use with clients had increased (from 2.6 at enrollment to 3.7 at trial end to 4.3 at the follow up a year later). HIV incidence went

down from 3.7/100 PY to 1.6/100 PYs (Ngugi et al. 2007).

Kenya launched new guidelines for HIV prevention with FSW in 2010, recognizing that one third of HIV infections in the country were attributable to key populations. The Kenyan program was based on the three pillars proposed by UNAIDS: Comprehensive HIV prevention, treatment, care and support; building supportive environments and expanding choices; and reducing vulnerability and addressing structural issues (Muraguri et al. 2010). Encouragingly, HIV incidence among sex workers has been decreasing in Kenya (S. Baral et al. 2012).

6. Cote d'Ivoire

HIV prevalence rates among FSW in Abidjan, Cote d'Ivoire went from 40% in 1987 to 68% in 1990 to 80% in 1992. In response, the Ministry of Health launched a project that used peer education to promote consistent use of condoms by FSW. In addition, a confidential HIV/STI clinic for FSW and their partners was established: *Clinique de Confiance*. Participants were randomized into “basic” or “intensive” services. Sexual activity logs were used to reduce reporting bias. FSW came to the clinic every month where they received health education and condoms. Women in the “basic” group received STI screening and treatment only in the presence of symptoms. Women in the “intensive” arm received an STI examination and presumptive treatment regardless of symptoms. Of the 284 women who completed the study, condom use “90% of the time” increased from 40% to 82%. Gonorrhea and *T. vaginalis* infection (the latter of which is not always an STI) went down from 14% to 5% and 24 to 11%, respectively. HIV incidence was slightly higher (7.6/100 person years vs. 5.3/100 person years) in the

control group. Using a pre- and post-test cross-sectional design, FSW who received either of the interventions had a .4 rate ratio of HIV transmission compared to those who did not receive any programming. STIs, anal sex, and low education were associated with HIV transmission during the study. HIV transmission rates were lower between regular attenders and irregular attenders regardless of reported condom use. The study had a 59% loss to follow-up due to migration, which is not unusual for sex worker studies (Ghys et al. 2001). This study was evaluated in the Wariki meta-analyses to have been well designed and implemented and to have strong procedures in place to avoid bias (Wariki et al. 2012).

7. South Africa

In Pretoria, South Africa, the Pretoria Women's Coop aimed to address substance use, STIs, gender-based violence, and HIV among FSW. The intervention was based on Social-Cognitive Theory, gender theory, and empowerment. The study involved the community at every stage and was able to build trust. It had a rare, 89% follow up rate. Women (93) were randomized into a standard intervention group or a women-centered group. Participants were seen in a private, one-hour session twice during the month during which they received health education on HIV and drug risk, a demonstration and practice in correct condom use, an HIV test, training on condom negotiation, risk-reduction commodities and toiletries and referrals to other services. The risk reduction session included personalized goals for each woman. The woman-centered intervention added discussion on women's issues including violence prevention and dealt with issues of male dominance. In a month's time, the study found that any condom use with

boyfriends increased from 23–33% in the woman-centered group, but no change occurred in the standard group. Condom use at last sex with boyfriend went from 28% to 55% in the woman-centered group and 44% to 48% in the standard group. Female condom use with boyfriends in the last month went from 3% to 48% with the woman-centered group and 20% to 40% in the standard group. Male condoms always used with clients went from 94% to 97% in the woman-focused group but went down 92% to 82% in the standard group. Any female condom use with clients in the last month went from 12% to 68% in the woman-centered group and 13% to 61% in the standard group. Finally, alcohol and/or drugs used during sex work in the last week fell from 65% to 54% in the woman-centered group and 58% to 53% in the standard group. Daily cocaine use went from 64% to 33% for the woman-centered group and from 75% to 40% for the standard group (Wechsberg et al. 2006). This study was included in the Cochrane meta-analysis, but it was one of the studies with the most potential bias.

The Women's Coop was repeated at scale in 2004, with 583 women over a six-month period (with a baseline, and three and six month follow-up surveys). All women received the standard or woman-centered intervention discussed above. Tests were used to assess alcohol and/or drug abuse in addition to self-report. Attrition was very low (6%). Over 60% (351) of the women were FSW while 40% (199) were other high-risk women. Among the FSW, 64.5% were already HIV positive at baseline. At the end of the six month follow-up time, the FSW in the woman-centered group had better outcomes than those in the standard group in drug use (58.2% at baseline vs. 64.4% at 6-months had no drugs detected), condom use during last sex with a main partner (31.2% vs.

51.5%), and physical abuse by clients in the last 90 days (20% to 3.9%). FSW in both groups had reductions in sexual abuse by clients and by main partners and improvements in condom use with clients (Wechsberg et al. 2011).

B. Summary

A solid research base shows that HIV prevention programming with female sex workers is highly effective. FSW understand the risks involved in their profession and will proactively work to reduce those risks if given the right tools.

All successful interventions include prevention and health care services such as access to male and female condoms and lubricant, STI diagnosis and treatment, behavior change communication (by peers and/or health care professionals), and HIV testing. As ART became widely available, linking HIV positive FSW to treatment became an essential component of the basic package of HIV services. In addition, the later guidance recognizes that FSW are also at high risk for unintended pregnancy, mental health problems, cervical cancer, tuberculosis and viral hepatitis. However, few studies have evaluated interventions addressing these problems among FSW in Africa. Nor have biomedical interventions such as post-exposure prophylaxis, pre-exposure prophylaxis, and early treatment as prevention been evaluated in this population.

Because FSW often lack control over many of the tools they could use to protect their own health, most successful interventions include strategies to change the environment in which they work. Such strategies include law and policy (such as decriminalization and the 100% condom initiative in Thailand) and individual and collective empowerment.

CHAPTER 4: METHODS

I. Study Specific Aims

A public health evaluation is a “systematic investigation into the merit, worth, or significance of public health actions in order to improve and account for them” (p. 2) (U.S. CDC 1999). The goal of this study was thus to establish the merit, worth, and significance of HIV prevention programming in Mali targeting female sex workers (FSW) funded by USAID between 2000 and 2010.

The principal aim was to evaluate changes in HIV-related knowledge and behaviors and HIV and STI prevalence (outcomes) among Malian female sex workers (FSW) from 2000–2009. Data from the Integrated Sexually Transmitted Infection (STI) Prevalence and Behavior Surveys (ISBS) conducted in Mali in 2000, 2003, 2006, and 2009 were analyzed to measure changes in outcomes. This was the first time most of the data in this large, rich information source were analyzed and tracked over time, controlling for changes in the sex worker demographics, and conducting analysis by sub-group. To determine exposure, all four ISBS surveys asked respondents where they received assistance when they had an STI. The 2003, 2006, and 2009 (but not the 2000) surveys also asked for sources of information about HIV. The 2009 survey also asked if respondents had received HIV/STI services from an NGO.

The nature and scope of interventions for Malian FSW (inputs, activities, and outputs) funded by the U.S. Government were assessed through a document review and 23 key informant interviews. Key informants included policymakers/funders, program managers, and peer educators/animators (paid peer education managers who are former

sex workers).

This evaluation study used similar methodology as the Avahan program, a model nation-wide HIV prevention program for FSW in India, triangulating program monitoring documents and qualitative data with ISBS outcomes analysis (Deering, Boily, et al. 2011)(Mainkar et al. 2011) (Thilakavathi et al. 2011)(Ramesh et al. 2010). The study used mixed methods: a combination of qualitative and quantitative sources of evidence (Bowen 2009), in this case a document review and analysis, key informant interviews, and a quantitative analysis of ISBS data from 2000, 2003, 2006, and 2009.

The evaluation aimed to answer the following two Research Questions:

Research Question 1: What changes in HIV-related knowledge and behaviors and HIV and STI prevalence (outcomes) occurred among Malian sex workers (FSW) from 2000 to 2009 and were these associated with HIV prevention programming?

- a. How and to what extent did FSW HIV prevention knowledge change?
- b. How and to what extent did FSW consistent condom use change with regular and non-regular clients and intimate non-paying partners?
- c. How and to what extent did HIV and STI prevalence change among sex workers?
- d. Do the trends observed in FSW outcomes remain when controlled for FSW demographics, such as age and nationality?
- e. Did behavioral and biologic outcomes differ as a result of exposure to programming?

This question was answered by univariate, bivariate, and multivariate analysis of the ISBS surveys conducted in 2000, 2003, 2006, and 2009.

Question 2: What were the underlying theory, strategies, scope, coverage, successes, and challenges of HIV prevention programming for FSW in Mali between 2000 and 2010?

- a. Describe the formative research and community planning process prior to implementation.
- b. Describe underlying theory of behavior change and how this was incorporated in program messages and channels of communication.
- c. Describe the coverage expected and achieved.
- d. Describe training for program staff and peer educators and how the program ensured staff fidelity to the messages throughout the program.
- e. Describe successes and challenges of the program.
- f. Describe key changes in the environment, program strategy, or program resources that may have affected program outcomes.

This question was answered through a review of documents and 23 key informant interviews.

II. Research Strategies Overview

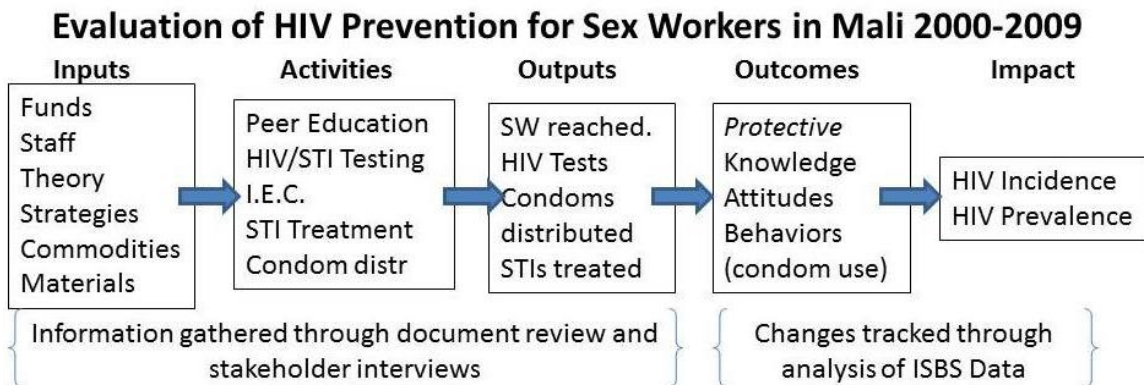
This evaluation study used three research strategies:

- 1) An in-depth secondary analysis of data from the 2000, 2003, 2006 and 2009 ISBS surveys to determine how HIV and STI prevalence, condom use, and HIV knowledge among FSW changed over time adjusting for demographic factors, such as age and nationality, which differed between the survey samples. Bivariate and multivariate analyses were used to identify the most important factors associated with the

outcomes.

- 2) A review of program monitoring data, program reports, and other documents were used to construct a narrative and timeline describing prevention activities for FSW in Mali from 2000 to 2010, the nature and scope of the interventions, the strategies employed, their funding levels, the successes and challenges they experienced, and their program outputs, such as numbers of sex workers reached, condoms distributed, and numbers tested and counseled for HIV.
- 3) In-depth qualitative interviews with 23 key informants, including program managers (12), peer educators (10) and policymakers/funders (1) explored program strategies, scope and coverage, and challenges and lessons learned.

The results framework below demonstrates the standard evaluation practice of showing how program inputs should be transformed into public health impact in this study (U.S. CDC 1999). The document review and key informant interviews served to gather information on the inputs, activities, and outputs, and to link them with changes in HIV-related knowledge, attitudes, and behaviors, and finally impact, in this case, the prevalence of STIs and HIV among SW.



III. Key Informant Interviews and Document Review

A. Subject inclusion and enrollment criteria

For key informant interviews, inclusion criteria were the following:

1. Was a peer educator (volunteer), “animator” (paid peer educator and coordinator), program manager, and/or policymaker/planner/funder in USAID-funded prevention programs for sex workers in Mali.
2. Worked in this function in Mali between 2000–2013.
3. Was willing and able to provide a 90-minute interview.
4. Spoke French or English fluently.
5. Lived in Mali at the time of enrollment or could be reached by Skype/telephone.

Exclusion criteria: Any person who did not meet all of the 5 inclusion criteria, and/or could not understand the purpose of the study and/or informed consent were excluded.

Individuals were interviewed once.

Vulnerable populations: Current peer educators were by definition practicing female sex workers. Some were also migrants and immigrants, either of regular or irregular legal status. All “animators” were former sex workers working full-time coordinating FSW interventions.

All consent and study documents were developed in English and translated into French (see annexes 1–4). Some sex worker peer educators and animators were immigrants or temporary workers from Anglophone countries. Thus, documents were made available in English in addition to French, the official language in Mali.

C. Recruitment

USAID (Mr. Trout) provided Measure Evaluation with a list of organizations and individuals who were known to have been involved in USAID prevention programming for FSW between 2000 and 2010. Measure Evaluation contacted these organizations and individuals by letter and/or e-mail (see annexes 1 & 2), which explained the purpose of the evaluation and the interviews. Next, they were invited by telephone to participate in an interview and the interviewer/note taker (Measure Evaluation staff/consultants) interviewed them at the Measure Evaluation office or the participant's office/place of work, only if that was preferred by the participant. The participants were reimbursed 7,500 CFA/\$15 for participation. If the participant failed to appear, the interviewer attempted once to reschedule the interview by telephone and after this moved to another potential participant until the total number of interviews desired was completed. Table 4.1 gives the types of key informants interviewed.

Key informant type	Number of this type	Chapter with results
Peer Educators	10	Chapter 7
Policymaker	1	Chapter 8
Program managers	12	Chapter 8
Total	23	

The inclusion criteria were included in the communication with the proposed key informants prior to the interview. These were also gone over with them in person at the beginning of the interview.

D. Plans for obtaining consent, who will consent, when and how consent will be obtained

Each key informant was asked to give oral informed consent using an English or French informed consent form. They were notified of the purpose of the evaluation, how data was to be collected and stored, that their participation was optional, and that they had the right to skip any question or stop the interview at any time. The key informant interviews were anonymous: no personal identifying information was collected from the participants.

Recruitment materials included:

1. Recruitment letter/e-mail (English/French) (annexes 1 & 2)
2. Informed consent forms (English/French) (annexes 3 & 4)

E. Study Procedures

1. Data collection team

Mr. Trout conducted the document review. The key informant interviews were conducted by two interviewers from Measure Evaluation. USAID (Mr. Trout) provided Measure Evaluation with the questionnaires (annexes 5 & 6, study procedures, and a list of potential individuals and organizations to contact. Measure Evaluation staff/consultants conducted the interviews and transcribed them in French. The names of the interviewees stayed with Measure Evaluation for the purpose of the confidentiality of the subjects but they were not kept in any documents. Mr. Trout analyzed the French notes/transcriptions using N-Vivo with the assistance of Dr. Messersmith.

2. Training for data collection team

Data were collected by a team of Measure Evaluation researchers, led by Dr. Stan Yoder, with previous experience conducting qualitative interviews. Prior to beginning data collection, a 3-day training workshop for interviewers was held by the Measure researchers. The workshop included detailed discussions of study participant recruitment, the informed consent process, and other ethical issues, including confidentiality and privacy matters. Given the sensitive nature of sex work in Mali, it was critical that interviewers and all researchers who collaborated in this project fully understood the need to protect the privacy of participants. The team therefore reinforced all ethical issues regarding research involving human subjects and ensured that study staff understood and were in a position to follow appropriate enrollment and data collection procedures for the study. PowerPoint slides on the protection of human subjects that had used previously in many studies in sub-Saharan Africa and that were adapted and used for this study were used for training and the participants practiced procedures such as obtaining informed consent until the trainer was confident that these procedures could all be conducted appropriately. A log was kept onsite with the names of research staff who had been trained and the date on which they were trained.

3. Structure of key informant interviews

Semi-structured questionnaires and interview guides (annexes 5 & 6) were prepared in advance and piloted with one program manager/peer educator. No changes to the interview guides were deemed necessary during this process, they were to be resubmitted to the IRBs for approval, but this did not turn out to be necessary. The interviews were

semi-structured, allowing for a conversational style in which key questions were probed.

The 23 key informants included one policymaker/donor, 12 program managers and 10 peer educators/animators were actually surveyed.

After recruitment (see prior section) and the interviewer and interviewee met for the interview, the interviewer first determined whether the interviewee was better equipped to participate in English or in French. (In general, only Nigerian animators/peer educators spoke English.) Each of the peer educators/animators was reimbursed 7,500 CFA (\$15 USD) for their participation. After a short introduction to the study, the interviewer used the interview guides to establish that the individual was eligible to participate and was willing to do so. The person was then invited to participate in the study. The interviewer also obtained verbal informed consent using the consent form (annexes 3 & 4) for each participant. Consent included permission to tape record the session for transcription and for note-taking. Individuals who were willing to participate in the study but did not want their interview tape recorded were to be allowed to do so, but were asked if they could give an extra 20 minutes to allow for more extensive notes. However, none objected to tape recording. Participants were asked not to mention their names, the names of organizations or individuals in order to protect privacy. The purpose of the interviews was to get general information about the programming rather than information specific to organizations or individuals. A code was used to link the notes with the tape recording and to note the type of interviewee (Peer Educator/Manager/Program Manager, Policymaker/Funder).

The interviews lasted approximately 90 minutes and took place in a quiet, private

room. Interviews generally took place at the Measure Evaluation office or another neutral location determined by the interviewee and interviewer. Sessions were tape-recorded, and the note-taker also formulated questions that assisted the interviewer to probe deeper for information. After the interview, the note taker and interviewer discussed their interpretations of the interview. The interviewer and note taker worked together to transcribe these notes and recordings in English or French, according to the language of the interview.

These procedures were followed for the two types of interviewee (Peer Educator/Animator, Program Manager and Policymaker/Funder). Two different interview guides were used to get relevant information from each of the two types of participant. See annexes 5 & 6 for the specific interview guides.

F. Sample size

Sample size is not fixed in qualitative research; it is up to the researcher (and the user of the information) to determine if the number of people included is enough to be credible. Sample sizes are determined by the research questions and depend on when saturation of information is reached. In addition, samples are not random, but purposeful, and people with key information are specifically sought out (Hoepfl 1997). In this case, 23 key informant interviews were deemed sufficient to verify and complement the information on program strategies, design, and implementation gleaned from the document review.

Another key to ensuring quality is triangulation. This means using various methods and data sources that aim to include and examine various points of view, leading to findings that are wide-ranging. In this evaluation, three data sources of different types

were included: a document review, key informant interviews, and quantitative analysis of ISBS data. In both the document review and key informant interviews, the tools developed were designed to obtain in-depth information. Finally, data that go against the general findings (minority reports) of the research should be shown and treated, to increase validity (Golafshani 2003) (Tracy 2010). If the sources of evidence generally agree, the final conclusions of the evaluation are strengthened and saturation has been achieved. If not, it may necessary to continue the investigation further (Bowen 2009).

Interview transcripts and typed notes (stripped of all personal identifying information) were left in their original language: in English or French, depending on the language of the key informant. Field notes in French were not translated into English. Analysis was done in the language spoken. Analysis for the key informant interviews began with the team reading each set of notes/transcripts several times before open coding of the notes. N-Vivo was used to code and analyze the key informant interviews. Coding did not begin until all of the interviews were completed. Initial codes addressed the six sub-questions of Research Question 2. The interviews were anonymous and no personal identifying information was collected, so transcripts were organized by type of interviewee (Peer Educator/ Program Manager and Policymaker/Funder). Direct quotations were reported as frequently as possible to ensure that interviewees' voices were expressed in the research report. The next phase of analysis was axial coding in which "the discrete categories identified in open coding are compared and combined in new ways as the researcher begins to assemble the 'big picture'" (Hoepfl 1997) (p.55). N-Vivo was used so that notes and quotes were grouped by code. Descriptive details related

to the implementation of prevention programming for sex workers, and their ramifications were explored and analyzed. The final step was to create the story line that will be read in the report. Frequency tables were used whenever possible to present the strength of different opinions (Hoepfl 1997) (Kumar 1989).

G. Protection of human subjects

The key informant interviews asked people about their jobs for the purpose of quality improvement, not personal information about behavior. Therefore the Boston University Medical Center IRB and the IRB at the Faculty of Medicine at the University of Bamako determined that this study did not involve Human Subjects Research. IRB exemption was granted by both.

1. Risks and discomforts

Potential risks to human subjects were very low in this evaluation. As the key informant interviews were with policymakers and program managers, there could be risk to these individuals' employment, professional relationships, and careers should information shared in confidence be revealed. As in any evaluation, program implementers, government officials, and USAID staff may feel vulnerable to criticism. They may also not feel comfortable participating in the evaluation and may not have time to do so. FSW animators and peer educators may feel loyalty to the NGOs they work with and not want to disclose potentially negative information about them. The time they took out of their day to participate in the interviews may also be difficult for them to afford.

2. Potential benefits

There was no immediate direct benefit for participants in this study, though peer

educators and animators were paid 7,500 CFA (about \$15) for their participation. However, the goal of this evaluation was to improve programming for HIV prevention for FSW, their intimate partners, and their clients, which would have a positive effect in their lives by avoiding infection, and to Malian society as a whole. For organizations involved in implementation, the evaluation was an opportunity to showcase their success and to identify challenges that can be addressed in future programming and to express difficulties that may have their origin in USAID's processes, allowing USAID to improve. The evaluation was shared with the GOM, USAID and CDC, and the affected community, which may be empowering for individuals to better design and manage programming.

2. Risk/Discomfort Mitigation: plan to protect patient privacy and confidentiality of the data

The study protocol was reviewed and approved by the Institutional Review Boards (IRB) at Boston University Medical Center and the Faculty of Medicine at the University of Bamako. The data collected were for evaluation and quality improvement purposes. These data were collected anonymously, and no personal identifiable information was included.

The key risk to key informant interview participants was breach of confidentiality. Thus, every effort was made to avoid this potential risk. Interviews with key informants were wholly voluntary and were confidential. No identifying information was collected from the key informant interviews. Data in the form of notes pages and cassettes were collected and will be stored in a secure locked metal cabinet at Measure Evaluation in Mali for no more than five years. Key informants were identified only by category

“Policymaker/funder” or “Program manager” or “Peer Educator/Animator”. Electronic data (in the forms of interview notes and transcripts devoid of personal identifying information) were stored on password-protected computers. Interviews were conducted only in neutral, private spaces. Finally, the purpose of the evaluation was to assess the effectiveness of the strategy and program as a whole over the time period. This strategy included many actors and organizations. The purpose was not to evaluate individuals or their organizations. Sufficient interviews were conducted so that anonymity could be protected in the data analysis stage. Interviews lasted a maximum of ninety (90) minutes. USAID assisted with the analysis of only the transcribed interviews which had personal identifying information removed.

IV. ISBS secondary data analysis

A secondary data analysis was conducted of the 2000, 2003, 2006 and 2009 ISBS surveys to answer Question 1 and its sub-questions. The ISBS studies used methodology recommended by UNAIDS, WHO, and USAID and were one part of the “triangle” for HIV surveillance in Mali (UNAIDS and WHO 2011) (UNAIDS and World Health Organization 2000) (World Health Organization 2004) (Pisani et al. 1998). ISBS was designed to measure changes in the HIV/AIDS epidemic among “core groups” such as HIV and STI prevalence, as well as risk behaviors. Demographic and Health Surveys (DHS) were repeated in Mali every five years in the general population and sentinel surveillance among pregnant women in urban antenatal clinics was timed to correspond with the ISBS every three years. In addition to FSW, core groups in the ISBS in Mali included truck drivers, ticket touts, female “ambulatory vendors”, and female domestic

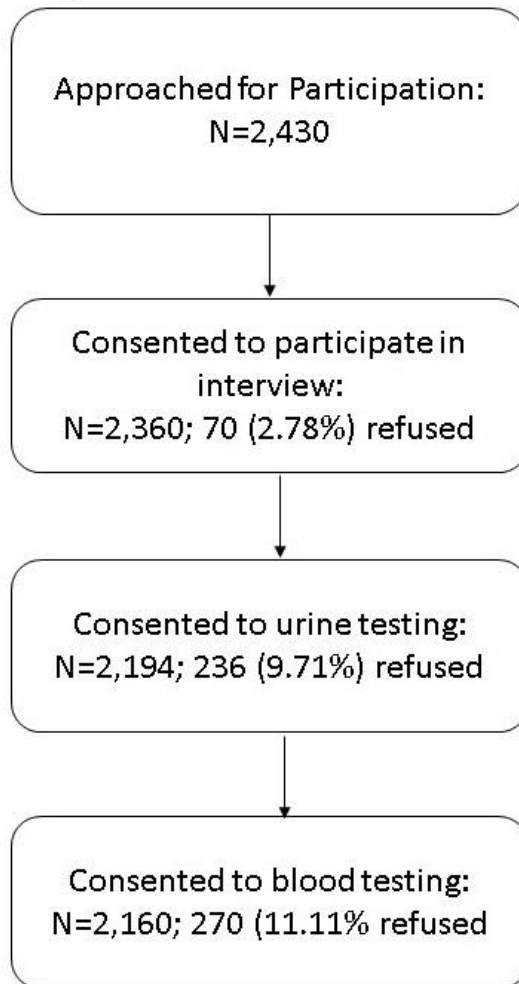
house staff (Mali.CSLS/MS et al. 2010).

All four ISBS were implemented in seven cities: Bamako, the capital, Koutiala, a large transport hub and population center, and five regional capitals: Gao, Segou, Kayes, Sikasso, and Mopti. One exception is that the 2000 study did not include Koutiala. Most FSW in the surveys were brothel based. Formative research conducted in 1999 was the basis of cluster lists. A ‘cluster’ for sex workers was a brothel or bar/club. The clusters were randomly sampled and then all sex workers in the cluster were interviewed. For the 2003, 2006, 2009 ISBS, teams were sent out prior to sampling to verify the clusters used during the previous years, adding and subtracting new brothels as necessary (Mali.CSLS/MS et al. 2010).

The ISBS survey questionnaires included seven sections:

- 1.) Socio-demographic characteristics;
- 2.) Origin and migratory movements;
- 3.) Sexual practices;
- 4.) STI health seeking behavior;
- 5.) STI/HIV/AIDS knowledge and attitudes;
- 6.) Questions about the brothel/bar;
- 7.) STI/HIV prevalence through blood/urine tests: HIV, syphilis, chlamydia, and gonorrhea.

Figure 4.2 ISBS Consent flow-chart



The National AIDS Program, Centers for Disease Control and Prevention (CDC), and Mali Institute for Public Health Research (INRSP) supervised the ISBS studies and a private firm (Info-Stat) administered the questionnaires in 2000, 2003, 2006, and 2009. INRSP lab technicians took and controlled blood and urine samples. NGOs sensitized SW to the goals of the study and obtained their support. The study was anonymous: no personal identifiable information was collected. Each interviewee

received a card with a unique ID number that gave them access to health services and test results (rapid tests were not used.) All participants received counseling, condoms, and STI treatment if needed. Post-test counseling was offered for HIV and syphilis.

Participation in the study was voluntary and separate informed consent was collected for the questionnaire, urine testing, HIV testing, and syphilis testing. The institutional review boards from the INRSP and the CDC approved the studies. (Mali.CSLS/MS et al. 2010) From 2000–2009 the refusal rate for the interview was 2.78% (70/2,430). The refusal

rates were 9.71% (236/2,430) and 11.11% (270/2,430) for urine and blood tests, respectively, which could have introduced bias if these FSW differed from those who consented. There was no risk related to secondary analyses done for this dissertation and the IRBs of the Bamako University Medical School and Boston University Medical Center exempted the analysis from full IRB review and approval.

The purpose of the ISBS analysis was to disprove the “null hypothesis” that HIV-related knowledge, attitudes, and behaviors and HIV and STI prevalence did not improve over the four datasets (2000, 2004, 2006, 2009) when controlling for potential confounding factors, including program exposure. Prevalence of HIV, STIs and condom use were among the outcomes analyzed. The following table shows the crude rates of HIV prevalence, gonorrhea, and chlamydia, age, nationality, schooling and condom use over each of the four data collection periods presented before.

	2000	2003	2006	2009
Crude HIV Prevalence	28.9%	31.9%	35.5%	24.2%
Chlamydia Prev	4.7	2.8	3.8	10.5%
Gonorrhea	3.2%	3%	3.3%	11.5%
Average Age	26.8 years	26.9 years	27.9 years	26.2 years
% Malian	36.5%	29.0%	36.3%	43.4%
% Nigerian	46.8%	49.9%	38.1%	32.9%
Average years in school	5.4	6.9	6.6	6.5
Condom last sex client	95.6%	94.2%	95.1%	98.8%
Condom last sex boyfriend	31.4%	36.3%	51.2%	40.1%

SAS version 9.1 software was used for statistical analysis. The four ISBS datasets were stored in SPS and Stata databases. The data were converted to SAS format and merged into one dataset to perform the analyses, adding study year as a variable.

The first step was to break the tables into strata to show the demographic characteristics for FSW in Mali and who these characteristics changed over the four ISBS studies. Given the difference in the proportion of different nationalities (Malian, Nigerian, and other), this subgroup analysis was likely to show significant differences. The results of this analysis are presented in Chapter 9.

The second step was to do the same for outcomes. Outcomes were tracked over time for the entire dataset and also by nationality. This was accomplished by creating contingency tables by year, dependent/outcome variable, and nationality group. The results of this analysis are treated in Chapter 10.

The third step was to conduct bivariate comparisons regardless of time frame or nationality, which showed if outcomes within the combined dataset were correlated with particular explanatory variables. Using the combined dataset, comparative contingency tables were created on the outcome (dependent/response) variables, such as HIV and STI prevalence, HIV knowledge, and condom use. Independent variables tested included nationality, program exposure, age, marital status, study year, education level, and city. These variables were either already categorical/ordinal, or they were put into categories in the case they were discrete/continuous. The results of these analyses are presented in Chapter 11.

All statistical tests were conducted at $\alpha=0.05$ to test if the differences between groups in each analysis were significant. In most cases, groups analyzed were nationality or study year. The chi-square test was performed to test if the differences between groups were statistically significant in cases where data was presented as proportions. For the

chi-square statistic to be valid, none of the cells can contain less than 5 expected observations. Thus, the minimum sample size would be 120 in total, with at least 30 in each year. As this is a much larger dataset (see table 4.1 above), there were few tables with cells in which expected counts were less than five, so the chi-square statistic (goodness of fit or exact binomial) should be valid. The Fisher's Exact Test was used in the few cases where expected cell counts were less than 5. In some cases, groups with small numbers were combined. (For example, with regards to nationality, small groups such as Senegalese and Ghanaian FSW were combined into "other".)

For analyses with continuous independent variables, the means and/or medians were also compared using non-parametric methods to test for statistical significance because none of the continuous demographic variables were normally distributed using the visual test, the Kolmogorov-Smirnoff test, or the Shapiro-Wilk test. So, depending on if the comparisons had equal variances, the Kruskal-Wallis method or Brown-Mood Median test were used to compare continuous variables.

The final stage of the analysis was logistic regression to predict the probability of an outcome variable given a set of independent predictor variables. Logistic regression also quantifies the association between a predictor and an outcome while adjusting for other variables (confounding). The outcomes of interest were categorical (such as HIV prevalence), so logistic regression was used to quantify the association of various independent variables that were included in a stepwise fashion to create a logit model. As the data were collected from randomized clusters, clusters being bars/brothels, we used Generalized Equalizing Equations (GEE) models to control for the statistical similarity of

subjects within clusters. The multivariate analyses are presented in Chapter 11.

Tables 4.3 and 4.4 (below) give the independent/explanatory and dependent/outcome variables that were analyzed to determine if the independent variables explain or confound the outcomes. The 2000 questionnaire contained fewer questions than the 2003 and 2006 questionnaires, which, in turn, contained fewer questions than the 2009 survey. The table gives the question number in each questionnaire, as well as the code used for the data in the dataset. In some cases, outcome variables were analyzed as independent variables. For example, condom use variables were tested to see if they were correlated with HIV prevalence but they are also behavioral outcomes themselves. For the bivariate analyses, the dependent variables were already nominal/categorical data (such as HIV knowledge, question 603, which identifies correct prevention methods and rejects incorrect ones). Independent variables were continuous (such as age) or categorical (such as nationality). For contingency tables, continuous variables (such as age and education level) were converted into categories. In some cases, groups with small numbers were combined. For analyses with continuous independent variables, the medians were compared using the Kruskal-Wallis method in cases where variances were equal or the Brown-Mood median test in cases where the variances were not equal.

Table 4.3. Explanatory/Confounding Independent Variables						
Variable	Q# / Var 2000	Q# / Var 2003	Q# /Var 2006	Q# /Var 2009	Variable Type	Potential responses
Age (years)	1 (q1)	101 (q101age)	101 (q101age)	101(q101age)	Continuous	
Education	2 (q2)	102 (q102)	102 (q102)	102 (q102)	Nominal/ Dichotomous	1=Yes, 2=No
Education	3 (q3)	103 (q103)	103 (q103)	103 (q103)	Discrete	# of years
Marital Sts	7 (q7)	108 (q108)	107 (q107)	109 (108)	Nominal/ Dichotomous	1. Single, 2. Married, 3. Divorced Separated Widow
Nationality	4 (q4)	104 (q104)	104 (q104)	104 (q104)	Nominal/ Dichotomous	1. Mali, 2. IC, 3. BF, 4. Gh, 5.NG, 6.SN, 7./88. Other
Time in profession	X	X	106 (q106j, q106m,q106a)	106 (q106j q106m q106a)	Continuous	3 variables for years, months, and days. 99=don't know
Last mon's revenue	6 (q6)	(q106)	107 (q107)	107 (q107)	Continuous	FCFA, 998-refuse 999-don't know (2000, 2003, 2006)
Children?	13 (q13)	(q113)	114 (q114)	114 (q114)	Nominal/ Dichotomous	1=yes, 2=no
time in location	16 (q16an q16jour q16mois)	202 (q202j q202m q202a)	202(q202j q202m q202a)	202 (q202j q202m q202a)	Continuous	Years/Days/Months 97=always, 98=don't reside 99=don't know
Elsewhere in past year?	17 (q17)	203 (q203)	203 (q203)	203 (q203)	Nominal/ Dichotomous	1=yes 2=no
Yearly migrant	23 (q23)	209 (q209)	209 (q209)	209 (q209)	Nominal/ Dichotomous	1=yes 2=no
Structure?	25 (q25)	301 (q301)	301 (q301)	301 (q301)	Nominal/ Dichotomous	1=Yes 2=No
Condoms in Brothel?	30 (q30)	306 (q306)	306 (q306)	306(q306)	Nominal/ Dichotomous	1=Yes, 2=No Exposure variable
Price for sex	31 (q31)	307 (q307)	307 (q307)	307 (q307)	Continuous	CFA, 997/9997=no fix price, 998/9998=no resp
Has boyfriend?	34 (q34)	401 (q401)	401 (q401)	401 (q401)	Nominal/ Dichotomous	1=Yes, 2=No
Age 1 st sex	41 (q41)	408 (q408)	408 (q408)	411 (q411)	Continuous	99=don't know

Age 1 st sex for money	42 (q42)	409 (q409)	409 (q409)	412 (q412)	Continuous	years 99=don't know
Ever beaten by client?	61 (q61)	428 (q428)	428 (q428)	431 (q431)	Nominal/ Dichotomous	1=yes 2=no
Type of sex ever had	68 (q68_1_2_3_4)	435 (q435 a, b, c, y)	435 (q435 a, b, c, y)	438 (q438 a, b, c, y)		1/A=Vaginal, 2/B=Oral, 3/D=Anal, 4/Y=No response
Where went for STI treatment?	71 q71	503(q503)	503(q503)	503 (q503)	Nominal/ Categorical	18 possible: 11=INPS/CMIE, 12=Mutec, 13=ONGs/AMPPF
How received there?	73 (q73)	505 (q505)	505 (q505)	505 (q505)	Nominal/ Categorical: 1=Courteously, 2=respectfully, 3=Condescendingly, 4=seriously, 5=prejudice, 6= coldly, 7=indifference, 8=other	
Where heard of HIV?	X	602 (Q602a-x)	602 (Q602a-x)	602 (q602 a-x)	Nominal/ Categorical	A=Peer Educator, B=Radio, C=Television, D=H.C., E=Animateur, F=Project/ONG, G=Friends, H=School, X=Other (A and E, F are exposure)
Sample Yr	X	X	X	X	Ordinal	2000, 2003, 2006, 2009
Cluster	cluster	grappe	grappe	grappe	nom/Ord	1-67 (2009)
Site	site	site	site	site	Nominal/ Categorical	1=Bamako, 2=Sikasso, 3=Ségou, 4=Mopti, 5=Kayes, 6=Gao, 7=Koutiala
Benefitted from NGO?	X	X	X	701 q701	Nom/ Dic	1= Yes 2=No (Exposure variable)

Table 4.4. Response Variables/ Dependent Variables						
Behavior Outcomes	Q# 2000	Q# 2003	Q# 2006	Q# 2009	Variable Type	Potential responses
Condom last sex BF	37 q37	404 q404	404 q404	404 q404	Nominal	1=Yes, 2=No, 3=Don't Remember
Condom last 30 days BF	38 q38	405 q405	405 q405	406 q405	Nominal	1=Yes, 2=No, 3/9=Don't Remember
Frequency of Condom BF	39 q39	406 q406	406 q406	406 q406	Nominal	1=Always, 2=Often, 3=Sometimes, 4=Seldom
Condom last sex (cl)	47 q47	414 q414	414 q414	417 q417	Nominal	1=Yes, 2=No, 3/9=Don't Remember
Used condom last 30 days	48 q48	415 q415	415 q416	418 q418	Nominal	1=Yes, 2=No, 3=don't remember (in 2001)
Condom Frequency last 30 days Client	49 q49	416 q416	416 q416	419 q419	Ordinal	1=Always, 2=Most of the time, 3=From time to time, 4/9=Don't know
Condom use last 30 days Regular Client	52 q52	419 q419	419 q419	422 q422	Nominal/ Dichotomous	1=Yes, 2=No
Frequency condom RC	53 q53	420 q420	420 q420	423 q423	Ordinal	1=Always, 2=Most of the time, 3=From time to time
Condom last time RC	54 q54	421 q421	421 q421	424 q424	Nominal	1=Yes, 2=No, 3=Don't Remember
Uses lube?	55 q55	422 q422	422 q422	425 Q425	Nominal/ Dichotomous	1=Yes 2=No
If STI in last 3 mo, treatment?	70 q70	502 q502	502 q502	502 (q502)		1=yes 2=no
Been tested?	87 q87	607 q607	607 Q607	q612	Nominal/ Dichotomous	1=Yes, 2=No
Knowledge Outcomes	Q# 2000	Q# 2003	Q# 2006	Q# 2009	Variable Type	Potential responses
Has Heard of HIV?	X	601 q601	601 Q601	601 q601	Nominal/ Dichotomous	1=Yes, 2=No
HIV info/AIDS MTCT?	84 q84	X	X	608 q608	Nominal	1=Yes, 2=No, 3/9=Don't know

How prevent HIV transmission	X	603 q603a-x	603 q603a-x	603 Q603a-x	Nominal	A=Fidelity, B=Abstinence, C=Condom, D=Avoid dirty objects, E=Nothing, X=Others, Y=Don't know
Biologic Outcomes	Q# 2000	Q# 2003	Q# 2006	Q# 2009	Variable Type	Potential responses
HIV Prevalence		hiv	hiv	hiv	Nominal/ Dichotomous	0=no, 1=yes
Gonorrhea Prevalence		ng	ng	ng	Nominal/ Dichotomous	0=no, 1=yes
Chlamydia Prevalence		ct	ct	ct	Nominal/ Dichotomous	0=no, 1=yes

V. Summary

In summary, this evaluation used three research strategies to determine the worth and value of programming: a document review, key informant interviews and a secondary data analysis of four bio behavioral surveillance surveys among FSW between 2000 and 2009. Results of these analyses will be presented in the Chapters 5–11, starting with the document review.

CHAPTER 5: DOCUMENT REVIEW RESULTS PART 1: HIV EPIDEMIC IN MALI AND THE NATIONAL RESPONSE

Using Excel to organize notes by sub-question, we reviewed 166 documents with over 5,700 pages of data including records from USAID, the Government of Mali (GOM), and USAID partners Population Services International, *Group Pivot/Santé Population*, Care International (Project *Keneya Ciwara* I & II), US Centers for Disease Control and Prevention, and the NGO *Soutoura*. Table 5.1 shows the sources of reviewed documents and numbers of pages reviewed. The documents are listed in the annex and are specifically cited in chapters 5 and 6.

Table 5.1 Documents reviewed		
Source of Documents	# Documents	Total Pages Reviewed
USAID	41	1,506
Population Services International	29	809
<i>Groupe Pivot/Santé Population</i>	10	203
Care/Project <i>Keneya Ciwara</i>	18	284
US Centers for Disease Control and Prevention	19	547
Government of Mali (GOM)	27	1,886
<i>Soutoura</i>	22	498
Total	166	5,733

The document review and key informant interviews aimed to answer Question 2 of the evaluation:

Question 2: What were the underlying theory, strategies, scope, coverage, successes, and challenges of HIV prevention programming for FSW in Mali between 2000 and 2010?

- a. Describe the formative research and community planning process prior to implementation.

- b. Describe underlying theory of behavior change and how this was incorporated in program messages and channels of communication.
- c. Describe the coverage expected and achieved.
- d. Describe training for program staff and peer educators and how the program ensured staff fidelity to the messages throughout the program.
- e. Describe successes and challenges of the program.
- f. Describe key changes in the environment, program strategy, or program resources that may have affected program outcomes.

This chapter attempts to answer Evaluation Question 2.A, regarding formative research, as well as 2.F, regarding the overall environment and country strategies. It focuses on HIV epidemiology as well as the policy and programmatic response of the Government of Mali (GOM). The chapter is divided into four time periods, corresponding to four large USAID programs. The next chapter presents the important programmatic contributions made by USAID in each time period.

One key contribution USAID made to HIV programming in Mali was high-quality research on which to base programming. In 2000, there was no reliable HIV surveillance system (USAID-Mali 2000). USAID and CDC developed the “Mali Surveillance Triangle” in 1999 which included three surveys: the Demographic and Health Surveys (DHS) conducted in the general population in 2001, 2006, and 2012; the Sentinel Surveillance in Antenatal Care (ANC) surveys among pregnant women, conducted in 2003, 2005, 2007, 2009, and 2012; and the Integrated Sexually Transmitted Infection (STI) Prevalence and Behavior Survey (ISBS) conducted in 2000, 2003, 2006, and

2009(CDC-Mali 2010; CDC-Mali 2002). The model was introduced as a best example of comprehensive HIV statistics in the developing world at the International AIDS Conference in Barcelona and was widely replicated (USAID-Mali 2004a).

I. HIV epidemiology and GOM policy prior to 2000

Mali's highest national HIV prevalence in the general population was 3%, in 1992 (Mali. Présidence de la République 2004). As shown in Table 5.2 (below), HIV prevalence never reached 10% among pregnant women in any of Mali's regions.

	1987	1988	1994	1997	1998
Bamako	1.1%	1.3%	4.4 %	2.8%	
Gao	3.9%	2.1%			
Kayes	6.1%	2%	2.9%		
Koulikoro	3.9%	0			
Mopti	6.5%	2%	2.9%		2.2%
Ségou	8%	2%			
Sikasso	9.1%	3%	4.5%		3.5%
Source: 2000. UNAIDS, WHO Epidemiological fact sheet on HIV/AIDS and STIs.				Source: 2000. GOM. <i>Situation Epidémiologique au Mali.</i>	

However, as table 5.3 shows below, FSW were hard-hit by the epidemic in the late 1980's and early 1990's. HIV prevalence among FSW peaked in 1992. The Government of Mali (GOM) has prioritized prevention for FSW since 1987 (Mali. Présidence de la République 2004).

	1987	1988	1989	1991	1992	1993	1995	1997	1999	
Bamako	39.1%		69.6%	47.0%	74.0%	49.5%	55.5%	31.7%		
Gao	2.2%	0			16.0%					
Kayes	13.5%	15.8%			42.3%					
Koulikoro	15.6%	6.1%							16.6%	
Mopti	36.0%	22.0%			45.8%		21.3%		33.3%	
Ségou	39.1%	21.7%			59.3%					
Sikasso	31.6%	29.3%			73.5%		71.9%	8.8%		
	Source: 2000. UNAIDS, WHO Epidemiological fact sheet on HIV/AIDS and STIs.						Source: 2000. GOM. <i>Situation Epidémiologique au Mali.</i>			

In 1999 CDC conducted a qualitative study to identify groups for the planned 2000 ISBS (2009. CDC. 1998–2009 CDC synthesis). This study suggested that by 1999, FSW were already demanding that their clients use condoms. Male "drinkers" surveyed said they usually used condoms with FSW because the FSW insisted on it (CDC-Mali 2010; Castle 1999).

AIDS was immediately recognized as a threat to development. During the period before 2000, the fight against AIDS was guided by four government planning documents. The 1987–1988 *Plan à Courte Terme* and the 1989–1993 *Plan à Moyen Terme de Première Génération* focused on blood safety and Information, Education, Communication (IEC) for the general population and highly vulnerable groups, including FSW. These were followed by the more comprehensive 1994–1998 plan and the first multi-sectorial *Plan National Stratégique* in 1997–2000, which added an emphasis on STI detection and treatment (Mali. Présidence de la République 2004).

One key program for FSW during the period was the Canadian-funded West African Project to Combat AIDS and STI's (WAPCAS) project, which focused on

transport routes in multiple West African countries. SIDA-1, SIDA-2, and SIDA-3 were different phases of the project, which was active from 1996–2006 in Mali. The project focused on outreach, education, condoms and screening and treatment of STIs (Wondergem et al. 2015; Fraser et al. 2015; Dugas et al. 2015; Soutoura 2008a).

II. HIV epidemiology and policy 2000–2003

A. HIV Epidemiology 2000–2003

At the beginning of the 21st century Mali was one of the world’s least developed countries, 166th on the Human Development Index. The country suffered from high infant and maternal mortality, very low literacy, and low life expectancy (WHO, UNICEF, and UNAIDS 2000).

During the 2000–2003 period, CDC and USAID’s launched the “Mali Surveillance Triangle” starting with the 2001 DHS III, which was the first large population-level study in Mali to include HIV prevalence. In fact, it was the first DHS in the world to do so. Following this, the Integrated STI Prevalence and Behavior Survey (ISBS), conducted between March and December 2000, provided information on high and medium risk groups, including FSW, truckers, “ambulatory vendors” and maids. The first ANC study was not published until 2003 (CDC-Mali 2010; CDC-Mali 2002).

The DHS 2001 (Table 5.4 below) would guide HIV programming for the general population until 2007 when the 2006 version was published. The DHS 2001 showed that Mali’s urban areas were harder hit by the HIV/AIDS epidemic than the rural areas (at this time making up 72% of Mali’s population). Women also had higher HIV prevalence than men. In addition, a mere 11.8% of women between the ages of 15–18 and 15% of

women between the ages of 9–24 could name two out three ways to prevent HIV transmission compared to 54.6% of men aged 15–19 and 63.9% aged 20–24. Condom use among youth reporting occasional partners was very low: 13.5% for women aged 15–19 and 15.4% aged 20–24. For men, this was 22.5% and 35.2%, respectively (Mali.CPS and Mali.MOH 2002; Mali.HCNLS 2005a).

Table 5.4 HIV prevalence in Mali Demographic and Health Survey 2001			
	Adult men and women	Men	Women
National HIV Prevalence	1.7%	1.3%	2.0%
Urban districts	1.5%	1.9%	2.5%
Rural districts	2.2%	1.1%	1.9%
Bamako	2.5%	2.7%	2.4%
Kayes	1.9%	1.3%	2.4%
Koulikoro	1.9%	1.3%	2.3%
Mopti	1.4%	1.0%	1.7%
Sikasso	1.1%	0.4%	1.4%
Ségou	1.1%	1.4%	2.5%
Timbuktu/Gao/Kidal	0.7%	0.7%	0.8%
Source: 2001. DHS III. Mali			

The 2002 ANC Survey was conducted only in urban areas, where 2.8% of pregnant women were found to be HIV-positive. Among 15–24 year old women, the HIV infection rate was 3.0% and among 15–19 year old women, an alarming 4.7% were infected (Mali.CSLS/MS 2002; Mali.HCNLS 2005a).

The 2000 ISBS (published in May 2001) (see Table 5.5) surveyed randomly sampled clusters along major transportation routes. For FSW, clusters were bars and brothels. As migration was considered an important factor of risk the surveys contained questions on individuals' migration patterns. The high rates of HIV and STIs among these groups pointed to the situations and environments around transportation routes as drivers of HIV/AIDS in the country (Mali.CSLS/MS et al. 2001).

The ISBS only surveyed brothel-based FSW, not “clandestine” (those not officially working as a FSW for a bar or brothel). Most (3/4) brothel-based FSW found in 2000 were not Malian. They were highly mobile, with half reporting that they had lived in two or more other Malian towns the year of the interview in addition to annual migrations back to their place of origin. The ISBS report recommended behavior change communication (BCC) emphasizing how unlikely it would be for male partners to inform their partners if they had HIV or other STIs to reduce unprotected sex with boyfriends. The study report also recommended English materials for Anglophone FSW and more advanced training for peer educators as well as studies on clandestine FSW (Mali.CSLS/MS et al. 2001).

HIV prevalence rates among the male target groups were also high compared to the general population (3.5% and 5.5% among truckers and ticket touts, respectively). Less than 15% of these men had ever tested for HIV (though the service had not yet been scaled up nationally at that time). They had relatively high rates of sex with occasional partners, sex with FSW, and STI prevalence (Mali.CSLS/MS et al. 2001).

	Truckers	Ticket Touts	FSW
Is Malian	69.6%	90.4%	26.7%
Migrates annually	37.4%	51.8%	32.2%
Average age (years)	27.1	29.3	26.8
Has tested for HIV	12.3%	7.8%	40.0%
Had STI symptom last 6 months	13.5%	18.6%	18.1%
Sex with occasional partner last 6 months	24.8%	24.1%	100%
Sex with >1 partner last month	22.5%	24.8%	100%
Sex with FSW last 6 months	13.8%	14.1%	
HIV prevalence	3.5%	5.5%	28.9%
Positive for gonorrhea and/or chlamydia	6.6%	8.2%	8.0%
Source: 2000. GOM. CDC. USAID. ISBS Report., ND=No data			

Table 5.6 (below) shows other results among FSW from the ISBS 2000. Note that condom use with clients, but not boyfriends, was already high among FSW in 2000. By region, there was a wide range of divergence in HIV prevalence, from 19–49%, though there were no clear reasons for the differences and these differences did not make an established pattern over time.

		Region	% HIV+	% GN/CL+
Has a “boyfriend”	47.7%			
Used a condom last sex with boyfriend	31.4%	Bamako	22.9%	4.9%
Condom use with non-regular client last sex	96.5%	Sikasso	37%	11.5%
Condom use with regular client last sex	95.6%	Ségou	49%	7%
Sought treatment when had an STI	78.9%	Mopti	19.5%	7.1%
Attempted to avoid re-infecting partner with STI	80.3%	Kayes	19%	14%
Clients per day	4	Gao	25.7%	6.3%
Source: 2000. GOM. CDC. USAID. ISBS Report.				

B. National HIV/AIDS Response 2000–2003

In 1999, the *Programme National de Lutte Contre le SIDA* (PNLS) developed its third HIV/AIDS strategy, the 2000–2004 PMT3. This strategy promoted behavior change among high-risk groups, including FSW, and STI diagnosis and treatment in all health facilities. The plan also set in motion more detailed HIV surveillance. Finally, it set standards for human rights protections for PLWHA (USAID-Mali 2000).

In addition to the PMT3, which guided the Ministry of Health, a multi-sectorial *Plan Stratégique Nationale de Lutte Contre le VIH/SIDA* for 2001–2005 was ratified. Each ministry was to contribute 1% of its budget to its AIDS program, managed by HIV/AIDS operating units (*Cellules Sectorielles Contre le VIH/SIDA*) in each ministry. The plan also emphasized decentralization: regional and local governments were to spend 7% of revenues on health, of which 15% was to be spent on HIV/AIDS. At this point, over \$40 million had been invested in HIV (Mali. Présidence de la République 2004).

The Ministry of Health released a health-specific HIV/AIDS plan in late 2001. The objective of the 2001–2005 plan was to “reduce the propagation of HIV and to reduce the impact of the epidemic on infected and affected people, on communities, and on the country’s economy.” Prevention was one of the key components of the strategy. To make decentralization more effective, a new policy called “*une cercle une ONG*” (one district, one NGO) would attempt to put in place a single AIDS NGO for each of Mali’s 48 districts (Mali.HCNLS 2000). ART and VCT were first offered in public clinics in Mali starting in 2001 (Mali.HCNLS 2005a). In 2001, there were only two VCT sites. By the end of 2003, there were 22 VCT sites which tested 5,605 people that year, of whom

669 were positive. Three ART sites were in operation (Mali. Direction Nationale de la Santé 2011).

Key donors in HIV/AIDS other than USAID were the Canada International Development Agency (CIDA), which spent \$3 million on the SIDA-3 project, AngloGold (a gold company), the Swiss Development Group, the United States Department of Defense, the World Bank, the French Development Agency (ADF), and the German Development Bank (KfW). The French NGO *Aides* also funded projects at ARCAD-SIDA (Barry, Lo, and Diarra 2003).

III. HIV epidemiology and policy 2004–2008

A. HIV Epidemiology 2004–2008

Mali began the 2004–2008 period one of the poorest and least developed countries in the world. With its high fertility rate, there were over two million more Malians than in 1999 (WHO, UNICEF 2004). At end of 2003, there were an estimated 140,000 PLWHA in Mali (between 44,000–420,000). Fifty percent (50%) were estimated to be women. Approximately 12,000 infections were believed to have occurred in 2003 (between 5,100 and 29,000). In 2004, reported AIDS cases were at 5253 (1985–1999). In June 2004, only 808 were in treatment of an estimated 19,000 needing it (WHO, UNICEF 2004). The 2003, 2005 and 2007 versions of the ANC survey found an HIV prevalence among urban and peri-urban pregnant women stable with a downward trend: at 3.8%, 3.4% and 2.8%, respectively (Mali. CSLS/MH 2010).

The ISBS 2003 collected data from March-September 2003 and was published in June 2004. HIV prevalence among these vulnerable groups (FSW, truckers, ticket touts,

ambulatory vendors, and maids) remained higher than that of the general population (see table 5.7). Condom use remained low (though it did improve somewhat) and these mobile groups had a higher rate of sex with occasional partners (and with FSW) than did the general population.

	Truckers	Touts	FSW
Is Malian	76%	97.5%	29%
Migrates annually	36.4%	32.8%	24.9%
Average age (years)	28.8	29.5	26.9
Has tested for HIV	15.7%	20.5%	45.4%
Had STI symptom last 6 months	7.1%	10%	14%
Sex with occasional partner last 6 months	17.7%	23.4%	48.5%
Sex with >1 partner last month	20%	23.1%	
Sex with SW last 6 months	8.8%	14.4%	
HIV Prevalence 2000	3.5%	5.5%	28.9%
HIV Prevalence 2003	3.9%	2.9%	31.9%
Positive for gonorrhea &/or chlamydia	4.2%	8.4%	2.8%
Source: 2003. GOM, CDC, USAID. ISBS Report.			

FSW had higher knowledge of HIV and prevention and were better educated than the other ISBS target groups. Seventy-four percent had been to school. The 2003 report noted that peer education appeared to have been effective given the high rates of condom use with clients. In addition, English tools and supports for Anglophone FSW and strategies for increasing condom use with boyfriends continued to be foci for HIV prevention. The report also noted that FSW used private clinics rather than NGOs to treat STIs. HIV prevalence was uniformly high across Mali's regions in the 2003 ISBS (Mali.CSL/MS, et al., 2004).

		Region	% HIV+	GN/CL
Has a “boyfriend”	47.7%	Bamako	33.7%	3.2%
Used a condom last sex with boyfriend	36.3%	Sikasso	30.1%	3.4%
Condom use with client last sex	97.8%	Ségou	28.2%	13.5%
Condom use with regular client last sex	94%	Mopti	34.8%	4.3%
Sought treatment when had an STI	79.4%	Kayes	26.2%	0%
Attempted to avoid re-infecting partner with STI	87.3%	Gao	33.3%	11.5%
Clients per day	4	Koutiala	36%	6.9%
Knows Condom can help avoid HIV infection	90.3%			

Source: 2003. GOM, CDC, USAID. ISBS Report.

B. National HIV/AIDS Response 2004–2008

The 2004–2008 period was characterized by increased government attention and commitment to HIV/AIDS. Between 2004 and 2008 the Government of Mali approved three policy documents regarding HIV/AIDS:

- 1.) 2004 Political Declaration against AIDS;
- 2.) 2005–2010 *Cadre National de Lutte Contre le SIDA* (National strategic plan);
- 3.) 2006 National Law 06-028 setting rules on HIV prevention, treatment, and control.

2004 Political Declaration against AIDS: The 2004 Political Declaration is still in force today. Policymakers believed that HIV was on the rise in Mali and that the 1.7% HIV prevalence in the 2001 DHS hid a bigger threat of a larger HIV epidemic for three key reasons:

- 1.) Three quarters of young Malians did not believe in AIDS or think it was a serious threat to health;
- 2.) Some vulnerable populations in the ISBS had high HIV prevalence (30% among FSW and 10% among truckers (the 10% among truckers was widely quoted but incorrect));

3.) Malian society had high rates of immigration and mobility.

(Mali. Présidence de la République 2004)

In 2004, the Malian government was alarmed by HIV and planned a vigorous response to keep Mali from developing a widespread epidemic. It estimated that by 2010 500,000 people would have HIV, Mali would lose 6 years of average life expectancy, 170,000 people would be dead, 150,000 would be orphaned, there would be 40,000 cases of HIV and TB co-infection, and 25% of hospital beds would be filled with AIDS cases. In the preface to Mali's Political Declaration, Amadou Toumani Touré, Mali's president at that time, warned that Mali could find itself with an AIDS epidemic similar to those in Southern Africa if it did not act:

Certain African countries had rates similar to ours, and by not having taken strategic actions and making bold decisions, they find themselves with rates in excess of 30%, which is one out of three, infected with the AIDS virus (p. 3)

(Mali. Présidence de la République 2004).

The aim of the political declaration was to "Reduce the propagation of HIV/AIDS in the population and reduce its impacts on cultural, social, and economic development" (p. 3).

The goals were to: 1) support communities to reduce the risk and vulnerability to infection; 2) save lives and relieve human suffering; and 3) reduce the impact of HIV on the development of Mali. The 2004 political declaration created the *Haut Conseil National de Lutte Contre le SIDA (HCNLS)*, a national governing body headed by the President that gave civil society, the private sector, and government equal responsibility in the AIDS response. It proposed legal norms to reduce the stigma linked to gender,

sexuality, prostitution, and drug use (p. 15) (although these may not have been done). The declaration also proposed improved methods of behavior change communication (Mali. Présidence de la République 2004).

2005 Cadre Stratégique Nationale de Lutte Contre le VIH/SIDA The 2005 *Cadre Stratégique Nationale de Lutte Contre le VIH/SIDA* (CNS) was a multi-sectorial planning document, including the entirety of the Malian Government. Like the 2004 Political Declaration, the *Cadre Stratégique 2005* assumed that the HIV rate was increasing and dramatic action was needed to avoid a serious full-blown AIDS epidemic in Mali. The goal/vision of the CSN was the same as that of the political declaration: reduction of HIV transmission and impact (Mali.HCNLS 2005b).

In its *Cadre Stratégique Nationale de Lutte Contre le VIH/SIDA 2005*, the Malian government emphasized its assessment of the HIV/AIDS epidemic in the country:

"The principal determinants of the epidemic in Mali are risky sexual behaviors, the large movement of internal and external migration that increases vulnerability, widespread poverty that makes populations vulnerable to the ravages of the epidemic, unequal relationships with respect to gender exacerbating the risks, vulnerabilities, and impacts of HIV/AIDS, discrimination, marginalization, and stigmatization of PLWHA as well as families and communities affected by HIV, and finally the impact of risky sociocultural practices that affect the efforts to create the conditions that would ensure a culture of inclusive care" (Mali.HCNLS 2005b).

The mission of HCNLS was the massive extension of interventions favoring prevention,

care and treatment. In the prevention section, reduction of HIV incidence in high-risk populations is the first expected outcome mentioned. Programming included BCC, VCT, harm reduction for drugs and alcohol, condoms, correct and accurate info, delayed age of sexual debut, fidelity, partner reduction, sex education and early treatment of STIs (Mali.HCNLS 2005b).

The Operational Plan for the *Cadre Stratégique Nationale* had specific activities and objectives for HIV prevention with FSW: 1. Communication activities at prostitution sites including IEC, BCC, and peer education; and 2. Promotion and availability of condoms; and 3. Creation of clinic sites specifically for FSW (referring to *Soutoura*). The goal was to sensitize 60% of FSW, an estimated 9,355 (Mali.HCNLS 2006).

National Law # 06 028 Setting rules on prevention, treatment, and control of HIV/AIDS

The law, passed in 2006, set policy for various HIV/AIDS related issues. Like many HIV/AIDS laws in the region, it was based on the agreements from the 2004 N'Djamena (Chad) conference at which a model HIV law for Francophone countries was developed (Dutta and Maiga 2011). Section 1 provides for education in schools, workplaces, and communities. Section 2 addresses information and education. Section 5 makes VCT voluntary and requires pre-test and post-test counseling. Section 7 protects confidentiality of medical services and HIV test results, but (art. 27) requires HIV positive individuals to notify partners within 6 weeks and requires health centers to make sure this happens. Chapter 8 prohibits discrimination against people living with HIV. Chapter 9 criminalizes "voluntary transmission". The law did not mention FSW (Mali. Assemblée Générale 2006).

In 2005, with USAID support, the GOM submitted a successful \$55 million proposal to the Global Fund to Fight AIDS, TB and Malaria (USAID-Mali 2005). This led to a dramatic increase in funds, as international attention turned to HIV/AIDS. In 2004 funds for HIV/AIDS \$9.3 million (Mali.HCNLS 2005a). By 2008, funds for HIV/AIDS had more than quadrupled to \$39.9 million (Mali.HCNLS 2009).

The 2004–2008 period also witnessed further scale-up of VCT. In 2001, there had only been two VCT sites in the country. In 2005, 26 sites tested 22,481 people, 3,998 of whom were HIV positive. In 2008, 178 VCT sites tested 68,137 people, 2,424 of whom were HIV positive. In addition, ART was scaled up. By the end of 2008, there were 63 ART sites (up from 8 at the beginning of 2004) (Mali. Direction Nationale de la Santé 2011).

Other donors also scaled up their efforts during this period. In 2007, the German Development Bank began to fund Population Services International (PSI) for two *Centre Eveil* VCT sites as well as HIV/AIDS commodities. This allowed further scale-up of activities. The World Bank also provided \$5 million for testing in the country (PSI 2007a).

IV. HIV epidemiology and response from 2009–2013

A. HIV epidemiology from 2009–2013

Mali began the 2009–2013 period remaining one of the poorest and least developed countries in the world. It ranked 173 on the Human Development Index and adult literacy was only 23% (WHO and UNAIDS 2009). By 2009, the DHS 2006 (published in December, 2007) indicated that the epidemic had stabilized. The DHS 2006 (Table 5.9

below) would guide HIV programming until late 2013 when the 2012 version was published. Mali's urban areas continued to be harder hit by the HIV/AIDS epidemic than the rural areas. Women also had higher HIV prevalence than men. Prevention knowledge, particularly among young women had greatly improved since 2001. Over 50% of young women between the ages of 15 and 25 could name two out three ways to prevent HIV transmission compared to over 60% of men. Condom use among youth reporting occasional partners remained low: 16.5% for women aged 15–24. For men, this was 35.9% (Mali.CPS/MS et al. 2006).

	Adult men and women	Men	Women
National HIV Prevalence	1.3%	1.0%	1.5%
Urban districts	1.6%	1.3%	1.8%
Rural districts	0.9%	0.6%	1.2%
Bamako	1.9%	0.8%	2.3%
Kayes	0.7%	0.0%	1.2%
Koulikoro	1.2%	1.0%	1.6%
Mopti	1.4%	0.8%	1.4%
Sikasso	0.6%	0.2%	0.6%
Ségou	1.3%	0.8%	1.7%
Timbuktu	0.3%	0.7%	0.3%
Source: 2006. DHS III. Mali			

In 2008, UNAIDS estimated that about 100,000 (88,000–120,000) Malians were living with HIV (a reduction from previous estimations). Over half were women: 56,000 (47,000–67,000). In 2007, 5,800 (4,600–7,300) people had died of the disease. Since the new free HIV treatment policy had been in place since 2004, there had been a drop in deaths from their peak that year (8000). By 2007, 45 sites were providing HIV treatment and care to 12,000 Malians, about 41% of those who needed it (WHO and UNAIDS

2009). Prevalence among pregnant women in urban and peri-urban antenatal care (ANC) sites remained stable in 2007, 2009 and 2012: 2.8%, 2.7% and 2.9%, respectively. These differences were not statistically significant. The 2012 ANC, however, included rural sites for the first time, so is not directly comparable. Urban sites had a 3.8% prevalence in the 2012 ANC (Mali.CSL/MS, Mali.CPS, and CDC 2013).

The 2006 ISBS was not published until 2007. The 2009 ISBS was conducted between April and June 2009 but was not published and finalized until late 2010. Thus, the 2006 ISBS informed the programming in the country for FSW and other high-risk groups in 2009 and 2010. Only data shown in the final reports are discussed here, as the raw data will be analyzed in detail in Chapters 9–11. HIV prevalence had been rising steadily among FSW (according to the ISBS surveys) since 2000: from 28.9 in 2000 to 31.9 in 2003 and 35.3 in 2006. Chlamydia and gonorrhoea rates had been stable: around 3% for gonorrhoea and 3–4% for chlamydia. In 2009, however, HIV prevalence dropped to a lower rate than in 2000 while gonorrhoea and chlamydia rates shot up. HIV testing had also increased over time. In 2000, only 40% of FSW had been tested for HIV. This went up to 45.4% in 2003, 61.6% in 2006 and 74.5% in 2009. Both the ISBS 2006 and 2009 noted the high prevalence of non-Malian and Anglophone FSW, and recommended English BCC materials and English peer educators (Mali.CSL/MS et al. 2001; CSL/MS et al. 2003; Mali.CSL/MS et al. 2006; Mali.CSL/MS et al. 2010).

The 2006 ISBS noted significant declines in HIV prevalence for truckers and ticket touts, which appeared to stabilize in 2009 (see Tables 5.9 and 5.10 below). For truckers, HIV prevalence had been 3.5% in 2000 and 3.9% in 2003 but by 2006 had dropped to

2.5% and 2.7% in 2009. Sex with FSW declined slightly: from 13.8% in 2000 to 8.8% in 2003 and 8.1% in 2006. It dropped to 6.0% in 2009. For ticket touts, HIV prevalence had been at 5.5% in 2000, dropping to 2.9% in 2003 and then 2.2% in 2006. It went up to 3.2% in 2009. Sex with FSW among this group dropped slightly between the four periods. It was 14.4% in 2000, 14.1% in 2003, 11.9% in 2006, and 7.9% in 2009.

	Truckers	Ticket touts	FSW
Is Malian	87.8%	92.9%	36.3%
Migrates annually	30.1%	46.4%	30.7%
Average age (years)	28.5	29.9	27.9
Has tested for HIV	17.7%	26.5%	61.6%
Had STI symptom last 3 months	9.8%	10.7%	22.8%
Sex with occasional partner last 6 months	18.5%	23.7%	
Sex with >1 partner last month	38%	22.3%	
Sex with FSW last 6 months	8.1%	11.9%	
HIV-positive	2.5%	2.2%	35.3%
Gonorrhoea	1.4%	1.6%	3.8%
Chlamydia	3.2%	3.7%	3.3%
Source: 2006 ISBS reports. NP=Not presented			

	Truckers	Ticket touts	FSW
Is Malian	90.8%	93.3	43.4%
Migrates annually	NP	NP	NP
Average age (years)	29.1	29.6	26.2%
Has tested for HIV	29.2%	30.0%	74.5%
Had STI symptom last 3 months	8.8%	10.8%	20.1%
Sex with occasional partner last 6 months	21.8%	25.2%	
Sex with FSW last 6 months	6.0%	7.9%	
HIV-positive	2.7%	3.5%	24.2%
Gonorrhoea	1.7%	0.9	11.4%
Chlamydia	7.1%	0.9%	4.4%
Source: 2009 ISBS report. NP=Not presented in report			

Among FSW, condom use with both regular and new clients had already been well established among brothel-based FSW before 2000 and this trend continued in 2006 and 2009. Prior to the 2009 ISBS, the rate of condom use among FSW with “boyfriends” during last sex had steadily risen, from 34.1% in 2000 to 37.5% in 2003 to 51.2% in 2006, dropping to 40.1%. Both the 2006 and 2009 ISBS study reports recommended qualitative research to better understand this phenomenon and to develop programming for it. A final recommendation from both ISBS projects was to do research on “clandestine” FSW, which were not included in any of the four ISBS surveys due to the difficulty in reaching them. (Mali.CSLs/MS et al. 2001; Mali.CSLs/MS et al. 2004; Mali.CSLs/MSC et al. 2006; CSLs/MS et al. 2003)

Table 5.12 Other 2006 ISBS key results for FSW	
	2006
Has a “boyfriend”	51.7%
Used a condom last sex with boyfriend	51.2%
Condom use with non-regular client last sex	98.5%
Condom use with regular client last sex	95.1%
Sought treatment when had an STI	88.0%
Attempted to avoid re-infecting partner with STI	64.8%
Clients per day	3.3
Knows Condom can help avoid HIV infection	NP
Source: 2006 ISBS report NP=Not presented in report (In 2006 the data was not broken out by region and the indicator on condom knowledge as an HIV prevention method was not presented.)	

	2009	FSW HIV Positivity by Region	
Has a “boyfriend”	49.5%	Region/Year	2009
Used a condom last sex with boyfriend	40.1%	Bamako	23.1%
Condom use with non-regular client last sex	98.8%	Sikasso	24.5%
Condom use with regular client last sex	98.1%	Ségou	19.4%
Sought treatment when had an STI	84.9%	Mopti	16.3%
Attempted to avoid re-infecting partner with STI	93.5%	Kayes	16.0%
Clients per day	3	Gao	4.8%
Knows Condom can help avoid HIV infection	97.9%	Koutiala	15.9%
Source: 2009 ISBS report			

The DHS 2012/13 (Table 5.13 below) was published in October 2013 and showed continued stabilization of the HIV/AIDS epidemic. Mali’s urban areas continued to be harder hit by the HIV/AIDS epidemic than the rural areas. Women also had higher HIV prevalence than men (Mali.CPS/MS and ICF Int. 2014).

	Adult men and women	Men	Women
National HIV Prevalence	1.1%	0.8%	1.3%
Urban districts	1.9%	1.6%	2.2%
Rural districts	0.9%	0.6%	1.1%
Bamako	1.7%	1.6%	1.7%
Kayes	1.3%	0.6%	1.3%
Koulikoro	1.5%	0.9%	1.5%
Mopti	0.8%	0.4%	0.8%
Sikasso	1.2%	0.4%	1.2%
Ségou	1.4%	1.1%	1.4%
Source: 2012. DHS IV. Mali			

B. National HIV/AIDS Response 2009–2013

During the entirety of this period, the Government of Mali did not release another *Cadre Stratégique National*. The 2005–2010 CSN and its goals continued through to 2013. A new *Cadre Stratégique National 2013–2017*, which prioritized programming for FSW and their clients and other key populations, was validated and adopted in 2013 (Mali.HCNLS 2012).

By 2009 the amount of funding spent on HIV/AIDS had increased considerably since 2004, and this period was well funded until the collapse of the Global Fund grant in Mali due to allegations of mismanagement and corruption from the Global Fund's Office of the Inspector General. In 2009, the total spent on HIV was \$28.4 million of which 23.9% was spent on prevention. Of these funds, 80% (\$23 million) were exterior funds. A total of \$13 million (52% of exterior funds) were from multilateral partners such as the Global Fund and the World Bank's MAP program. Bilateral partners provided \$6 million, 25.6% of the total. The United States, France, and Germany were the most important bilateral donors in 2009. However, that funding was inadequate for FSW: only about \$210,000 was these services (Mali.HCNLS 2009). In the environment of increased funding, VCT and ART were scaled up. By the end of 2010 there were 265 VCT sites that tested 129,030 people, 3,192 of whom were HIV positive. In addition, 24,778 people were receiving ART at 74 sites (Mali.HCNLS 2009).

Two critical events occurred during this time. The first was the suspension of the Global Fund grants in Mali in 2010. The two HIV principal recipients, *Groupe Pivotal Santé Population* and the *Haute Conseil National de Lutte Contre le SIDA* were both

suspended due to allegations of fraud and mismanagement from the Global Fund's Office of the Inspector General, and all but essential treatment and PMTCT services stopped. Then, in March of 2012, Mali was struck by a series of crises: rebellion in the north, a drought, and a *coup d'état*. International donors could no longer work with the government of Mali, and the draft *Cadre Stratégique Nationale 2013–2017* languished in inattention (Mali.HCNLS 2012).

V. Summary

In summary, While Mali is one of the poorest and least developed countries in the world, the HIV/AIDS epidemic appears to have stabilized, with general population HIV prevalence dropping from 1.7% in 2001 to 1.3% in 2006 and 1.1% in 2012 (DHS surveys). The Malian government responded early to the crisis with IEC campaigns and condom distribution for FSW. Treatment and diagnosis of STIs were introduced and scaled up in the late 1990s (driven by USAID funding). The Malian Government developed a full multi-sectorial response with the 2004 Political Declaration, the 2005–2010 *Cadre Stratégique National*, and the 2006 Law of HIV prevention, treatment and control. Not only did these documents launch the national scale-up of VCT and ART, but also created a legal framework to protect PLWHA. With funding from USAID, the World Bank, and the Global Fund, these services were scaled up by 2013. The next chapter will examine USAID's specific contribution, specifically for FSW.

CHAPTER 6: DOCUMENT REVIEW RESULTS PART 2: USAID INTERVENTIONS FOR FSW 2000–2013

This chapter focuses on the evolution of USAID’s programming for Female Sex Workers (FSW) during the same four time periods as the previous chapter: prior to 2000, 2000–2003, 2004–2008 and 2009–2013. These blocks of time were chosen because they correspond with USAID programs for FSW. The review was conducted to answer evaluation Question 2:

Question 2: What were the underlying theory, strategies, scope, coverage, successes, and challenges of HIV prevention programming for FSW in Mali between 2000 and 2010?

- a. Describe the formative research and community planning process prior to implementation.
- b. Describe underlying theory of behavior change and how this was incorporated in program messages and channels of communication.
- c. Describe the coverage expected and achieved.
- d. Describe training for program staff and peer educators and how the program ensured staff fidelity to the messages throughout the program.
- e. Describe successes and challenges of the program.
- f. Describe key changes in the environment, program strategy, or program resources that may have affected program outcomes.

Table 6.1 shows the USAID strategic planning documents beginning in 1995, the corresponding Government of Mali (GOM) plans (discussed in detail in the previous chapter), and the key USAID implementing partners that provided services to FSW.

USAID also funded much of the infrastructure for HIV services in general, including that for FSW.

Year	USAID Plan	Government of Mali Plans	CDC/ <i>Soutoura</i>	PSI	Care	<i>Groupe Pivot</i>
pre-2000	1995–2001 STI/HIV	1994–1998 Mali AIDS Plan	PASA Exists from 1995, not <i>Soutoura</i>			
2000	2001–2005 Strategy	2000–2005 National Sectorial Plan	CDC-PASA, <i>Soutoura</i> funded from 2001	Corridors of Change	<i>Projet Keneya Ciwara</i> (No HIV funds)	Direct Grant
2001				Pathways to Health 1 (+ <i>Groupe Pivot</i>)		Funded under PSI Pathways to Health
2002						
2003	2003–2012 AIDS Strategy	2005–2010 <i>Cadre Stratégique de Lutte Contre Le SIDA</i>		Pathways to Health II	<i>Projet Keneya Ciwara II</i> (<i>Groupe Pivot</i>)	Funded through PKC-II
2004						
2005						
2006						
2007						
2008	2010–2015 USG Strategic Plan			Pathways to Health II follow-on through MCHIP (Not FSW)	PKC II Follow-on (w/ ARCAD, Alphalog, etc.)	Not funded
2009						
2010						
2011						
2012						
2013						

I. 2000 AND PRIOR

Few documents prior to 2000 still exist. In support of the GOM, USAID has funded prevention interventions for FSW since 1989, including condom provision and promotion

and behavior change communications. By 2000 FSW already had high rates of condom use with clients (Barry, Lo, and Diarra 2003). STI diagnosis and treatment were standardized and scaled-up in the late 1990s, largely with USAID funds to the United States Centers for Disease Control (CDC). The CDC programming began in 1995 (USAID-Mali and CDC-Mali 1995). By 2000, the CDC had produced the national syndromic management of STI algorithms and built the national infrastructure to treat STIs, a critically important service for FSW (CDC-Mali 2006a).

II. 2000–2003

A. USAID planning

In its 2001–2005 AIDS strategy, USAID became the key funder and, with CDC, the technical lead in Mali to produce surveillance data on the HIV epidemic. The strategy noted the high level of HIV prevalence among FSW. USAID (incorrectly) believed that “the true magnitude of the HIV/AIDS epidemic in Mali is assuredly greater than that reported by the Government of Mali” (p.4) (USAID-Mali 2000). Its objective was **“to divert the emergency of a crisis HIV/AIDS epidemic by targeting high risk groups and promoting behavior change among those most at risk and the general population”** (p. 7) (USAID-Mali 2000). The strategy targeted FSW with provision of condoms, STI diagnosis and treatment, voluntary testing and counseling (VCT) and information, education, and communications (IEC) (USAID-Mali 2000).

B. Key USAID programming during the period

Between 2000 and 2003, USAID’s key implementing partners were the CDC and Population Services International’s (PSI’s) “Corridors for Change” (COC). In 2000/2001

USAID funded CDC to develop protocols and procedures to begin introducing this VCT in Mali. USAID also gave CDC funding to develop the capacity of a local non-governmental organization (NGO), *Soutoura* and *Groupe Pivot/Santé Population*, a federation of local NGOs that provided STI/HIV prevention services. CDC provided *Soutoura* (which means “discretion” in Bambara) with funding and technical assistance from 2001 (CDC-Mali 2006a). *Soutoura* provided both clinical services and peer education to FSW (CDC-Mali 2004a).

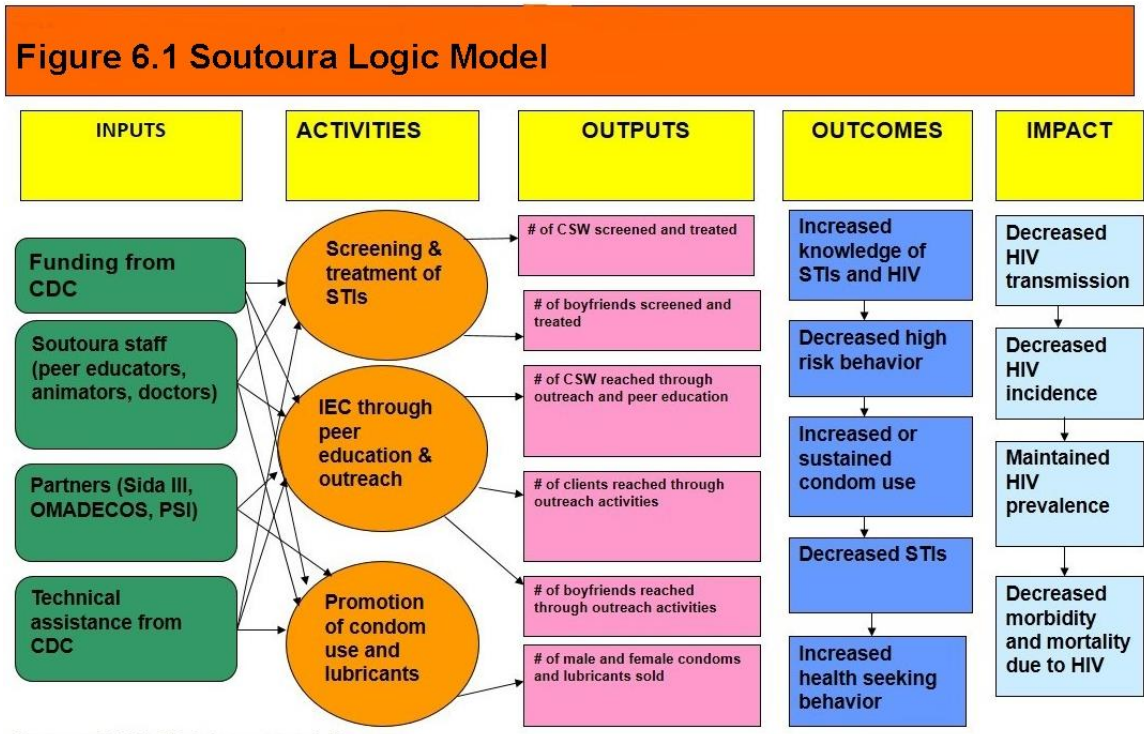
COC went from January 2001 through mid-2003, when it was subsumed into Pathways to Health (PTH). Under COC, *Groupe Pivot* organized its member NGOs in urban areas and along transportation routes to provide community mobilization and peer education. PSI provided leadership, behavior change research, strategy and materials, referrals to STI diagnosis and treatment and VCT (PSI 2003a; Lo 2006).

C. Formative research and community planning

Soutoura and PSI/COC conducted ongoing formative research. With CDC assistance, *Soutoura* collected data on FSW in its clinics. Well over half of FSW were from Nigeria and 5% were from Ghana, underscoring the need for English-speaking peer educators and English materials (Soutoura 2003a; Soutoura 2003b). COC began its work with a knowledge attitudes practices (KAP) study in 2001 with long-distance truck drivers and FSW. Fifteen percent of truckers had had sex with a FSW in the last 12 months. Seventy-five percent of FSW and 70% of truckers said trust was the main reason for not using condoms with intimate partners (PSI 2001).

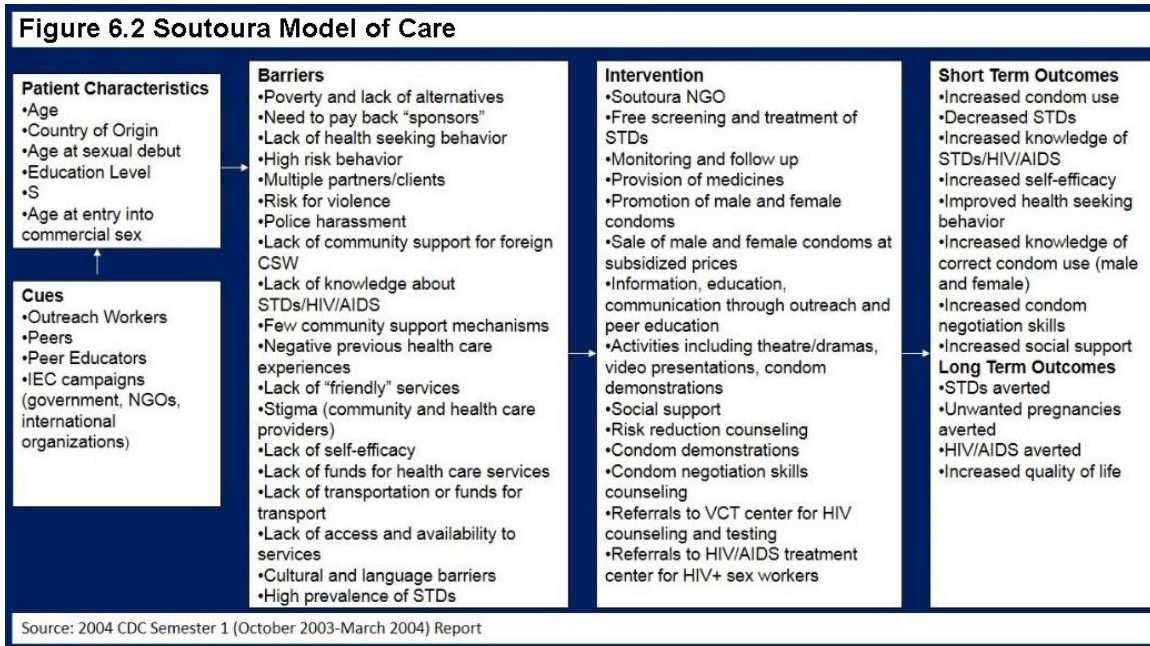
D. Behavior change theory, strategies, messages and channels

Soutoura's logic model (Figure 5.1) underscores the need for the 3 principal services: IEC, STIs, and condom promotion. *Soutoura* referred FSW to local clinics for VCT(CDC-Mali 2004a).



Source: 2004 CDC Semester 1 Report

Soutoura used a “model of care” (Figure 6.2) to visualize its goals and objectives in the lives of its beneficiaries. The model shows how the intervention would increase healthy HIV and STI prevention behaviors by addressing barriers (CDC-Mali 2004a). *Soutoura* also worked with police and authorities to improve the environment for FSW (Soutoura 2003b).



PSI/COC was part of the regional *Prévention du SIDA sur les Axes Migratoires de l'Afrique de l'Ouest* (PSAMAO) project and used many of its strategies, messages, and materials. The PSAMAO/Corridors documents refer to social marketing concepts (see Chapter 3) but do not otherwise refer to behavior change theory (PSI 2008a). Behavior change strategies for PSI/COC (including *Groupe Pivot*) were built upon the results of the KAP surveys but also used standard PSAMAO messages and artwork, including "Roulez protégé" (Drive protected), "En voyage, attention au SIDA" (Be careful of AIDS while travelling) and "Utilisons toujours une capote" (We always use a condom). The project also used "Sali et Awa" picture story-charts specially designed for FSW peer educators (PSI 2001). Since so many FSW spoke English, an English set of "Sali and Awa" picture flipcharts was distributed in 2002 (PSI 2002).

E. Coverage expected and achieved

During this period, *CDC/Soutoura/Groupe Pivot* aimed to improve key outcomes of the ISBS and ANC surveys: condom use, gonorrhea and chlamydia rates, and treatment-seeking in case of STIs (CDC-Mali 2002). By the end of 2003, *Soutoura* was being supported by CDC to provide services in Kati, Kayes and Bamako (CDC-Mali 2004a).

<i>Soutoura</i> 's Objectives	To screen and treat more than 100 women at high risk and 15 men per month
	To provide information, education, and communication to over 300 women at high risk, their clients, and boyfriends per month
	To promote the use of condoms and lubricants through the sale of more than 20,000 male condoms, 50 female condoms, and over 200 lubricants per month
<i>Soutoura</i> 's Activities	Sensitization of women at high risk and their clients and boyfriends about STDs and HIV/AIDS
	Orientation of high risk women (at hotels, bars, brothels, and clandestine SWs), boyfriends, and clients to the location and services of <i>Soutoura</i>
	Information, education, and communication through peer-education and outreach
	Screening and treatment of STIs
	Promotion of male and female condoms and lubricants through their sale at <i>Soutoura</i> and through peer educators and animators
	Referrals for VCT services
Referrals to treatment and support center for HIV-positive women	
Source: 2003. CDC. Semester report (Oct. 03– Mar. 04).	

Importantly, *Soutoura* trained and mobilized over 20 peer educators and provided safe spaces and social support (CDC-Mali 2004a). During the 2001–2003 period, *Soutoura* reached its targets and had 1,690 individual FSW visit its clinics 3,763 times. It made 11,878 peer education contacts and treated 3,190 STIs. Finally, it distributed 909,820 condoms and 2,499 female condoms (*Soutoura* 2003a).

Corridors for Change provided services in Kayes, Bamako, and Sikasso from 2001–2003 (PSI 2002). Table 6.3 below shows the intervention zones of *Groupe Pivot/Santé Population* during the period and the implementing local NGOs (GP/SP 2003a; GP/SP 2003b).

Region	Cercle/town	NGO	Region	Cercle/town	NGO
Bamako	C II	EUREKA	Sikasso	Sikasso	ASAME
	CIV	JIGI		Koutiala	ADAP
	C VI	ADPS		(Cont.) Koutiala	GARDEM
	CVI	COFESFA	Ségou	Ségou	AJPD
	C VI	AMIFA		Ségou	AMADEPROC
Kayes	Manantali	ODIL	Mopti	Bandiagara	GASS Mali
Sikasso	Bougouni	3 A		Bankass	ERAD
	Kalana	ARAFD		Dialassagou	Consortium le
	Sanso	CRADE	Gao	CARD	
	Niena	ADICO			
	Sikasso	ASAME			

Source: 2003. GP/SP. Final report (Jun. 02– Sep. 03).

COC reached its targets for the period, though it did not have specific targets by group. COC used 111 FSW peer educators to reach 214,205 FSW and male clients (repeated contacts). In addition, COC introduced its female condom for FSW, “Protective” (PSI 2001; PSI 2002).

F. Training of staff and ensuring fidelity to messages

During this period, CDC provided training in both STI diagnosis and treatment as well as VCT (for FSW and other groups) to the GOM, *Soutoura*, and *Groupe Pivot* and its member NGOs (CDC-Mali 2002; CDC-Mali 2006a). In addition, *Soutoura* peer educators were trained annually and came to monthly meetings at *Soutoura* for supervision (CDC-Mali 2004a).

Using a PSAMAO training module, COC opened its programming each year with a leaders training during which the research findings from the previous year and their programmatic implications were discussed. The leadership would then go back to their communities to train the peer educators and program staff (PSI 2001; PSI 2002). *Groupe Pivot* opened its programs with training for NGO staff conducted by CDC, USAID, and PSI, which included epidemiology and BCC. *Groupe Pivot* performed at least one supervision per year of its partner NGOs in order to “...confirm the commencement of program activities by NGOs, confirm the competence of NGO staff and peer educators in data collection and analysis, confirm the active participation of the beneficiaries in the implementation of the project, and to confirm the level of NGO staff and peers educators’ competence on different themes including IEC...” (p. 18) (GP/SP 2003a).

G. Successes

One of the most important successes of the CDC-USAID collaboration in the 2000–2003 period was the development of the “Mali Triangle” for HIV surveillance discussed in Chapter 5: the DHS, ISBS, and ANC (USAID-Mali 2004a). *Soutoura* was founded in 2000 (Soutoura 2008a). The development and strengthening of this NGO dedicated to FSW was a key achievement of USAID/CDC. By the end of 2003, *Soutoura* had expanded from Bamako to Kayes and Kati and always met its targets (CDC-Mali 2004a).

In 2001, COC opened the first VCT site in Bamako (*Centre d'Eveil*) (PSI 2001). The second was opened in Ségou in 2002 (PSI 2002). USAID recognized COC’s socially-marketed VCT centers and an STI diagnostic testing laboratory, implementation of national media campaigns, BCC activities (USAID-Mali 2003a) and its use of research

to guide programming for FSW (Lo 2006). *Groupe Pivot/Santé Population* also expanded during the period (GP/SP 2003a).

H. Challenges

Soutoura had challenges reaching clandestine FSW and promoting condom use with boyfriends. *Soutoura* noted that boyfriends of FSW had multiple concurrent partnerships (CDC-Mali 2004a). Most FSW were English-speaking. In order to respond to this, a Peace Corps volunteer translated all IEC materials into English (PSI 2002). The 2003 COC KAP showed that FSW didn't use condoms because they trusted their serious partners and that FSW needed more training on safer sex negotiation (PSI 2003b). *Groupe Pivot's* principal challenges were the high mobility of FSW and assuring follow-up for VCT, STI treatment, and care for HIV-positive FSW since it referred its beneficiaries to public clinics for these services (GP/SP 2003b).

III. 2004–2008

A. USAID planning

The 2001–2005 USAID plan was supplanted by a new ten-year strategy from 2003–2012 based on the results of the 2001 DHS. However, many of the goals remained the same. Like the Malian Government, USAID continued to believe that a large HIV/AIDS epidemic, such as that occurring in southern and eastern Africa was imminent, and its goal was to avert such an epidemic. Focus was on high-risk groups (FSW and their clients). Social marketing and better targeted BCC for clandestine FSW would also be included (USAID-Mali 2003b; USAID-Mali 2004b).

B. Key USAID implementing partners during the 2004–2008 period

During the 2004–2008 period, USAID’s key implementing partners were the CDC (which continued to include *Soutoura* as a sub-grantee) and PSI’s Pathways to Health (which included *Groupe Pivot/Santé Population* as a sub-grantee).

The CDC agreement (1995) was extended in 2003 for three additional years (to July 2006) in conjunction with USAID’s a 2003–2013 HIV/AIDS Strategy. It was extended again for the period of 2006–2009 (CDC-Mali 2006a). CDC’s activities from 2003 to 2009 were promoting AIDS service delivery norms, surveillance, STI control, VCT and reaching FSW through *Soutoura* (CDC-Mali 2006a). *Soutoura*’s logic model in its reports was the same as the earlier logic model (Figure 1), except that now VCT was provided in *Soutoura*’s clinics (Soutoura 2004a).

PSI’s Pathways to Health (PTH) project went from 2003 to 2011. It was initially funded for a 3-year period (2003–2006) and was extended three times, with 1 year extensions in 06/07, 07/08, and then again for 3 years 2008–2011. The objective from 2003–2011 was to "Reduce morbidity and mortality due to HIV/AIDS by increasing the adoption of safer sexual behaviors among persons engaged in high-risk practices" (Emmet and de Metz 2011). Under PTH, *Groupe Pivot* worked with 23 local NGO’s to provide social mobilization and peer education for FSW until 2008. PSI directly managed the *Centre L’Eveil* VCT centers, social marketing of commodities in the private sector, and radio, print and television BCC activities (PSI 2008b).

C. Formative research and community planning

USAID and CDC together continued to support Mali’s “Surveillance Triangle” during

the 2004–2008 period, which helped guide and structure all HIV/AIDS programming including that for FSW. The key studies released were the 2nd and 3rd ANC surveys, which gave HIV prevalence data for urban and peri-urban women. In addition, the 2nd ISBS (2003) was released shortly before 2004. The 3rd ISBS (2006) and the DHS 2006 were released in 2007 (CDC-Mali 2010).

At the beginning of this period, *Soutoura* worked on a study with Project SIDA 3 (funded by Canada) on the difference between "formal" and "informal" FSW. Formal FSW rented rooms by the day while clandestine FSW worked the street and were more regularly arrested by police. Clients of clandestine FSW decided where to go to have sex: their homes, cars, or hotel rooms. High-end clandestine FSW were reached by mobile phone. *Soutoura* continuously looked for new sex work sites and liaised with local authorities (Soutoura 2008a).

From 2004 to 2009, *Soutoura*'s data collection and analysis for its four STI clinics in Bamako, Kayes, Kati, and Niono became more sophisticated. FSW who came to clinic were asked about their age, nationality, and if they used condoms with their clients and their boyfriends. *Soutoura* would record if STIs were present, if VCT was offered, and the HIV-prevalence rate. *Soutoura* would also separate the responses of first visits from repeat visits, in order to see if the counseling had an effect (Soutoura 2004a; Soutoura 2004b; Soutoura 2006a; Soutoura 2006b; Soutoura 2007a; Soutoura 2008b; Soutoura 2008c).

PSI had a research component during the COC period, which continued into PTH. Unfortunately, however, this stopped after 2006 (Emmet and de Metz 2011). PTH did

four KAP studies with FSW, which allowed PSI/PTH to tailor messaging to FSW behavior, FSW had very high HIV knowledge: they knew that HIV was sexually transmitted, that it was a severe health problem, and that someone with HIV could look healthy. Even early in the period almost all said they would refuse sex with a client without a condom but few said they would do so with a boyfriend (Mali. INFO-STAT and PSI 2003; PSI 2004; PSI 2005a; PSI 2005b; PSI 2007b).

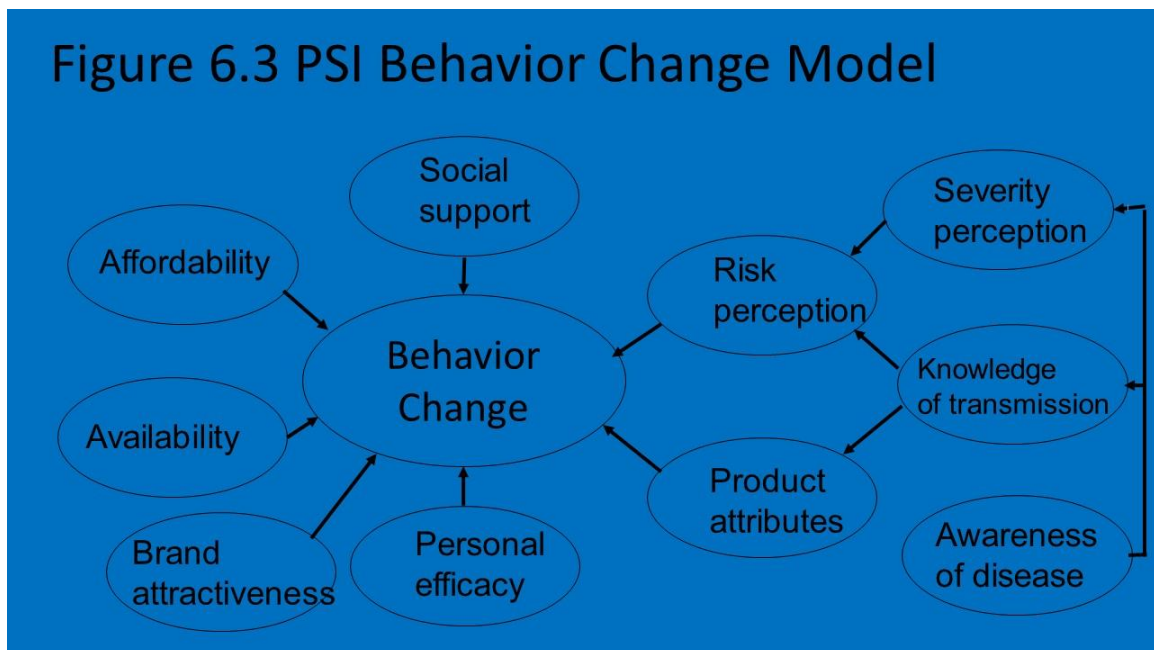
D. Behavior change theory, strategies, messages and channels

Soutoura's goal was the reduction of transmission of STIs and HIV by the adoption of new behaviors and the treatment of STIs. The channel used to reduce FSW vulnerability (and that of their clients) was interpersonal communication. Empowerment and condom negotiation were key goals, and FSW peers themselves were the leaders in the program (Soutoura 2005a; Soutoura 2006b).

Pathways to Health did a great deal of thinking on BCC. KAP assessments were conducted with FSW before and after programming to determine effectiveness. Messages were pretested. PSI also helped the MOH IEC department, the National Center for Health Information, Education, and Communication (French CНИЕCS) to design and implement thematic communication campaigns. Campaigns tailored condom promotion to FSW (Emmet and de Metz 2011).

The PTH BCC model (Figure 3) included elements of social marketing and various other theories including social support, affordability, availability, attractiveness of brand, personal efficacy, product attributes, and risk perceptions (affected by severity, understanding of transmission, and understanding disease) (PSI 2003b). These terms are

in French in PSI's model. These elements were tested and tracked in the KAP surveys and were disseminated and discussed during trainings and project meetings (PSI 2004; PSI 2005b; PSI 2007b). PSI/PTH tried to influence motivation, opportunity, and capacity for behavior change, recognizing that better attitudes and knowledge do not necessarily lead to change (Mali. INFO-STAT and PSI 2003).



PTH had objectives for behavior change for FSW which included reduced # of partners, increased condom use, increased STI screening and treatment, and increased HIV testing. PSI provided capacity building to *Groupe Pivot* and its member NGOs partners to influence these behaviors (GP/SP 2005).

Interpersonal communication, local radio and written messages were the channels for BCC messages in PTH, which continued to use PSAMAO messages, tools, and images so that FSW and truckers who worked cross-border would be exposed to them repeatedly in the West African countries they visited. PSI/PTH used the PSAMAO

“Participatory Model” for peer education: activities helped individuals to actively think about and develop their own risk reduction strategies (GP/SP 2006; PSI 2006). The model emphasized active participation to come up with solutions (GP/SP 2007). Interpersonal communication included “*causeries*” (group sessions), individual counseling, and home visits. Media included videos and cassettes (GP/SP 2006). Communications supports included the *Roulez Protégé* (drive protected) T-shirts, caps, stickers, key rings and pamphlets (Emmet and de Metz 2011). The PTH project made sure that availability was not a barrier to condom use. They did spot checks to verify that condoms were in place at condom sell points near each "hot spot" including brothels (PSI 2005b).

E. Coverage expected and achieved

During the 2004–2008 period, *Soutoura* always reached or exceeded its objectives. It served 6,725 FSW with over 17,683 clinic visits and 100,726 peer education contacts. The organization started offering VCT in its sites in 2006, and tested 2,320 people during the period. It treated 6,014 STIs and distributed 3,943,079 male condoms and 18,624 female condoms. It worked in four zones: Bamako, Kati, Kayes and Niono (Soutoura 2004b; Soutoura 2006a; Soutoura 2006b; Soutoura 2008b; Soutoura 2008c).

The objective of Pathways to Health was to "Reduce morbidity and mortality due to HIV/AIDS by increasing the adoption of safer sexual behaviors among persons engaged in high-risk practices" (Emmet and de Metz 2011). From 2003 to 2008 PTH met or exceeded all of its targets. All 8 regional capitals and major transportation axes in southern Mali were covered as planned at 38 project sites. NGOs reached 2,691,319

people, 153% of the target and 602 peer educators were trained. More than 14,000 people were referred to VCT and STI diagnosis and treatment (PSI 2004; PSI 2005a; PSI 2006; GP/SP 2007; PSI 2007a; PSI 2008b).

Neither PTH nor GP/SP disaggregated their results by the type of population (FSW, truckers, etc.) in their reports, but one semester report in 2005 noted that 54,302 FSW were reached during the period Jan–June 2005, about 1/4 of the total of 196,000 (PSI 2005c). In 2008, 130,068 FSW were reached by BCC, also about 1/4 of the total. FSW peer educators, which were 134/605 that year: a little less than 1/4 of the total (GP/SP 2008). Based on three data points, we estimate that about 673,000 contacts for IEC/BCC were made with FSW and about 3,600 FSW were referred to VCT and STI treatment (each) by GP/SP/PTH between 2004 and 2008. A final KAP study in 2006 found two-thirds of FSW had been touched by the program (52% moderately touched and 15% highly touched) (PSI 2007b). Table 6.4 (below) shows the geographic reach of PTH/GP/SP programming. Fourteen of the 23 NGOs included FSW as a target population (all of southern Mali except for the Koulikoro and Mopti).

Region	# NGOs	NGO	Target Population	Town/zone
Kayes	2	APPF	FSW, Truckers, AV, TVS	Kayes, Kita
		OMADECOS	FSW, AV	Kayes, Sadiola, Yattela
Sikasso	8	Consortium “3A”	FSW, Truckers, AV, TVS	Bougouni, Ouelessougou, Faragouara
		CRADE	FSW, AV, TVS	Sanso, Koumantou
		ADICO	FSW, Truckers, AV	Nièna, N’kourala
		ASAME	FSW, AV	Sikasso
		CLUEDUCA	FSW, Truckers, AV, TVS	Kadiolo, Sikasso, Loulouni, Fourou, Hérémanako, Zégoua
		ADAP	FSW, TVS	Koutiala
		GARDEM	FSW, Truckers, AV	Koutiala
		IDS	FSW, Truckers, TVS	Koury; Yorosso, Kimparana
Ségou	1	CERDEPE	FSW (Clandestine)	Ségou
Gao	2	CARD et	FSW, Truckers, AV	Gao
		GREFFA –SEAD	FSW	Gao, Ansongo, Labbezanga
Bamako	1	<i>Soutoura</i>	FSW	Bamako all

Source: *Groupe Pivot/Santé Population/PSI Pathways to Health Reports*

F. Training of staff and ensuring fidelity to messages

The 2004–2008 period opened with an extensive training by CDC, the national AIDS program and SIDA 3 (Canadian program) on the revised STI syndromic algorithms in all but one region of Mali (CDC-Mali 2004b; USAID-Mali 2005). *Soutoura* was a participant in these trainings. (Soutoura 2004b). With USAID funding, CDC continued to provide similar annual trainings on STI management (CDC-Mali 2005; CDC-Mali 2007; CDC-Mali 2008; Soutoura 2008b).

CDC also did an average of two accompanied supervisions into the field with *Soutoura* each year. Each *Soutoura* site also had a one-week peer educator training each year on the minimum package and how to lead group discussions using PSI’s “Participative Approach”, and the different games that were produced by PSI. (The Game

of Risk, Three Boats, condom demonstration with wooden penises) (Soutoura 2008a).

PTH ensured that NGO staff and peer educators were trained and that they provided messages with fidelity. The first 6 months of the program (November 2003–March 2004) were dedicated to training and teambuilding. PSI conducted two "train the trainers" for GP/SP on the "Participative Approach" and operational research on behavior change (GP/SP 2004). From 2004–2008, PSI held trainings annually with GP/SP on its behavior change framework, BCC, and impact surveys. GP/SP, in turn, trained its member NGOs who then trained their peer educators on site (PSI 2004). Each year, a joint (PSI/GP/SP) supervision occurred during which PSI/GP/SP verified that activities were being conducted as planned (PSI 2005a; GP/SP 2005; PSI 2006; PSI 2007a; GP/SP 2007; GP/SP 2008).

G. Program successes

Soutoura's Niono clinic opened in 2004 bringing the number of its sites to 4 (Soutoura 2004a; Soutoura 2005a). *Soutoura* noted the good relationships of cooperation the organization had developed with bar/brothel workers, who frequently promoted condom use to FSW. In 2004, *Soutoura* held its first workshop with prosecutors, police and FSW, which led to a more supportive environment for FSW and idea of *Soutoura* membership cards. Each FSW received a card showing if her STI screenings were up-to-date. When the police made control visits to bars and brothels, they would not arrest FSW who had an up-to-date card (Soutoura 2008a).

FSW continued to have very high STI rates for their first visits: 70%. However, STIs dropped substantially during subsequent visits (Soutoura 2008b; Soutoura 2008c).

In addition, *Soutoura* began giving FSW with STIs whose boyfriends would not come to the clinic double prescriptions to treat both to avoid re-infection (Soutoura 2004a). During this period, GP/SP noted that the BCC materials and tools were very effective. They incited debate and attracted the target populations. In addition, the twice annual coordination monitoring workshops were critical to identify problems and to find solutions (GP/SP 2004; USAID-Mali 2005). In 2006, the Malian government adopted the PTH BCC materials even for non-USG funded projects (GP/SP 2006).

H. Challenges

During this period, the CDC noted that the STI supervisions were not taking place in the public system because of lack of funding from the GOM, (CDC-Mali 2006b) which became a chronic problem (CDC-Mali 2006c; CDC-Mali 2007). The low literacy of FSW was a key challenge for *Soutoura*, which affected FSW's (and peer educators') understanding of program materials (CDC-Mali 2005). Lack of vehicles, which made outreach less effective, and condom promotion with boyfriends were also key challenges. In one report, *Soutoura* claimed the latter to be "hopeless" (Soutoura 2005a; Soutoura 2007b; Soutoura 2007a; Soutoura 2008c). The high mobility of HIV-positive FSW made maintaining them on ART very difficult (Soutoura 2008c).

Violence against FSW was a challenge in 2005 when a series of attacks against bars/brothels occurred in Bamako after a football game and all of the FSW fled into hiding (Soutoura 2005a). There was another case of hooliganism in Niono after a football match. Many FSW were injured, and some even were raped. In Bamako during the same period, many of the brothels and bars were closed by the authorities and others were

raided. In the case of raids, the police required bribes of up to 10,000 CFA (about \$20) to release the FSW (Soutoura 2005b).

PTH peer educators were highly mobile, so turnover was high. To respond to this, NGOs resorted to training more peer educators than were needed. Many Anglophone and illiterate peer educators were not able to read the tools. Finally, many peer educators had poor motivation and complained that their stipend was insufficient (GP/SP 2004; PSI 2005a; GP/SP 2005; GP/SP 2007; GP/SP 2008).

At the end of PTH, an end of project study comparing the 2003 and 2006 KAP studies found that despite a booklet and materials on this topic, fewer FSW knew at least two signs of STIs (39.7% vs. 27.4%). For most outcomes, there was no change even with high program exposure. One third of FSW had not been exposed at all to program messages (PSI 2007b).

I. Changes in the environment, program funding

USAID funding remained stable (table 6.5 below), though it received a boost in the beginning of the period. CDC and PSI were the most important partners in terms of funding received.

Partner	2003/04	2004/05	2005/06	2006/07	2007/08	5 years
CDC	\$1,000,000	\$500,000	\$800,000	\$1,261,834	\$1,681,122	\$5,242,956
Futures	\$350,000	\$390,000	\$250,000	\$450,000	\$350,000	\$1,790,000
MOH	\$169,250	\$200,000	\$147,534	\$237,300	\$48,055	\$802,139
PSI (PTH)	\$1,675,279	\$1,721,764	\$1,522,508	\$797,526	\$652,825	\$6,369,902
Other	\$690,590	\$766,406	\$925,709	\$744,938	\$994,135	\$4,121,778
Support	\$114,881	\$421,830	\$354,249	\$463,402	\$249,064	\$1,603,426
Total	\$4,000,000	\$4,000,000	\$4,000,000	\$3,955,000	\$3,975,201	\$19,930,201
Source: 2013. USAID-Mali.						

IV. 2009–2013

A. USAID planning

The US Government developed a new HIV/AIDS strategy in 2010, which was informed by the 2006 DHS and an analysis of high-risk groups. The 2009 ISBS had not been released yet. The analysis faulted USG and its partners for focusing on easy to reach groups rather than having a broader focus based on real risk of transmission. Other groups might have had higher HIV prevalences but were not targeted. By 2006, HIV prevalence was no longer as high among medium risk groups, yet the programs had not refocused their efforts on FSW, among whom HIV prevalence was climbing. The review notes that the Koulikoro region, with high HIV prevalence, had few activities (Castle 2010).

The 2010–2015 strategy was built on the principles of PEPFAR II, the Global Health Initiative, and the Paris Declaration for aid effectiveness, all of which aimed to promote cooperation, country ownership, and streamlined foreign aid. Particular emphasis in PEPFAR II was a focus on key populations (FSW and MSM) and ensuring that data drove programming. The USG no longer believed a large-scale HIV epidemic was imminent. The key goal was to keep HIV rates low through interventions with highly vulnerable groups, such as FSW. Key activities included VCT, prevention for positives and capacity building for NGOs (USAID-Mali 2010).

B. Key USAID implementing partners

The key partners working with FSW from 2009–2013 were the CDC (which continued to fund *Soutoura*) and Care International's *Keneya Ciwara II* (which funded GP/SP). In

2007, CDC and USAID agreed on a new five-year agreement whose objectives were focused on capacity building the GOM to carry out VCT and STI treatment on the national level. Surveillance remained a key goal as well as the prevention activities carried with FSW by *Soutoura*

(CDC-Mali and USAID-Mali 2007). In 2009, though the CDC began to receive most of its funding directly from the Office of the Global AIDS Coordinator, except for \$500,000 from USAID. However, its objectives remained the same (USAID-Mali 2009).

Soutoura's goals remained consistent throughout the period:

- 1.) The reduction of the transmission of STIs and HIV with FSW and their clients through BCC/IEC, VCT, STI care, and condom/lubricant promotion;
- 2.) Guided/accompanied referrals to ART and care for HIV-positive FSW (*Soutoura* 2011a).

Project Keneya Ciwara II (PKC-II), led by CARE International, was a follow on to the 5-year *Project Keneya Ciwara* (which did not include HIV/AIDS programming). Under PKC-II, GP/SP continued to provide community mobilization and peer education to FSW and other groups (Care International 2013a). Pathways to Health received a 3-year follow-on project, but this focused on VCT in the *Centre Eveil* centers, social marketing, and behavior change communication through mass media and no longer specifically targeted FSW (PSI 2008b).

C. Formative research and community planning

During the 2009–2013 period, the US Government continued support the “Mali Surveillance Triangle”. The 2009 ISBS (to date) was conducted, produced, and released

during this period. In addition, the 2009 and 2012 ANC surveys were conducted (CDC-Mali 2010; CDC-Mali 2009).

Soutoura continued to collect and analyze data from FSW coming to its clinical sites for program improvement. HIV prevalence among FSW tested by *Soutoura* ranged from 3–7%. FSW coming to the clinic for the first time continued to have high STI rates (50–70%). Almost all new non-Malian FSW had STIs on their first visits. On repeat visits, however, rates were between 10–20% (*Soutoura* 2012; *Soutoura* 2009a; *Soutoura* 2009b; *Soutoura* 2010).

Unfortunately, PKC-II did not conduct KAP surveys or similar formative research. The project launched with multiple meetings with local and national partners all over the country. *Groupe Pivot* held a meeting with all 23 NGOs from the PTH phase and retained only the most competent NGOs (Care International 2009a; GP/SP 2009a).

From April 2011 to September 2013, in response to the new USG 2010–2015 strategy, PKC-II worked only with the NGOs which had services for MSM and FSW: OMADECOS in Kayes, JIGI in Koulikoro and Bamako, CLUEDUCA in Sikasso, Alphalog in Ségou, AMPRODE SAHEL in Mopti, CARD in Gao, and *Soutoura* in Bamako (Care International 2011a).

D. Behavior change theory, strategies, messages and channels

Soutoura continued to follow the same logic model with VCT (see figure 6.1 earlier) (*Soutoura* 2011b) and was not involved in the creation of messaging and materials. PKC-II/GP/SP continued the strategies developed during the previous periods and did no new research. The "Participatory Approach" from PSI/PSAMAO continued (Care

International 2009a). Activities were “...based on the participatory approach developed by the PSAMAO regional project” (pg. 11). The objective of the approach, from the perspective of PKC-II, was to put the participants into real-life situations and encourage an exchange of ideas about HIV prevention. BCC was largely through the interpersonal channel (Care International 2009b).

Like *Soutoura*, PKC-II GP/SP also gave FSW a card that kept track of their services as well as condoms and lubricants. Local doctors were identified and trained to provide them with appropriate health services, including STI treatment. PKC-II/GP/SP worked with PSI to conduct VCT at the bars and brothels (GP/SP 2009a).

E. Coverage expected and achieved

Soutoura largely met or exceeded its objectives for the 2009–2013 period. It conducted 16,690 clinic consultations, reached 17,134 individual FSW with 111,289 prevention intervention contacts, performed 10,794 HIV tests, treated 4,963 STIs, and distributed over 5 million male condoms and 20,000 female condoms. It treated 2,009 for STIs and provided 159,073 prevention activity contacts to male clients of FSW (Soutoura 2008c; Soutoura 2009a; Soutoura 2009b; Soutoura 2010; Soutoura 2012; Soutoura 2013).

PKC-II’s objective was to reduce the number of sexual partners of the targeted groups, which included FSW (GP/SP 2009a). The NGO partners covered 26 sites in 6 regions (Bamako, Kayes, Koulikoro, Kayes, Ségou, Sikasso, Mopti) (Care International 2013a).

PKC-II largely met or exceeded its targets during both the 2009–2011 and the 2012–2013 periods. 28,658 people (including but not limited to FSW) were referred to

VCT services and 23,253 were referred to STI treatment. The project only counted contacts with prevention interventions until 2011 when USAID asked it to count individuals reached. In the end, the project reached 28,750 FSW with over 210,000 contacts with prevention activities. In the 5 years of the programming, there were 572,972 contacts with key populations, mostly FSW, and almost 1 million contacts with other groups (GP/SP 2009a; Care International 2009a; Care International 2009c; Care International 2010; Care International 2011b; Care International 2011a; GP/SP 2011; Care International 2013b; Care International 2013a).

F. Training of staff and ensuring fidelity to messages

CDC did two accompanied supervisions with *Soutoura* each year. Each *Soutoura* site had an annual training of peer educators (Soutoura 2008a). The head doctor visited each of *Soutoura*'s four sites annually for supervision. At the site level, the head physician supervised animators monthly and animators in turn supervised peer educators. In addition, the doctors and animators participated in monthly peer educator meetings at each site (Soutoura 2009a; Soutoura 2009b; Soutoura 2010).

PKC-II/*Groupe Pivot* carried out annual trainings for its 18 NGOs which included a review of the "Participative Approach" carried over from PSI (GP/SP 2009b). PKC-II/*Groupe Pivot* maintained the same rhythm of trainings and supervisions that had been initiated under PTH. Each year ended with an annual meeting during which the staff exchanged on best practices, challenges, and successes. Regular supervisions included interviews, observations, and work meetings with NGOs staff, peer educators, and the local health authorities (GP/SP 2009a; Care International 2009a; Care International

2009c; Care International 2010; Care International 2011b; Care International 2011a; GP/SP 2011; Care International 2013b; Care International 2013a).

G. Challenges

In 2009, *Soutoura* noted that the price of lubricant posed a challenge for FSW (Soutoura 2009c). It was also challenging to find staff who were willing to work with the difficult populations served by *Soutoura*. The security situation greatly deteriorated during the 2012–2013 crisis. Several motorcycles were stolen, which made it supervisions difficult. During the crisis period, FSW came down from the north to avoid violence (Soutoura 2013).

Funding delays to PKC-II caused missed opportunities (Care International 2009c; GP/SP 2009a; Care International 2010). The high mobility of peer educators meant that once per year recycling was not sufficient. Their high illiteracy was also an obstacle (GP/SP 2011; Care International 2011a). The quantities of vehicles and gasoline were insufficient (GP/SP 2009a). One key difficulty for PKC-II was the low level of success for VCT and STI diagnosis. PKC-II did not provide VCT and STI treatment directly, but instead referred to local health centers where stock outs were frequent. As a result, referrals were often useless (Care International 2010; GP/SP 2011).

H. Successes

In 2011, PKC-II began to use cross-referral forms for VCT and STIs. Prior to this, FSW were referred to these services but it was unknown if they actually showed up or received the service. In addition, USAID began to provide HIV tests and STI drugs to ensure that

there was adequate supply. Uptake of the services greatly improved (GP/SP 2011; Care International 2013a).

G. USAID program funding

USAID funding for HIV/AIDS during the period remained consistent at approximately \$3 million per year. In 2009 CDC began to receive \$1.4 million directly from the Office of the Global AIDS Coordinator (OGAC). USAID's funding was reduced by the same amount and USAID then reduced its funding to CDC to \$500,000 per year (CDC-Mali 2006a). The CDC no longer received funding from USAID after 2011.

partner/year	2008/09	2009/10	2010/11	2011/12	2012/13	5 years
CDC	\$500,000	\$500,000	\$500,000			\$1,500,000
Futures	\$400,000	\$400,000	\$505,000	\$200,000		\$1,505,000
MOH	\$231,000					\$231,000
PSI (PTH)	\$200,590	\$550,050	\$609,527			\$1,360,167
PSI (MCHIP)				\$189,202	\$1,289,000	\$1,478,202
Care	\$781,000	\$904,962	\$891,465	\$1,012,399	\$285,000	\$3,874,826
<i>Soutoura</i>				\$220,000	\$590,000	\$810,000
ARCAD		\$203,300		\$133,889		\$337,189
PHI	\$47,569			\$524,042	\$230,000	\$801,611
Measure	\$50,000	\$50,000	\$149,008	\$30,000	\$250,000	\$529,008
Other	\$465,796	\$219,523	\$134,741	\$644,175	\$306,000	\$1,770,235
Support	\$300,044	\$172,165	\$210,259	\$46,293	\$50,000	\$778,761
Total	\$2,975,999	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$14,975,999
Source: USAID-Mali						

V. Summary

The 2000–2013 period in Mali was characterized by a stabilizing HIV epidemic and considerable increases in overall funding for HIV/AIDS services. Key services that were virtually non-existent in 2001, including ART and VCT were initiated by 2003 and scaled up.

The USG (USAID and CDC) spent over \$42 million on HIV prevention since 2003, at a consistent \$4 million per year from 2003 to 2008 and \$4.5 million per year from 2009 to 2013. USG was the key funder for HIV prevention for FSW since the late 1980s. Since 2001, large-scale HIV prevention activities for FSW and their clients covered most urban and areas and transport hubs in Mali. In addition, the USG was the key partner for the Government of Mali (GOM) for VCT, STI treatment, and BCC programming targeting FSW as well as the general population. The USG was never involved in HIV treatment or PMTCT.

USAID/CDC funded and guided the “Mali Surveillance Triangle” that guided all prevention programming in Mali to date. The ISBS surveys conducted in 2000, 2003, 2006, and 2009 were the most comprehensive research on FSW and HIV. Between 2001 and 2006 PSI also conducted behavioral research for the purpose of program development for FSW. In addition, *Soutoura* collected detailed information during clinic visits that guided programming. The USG also funded and led updates on STI diagnosis and treatment algorithms and conducted many trainings and supervisions on STIs in both government and NGO settings.

PSI developed the materials and messages for FSW programming based on a behavioral model that combined elements of social marketing and various theories. All USG-funded and non-USG funded programs used these materials and messages. Peer educators from the FSW milieu used interpersonal communication to reach their peers with commodities and to mobilize them to access services. All of USAID partners used

extensive supervision and training in order to assure quality. USG partners exceeded their goals, making over 1.3 million BCC contacts with FSW, their clients and partners

CHAPTER 7: FINDINGS: KEY INFORMANT INTERVIEWS WITH FSW PEER EDUCATORS

In this chapter, the findings of the ten semi-structured interviews with Female Sex Worker (FSW) Peer Educators (PEs) are presented. The meaning of these findings will be discussed in greater detail in Chapter 12 (discussion). The purpose of the interviews was to answer Question 2 of the evaluation from the perspective of FSW peer educators:

Question 2: What were the underlying theory, strategies, scope, coverage, successes, and challenges of HIV prevention programming for FSW in Mali between 2000 and 2013?

- a. Describe the formative research and community planning process prior to implementation.
- b. Describe underlying theory of behavior change and how this was incorporated in program messages and channels of communication.
- c. Describe the coverage expected and achieved.
- d. Describe training for program staff and peer educators and how the program ensured staff fidelity to the messages throughout the program.
- e. Describe successes and challenges of the program.
- f. Describe key changes in the environment, program strategy, or program resources that may have affected program outcomes.

After coding and analysis using N-Vivo, the questionnaire with FSW PEs elicited two overarching types of information: detailed information related to their work, motivations, and function as well as information about overall HIV programming.

Overall Topics	# of interviewees citing this	Theme related to evaluation question #
Work of FSW Peer Educators		
Functions of peer educators	10	2.b. Theory/BCC
Characteristics of a PE/selection criteria	9	2.b Theory/BCC 2.b. Theory/BCC
Practical details	10	2.d Training/Supervision
Benefits/motivations of peer educators	10	2.d Training/Supervision
Challenges of being a peer educator	10	2.e. Successes/Challenges
Overall Program Information		
Purposes of the project	10	2.b. Theory/BCC
Outcomes/Successes	10	2.e. Successes/Challenges
Recommendations	10	2.e. Successes/Challenges
Characteristics of sex work	7	2.f. Environment

VI. Work of female sex worker peer educators

A. Functions of peer educators/animators (Question 2.b)

Sex worker peer educators/animators had a great deal to say about the details of their work. As peer education was the main channel of HIV behavior change communication with FSW in Mali, understanding what messages they conveyed and how they did so is important for this evaluation of the programming. All of the interviewees discussed different work functions of peer educators/animators. Table 7.2 (below) gives the specific functions/tasks and the emphasis put on the particular task by the PE.

Sub-topics	# of interviewees citing this
Education/awareness building	10
Encourage FSW to go to clinic/bring them	10
Promote STI treatment	8
Sell/distribute condoms	7
Promote HIV testing	6
Show FSW how to use condoms	6
Accompany HIV+ beneficiaries	4
Education/Awareness of male clients	4
Promote condom use	3
Do group education talks	3
Show videos about STIs	2
Teach FSW negotiation skills	1
Record monitoring information	1
Contact FSW by telephone for follow-up	1

A few interesting quotes from peer educators about their work:

“To be a peer educator is to pass the information regarding STIs and HIV/AIDS to the people, the modes of transmission, how to protect oneself against these diseases.”

“...if they come to me to talk about their sickness, me, I bring them here (to the clinic) to be treated and many have been cured by the grace of God and they come back to thank me.”

“I had relief, so at the different bars that I worked in, I inform the other sex workers. This is because I feel some are my sisters and others are my daughters and I care for them. I accompany them eventually to the clinic.”

“This is what I do: I give you counseling regarding how to treat disease. If a person tells me they have an itch in the genital area, discharge, or a blister on the genitals, not to say I’m a doctor so I can only refer her to the clinic and she can go the next day morning after our talk, since the talks are given at night.”

“If the girls that come tell me, ‘oh auntie there is a new girl who has just arrived,’ I say ‘Ah my daughter you have come here and you have begun to work here, that’s good but do you know how to use a condom?’ she says, ‘condoms yes I know how, back home we used condoms.’ I will say ‘if you know how to use a condom come here

here's my bag and my case.' I take out the wooden penis and I put it down, I give her a condom, and I say 'you have to put it on... show me how you put it on the male clients.' I will watch her take it and her put it on. I said, 'my daughter you have put it on right, you have not put it right, because you should have put it on like this...'"

"So if you have the test if you are sick, there is an institution which is there where we can send you for medicine. You will pass through the clinic. She (the clinic director) will send you there and they will give you the medicines because if she goes before you, it is easy to have the medicines."

"She raises awareness with the male clients, telling them to wear the condoms. Otherwise they can have the diseases such syphilis and other infections."

"...but the only thing that preserves us in the milieu here is the condom. If you want a long life, you want to live for a long time protect yourself, you will find your money is for you and there isn't disease inside."

B. Peer educator/ animator selection criteria/ characteristics of a good peer educator/ animator (Question 2.b. Theory and Strategies and Question 2.d. Ensuring Quality)

Many peer educators/animators discussed how they became a peer educator and otherwise mentioned the traits that make a good peer educator. Usually this was because the program director noticed leadership qualities in the person and asked her if she wanted to be a peer educator. Being able to communicate was the most frequently cited characteristic. The importance of discretion, getting along with others and coming from the FSW milieu were also noted as important.

Themes-Characteristics of good PEs	# of interviewees citing this
PEs should be good communicators	7
PEs need to be capable of great discretion	4
PEs need to be personable	4
Comes from FSW milieu	4
Respected by peers	2
Confident to speak in groups	2
Had good treatment behavior	2
Brought people to program before	2
Had HIV experience already	1

One frequent theme was that women were selected to be a peer educator due to strong communication skills.

“I can spread the message very well.”

“She <program director> said, ‘you express yourself well.’”

“A peer educator must be a brave person, who is a good listener. She is a person who has patience.”

Being able to form strong positive relationships and respect confidentiality was noted as a key theme.

“One day <program director> told me, ‘you there you are nice do you want us to give you a training like others I have trained so that you can represent the NGO in the bars?’”

“A good peer educator must always be discreet because some women hide to come attend the discussions.”

Another theme was importance of coming from the sex work milieu to be a good peer educator.

“I am a sex worker. I live that.”

“Long before that I got along with the people, the girls sat down next to me and we talked about the diseases. I advised them to pay attention. I talked to them about the behavior of men and so that when they came

back from their sales, they came to me. We exchange about aspects of femininity up until the point where the program called me to come work with them.”

C. Practical details about being a peer educator/ animator (Question 2.d. training)

As would be expected, the interviews were peppered with references regarding the practical details of being a sex worker peer educator and/or animator, including where the PE does her work (the bars being the most frequent place.) A critical finding is the importance of training to the peer education program in Mali. PEs talked a great deal about their trainings. The FSW felt that they learned a great deal in the trainings, and this learning was an important benefit/motivation for being a peer educator. Finally, this group of PEs and animators had over 70 years of combined experience providing the services to their FSW peers.

Topics-practical details	# of interviewees citing this
Where they work	10
In the bars	8
In the mobile strategy vehicle	2
In my neighborhood	2
In the street	2
In public places	2
At the center	1
In FSW homes	1
Wherever I travel	1
Training issues	10
Contents of the trainings	7
Length of trainings	5
Learned a lot at the trainings	4
Learned to read and write in French	1
Length of time as a peer educator	10
3–4 years of experience	4
6 years of experience	1
9–10 years’ experience	4
13 years’ experience	1

As shown in the table, most PEs do their work in the bars. In some instances, they are assigned certain bars to work in. However others say that they work just in whatever bar they happen to frequent.

“I work with the FSW in the different bars I frequent.”

“I used to work in several places, and after that it was the Bar Bozo and The Palm Tree. Now I only intervene in The Palm Tree because there is someone else at the Bar Bozo.”

Interestingly, some PE/animators end up working in their own neighborhoods with the general population.

“I do it with the families that I know such as the young men who sit in front of certain doors. I sit with them to talk while showing them the photos. These are the photos that are most important and that convince them the most.”

Issues of training are very important for the purposes of this evaluation, and the peer educators were asked to talk about their training. Most the peer educators discussed the contents of the trainings they received. These included the “behaviors of a good peer educator” (including how to respond to rude and difficult beneficiaries), what are HIV and STIs, how they are transmitted, and how they are prevented, how to do behavior change communication and condom use.

“Yes I did, we must go to five trainings: how the peer educator must behave, awareness raising, how to use a condom, and the diseases, that is how to catch the disease, and preventing STIs, HIV/AIDS. Ha! I forgot the last one!”

“They said that I was paid to come mess up their business. But as the director had taught me, I did not get drawn into a conflict”

“We have had the trainings on the subject of the behaviors to have as a peer educator.”

Trainings went from 3 days to one week. Several made appreciative comments regarding what they had learned in the trainings.

“I have received a lot of information about the prevention of STIs and HIV/AIDS and other diseases.”

“The strong point is that the post of peer educator has made it so I got a lot of information to lead me to change the behavior for the other FSW.” “I got a lot of information on women’s health.”

D. Benefits/motivations of peer educators/animators (Question 2.d. ensuring quality)

The peer educators who were interviewed unanimously felt that they received a great deal of benefit from being a peer educator. As shown in Table 7.5 below, the peer educators gained a great deal of personal satisfaction from knowing that they save lives and that they are otherwise protecting the health of their community. They also felt they learned a lot, and this ongoing learning and skills building was considered a key benefit. Finally, many also mentioned the respect they get as a peer educator.

Table 7.5: Benefits of/motivation for being a peer educator/ animator	
Themes regarding benefits	# of interviewees citing this
Save lives/help protect people’s health	9
Learning/skills-building	7
Get respect from peers/community	5
Like different aspects of the job	4
Paid a stipend	4
Facilitates getting services for self	3
Peer education is preferable to sex work	3
Loves being a PE	2
The director is very nice	2

As mentioned, most peer educators discussed the theme of their being motivated by the sense that they are saving lives and helping others, which gave them a deep sense of satisfaction.

“I have saved the lives of many people...”

“I say that it’s very important, because since I protect myself at first, I also protect the others, I mean to say the clients and their families, since many of the clients are married.”

“Even though the project has stopped, we have continued to do the work because every day there are new arrivals FSW. It is necessary to explain to them what is good and what is not good.”

“I decided to become a peer educator to help the others, so that the other FSW don’t get STIs or HIV/AIDS.”

“Since our activity consists of informing our comrades about their health, which is the most important for us.”

Another key theme was that peer educators gained many skills and learning from being a peer educator/ animator.

“Before I became a PE, I had a little experience with HIV. I wanted to know more about the subject.”

“It is very beneficial for me, because I am the first beneficiary. That helped us to change behavior.”

“Before, I didn’t speak well. Now I know how to read and write in French. I can drive a motorcycle.” “Now I can use computers! I can perform the HIV test myself!”

Another theme was the respect they get in their communities because they are peer educators.

“The best thing is that I am highly respected in my milieu.” (Interviewee #3)”

“Now I am very popular in the area where I live. There are even people who think I am a doctor!” (Interviewee #4)

“The population respects me now. They say I work for a health project that helps women and their daughters. They call me ‘nurse’ now.” (Interviewee #6)

“I am respected and that does me a great deal of good!” (Interviewee #10)

Of course, a key theme from the perspective of peer educators was the stipend that they receive as a benefit/motivation.

“Aunt Madame (program director) hired me and she pays me each month. I don’t have credit with her so I do the work so she is satisfied.”

Peer educators mentioned that being a peer educator helped them to access services themselves.

“If I tell her I have a financial problem she (the project director) resolves it by giving me credit or if my child gets sick she gives me a paper and he is treated for free. I have so much benefit... its utility is so big I can’t tell it all. What I just said out loud that’s it!”

In addition, another theme was that peer education helped women to leave sex work.

“For me the awareness raising helped me to leave sex work which is a great benefit.”

“I get benefit from peer educator because we work in the *maquis* and it is not easy to work in these places.”

E. Challenges of being a peer educator/animator (Question 2.e. Challenges and Successes)

When asked about challenges in their work, the most common issue was disrespectful beneficiaries. However, even this was only mentioned by five of the peer educators, showing that there was high variability regarding what peer educators felt were their key challenges.

Sub-themes	# of interviewees citing this
Disrespectful beneficiaries	5
Stipend too small	3
Mobility of FSW	3
Some FSW don't want to participate	2
Some FSW still don't use condoms	2
NO STI drugs at center	2
Some people don't understand message	2
Transport too expensive	1
SW don't come on time to sessions	1
Some people deny HIV/AIDS exists	1
Police harassment of FSW	1
Older FSW know it all already	1
No ARVs at center	1
Condoms too expensive	1

The only theme that was mentioned with some consistency was rudeness and hostility among FSW in the bars. One PE, however, said that she had never had this problem.

“At the beginning it was not easy to assemble everyone in the bar to give them information. At the moment that I gave the information there were some who listened but on the other hand some tried to sabotage the session and told me, ‘Since when did you become a doctor? It must be that you are tired of this work and that you want to change the others.’”

“They said that I myself must have AIDS if I come to talk about AIDS. Some even threw my papers outside. But I picked them back up and I kept giving the information until the point where we understood each other.”

Some FSW peer educators complained that their stipends were too small others mentioned the difficulty of dealing with highly mobile sex workers.

“It is not a lot. It was only 11,000 CFA that they gave us but now it has become 10,000.”

“The girls move around a lot. Meaning that you educate one girl and in four months she changes to a different bar, to go look for where there is money. Now there are many who go away to the mines.”

VII. Information about the HIV prevention program for FSW from the perspective of the FSW peer educator/animators

A. Purposes of the project (Question 2.b Theory/BCC/Strategies)

The peer educators/animators were specifically asked what the purposes of the project were, over and beyond what they actually do in their jobs. It is important that peer educators and animators understand the mission of their work, as this underlies the BCC conversations that they have with FSW. As Table 7.7 shows, the PEs had a profound understanding of the purpose of the project, which is to help the population avoid disease. Beyond this and between the ten of them, they mentioned how the key services offered by the project help to get to that goal.

Sub-themes	# of interviewees citing this
Helps people avoid disease	10
Project for FSW	5
Encourage HIV testing	5
Encourage condom use	4
Treat sick FSW	4
Protect health of general population	3
Confidentiality	3
Protect the health of clients	2
Help SW to avoid pregnancy	2
Help HIV+ sex workers	2
Provide health cards to FSW	1

All of the women were clear that the primary purpose of the project was to help FSW avoid disease.

“<The Project> is here to give health to people and to give advice to FSW about diseases.”

“The project has provided a great deal of help: it has provided a health center for us, the FSW, where we can express our needs in an

environment of confidentiality. It is a project that helps FSW on all levels.”

“Oh! The project has really helped us especially we the FSW and our clients. The peer education project has opened our eyes. Thanks to this project we have understood how to catch diseases and how to protect ourselves from them.”

Apart from health benefits, half of the FSW mentioned the theme that the project was there for the general benefit of sex workers.

“Me, I would say the peer education project came for we FSW. We contact lots of FSW, I can’t even tell you how many. This project is here to help us.”

“It’s a project that brings help to us the FSW.”

HIV testing was mentioned as a key purpose of the programming by half of the peer educators.

“The project does outreach for the promotion of the test.”

“So the people themselves understand the importance of considering these things and they come to get tested and they give them their result. The project does that.”

Several peer educators spoke about the purpose of the project being to promote condom use.

“The peer education project... It is to inform the other FSW, those that don’t understand how to catch disease or how to protect themselves against disease in showing them how to use condoms.”

“She (the founder of the NGO) said, ‘OK now if you want to have sex with your clients, you must always have protected sex.’ I said, ‘OK, no problem.’

And she said, ‘since you are a FSW, if you have unprotected sex it is your life you’re fucking away.’ And I said, ‘OK, no problem.’”

Some peer educators mentioned that one of the purposes of the project is to care for sick sex workers.

“She (the project doctor) sees us when we get sick.”

“Another objective is to help and treat the sick FSW.”

A few peer educators noted that the project not only helps FSW, but also serves to keep HIV/AIDS from spreading into the general population.

“It is to protect oneself and to protect others against STIs and HIV/AIDS. Look, if one person gets sick, she can pass the disease to several people. On the other hand, if the person protects herself, it is as if many people protect themselves. That is to say that the objective is the prevention of transmission of STIs and HIV for the whole population and our country...”

“The peer education project was made to help others. That is to say us the FSW, our clients, and their families. Among our clients there are many who are husbands. This is a project that helps to well inform the people regarding the prevention of STIs and HIV/AIDS.”

“That is to say that the objective is the prevention of the transmission of HIV and STIs for the entire population and our country will advance.”

Confidentiality being at the very heart of the work was an important theme.

“This is what I tell the kids (the young FSW), I say, ‘come, we’ll go over there (to the clinic). There, they don’t talk about you because if you go there, no one will say this person is a prostitute, or that person has AIDS. At the clinic they don’t do that. Ha-hum! It is total confidentiality!’”

B. Program outcomes and successes (Question 2.e.)

The peer educator/animators were asked what outcomes they had observed in the population they had worked with over the years. All discussed different successes they had experienced over the considerable time frame they had been involved in the program, which are presented in Table 7.8 below.

Sub-themes	# of interviewees citing this
FSW population respects work of PEs	8
Increased treatment of STIs	7
Increased condom purchase/use	6
General population demand services	5
Fewer STIs among FSW	5
Behavior change	5
Increased HIV testing	4
Increased awareness of disease	4

Most peer educators/animators noted that the population appreciated their work and that this was a positive outcome over the time frame they had been working.

“Nowadays, the population respects us a great deal in the exercise of our function.”

“Even in the neighborhood if the people learn that you are a peer educator they will confuse you with a doctor and that is a great honor. Even in the *maquis* (bars) they call me “doctor”, but I rectify it by explaining that I am just a peer educator. They say that even the doctors can’t say better than me. I explain to them in my turn that it is the doctors that taught me what I tell them.”

They noticed increase in STI treatment, condom use and decreased prevalence of STIs as a result.

“The girls and the clients come on their own to get treated.”

“They come in mass now to the center.”

“... There has been a great deal of change in their behavior. The girls have learned the importance of using condoms. When they get sick they are treated at low cost without being stigmatized.”

“Peer education has great importance because thanks to the activities that we lead the people find their health. In addition to that, the sick people have been treated for free.”

“The number of sick FSW has diminished because of the many information and awareness-raising sessions.”

“.. and even their clients use condoms. Now we have fewer diseases compared with before...”

“The condom works so well now that the illnesses of our girls have become rare in the bars, even in the streets. Before we used to see the girls so ill we pitied them. We don’t see that now. Don’t you see the impact of the project in our country wherever you go in Mali?”

Even the general population now comes to them to get condoms and information about HIV/AIDS.

“I provide awareness-raising to everybody, I mean the boys and the girls, the young married ladies, because the whole world is given up to debauchery now!” “Before people said that this project was a project for prostitutes. But today it is the opposite. The center is frequented by lots of other people.”

“This project was created for us the FSW but we’ve noticed that it is for everybody. I mean the homosexuals and even the other people because me, I bring (to the center) a lot of other people from the neighborhood who are not FSW.”

“The people have understood including the FSW and even other people come to see me at my house.”

Some peer educators/animators noted behavior change in general. Increased HIV testing and increased awareness of disease were also mentioned as outcomes.

Thanks to this project, lots of FSW have changed their behavior, starting with me-myself!” “Where I live the people come to get their consultation (at the clinic), they come to get tested, that’s already a lot!”

“The objectives are reached because all of the FSW and their clients also use condoms.”

“You see even the young girls use condoms regularly even in the bars. Now you see the boxes of condoms.” “Where I spread my messages yes I see they come to be protected against lots of diseases.” “So the people themselves understand the importance to see these things and they come to get tested and we give them the results...”

C. Recommendations (Question 2.e. Challenges and Successes)

All of the interviewees were asked what recommendations they might make to future programming. As noted in table 7.9, the most common recommendation was to create income-generating activities and providing better transport options (either more money for transport or another option for transport.) When the interviews were conducted, the project was in between agreements, so several peer educators urged USAID to continue with the project (which it did).

Table 7.9: Recommendations from FSW peer educators

Sub-themes	# of interviewees citing this
Income generating activities are needed	7
Peer educators need more transport options	6
Fund the project	4
Increase PE stipend	4
Stop stock outs	3
Create a laboratory in the center	3
ARVs should be offered in center	2
Advocate more with police	1
Increase intensity of program	1
Reduce price of condoms	1
Train more PEs	1
Provide STI meds always in the center	1
More services for HIV+ FSW	1

The most common suggestion from the peer educators was to create revenue generating activities. In some cases, but not others, the peer educators specifically suggested that they wanted these activities to help them leave sex work.

“It is necessary to think about the creation of revenue-generating activities for us. God help us!”

“It is necessary to organize many trainings for the peer educators. Me, I want them to give us money so that the peer educators can be tailors, small businesswomen and many other things so they can leave the sex work profession.”

“It would be a good thing if they gave us a little money. This money could be given to the project so it could give us loans we would reimburse bit by bit... With <A past income generating project> she loaned me money that allowed me to dye fabric. I know how to dye fabric and I used to sell clothes (*Bazin*) that I dyed for my fellow FSW. I sold on credit and they paid me back 500 CFA per day.”

Transportation was a challenge for the sex worker peer educators, who recommended providing either money for transport or specific transport options.

“It is necessary to give motorcycles to the peer educators for their movements.”

“The help that you can do for example for we who spread the message even if we can have two feet, a motorcycle in addition to our two feet! That would help us to go to the bars in the bush such as Yirimadjo, the places where the cost of transport is bothersome like 2000 CFA. You could put 500 CFA of gas to go spread your messages. That will allow us to go farther to spread our messages.”

“My most ardent desire is the increase of our stipend because we work at night and at a certain hour the taxis are rare and transportation becomes expensive.”

Some sex worker peer educators said they needed a raise and others recommended that the project be funded. (As mentioned earlier, they were in hiatus at the time of the interviews.)

“The money that they give is small because it is with this money that we could do a lot.” *Interviewer: “You’d like to have how much?”*
 “30,000 CFA.”

“You must also improve our little salary, improve the salary of the ‘mother educators’ (as she calls herself, ‘mother’ rhymes with ‘peer’ in French), because when you go into the field, improve a little bit, we are not saying a lot because the country is going bad, isn’t it? Improve just a little bit the salary of the mother educators...”

“I say let the project start up again because that is one month that the project is stopped... Because we tell the people who have known much sickness. It is necessary that the project is refinanced, because with the

training we learn a lot of things and in our turn, we will spread the message to our colleagues and their clients.”

“I say hey, it is necessary that the project restarts because that has been a little too long that it stopped. Despite the stop of the project, we have continued to do the work because each day there are new FSW and someone has to explain what is good and what isn’t.”

A few peer educators were concerned about stock outs of STI medications and/or condoms at the center. Some mentioned the need to have a laboratory in the center or to provide ARVs in the center.

“It is necessary to avoid stock-outs of condoms at the center”

“It is important that our stocks don’t run out. This is what I said to <project director> and she said that it isn’t them, that it is the white people. If the white people don’t bring them, we’re going to do what? We, we are counting on you! It is not acceptable to say ‘we will do what?’ We always need medicines.”

“The center needs a laboratory for testing and diagnostics for STIs.”

“What I would like that they improve here... when you send the sick here that the sick can get their drugs here. But when it’s about taking the anti-retrovirals she knows they have to go clear across town to get their drugs. There, you could come across an acquaintance the people know that that clinic it’s for anti-retrovirals. Here there are lots of stores you come there are lots of offices. You can come and they don’t know what you have come to do here.”

D. Characteristics of sex work itself mentioned by the interviewees (Question 2.f.

Environment)

While they were not specifically asked to describe the sex work milieu, most of the peer educators interviewed inadvertently touched on themes related to this (Table 7.10). The most common theme was that that sex work was unpleasant and/or that the person would like to get out. The mobility of sex workers in Mali was also discuss. In Mali, anecdotally

violence against sex workers by clients is relatively rare. However, this and other problems with clients were mentioned by two sex worker peer educators as was harassment by the police.

Sub-themes	# of interviewees citing this
Sex work is unpleasant/would like to get out	6
FSW are highly mobile	4
FSW support their families financially	3
Problems with difficult clients	2
Police harass FSW	2

More than half of the peer educators described sex work as a negative experience, several of these said they wanted to get out.

“I want another job. I don’t want to die as a sex worker.”

“It is necessary that they think of giving us some financial aid to leave the sex work profession.”

“Prostitution is not a job you love, we are here in it... We did not decide to prostitute ourselves. It is nature that puts you into the problems. Prostitution is not a job, it is getting by.”

“We are conscious that what we do won’t last an eternity and that we are getting older and it will be necessary that we have a dignified occupation.”

Others mentioned the high mobility of sex workers in Mali.

“...if there isn’t money, we go elsewhere.”

“I go back home every two years to spend 3 or 4 months there, but if when they ask me what I do for work, I always say I’m a server in bars and I sell small things.”

Three of the peer educators mentioned that they are important financial supporters of their families.

“I am the breadwinner of my family.”

“Thank God I knew what to do. I put my family under a roof. I paid the school of my children until next year the first will finish and will start working. Maybe she’ll get me out of this dance, maybe all of this, it is in God’s hands.”

Two PEs mentioned problems with clients, including violence. Other problems include clients who try to convince them not to use condoms, clients who take too long, clients who sneakily take the condom off or poke a hole through it with their fingers, and clients who joke around.

“...there is a client who took me to go to his home, and arriving there I find 3–4 men just like that. I said, ‘but this, this is what? This is what? We made an agreement you and me we agreed on something and you send me to your house and you call your friends? This is a brothel... the others have to pay too...’ I refused... They brutalized me, made me do it by force...”

Two PEs mentioned police harassment.

“There was a time when the police picked up the Nigerian women. So, we lost those women.”

VIII. Summary

The women we interviewed had worked as PEs from 3–13 years and most worked in bars. The FSW PEs interviewed provided rich information on peer education for HIV prevention. All understood that the objective of the project was to prevent the spread of disease and that education and awareness raising and bringing their fellow FSW to the clinic were their key functions. Most also mentioned the promotion of STI treatment, condom distribution and demonstration, and HIV testing. The most important characteristic mentioned as characteristic of a good PE was good communication skills, followed by discretion and confidentiality, getting along with others, and being from the

SW milieu. While most interviewees described sex work itself as unpleasant, almost all discussed great personal satisfaction they receive from helping to save lives and protect the health of their peers. Most said peer education was an opportunity to learn and to increase their skills and respect in the community. In the next chapter, we will explore programming with FSW in Mali from the perspective of program managers.

CHAPTER 8: FINDINGS FROM KEY INFORMANT INTERVIEWS WITH NGO AND GOVERNMENT STAKEHOLDERS

In this chapter, the findings of the thirteen semi-structured interviews with key government and NGO stakeholders are presented. The meaning of these findings will be discussed in greater detail in Chapter 12 (discussion and conclusions). The purpose of the interviews was to answer Question 2 of the evaluation from the perspective of key NGO and government stakeholders:

Question 2: What were the underlying theory, strategies, scope, coverage, successes and challenges of HIV prevention programming for FSW in Mali between 2000 and 2010?

- a. Describe the formative research and community planning process prior to implementation.
- b. Describe underlying theory of behavior change and how this was incorporated in program messages and channels of communication.
- c. Describe the coverage expected and achieved.
- d. Describe training for program staff and peer educators and how the program ensured staff fidelity to the messages throughout the program.
- e. Describe successes and challenges of the program.
- f. Describe key changes in the environment, program strategy, or program resources that may have affected program outcomes.

I. Overall topics

The thirteen NGO and government stakeholders interviewed worked in Bamako and had a wealth of experience as program managers and policymakers. All worked in NGOs or

government departments that worked with Female Sex Workers (FSW) and were in high-level positions, either directors or technical leads.

Table 8.1 shows the overall topics from the interviews. It is important to note that the interviewees were asked open-ended questions, and so the fact that a person did not mention something does not necessarily mean s/he did not think it was important. Statements could be coded multiple times for different topics, sub-topics and themes.

Table 8.1 Overall topics mentioned by program managers/policymakers		
Overall topics ranked by frequency	# interviewees citing this	Theme relates to evaluation question #
Functions and tasks of the organization	13	2.b. Theory/BCC/Strategy 2.d Training/supervision
Services for FSW provided by organization	13	2.b. Theory/BCC/ Strategy
Challenges	13	2.e. Successes/challenges
Geography of programming	12	2.c. Coverage
Information about interviewee	12	2.d Training/supervision
Successes/positive impact	11	2.e. Successes/challenges
USAID actions and strategies	11	2.f. Environment
History of the HIV/AIDS response in Mali	10	2.f. Environment
Actions of other funders/partners	10	2.f. Environment

During analysis using N-Vivo 10, it became apparent that the interviewees did not always have time-bound information regarding specifics such as dates, funding amounts, and targets. The interviewee methodology did not turn out to be appropriate for this kind of discrete data. Finally, little information about program planning prior to the programs was mentioned by the interviewees. This information was found in the document review.

II. Detailed findings

A. Characteristics and functions of interviewees

As shown in Table 8.2, all of the program managers/policymakers had significant experience working with USAID-funded HIV prevention programs that included programming for sex workers. One of these also had significant experience within the Malian government. A little over ½ of the interviewees were doctors. Six of the interviewees began this work in the mid-1990s while six others from between 2000–2003. Only one had joined relatively recently, in 2010. Physicians were highly represented, and one high-level stakeholder was in communications. Note that the interviewers did not collect basic demographic information about the interviewees.

Table 8.2 Characteristics of interviewees	
Sub-topics	# of interviewees citing this
Where they work	13
In NGOs	13
In government	1
Profession	11
Doctor	7
Communications	1
Scientist/Researcher	1
Did not mention	2
Length of experience in HIV/AIDS programming in Mali	12
3 years	1
10 years	1
12 years	3
13 years	2
17 years	1
18 years	3
19 years	1
More than 20 years	1

Interviewees were asked about the functions that they said they performed in their jobs. The interviewees were all either the directors of or in high-level positions in their organizations, which is reflected in what they saw as their principle functions. Supervision of activities, monitoring and evaluation, technical leadership, and coordination with the authorities and affected communities were often cited. Five of the interviewees provided clinical care during the period (2000 to the present). Note that technical leadership includes setting underlying theory and supervision, M&E, and training. Other interviewees reported program implementation, planning, funding mobilization and treating STIs.

B. Functions and tasks of organizations (including behavior change communication and social marketing (question 2.b.) and training, message development, and supervision (question 2.d.))

This section reports on overall functions and tasks of the organization, not specific programming for FSW. All interviewees worked in HIV prevention with sex workers. All of the organizations did some work with other high-risk groups, such as men who have sex with men (MSM) as well as other groups, including truckers and “ambulatory vendors” (women who walk the streets selling food and other small items). Many also provided prevention services to the general population.

The training and supervision of peer educators was discussed by the majority of the interviewees. Social marketing, behavior change research, and behavior change communications were also discussed.

Table 8.3 Functions / tasks of organization	
Sub-topics	# of interviewees citing this
<i>NGO functions (in general)</i>	13
HIV Prevention with FSW	13
Prevention with high-risk groups	12
Prevention with the general population	10
Train peer educators	9
Supervision	4
Capacity building	4
Social marketing	4
Monitoring and evaluation	4
Liaise with authorities and community	4
Provide Anti-Retroviral Therapy (ART)	3
BCC research and evaluation	3
Behavior change communication	3
Positive Health, Dignity and Prevention (PHDP)	3
Advocacy with religious leaders	3
Advocacy for key populations	3
Ensure NGO financial transparency	2
Bring NGOs together to share	2
Key populations on board of directors	1
Work to reduce stigma against PLWHA	1
Prevention of Mother to Child Transmission (PMTCT)	1

Training and supervision were critical to the success of the programs for FSW. Training of peer educators was brought up by nine interviewees while supervision and monitoring and evaluation were also discussed. Coordination and sharing meetings held each semester were considered important venues for learning and exchange.

“The principle is that the NGOs recruit their animators and coordinators and train them. The animators then train the peer educators.”

“Regarding the management of the actors, it was the training, the supervision every three months by our team of all the NGOs to collect the difficulties they encountered in management, in the monitoring of the database. The results of these supervisions were shared during the semester meetings.”

“Also in the prevention projects, there is the capacity building of the agents which is very frequent. This reinforcement gives them motivation to face the

problems because around this disease there is a great deal of taboo. It is necessary to know how to convince the people because once you mess up the communication the people will not perhaps be willing to see you again, to participate in group talks, home visits, which you organize in order that they have the information.”

Question 2.b. focuses on theory and strategy for behavior change. Interviewees discussed the strategy of “social marketing”, in which theory from private sector marketing is used to encourage people to utilize products with a social benefit (HIV prevention products like condoms and lubricant and HIV testing) (Emmet and de Metz 2011). Interviewees discussed the behavior change communication research cycle and behavior change communications themselves. One NGO had key populations represented on the board of directors.

C. Strategies for reducing HIV transmission/impact among sex workers (Question 2.b.)

Question 2.b. aims to capture the strategies for behavior change incorporated by the project. Table 8.4 shows the different services discussed by the interviewees that related specifically to their work with sex workers.

Table 8.4 Services for sex workers provided by organization	
Sub-topics	# of interviewees citing this
Services for FSW provided	13
Voluntary testing and counseling	11
Peer education	10
Behavior change communication	8
Mobile VCT	8
Condom/lube promotion/distribution	7
Group talks	7
Confidentiality	7
STI diagnosis and treatment	6
Video/film projections	4
Home visits	4

Mobile care and treatment	3
Individual counseling	3
Guided referrals for HIV+s	3
Health cards for FSW	2
Promote family planning	2
Condom demonstrations	2
HIV prevention for FSW boyfriends	1
Male barman peer educators	1

Voluntary testing and counseling (VCT) was the most frequently discussed service provided by the interviewees' organizations to sex workers. Most interviewees specifically discussed mobile strategy VCT (taking VCT to the field to test FSW where they are.) In fact, one interviewee mentioned that fixed-site VCT was inappropriate in Mali, which has a low HIV prevalence.

“They tried to do testing in a low-prevalence context of HIV...they learned the lesson, and they then emphasized the mobile strategy to go to the communities, to offer testing. That, that is something that works. Now, almost all of the NGOs go to the community... to offer testing.”

“There was also the promotion of testing with which we worked quite a bit. It was us who started the “advanced strategy” of voluntary testing because we say that it was a need for the NGOs. We developed this strategy and we even documented it... it became the national strategy.”

After testing and counseling, peer education was the most frequently mentioned HIV prevention strategy for FSW.

“The strategy we used during all of this time was peer education. It was this that we promoted and this that we used because we told ourselves that through this strategy the messages could be shared.”

“The strategies of the project at the very beginning were always to raise awareness of the specific group using peer education. So, we always use the peer educators who come from the prostitution milieu.”

Potential peer educators had to conform to certain standards.

“If you go to where the FSW are, they are very well organized. There is the bar manager who is there and there is our leader at the bar and so we give the criteria of selection because it is necessary that the person who is a peer educator has a bit of education to be able to fill out our reporting forms and that the person can use our communication supports that we put at their disposal.”

In the work of peer education, the implication of the bar/brothel management was important. One interviewee even mentioned the use of bar managers as peer educators themselves.

“The strategy depends on the projects: if we want to reach the FSW, we have the peer educators among them. We also have the bar owners who are involved as peer educators, because they help us with what we are doing.”

Behavior change communication (BCC) materials were developed by PSI, which also conducted regular research to see if knowledge, attitudes, and behaviors were changing. This did not appear to continue when, in 2008, the programming went to Care/PKC-II.

“In terms of communication, it was the behavior change communication and especially the “participative approach.” In these cases, we used the tools developed by PSI/Mali. These are participative tools for behavior change which allow the animators to engage the discussion, to do it in a way that is more participative. It is no longer the case that the animator who comes gives all of the information like someone who knows it all. Here, with these tools, he just does the introduction and he lets the participants debate among themselves.”

“They (PSI) did the promotion of supports that were adapted. We can see today the tools they produced, which are understandable by the public. They tested these tools, which I really appreciated.”

“As I said the principal strategy was the communication for behavior change. They were the messages specific to each group. We had put a system in place with PSI that was very interesting. PSI had an M&E team which did the tour every six months through the sites we called “hot points”: brothels, transport stations, etc. They would do the tour every six months to see how the behavior change of target groups evolved. Then, in function of the results, we would meet to review the messages... we adapted the messages for the next group talks. That was really a great intervention that helped us to do the

work: the understanding of the target groups, but also the adaptation of the messages at each stage.”

Condom and lubricant promotion and distribution were also important. The strategy used was condom sales for a small fee rather than for free. In addition to giving condoms, it was necessary to teach FSW how to use the condoms.

“We did social marketing of products, we were always going for sales, even if the price was low. It is because if a person purchases, they do so because they need them. If we give them for free then we are not sure if people will use them. But in some areas the mining companies gave free condoms to their workers.”

“During the supervisions we visited the target groups. We were very close to the target groups. We talked with the FSW who appreciated our actions regarding the availability of male condoms which they used much.”

“They can fall in with clients who don’t want to use condoms or who cut the top off the condoms. This is why we teach the FSW to put on the condoms themselves.”

As FSW are a stigmatized population, assuring confidentiality and privacy is very important.

“We are very, very discrete. We don’t even have a sign in front of our sites that say we are there. This is to not discriminate against the people who come to the NGO for care.”

“We had a nurse who was a peer educator before he finished his studies. Thus, he worked with the sex workers. One day he approached me to say that there were two beautiful young women in the town who were HIV positive. But they continued to contaminate the people. He was ready to divulge this information to the townspeople. I told him, ‘if you do it, you will expose yourself to the criminal justice system. It is not good to stigmatize.’ So, we decided to make copies of a flyer regarding STIs and HIV to give to the young people, so they would know how to protect themselves, since these FSW did not stop.”

Both fixed and mobile strategies were used to extend STI diagnosis and treatment.

Several interviewees mentioned health cards that FSW received to encourage monthly

examinations and treatment for STIs. Sometimes even clients received these cards. The NGOs made arrangements with the police so that they would not arrest a FSW whose card was up to date.

“One of the best things we have seen are the night visits with the medical vehicle. That has been a big help, given that there are some of the girls (FSW) who are ashamed to come during the day to get care for their STIs.”

“We made health cards available to the FSW who would see the doctor every month to check for STIs. But the STI diagnosis was not marked on the card. When they had their medical control they went straight to the police who would put a stamp on the card too.”

“But on the other hand the clients of FSW prefer to just go to the health center, because if they go to a special site for FSW they can be stigmatized. To address that, in Bamako, we make a photocopy of the health center card and we put the name of our NGO on it with the permission of the head physician. That will give the client the right to come and to only pay ½ the price of a consultation.”

Sex workers who tested HIV-positive needed special accompaniment to antiretroviral treatment.

“When some of them want to do the testing and when we referred them to the ART center, they refused. So we sent them to [NGO that works with FSW]. When they are confirmed (to be HIV+), they convince them to go to the ART center.”

Several types of services were mentioned by just one or two interviewees. This does not mean other NGOs did not provide these services, but may suggest that they were not considered as central to the organizations’ missions. Interviewees discussed offering FSW family planning. One discussed interventions targeting boyfriends, one discussed interventions to reduce stigmatization, and another discussed revenue generating activities for sex workers.

Table 8.4.b. Services for sex workers provided by organization mentioned only once	
Health cards for male clients/boyfriends	Revenue generating activities
Reduce stigmatization	Provide ART in specialized center

“We have a last intervention which is the promotion of the target population for the professional training and the giving of funds for revenue generating activities. This was not defined as a strategy but was born of the concerns of the target population.”

D. Program coverage (Question 2.c.)

Almost all interviewees mentioned the geographic coverage (question 2.c) of programming for FSW funded by the US Government. (Table 8.5) This information confirms that geographic coverage we found in the document review. The NGOs managed by *Groupe Pivot* (during both the PSI stages and the Care/PKC-II stages) extended to all regional capitals as well as certain hot spots in all regions except Timbuktu and Kidal. *Soutoura* worked in Bamako, Kayes, Niono, and Kati. (Numeric targets reached were evaluated through the document review.)

Table 8.5 Geography of programming mentioned by program managers/policymakers	
Sub-topics	# of interviewees citing this
<i>Geography of programming</i>	12
Bamako	10
Kayes	9
Sikasso	7
Ségou	6
Mopti	5
All regions except Timbuktu or Kidal	3
Gao	3
Yatela mine (Kayes region)	3
Kourémalé (Koulikoro region)	2
Sadiola mine (Kayes region)	2
Labezangan (Gao region)	2
Sanso mine (Sikasso region)	2

Kati (Koulikoro region)	2
Niono (Ségou region)	2
Koutiala (Sikasso region)	2
Bougouni (Sikasso region)	2
Kouri (Sikasso region)	1
Kangaba (Koulikoro region)	1
Sébénikoro (Bamako)	1

Table 8.5.b Geography of programming (places mentioned only once)		
Kita (Koulikoro region)	Marakakougo	Didjan (Kayes region)
Loulouni and Fourou mines (Sikasso)	Fana (Koulikoro region)	Kénièba (Koulikoro region)
Diboli (Kayes region)	Sogoniko (Bamako)	Loulo mine (Kayes region)

E. Program successes, challenges, and recommendations (Question 2.e.)

Question 2.e. asks to note successes of the program as well as key challenges.

Interviewees had many ideas to offer regarding the most important success of their programming (Table 8.6 below). In some cases, they spoke of their specific programming for FSW and in others spoke more generally about changes in attitudes and the environment in Mali regarding the fight against HIV/AIDS. Some successes were perceived impacts in the lives of FSW.

Table 8.6 Program successes	
Sub-topics	# of interviewees citing this
<i>Program successes and impact</i>	11
Authorities accept/help programming	7
Commodities available	6
FSW changed behavior	5
Increased awareness of general population about HIV/AIDS	5
Project met its objectives	5
The personnel are well trained	4
FSW feel the project is theirs	4
FSW use condoms	4
Increased HIV testing among FSW	3
General population appreciate program	3

Able to reach clandestine FSW	3
FSW appreciate program	3
FSW access treatment	2
Civil society strengthened	3
Good coordination between NGOs	3
Increased awareness of HIV among FSW	2
Increased STI treatment among FSW	2
Coordination meetings are a success	2
FSW encourage peers to use services	1
FSW left sex work	1
Mobile strategy effective	1
Trained PE to replace those who leave	1
FSW protect each other from clients	1
Peer education effective	1

Acceptance by authorities of programming was the most widely cited success by the participants.

“The good collaboration between us and the technical structures of the state gave a particular weight to different activities. The FSW who presented themselves with our reference forms to the health structures didn’t have to wait in line for their consultations.”

“... there has been an attachment of the authorities of the covered sites. Whether we are talking about the city halls, the chief doctors, the social services, etc... they were all good with us.”

“More and more we are recognized as an actor in the fight against AIDS. Everywhere where we are, the people recognize us, the actors of health recognize us too whether we are talking about the state or the financial partners.”

Increased awareness in the general population about HIV/AIDS and the fact that their project met the targets set by USAID were key successes.

“In general the objectives were reached because there is a raising of consciousness at all levels: the general population and the target groups. The population has understood that the problem of AIDS is real and it must get involved in prevention activities.”

“In our days, given that the people are more and more in contact with people who are HIV-positive either through the family or otherwise the neighbors or friends, they are more and more conscious of the disease.”

Five interviewees spoke about the increased availability of commodities (supplied directly by USAID after 2015) as a success.

“These things are linked one to another but what impressed me the most was the integration of medical treatment (STI drug commodities) within the prevention of HIV/AIDS which permitted us to reach acceptable results and that let the FSW, MSM, and other target groups become aware of their risks. When we integrated the STI treatment our indicators got better.”

“The making available of (STI) medicines and HIV tests was also a strong point.”

Many interviewees discussed positive health-protective behavior change among FSW. A wide range of behavior change among FSW was observed by the interviewees. FSW were using condoms more and accessing more HIV testing. Also, FSW were getting treatment for STIs thanks to the project. General awareness about HIV/AIDS among sex workers had increased and HIV-positive FSW were accessing ARV treatment. Some FSW had been helped by revenue-generating activities to leave the profession. FSW leaders encouraged their peers to adopt the behaviors promoted by the project and in some bars the FSW joined together to protect each other.

“At the bars, every time there is a new FSW who arrives, the FSW leaders bring them to the health center for HIV testing and that is a real behavior change. Every three months all the FSW come to get tested without exception.”

“There are even bars where if a client refuses to wear a condom the FSW join together to punish him or if a condom breaks during sex the client is called up by the police and the FSW is taken to the testing center. In the case where she is positive the client can be held liable. During one of our night visits, we found a case at a bar where the client had offered money to the FSW to have unprotected sex with her despite the refusal of this sex worker. She cried out and the other FSW came to her aid to hit this bad client who fled totally naked leaving his pants behind!”

“Well the thing that impressed me the most, I am starting to have a behavior

change among the specific groups. From the creation of our NGO to today, there has been a great deal of behavior change in this group: many didn't use condoms, many didn't use lubricants and many didn't protect themselves with their boyfriends. Many have even left prostitution and have begun other activities that generate revenue."

FSW feel ownership for the program and appreciate the project.

"And also, the appropriation that this population has made of the project. The project is done for them and by them, which really touched me. Everywhere we go, this is a population that is involved in all of our activities because they (the activities) keep their (the FSW's) worries central."

"...the people we meet in the different bars, well the FSW and the MSM, and they participate because they said that the project came for them and is executed by them. So, they really appreciated the project."

The capacity-building elements of the programming were cited as successes by some of the participants. Many personnel had received valuable training and experience and civil society itself had been strengthened.

"It is everything that has engendered all of these successes if I can express myself thus; this which has permitted us to overcome these challenges, it is the organization of <organization> which is done in such a way so there is a certain mastery of what we do. We have a mastery of NGO management. Because that is a challenge apart! First there is the selection, we did that with the partner, with the help of very specific criteria so that the NGOs that work with us have a proven technical capacity and a capacity to manage. Now, we have made sure they are reinforced. So, that has been very well managed by the administration. That is something that has really worked!"

"USAID trusted the civil society with the work to lead them to be the qualified operators with whom it contracts. I think there really is a transfer of competence that should be reinforced."

Interviewees emphasized certain program elements or innovative strategies that they felt were key successes of the programming. The coordination/information-sharing meetings held twice per year by GP/SP during both the PSI and Care/PKC-II periods were successful and coordination between the NGOs had improved. Some specific NGOs tried

to reach clandestine FSW. The mobile strategy for VCT and STI treatment and peer education was effective. One NGO trained peer educators on site to make up for those who moved away.

“The synergies found in the coordination of the fight against AIDS is reestablishing through exchanges. The NGOs that intervene today, to avoid intervening in the same zones, they target specific zones for them and that is working well.”

“Each time we notice the departure of a peer educator we ask the people in charge at the bars and the FSW leaders to choose another that we train at the site. In addition to the training we ask the animators to monitor these new recruits closely so that they can master the tools.”

Question 2.e. asks to note challenges of the program as well as successes.

Table 8.7 Challenges	
Sub-topics	# interviewees citing this
<i>Program challenges</i>	<i>13</i>
Insufficient financing	9
Short term of projects	9
Key populations stigmatized	8
Behavior change takes time	6
Mobility of FSW	5
Insufficient data	4
FSW don't use condoms with boyfriends	4
Sustainability	3
AIDS is stigmatized	3
Lack of coordination among NGOs	3
Financing not adapted or consistent	3
Clandestine FSW hard to reach/don't use condoms	3
Global Fund systems challenging	3
Evaluation challenge because of target group movement	3
Stipend for peer educators is too low	2
Insufficient vehicles	2
FSW don't like female condom	2
Financial systems	2
Motivation of peer educators	2
Insufficient impact/outcome evaluation	2
Lack of commodities	2
Can't reduce # of partners among FSW	2
Female condoms expensive and hard to use	2
Some clients cut top of the condom off, or refuse to wear one	2

Mali is big and spread out	1
Helping target groups feel ownership	1
Key populations are often hesitant to participate	1
Pre-conceived projects don't include community in design	1
Police oppression of sex workers	1

The most frequently cited challenges noted were related to insufficient resources: time and money. Funding was often insufficient and the short-term nature of many projects was often a barrier to success. Participants mentioned that the time required to induce behavior change itself was a key challenge. Another complaint about financing was that it was not consistent or adapted to the context.

“The funds are insufficient because prevention and treatment, the training are activities that require a great deal of funds because there is so much that happens that is unanticipated. For example, when staff leave the NGO must recruit new staff and then train them and that costs something.”

“This is a big challenge. They say we work on communication for behavior change. But we know that that doesn't happen in a year or two, but the majority of projects on HIV/AIDS have a duration of 3 years. It is difficult to have behavior change in such a short time.”

“I think also that as long as the financing has a short duration the personnel will be unstable. The issue is that when you recruit someone for a program, you invest in the person through training that is given to reinforce his competencies. That costs a lot of money. But when the program ends, he looks for another job and in fact it is lost expertise for your organization.”

“We are also very tied to external financing and as a result it suffices for the USAID program to end where there is an uncomfortable situation so that the NGOs cease to function because the funders leave in these situation. For example, the *coup d'état* in 2012 caused the funders to the country to retreat and all the NGOs ended.”

Other resource-related issues included insufficient project vehicles and low stipend of peer educators. Interviewees also mentioned stock-outs of key commodities like condoms, HIV tests, and STI drugs.

“The second difficulty is that since our birth we have never had a vehicle except that of a partner. All of the other activities we did with my own transportation which is only the minibus paid for by the Global Fund. If I have supervisions and other activities that can’t be done with my own personal vehicle I rent vehicles. This is the biggest problem I have had.”

“Before we used to give these actors 1000 CFA per month for their travel costs and this amount was raised to 3000 CFA for the next. The peer educators are not paid and they are volunteers. It is for this reasons that today these actors begin to complain.”

“There have been moments when there were stock outs of condoms.”

“At first there were problems with medications (for STIs) and reactivities.” (for HIV tests).

Stigma and discrimination were important themes discussed by the interviewees. This could be directed against sex workers and other key populations but general stigma around HIV/AIDS in Malian society was also discussed. Two of the interviewees discussed the fact that FSW are often stigmatized in the health centers while they wait in line. One project addressed this by allowing FSW to go to the front of the line by using their health cards from the NGO.

“The perception of the general population is sometimes negative because they say we work to encourage prostitution... To work with the MSM creates a risk for the group but also for the organization. As soon as the population knows that we work with these groups, they are stigmatized and this can cause problems for the organization.”

“The constraints are linked to the poor comprehension of people of the project because many people don’t understand why we intervene with these specific groups. This has been one of the big problems the organization has faced. There has even been verbal and physical abuse of our agents. Yes, they insulted us, they threw rocks at us. But that did not discourage us. We continue to work up till the present.”

“The FSW who went with our referral forms at the health centers did not wait in line for their consultations because in doing so they opened themselves up

to the criticism and verbal violence by the other women who say that these girls come to take away their husbands and frequently fights followed.”

“HIV/AIDS is a disease that does not have a face because nobody dares to speak of their situation to another person...”

“It is difficult to work in an environment where AIDS is stigmatized and we don’t have the liberty to communicate as we should about AIDS where everything is in code.”

“We are witnesses to some cases of repudiation of women because of their seropositive status and also of people who have been fired from their jobs for being HIV positive.”

“We were in one village where the chief told us, ‘when someone gets sick and doesn’t do anything except get skinnier and skinnier we tie him to a cart and we throw him out, this is the only solution.’ But it is not like that, you chase him but where does he go? He will be out in the wilderness.”

Sex workers are not always easy to work with. The mobility of FSW was one key challenge both for the retention of trained peer educators as well as the difficulty of conducting activities with FSW who move so often. Participants questioned the effectiveness of impact evaluation with such a mobile population given that over time you are not working with the same people. Participants said that sex workers do not use condoms with their boyfriends. Participants complained of the difficulty of reaching clandestine sex workers and the fact they are less likely to use condoms. Participants each discussed the low motivation of FSW peer educators, the fact that you cannot promote partner reduction with FSW, and the fact that some clients refuse to use condoms or they cut the top of the condom off to fool the FSW. Finally, interviewees talked about police oppression of FSW, FSW being hostile during group talks, the fact that they do not have time to go to clinic, and the fact that they did not have the money to pay for STI treatment.

“You know that the sex workers are very mobile and that is why we have trouble with the funders who don’t understand the repeated trainings for them... they rarely spend more than three months in one place and when they leave they take our (peer education) tools with them and we are obliged to replace them and to make new tools for the new peer educators. So, you are obliged to do two or three trainings during a year when only one training was budgeted.”

“Today they are there 2 or 3 months. Tomorrow they leave to go to mining zones, or where there is a lot of money for this or that reason. They move a lot. So, it is necessary to change the peer educators who leave. We recruit each time because when one leaves you have to recruit another to train her.”

“What we wanted to do was to organize the sex workers into an association, but that could not be done because they were too mobile. Our objective was to organize them so they could continue with the activities even after the end of our project.”

“The challenge to address was the clandestine sex workers who are in the neighborhoods...to identify and reach this target group.”

“The big problem with the sex workers is their “boyfriends” with whom they do not use condoms systematically.”

Female condoms (as opposed to male condoms) have specific challenges. First, participants said that FSW do not like them and that they were expensive and difficult to use.

“Also, we did the promotion of the female condoms, which are expensive, inaccessible, and not easy to use. For example, we have three male condoms at 50 francs and a single female condom at 500 francs. We did it to facilitate access for women to the method of prevention, but it was complicated for them to buy these condoms.”

Finally, a number of interviewees offered different programmatic challenges. Insufficient data on key populations was a problem as was the lack of coordination between NGOs, sustainability and the problem of Global Fund systems and the Global Fund suspension. Other issues included financial systems; insufficient impact evaluation; and the fact that

the mobility of FSW in both space and time makes evaluation difficult.

“Often, we don’t have a lot of information... with the conflict that we have, we haven’t analyzed the context enough. For everybody this is already finished, meaning that people have already turned the page. But the people don’t take the time to sit down and say to each other: how many foreign soldiers are in Mali?”

“I think that the strategy is good but I suggest there be more of an orientation to avoid that one trips oneself up because these key populations that are defined today constitute a real problem. We need to orient ourselves better regarding these populations, in order that there is better comprehension and that they adhere and cooperate in terms of results.”

“...that which I deplore in all of this is the anarchy of interventions of projects that have enormous consequences. For one part, there will be redundancy in the data regarding the results of the interventions. On the other hand there is an unjustified rivalry between NGOs and that is not favorable to the synergy that we would like to see between the NGOs.”

“The challenges are especially important after the project. During the execution of the project, the fact that we are focused and that we come every time we can reach the objectives. But how do we consolidate this after the project is over? The community has been involved but they don’t see their interest in it, even though the benefits and impact is for them. But it doesn’t understand that directly. The people think that every intervention must give them something palpable, touchable...”

“We have observed that we need to have multiple partners because with the system of one partner the program ends as soon as there is a problem with that partner and the consequences are enormous. We have seen the case of the Global Fund which cut all the financing and consequently many NGOs disappeared.”

“If you take today the questions such as the strategies to detect fraud, there are some NGOs that have the will to do it but they do not have all of the means necessary to do it. There is this need that is there

“Now the impact over and above the process indicators hasn’t been evaluated. Other than the semester evaluations that PSI used to do, we haven’t had an evaluation to know if the level of the target groups’ mentalities have changed or if the prevalence rates have evolved. But you must wait for the ISBS every three years to know how that has evolved, these results are something

else because these are target groups for whom the rate of replacement is very high. For example, a sex worker, you have her in Sadiola today but tomorrow she learns there is a mine at Kolondiéba and she goes there... These are the results of the ISBS which allows us to follow the evolution.”

Finally, some interviewees mentioned physical issues in Mali that were a challenge for programming. Mali is a large and spread-out country and it is difficult to provide good coverage. It is also hard to reach target groups during the rainy season.

“Mali is very spread out. The resources do not permit us to intervene in all of the regions. The ideal would be that the project covered the entire country, even if the regions that we did not cover had a lower prevalence than the others.”

“The rainy seasons makes the target groups unavailable.”

Given the volume of challenges described by interviewees, all of them cannot be treated in detail. But challenges mentioned once are presented in Table 8.7.b below.

Different funders different procedures	Low salaries of government employees
Agents don't understand messages	Limited geographical coverage
Late signatures of agreements	Staff retention
Syndromic STI screening not adequate	M&E
Communications	Cannot help all FSW wishing to leave SW
FSW cannot pay for medical care	Hostile FSW during activities
FSW do not have time to go to health centers	Fake medication/self-prescribing
HIV/AIDS seems to be a problem without end	Some health centers do not do VCT
ARVs not available in some areas	Government agents want bribes
Few Malians know their HIV status	System of reference weak
People think NGOs getting rich off poor	Reaching target groups during rainy season

Question 2.e. asks to note challenges of the program as well as successes. However, the study participants had important recommendations to USAID to better address the challenges in programming in Mali. These are presented in Table 8.8 below. All of the

participants gave recommendations (as they were asked to do so) and they also made recommendations spontaneously during other parts of the interview. Because the participants gave so many distinct recommendations (an average of 10 per interviewee) we will focus on those that were suggested at least twice. Table 8.8.b gives those recommendations that were mentioned only once.

Table 8.8 Recommendations	
Sub-topics	# of interviewees citing this
<i>Recommendations</i>	13
Work with other populations (truckers, youth, general population)	10
Involve public structures (MOH, health centers) more	8
Work for better sustainability	6
Do more evaluation	6
Continue or intensify services for key populations including FSW	5
More capacity building for NGOs	4
Continue funding local NGOs directly	4
Need better targeted strategies for each target group	3
Increase geographic coverage	3
Better geographic coordination	3
Pay staff and/or peer educators more	3
Increase funding	3
Include more community input and involvement	2
Promote human rights/fight stigma and discrimination	2
More professional development and training	2
Aim for higher-level outcomes	2
Projects should be planned with more continuity	2
Do more mobile services	2
Improve BCC strategies	2
Funders should coordinate their indicators and evaluation	2
Do more advocacy for AIDS	2
Fund the government	2
Do STI treatment at the sites (GP did not do this)	1

As USAID moves to focus more on key populations such as sex workers, the majority of the Malian stakeholders interviewed believed that certain groups, such as youth, mobile

populations such as truckers, miners, the Malian and foreign militaries, and the general population should not be forgotten. Conversely, others said that the focus on key populations should be either maintained or intensified.

“To continue to invest in prevention with key populations in particular and the general population is a good strategy that should be encouraged.”

“Since a certain time our patients (almost 15%) come from a new zone that is the mines. That is why it will be necessary to keep them in mind among our targets.”

“In addition to that, there are the cases of soldiers that we have not yet had the courage to address. Given the situation that Mali lives in these moments the soldiers are also very vulnerable. I just did a visit to Sévaré where there is an important military base of MINUSMA (United Nations peacekeeping force). The majority of these soldiers are drinkers of alcohol and they visit the prostitutes. The question that I ask myself is to know if these soldiers under the influence of alcohol will use condoms with the FSW? I don't think that that is always the case and there is where there is danger. I think there should be not just interventions with the uniformed services but also on the fronts of war.”

“The act of addressing only the high-risk groups and leaving the general population on the side, our activities won't have a real impact and our efforts will be lost.”

“I think that USAID is beginning to, just a little bit, to forget the youth in focusing only on the risk groups. The prevalence rate in Mali isn't very high and if we manage to go to the key populations to unearth the infected people in order to raise their awareness, treat them, and help them change behavior that will reduce even more the HIV incidence in the general population. Anyhow, we must not forget the youth.”

“I participated in a project with PSI and Care called ‘Railing’. We were between the stations and the roads. We were with the train passengers, the soldiers, the sex workers that are in the trains, the ambulatory sellers, the porters. That whole world that are in the stations are the people at risk. The risk groups are also named the groups at very high risk, the groups at risk, and the groups less at risk. Even if we have to focus on the very high risk groups I think that we must not neglect the other groups.”

“I think that the MSM (17% HIV prevalence) and the FSW (30% or so HIV

prevalence) are the two groups with the highest prevalence in Mali... Thus it is necessary to intensify the awareness raising for these groups... But more and more in Bamako there are the men who are in the brothels to give services to the women. That is starting to become established, and it is also an axe on which we must work.”

Interviewees recommended that projects should be longer. It is important to note that one of the interviewees often went off script and probed interviewees on this theme, so its intensity should not be interpreted as if they brought this up independently. Nevertheless, the short duration of projects (as short as 9 months) brings along with it various problems.

“For the things to improve, it is the short duration of contracts. When we recruit an agent for nine months, a year, it is complicated. We cannot go over the duration of the contract that we have with the structures when we sign that with the agents. So when there is a place where the duration is longer, he leaves.”

“Another suggestion I would say that if there are some programs that the activities are really programs and not the little short term projects because that doesn't have many results. You have funding for a year and that finishes you must wait a long time to transform that into a program.”

Participants recommended that USAID work more closely with the government in its programming. Various reasons were given for this, including increasing sustainability and assisting agents in the field when problems arise. A few participants suggested funding the government directly. Working to improve sustainability in general and capacity building, an important element of sustainability, were suggested by several interviewees. Participants encouraged USAID to continue to directly fund local Malian NGOs largely for reasons of sustainability but also because of cost effectiveness.

Interviewees suggested more training for program staff and that the community be more

involved in program planning and implementation to encourage ownership and sustainability.

“I think that the partners must coordinate with the technical structures of the state before the end of their program to find a sustainable solution so that the program impacts are not lost.”

“Because all of the projects that we execute, we do the follow-up with the different health centers of different localities. But their follow-on at the end of the project is hard. But we think that that must be their routine activities, because the decentralized municipalities are supposed to help them so they can carry out the activities. But they can't do it because the resources don't always accompany the implementation... That is why I tell myself that we can support the social services to do the group talks, the health services to do the HIV testing

“But we, as a local NGO, we also need to be strengthened because it is us who are operational in the field. And that will cost less to USAID to go through us, but that will also permit us too to be reinforced.”

“The environment of program management must change. It is necessary that USAID targets these changes to accompany civil society. Also, the norms of management at the international level aren't respected in all of the structures.”

“It's true that we apply to have the projects. Thus, these projects are not defined with the structure that will do the implementation. That is to say that the results to achieve and the higher-level objectives are not defined with the community. If the projects are predefined in advance, I think that before the implementation it is necessary to pass through the community and negotiate, explain the project, how it is conceived, how the results are achieved. Does the community agree with these objectives? ...In order that the objectives of the project are achieved, the agreement of the community is necessary from the start.”

A number of participants suggested technical improvements to programming, including evaluation of outcomes and impact. Three suggested more target strategies for each target group. Two brought up the importance of aiming for higher level outcomes and impacts. One brought up the need to strengthen the

M&E system of the government.

“The next suggestion is a personal recommendation that I must say that there must be more evaluation of the activities of prevention. In the last ten years, there has not been enough evaluation of the activities of prevention and in my opinion this is not a good thing. If you go in the field you find unthinkable things. There should be evaluation at mid-term and regular monitoring.”

“I think as well that we must continue to have an impact, that is to say that condom use should be higher than 90%. There must be a reduction of recontamination of people already infected, and a reduction of HIV infection among the MSM.”

There were various programmatic recommendations: increased geographic coverage; better geographic coordination; staff and/or peer educators be paid more; more funding in general; mobile outreach, testing, and STI treatment; more activities to address the poor human rights environment for FSW, MSM, and PLWHIV; more advocacy activities for AIDS programming.

“It is to try to not neglect any zone... We were in certain areas where people didn't even know what an STI is. That was in Diboli.”

“I don't know how the funders treat their program with the state but in principle the state should have the cartography of the intervention zones of the NGOs and all of the technical partners. If a funder comes with his program to intervene, it is the state that must in principle indicate where there is need and where there isn't coverage by another partner.”

“The PLHIV need legal protection and if there were a legal service that would be a good thing... I suggest to USAID to insert into prevention legal assistance to PLWHA and the vulnerable groups.”

“Try to do a lot of advocacy so that the politicians engage in prevention. There was a lot of emphasis on prevention because President Alpha Oumar Konaré was very much invested in that, and also President ATT (Amadou Toumani Touré).”

Promote healthy sexuality, not just prevention	Do more to reach clandestine FSW
Need to quickly educate new FSW	Project needs another vehicle
Project needs an on-site laboratory	Provide ART treatment on-site
Strengthen referral system	Strengthen the national M&E system
Do more condom demonstration	USAID should keep providing commodities

F. Environment and program strategy- (Question 2.f.)

Question 2.f. asks to describe key changes in the environment, program strategy, or program resources that may have affected program outcomes. The participants mentioned various issues regarding the overall environment for HIV/AIDS in Mali (Table 7.9) as well as actions and policies specific to USAID (Table 8.10).

Sub-topics	# of interviewees citing this
<i>Overall environment, program strategy, resources for HIV in Mali</i>	13
Mines	5
2012 Coup d'état, war in north, suspensions	4
Evolution of ART access in Mali	3
Challenges of the Global Fund	3
Increasing focus on key populations	3
Civil society pushed the agenda in Mali	2

There are a number of issues in Mali that are critical for understanding the dynamic of sex work. One of these is the presence of mining areas. Sex workers often travel to and from these mining areas searching for money.

“Since a certain time our patients (almost 15%) come from a new zone which are the mines.”

“...in the regions of Sikasso, Mopti, Ségou, and Kayes, the prevalence rates are very high. These regions are the zones of intense activity for the FSW because of the gold mines.”

The fight against HIV/AIDS was rocked by two relatively recent events. The first was the suspension in 2010 of the Global Fund, which led to the abrupt work stoppage of many NGOs working with FSW across the country. (Only ART services continued.) Then, in early 2012, both Islamists and ethnic Tuareg in Northern Mali rebelled and a *coup d'état* followed, causing over 300,000 people to be displaced (International 2012) and temporary suspensions in aid. A large international military peace-keeping force, MINUSMA has largely ended the conflict, except in the far north. The impact on the HIV response of this instability and the arrival of the soldiers is unknown. Four interviewees discussed the implications of the crisis, including demand for paid sex by the soldiers as well as the effects of suspended aid.

“At the beginning of the HIV/AIDS activities the Global Fund didn't have any problems in making funds available, but since Mali had the problem with the Global Fund everything was suspended and even now programming that has restarted there are funding problems.”

“... with the crisis in the north at the first hours we sent medications to Timbuktu and Gao because we had contacts with the doctor at Timbuktu and a nurse in Gao and a few sick people who had made a little association, so we established contacts with them and we sent them the medicines

“When MINUSMA is in your country, when will it leave? These are people who came with their money and here we have poverty. We are going to see other forms of prostitution. The prostitutes of war follow them already.”

“The *coup d'état* in 2012 made the donors retreat from the country and all of a sudden the NGOs collapsed.”

It is important to note that before 2000 there was little or no ART therapy in Mali, neither for FSW nor for anyone. Several interviewees explained how Mali's ART program came about. The inauguration of the first ART programs, the making ART free, and the decentralization of ART were critical to the environment of HIV prevention. Also, it was

civil society that pushed the government on ARVs and for HIV services in general.

“There was no medicine, there was fear, a lot of incomprehension regarding how to manage the disease... So, it was a period when there was nothing. The sick with AIDS had to die... The others fled (from) the sick people but we were with them.”

“...when we take the history of Mali for access to treatment, the public health centers did not do it. When we created the ART center in Bamako, it was we who took care of them. Then, in 2001, there was the ‘Malian initiative for access to antiretrovirals’ when treatment began in Point G and the Gabriel Touré hospitals (the two teaching hospitals in Mali), then the <NGO center> was also accredited to give antiretroviral medications.”

“As an NGO, we are proud that it was civil society that took the leadership, which pushed the state so that we could have everything that we have today in terms of results in the fight against HIV/AIDS. I am talking about the fight to get PLWHIV access to drugs. Since, we have ‘the Malian Initiative for Access to drugs’ and today the drugs are free. A lot is due to civil society. This so for all of the aspects of the fight against AIDS.”

Government and civil society are more and more focused on key populations, namely FSW and MSM, but also injection drug users and this is reflected in the new National Strategic Plan (*Cadre Stratégique Nationale*) for HIV/AIDS.

“There is the strategic plan for everybody: public sector, private sector, partners and civil society. They were all present to elaborate the strategic plan. We can’t do everything, so when you go to read it, that is what we asked to be emphasized. The key populations are more important than the general population. We say that when you work with a sex worker, you will have very fast results. We said let’s try to take this approach: the FSW, the MSM.”

Table 8.9.b (below) gives comments on the environment, program strategies, and resources for Mali that were mentioned only once. They are important nonetheless.

Table 8.9.b Environment, program strategy, resources for HIV in Mali mentioned only once	
In the 1990s could not even talk about AIDS	Religious leaders accepted condoms for discordant couples
2001–2005 PNLs Plan for prevention, treatment	2004 creation of HCNLS, CSLS
<i>Cadre Stratégique</i> 2013–2017	Prior Malian presidents invested in prevention

Mali has experienced an important social change in that HIV/AIDS was a completely taboo subject less than 20 years ago.

“People thought AIDS was a sickness of prostitutes and that the condom was ‘*Al Haram*’ (forbidden by religion). I remember in 1994, 1995 we did a conference of three days with almost all of the Imams in Mali during which there were very lively debates about wearing condoms... At that time the authorities said that HIV/AIDS wasn’t a problem in Mali because we were a great nation of religious people... today the religious leaders mobilize resources themselves for people sick with AIDS.”

Much advocacy was done with religious leaders.

“... we had to work with the religious leaders and this work was accepted by a resolution signed by the religious leaders of Niore du Sahel (a center of religious activity) where the religious leaders recommended an HIV test before marriage and the use of condoms for sero-discordant couples.”

Another noted that the Malian government only got involved in AIDS after the year 2000.

“It was only after 2001–2002 that we can say that the state and the partners put money in AIDS. In Mali, there was the phase 2001–2005, which was the first Strategic Plan in the fight against AIDS, in which there was the packet of prevention, treatment, and research.”

Table 8.10 (below) gives interviewee’s comments that specifically relate to USAID.

Sub-topics	# of interviewees citing this
<i>USAID environment, program strategy, resources for HIV in Mali</i>	11
USAID's focus on prevention with high-risk groups	8
USAID's focus on programming for FSW	7
USAID's focus on ensuring availability of commodities	5
USAID stopped focus on medium-risk groups in 2011	4
USAID uses the ISBS studies to measure impacts	4
USAID-Forward- direct funding of local NGOs directly	3
USAID built and financed <i>Groupe Pivot</i>	3
USAID's strategies follow data, health needs of Mali	3
USAID's former policy to push abstinence	2
USAID did not support providing treatment early on	1
USAID does "combination prevention now"	1

The most common observation from interviewees was the focus of USAID on high risk groups including sex workers. USAID used to focus on the general population but in 2003 shifted strategy and began focusing more on high-risk and medium risk groups. However, in 2011 it dropped most of the medium risk groups to intensify focus on FSW and MSM. Interviewees mentioned the importance of the ISBS in guiding USAID's actions and policies. More generally, interviewees said that USAID's strategies generally follow the country's health needs and epidemiology.

"This strategy of intervention in the high-risk milieu is part of a study called ISBS. This integrated study of prevalence and risk behaviors includes the populations I just told you about. It was after the 2000 study... that began the project of HIV prevention in high-risk groups. Just to remind you, when USAID put in place its strategy 'Strategic Objective 6' at the end of 2003, I was already (at the NGO) and I participated in the first phase of putting teams together. In October, I participated in different meetings with USAID with different partners to help them understand the strategy... We did BCC at the high-risk milieu, specific groups such as FSW, truckers, ticket touts, ambulatory vendors, and maids."

"After 2009, USAID invested in prevention not just with the general population but with key populations which are the motor of the epidemic.

Among these key populations we have: the PLWHIV, thus we must break the chain of transmission at their level; the MSM; the FSW. I think that this strategy is remarkable because thousands of first infections that take place in the majority of countries are among the target groups that we call, 'key populations'. I think the strategy is very efficient.”

“At the beginning, there were 8 target groups that were involved. We had as target groups: ambulatory vendors, FSW, truckers, sand collectors, tourist guides, seasonal rice workers, sugar workers, cotton pickers, cart pullers, and miners. From 2011, given the results of the ISBS 2009, USAID noticed the weak prevalence among certain target groups (the ambulatory vendors and the seasonal workers). Thus USAID wanted to focus its actions on the target groups that had very high prevalence rates, which were the FSW, MSM, and truckers.”

“I have the impression that the results of these different studies are taken into account in the different strategies adopted by USAID. If we regard the evolution of their strategies from 1990 to today, there is an evolution and this evolution always adapts to the health situation of the country.”

Interviewees mentioned that USAID was providing commodities for HIV in Mali.

Several mentioned that this was specifically helping program roll-out.

“With the arrival of Mr. Clinton Trout (arrived in April 2011), the situation of treatment (for STIs) has greatly improved... The situation has completely changed with the STI treatment and condom and lubricant distribution. USAID has responded to our demands of STI medications and condoms.”

“I was also impressed by the accompaniment of USAID for the treatment of these groups. Because at a certain moment, it was USAID which gave not only the reactive for HIV testing in certain areas, but also the medicines for the treatment of STIs.”

One strategy USAID used early in the period (actually from the mid-1990s) was the creation and strengthening of *Groupe Pivot Santé Population* (GP/SP), a network of local NGOs. More recently, as part of the USAID Forward reforms (begun in 2010), USAID began to finance local NGOs directly, rather than going through international organizations.

“If you take the example of *Groupe Pivot* which is a collection of civil society organizations, USAID has reinforced the competency of these NGOs because at the beginning, in 1992, when Group Pivot was born there were five NGOs which intervened in a professional manner over the entire territory of the country.”

“USAID gives us money directly. That is a first that we have really appreciated, because the strategy was to give money directly to international NGOs. I understand their concern is that their money is managed with more guarantee with the international NGOs. But we, being a local NGO, we also need to be reinforced because we are operational in the field. And that will cost less to USAID to pass through us.”

A few interviewees said that USAID pushed abstinence/fidelity programming at one point, which was inappropriate. However, one person pointed out that PSI was able to balance abstinence messages with condoms even during the period when there was a great deal of focus on abstinence. One participant also said there had been a real shift and that now USAID does ‘combination prevention’.

“USAID was in the logic of primary prevention (abstinence, condoms, fidelity) and I was against that. That doesn’t work: the combination is needed: testing and building responsibility. It is necessary to keep something else in mind, to give access to treatment. So we were very much in conflict. I told them it was unacceptable! There was an American who said, ‘do we know how to tell the time to take the medicines?’”

“Another objective we discussed a great deal, which was in the document at the beginning, was to encourage the FSW to lower their number of clients. That went completely against their work... Fortunately there was a rethinking of this that allowed us to have a certain flexibility.”

Table 8.10.b below gives the issues around USAID strategy that were mentioned only once.

Table 8.10.b USAID Environment, program strategy, resources mentioned only once	
USAID did stand-alone VCT not integrated	USAID nixed GPSP after Global Fund problems
USAID strategy integrated with governments	2003 USAID started prevention with high-risk, medium risk groups
USAID's strategies give more responsibility to Malians	USAID used to focus on the general population
PSI was very good, got around USAID's focus on abstinence	USAID is not really working with youth anymore
USAID has really helped the government	USAID promoted geographic coordination

Table 8.11 lists the mentions of other sources of funding and technical assistance other than the US Government.

Table 8.11 Environment, strategy, resources for HIV from non-USG Partners	
Sub-themes	# of interviewees citing this
<i>Environment, program strategy, resources in Mali non-USG</i>	9
Global Fund to Fight AIDS, TB, and Malaria	5
World Bank AIDS Program (MAP)	4
Government of Mali (GOM)	3
Plan Mali (NGO)	3
SIDA 2/ SIDA 3 (Canada)	1
UNAIDS	1
German Development Bank (KfW)	1
France	1

The Global Fund was the most frequently cited funding partner (other than the US Government). As discussed earlier, the Global Fund suspended its activities in Mali and so many of these mentions have already been included in previous sections of this chapter. However, here we will specifically include quotes that give insight into the programmatic reach of the Global Fund. Basically, the Global Fund program began in 2005 and was a multi-pronged approach.

“I made (USAID staff) understand that short-term prevention did not work and that we needed treatment with it... She played the game because the state

listened to USAID. She brought the actors together and Mali won the round. This was the Round 4 in 2005, and all of the steps in the fight against AIDS were in the proposal that we wrote: prevention, treatment, research, M&E.”

The World Bank’s Multi-sectorial AIDS Program (MAP) began funding Mali in 2005 through the HCNLS. It was the MAP that pushed Mali to have a multi-sectorial body under the president to manage the AIDS response. FSW programming was funded by this program for a short period. Three interviewees discussed the Government of Mali’s AIDS programming, some of which was funded by MAP. Also, France and Mali together funded civil society to provide treatment.

“From 2005, there was the MAP which intervened in Mali. That is to say there was the creation of the HCNLS... in 2005 they dissolved the PNLs which was replaced by the Executive Secretariat of the HCNLS... It was the arrival of the MAP funds that did the conditionality, to say to raise up the anchoring of the fight against AIDS. The PNLs was at the level of the Ministry of Health. But MAP wanted the anchoring to be higher, either the prime minister or the president. So, the financing was determinant for the architecture... That overturned a lot, and we lost a lot of ground. Some people even said that the fight against AIDS wasn’t in the health sector.”

“In that moment, I did everything: doctor, nurse. It was from 2002 when we had financing from the Malian State (to do treatment)... We had the funding of the Malian state in addition to the French state. The French government put 900 million CFA, the Malian government put 300 million CFA. This was the first time the state gave money to civil society. Because at the beginning, in the public services, they did not want to treat the people sick with AIDS.”

Plan Mali, a local subsidiary of the Canadian NGO Plan International worked with both the Global Fund and MAP. Plan supplied HIV tests and STI drugs. One interviewee said Canada (SIDA 2 and SIDA 3) funded a FSW intervention early as 1998.

“That is how we took on some boyfriends with SIDA 2 and SIDA 3. When we started to work in Kayes, we met the peer educators who were formed by our NGO in 1998 in Bamako. We took them in again as peer educators... We also did surveys on prostitution sites with SIDA 2 and SIDA 3 in the area of

Bamako and around. We worked with the SW of Kalanbakoro, Kabala, Tièbani.”

The only mention of UNAIDS was in relation to a study on MSM.

III. Summary

In summary, the thirteen program manager/policymaker interviewees described the full range of HIV prevention services in all regions of Mali except Timbuktu and Kidal.

These included VCT, behavior change communication, often through peers, promotion of condoms and lubricants, STI diagnosis and treatment, and guided referral to ART services (when they became available). Prostitution is not illegal in Mali, and FSW receive health cards from NGOs that show if they have been screened for an STI. This helps them to not be harassed by the police. The interviews confirmed that a research-campaign-evaluation cycle was in place for behavior change communication under the PSI-led mechanisms (up until 2006) but afterwards the same materials and messages continued to be used until the interview time (2013) without further evaluation.

Important successes included buy-in from the Malian government, the availability of HIV/AIDS commodities, and behavior change by FSW. The most important challenges were insufficient funding, the short term of donor projects, the time it takes to change behavior, FSW mobility, poor data, and the fact that FSW do not use condoms with their boyfriends. Key changes in the environment were the rise of informal mines, the 2012–2013 crisis period, ART becoming available, and problems with the Global Fund. The interviewees noted that USAID was focusing more on key populations and recognized USAID’s role in providing commodities. Most interviewees felt that USAID

should do more to work with other populations, to involve public structures more, work for more sustainability, and do more evaluation. In the next set of chapters, we will explore how sex worker demographics (measured by the ISBS) changed over time between 2000 and 2009.

CHAPTER 9. FINDINGS FROM ANALYSIS OF DEMOGRAPHIC TRENDS OF FSW OF DIFFERING NATIONALITY GROUPS

As noted in previous chapters, factors such as age, age at first sex, time in sex work, education, and income have been shown in studies elsewhere to be associated with FSW HIV risk. For this reason, it is important to understand what changes occurred in these variables in the population of FSW in Mali in order to better understand changes that may have occurred in HIV prevention outcomes during the period under study. In addition, understanding many of these demographic factors is important for program planning and implementation. For example, FSW of different nationalities may need to be reached in different languages.

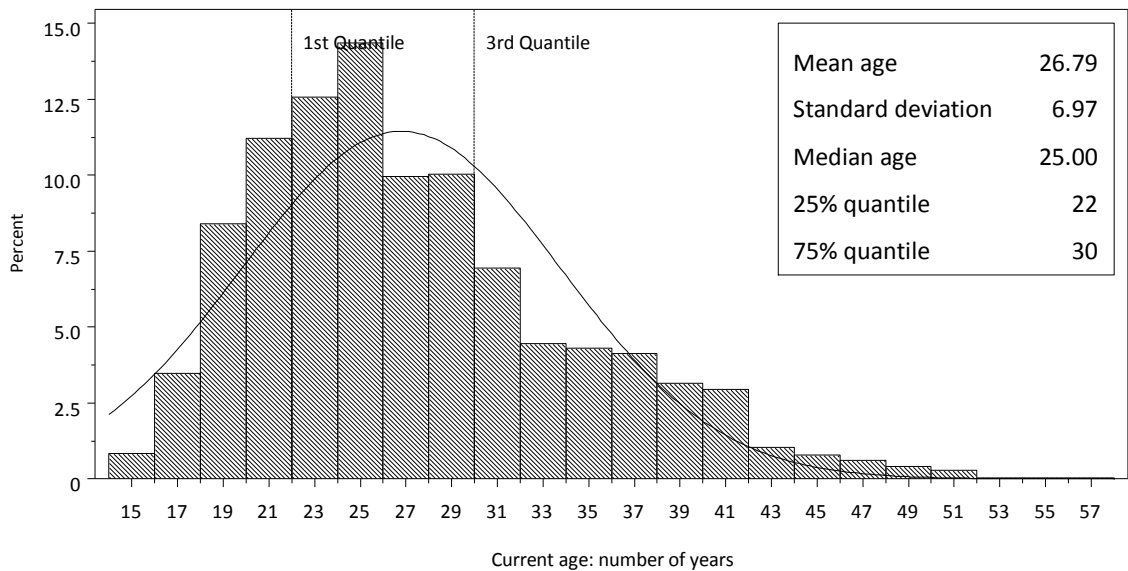
Chapter 9 will present the analysis of demographic trends among FSW surveyed during the 2000, 2003, 2006 and 2009 ISBS studies in Mali by nationality group. First, a brief overview of demographic traits overall will be presented before showing the trends that occurred for the combined dataset as well as by nationality group. Relevant trends over time in demographic characteristics that were continuous variables (such as age and years in education) will be shown. Finally, the trends with regards to demographic characteristics, which are expressed in proportions (such as the percent of FSW who ever went to school), will be presented. For all statistical tests, the null was rejected if $P < 0.05$. The implications will be examined in the discussion chapter (Chapter 12).

I. Characteristics of the full dataset

Over the four ISBS studies, 2,430 FSW were contacted: 425 in 2000, 477 in 2003, 558 in 2006, and 970 in 2009. The 2009 sample was larger in order to have the necessary power

to detect relatively small changes in STI/HIV prevalence from 2006. Figure 9.1 is a histogram giving the age distribution for the 2,430 FSW (with the exception of the 12 women who did not disclose their ages). FSW in Mali had a median age of 25 years and 50% were between the ages of 22 and 30 years. The youngest FSW were 15 years old while the oldest was 57 years old. Approximately 3.5% were minors under the age of 18.

Figure 9.1: Combined Age Distribution ISBS 2000-2009



As discussed in Chapter 1, FSW in West Africa are highly mobile both within and across national borders. Mali is no exception. Figure 9.2 gives the nationality breakdown for the 2000–2009 dataset. Of the FSW surveyed, 40.8% were from Nigeria, 36.8% were Malian, and 22.4% were from neighboring countries. FSW from all other countries had higher mean ages than Malians (25.6 years) and Nigerians (26.4 years): Burkina Faso: 27.5 years (n=155); Cote d’Ivoire: 27 years (n=99); Senegal: 32.8 years (n=56); Ghana: 35.8 years (n=89); and “other”: 28.6 years (n=132). Due to their similarities and to increase statistical power for analysis, FSW from these countries were all combined into

an “other” group (mean age 29.5 years).

Figure 9.2 Nationality (all) Combined ISBS 2000-2009

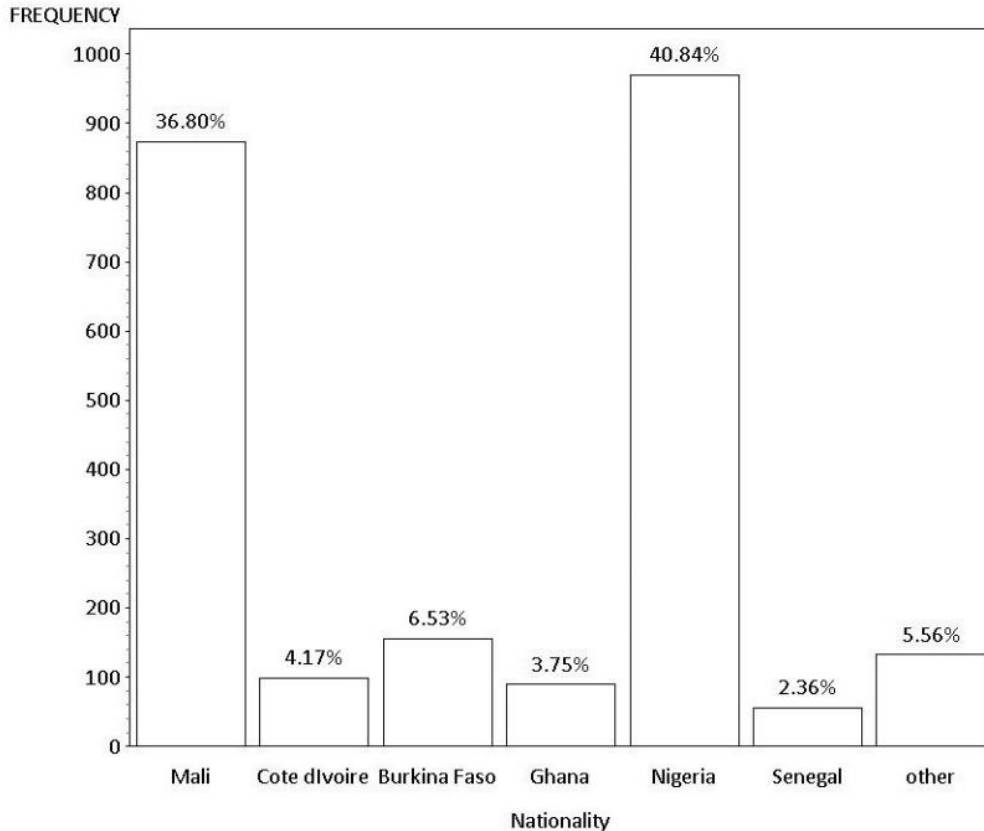
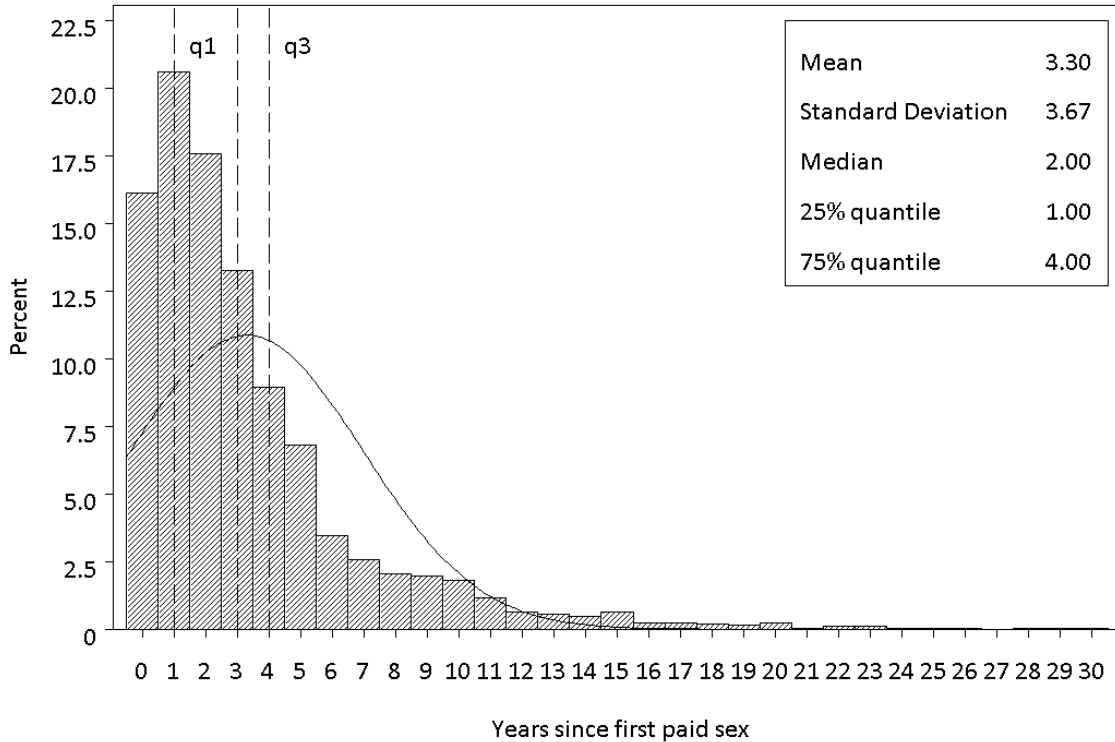


Figure 9.3 gives the distribution of time in sex work by subtracting age at first paid sex from current age for each FSW. The difference between reported age and age at first paid sex was between one and four years for most sex workers. This value was zero for 16% of FSW (their current age was the same as their age at first paid sex) while one quarter reported four years or more between their first paid sex and their present age. Ten percent (10%) reported eight years or more while 5% said ten years or more. The highest values were 26, 28, 29, and 30 years, given by only one woman each.

Figure 9.3 Years since 1st paid sex Combined ISBS 2000-2009



II. Demographic trends over time in characteristics of FSW in Mali (continuous variables)

Table 9.1 (below) shows FSW characteristics expressed by continuous numbers. The “combined” rows show results for all FSW that year. Statistical significance is shown for trends over time (Row test P) and between nationality groups within a study year (Column test P). Note that in the tables the p-values for each column is above the value for the combined (all nationality) value. This is because the statistical tests are only for the differences between individual nationality groups, not the combined dataset. Based on QQ plots, visual inspection of histograms, and the Shapiro-Wilk and Kolmogorov-Smirnoff tests for normality, we concluded that none of these variables were normally distributed, so we report the median and the interquartile range (IQR) and used non-

parametric methods to test for statistical significance. The divisions tested in Table 9.1 have equal variance, so we used the Kruskal-Wallis ANOVA test for statistical significance. Each variable is presented both in Table 9.1 and in a line graph to facilitate comprehension of the trends as well as differences between nationality groups. Note that the p-values shown are for the global Kruskal-Wallis test, which shows that at least one value is different from at least one other value.

TABLE 9.1 Characteristics of FSW in Mali over time and by nationality (continuous, equal variance)

Characteristic	Nationality	2000 (N=425)	2003 (N=477)	2006 (N=558)	2009 (N=970)	Row Test P Kruskal- Wallis
		Med. [IQR] (n)	Med. [IQR] (n)	Med. [IQR] (n)	Med. [IQR] (n)	
Median Age	Mali	25 [19–29] (131)	25 [20–30] (133)	25 [20–32] (200)	24 [20–29] (409)	
	Nigeria	25 [21–28] (221)	25 [22–29] (229)	26 [23–30] (210)	25 [22–29] (310)	*
	Other	32 [29–38] (73)	30 [25–35] (97)	28 [24–36] (141)	26 [22–32] (221)	*
	Column P Combined	* 25 [21–30] (425)	* 26 [22–31] (476)	* 27 [22–33] (553)	* 25 [21–29] (965)	*
Median age at first sex (# of years)	Mali	15 [14–16] (114)	15 [14–16] (104)	15 [14–16] (174)	15 [14–17] (356)	
	Nigeria	18 [16–20] (199)	18 [15–19] (183)	18 [16–20] (187)	18 [16–19] (287)	
	Other	16 [15–18] (63)	16 [14–19] (75)	16 [14–17] (126)	16 [15–18] (186)	
	Column P Combined	* 17 [15–19] (376)	* 16 [15–18] (362)	* 16 [15–18] (487)	* 16 [15–18] (829)	†
Median age at first paid sex (# of years)	Mali	19 [17–25] (117)	20 [17–25] (113)	20 [17–27] (191)	20 [17–25] (378)	
	Nigeria	22 [19–25] (203)	23 [20–26] (208)	23 [20–27] (205)	23 [20–26] (294)	†
	Other	27 [23–31] (65)	28 [23–33] (83)	25 [21–30] (135)	24 [20–28] (202)	*
	Column P Combined	* 22 [20–28] (385)	* 24 [20–28] (404)	* 23 [19–28] (531)	* 22 [19–26] (874)	*
Median Years of Schooling if attended school	Mali	6 [4–8] (61)	5 [3–7] (57)	6 [4–8] (89)	5 [4–8] (215)	
	Nigeria	8 [5–12] (183)	7 [5–10] (187)	6 [5–10] (188)	7 [5–9] (265)	
	Other	7 [6–10] (42)	6 [5–8.5] (56)	5.5 [4–9] (84)	6 [4–8] (136)	†
	Column P Combined	‡ 6.5 [5–10] (286)	‡ 6 [5–9] (300)	‡ 6 [4–9] (361)	* 6 [4–9] (616)	*
Median years in sex work 06 & 09 Years, (IQR), (N)	Mali			2.33 [1.17–4] (198)	2 [1–4] (406)	
	Nigeria			2 [1–3.25] (209)	1 [.46–2.4] (307)	*
	Other			2.43 (1–4) (140)	2 [1–3] (222)	‡
	Column P Combined			† 2.02 [1–4] (547)	* 2 [.71–3] (935)	*

*P<0.001 ‡P<0.01 †P<0.05 IQR Interquartile Range Med. Median

Figure 9.4 gives the median age data from Table 9.1 as a line chart. Note that in this figure (and those to follow), that the values for the entire combined dataset are presented with the thick yellow line while Malian FSW are presented with the blue line, Nigerians in red, and “other nationality” FSW in gray. “Other” FSW were significantly older than Malians and Nigerians every year though their median age decreased over time. Nigerians in 2006 were older than in the other years. These trends were statistically significant except for Malian’s who did not have a significant change in age over the four ISBS surveys. This is important because age has been associated with HIV prevalence in other studies (see Chapter 2), so changes in median age could confound for changes in HIV prevalence.

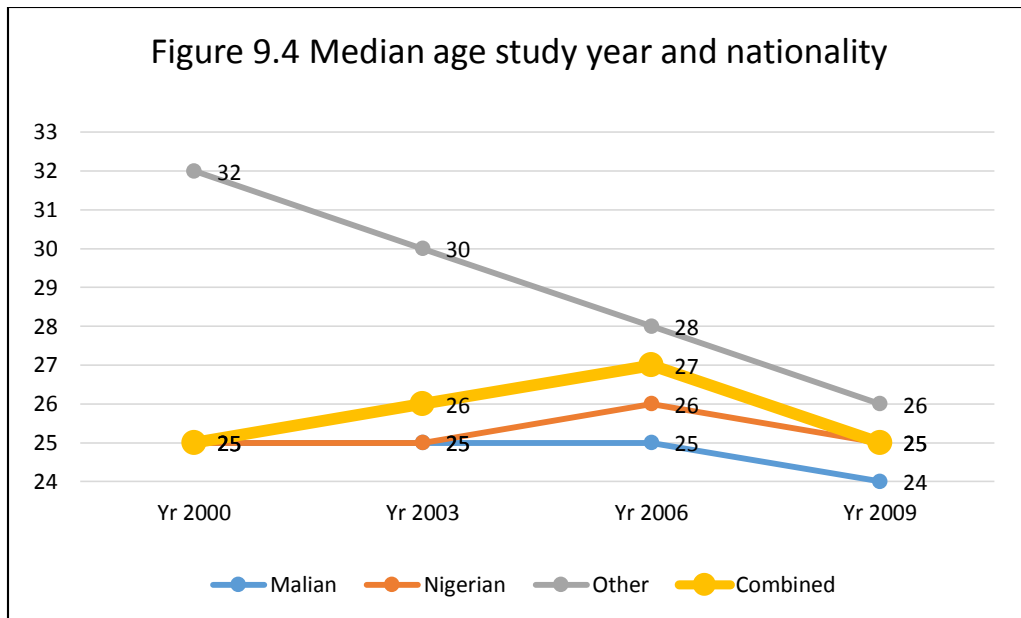


Figure 9.5 gives the median age at first sex. Malians were the youngest and “others” the oldest at their sexual debut every study year. The differences between nationality groups were statistically significant in all four study years. Note that there were no changes in

FSW median age at first sex for any of the nationality groups. The statistically significant change in the combined group was a function of shifting proportions of nationality. This is important because as noted in Chapter 3, younger age at first sex is associated with HIV prevalence in some studies and thus changes in the variable could be a confounder for changes in HIV prevalence. Without breaking out the data by nationality, we would have thought there was a change between 2000 and 2003 in this variable. However here we see that there were no actual changes. The young age at which Malian FSW report their first sex could indicate greater vulnerability to HIV.

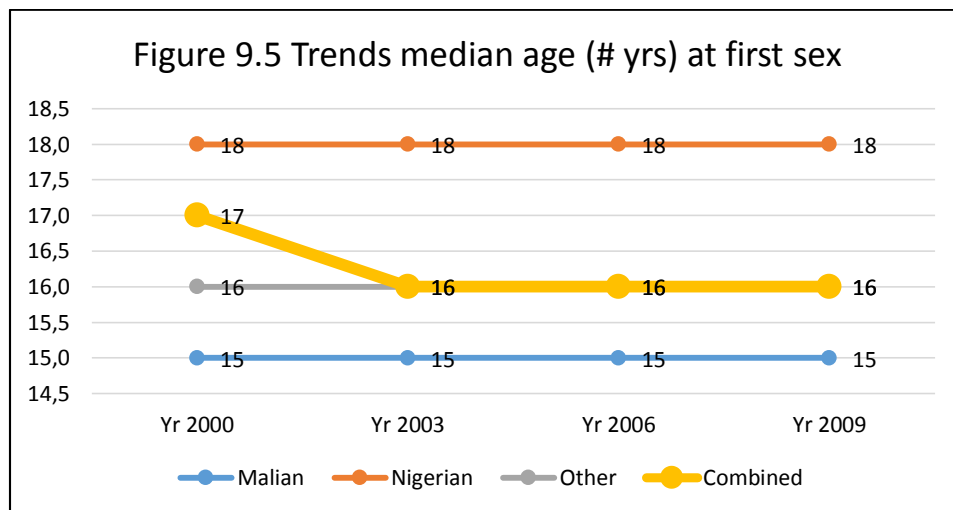


Figure 9.6 shows the trends for age at first paid sex. Malian FSW had their first paid sex on the average at age 20 during each study year. The change from 19 years to 20 years for Malians between 2000 and 2003 was not statistically significant using the Kruskal Wallis test. Nigerian FSW had had their first paid sex at age 22 or 23. In this case, the increase from 2000 to 2003 was significant. Other nationality FSW were the oldest when they first were paid for sex in every study year, although their median age at first paid sex was significantly younger every year.

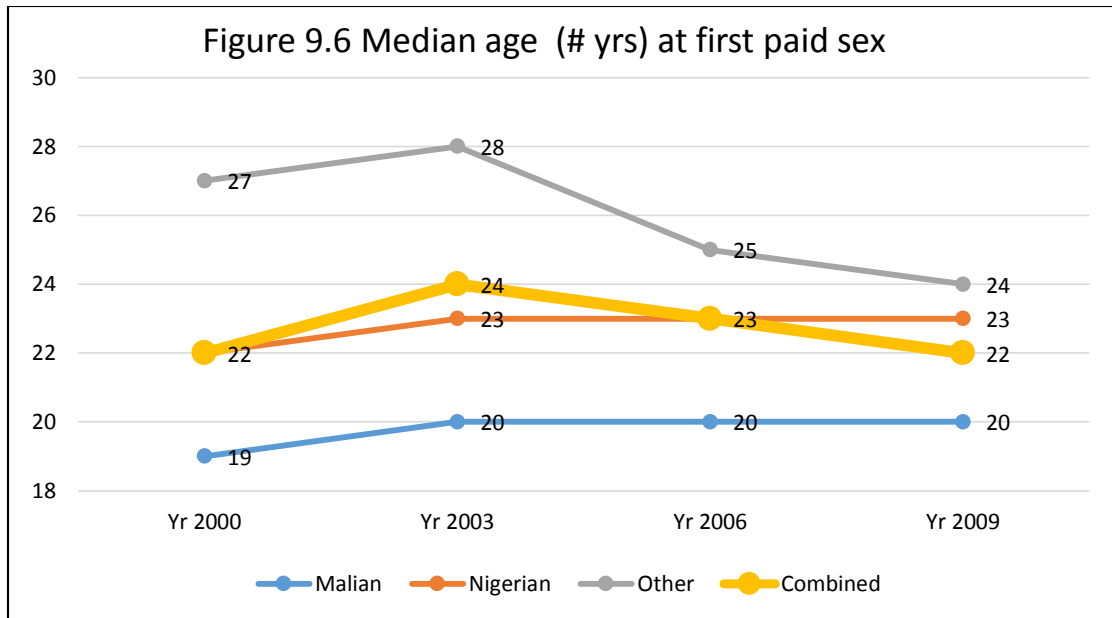


Figure 9.7 shows the median years of schooling for those FSW who had attended school. FSW who had never been to school are not included in this analysis because they are presented later in this chapter (Table 9.3 and Figure 9.12). In every study year, Nigerians who had attended school had attended longer than Malians and “others”. The differences in years in education by nationality group were statistically significant in all four study years. Years in education decreased significantly among “others” and in the combined group. This is important because less education has been shown to make FSW vulnerable to HIV (see Chapter 3) so it shows that Malians were more vulnerable to HIV in most years.

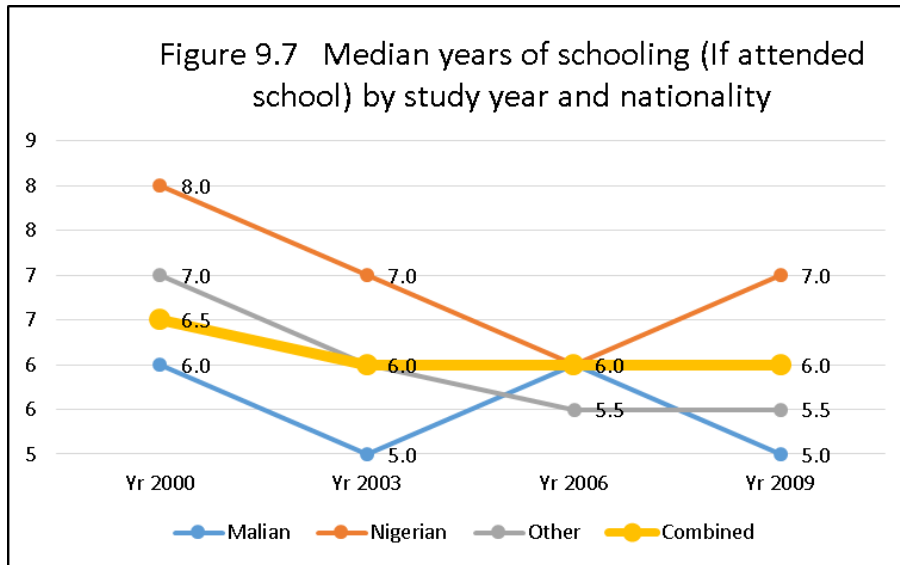


Table 9.2 (below) shows more FSW characteristics by nationality over time as expressed by continuous numbers. Based on QQ plots, visual inspection of histograms, and the Shapiro-Wilk and Kolmogorov-Smirnoff tests for normality, we concluded that none of these variables were normally distributed, so we report the median and the interquartile range (IQR) in the table. Unlike those in Table 9.1, the divisions tested in Table 9.2 do not have equal variances, so we used the Brown-Mood test for statistical significance. The “combined” rows show results for all FSW. Statistical significance is shown for trends over time (Row test P) and between nationality groups within a study year (Column test P). Since it would not be appropriate to test the differences of the combined group with individual nationality groups, the combined results are shown under the p-value for the column. Each variable is presented first in Table 9.2 and then in figures using line graphs in order to enhance comprehension of the trends and the differences between nationality groups. Note that the p-values shown are for the global Brown-Mood test, which shows that at least one value is different from at least one other value.

TABLE 9.2 Characteristics of FSW in Mali over time and by nationality of origin (continuous, variances not equal)

Characteristic	Nationality	2000 (N=425)		2003 (N=477)		2006 (N=558)		2009 (N=970)		Row Test P Brown- Mood
		Med. [IQR] (n)		Med. [IQR] (n)		Med. [IQR] (n)		Med. [IQR] (n)		
Median years since 1 st paid sex Years (IQR) (N)	Mali	3 [1-6] (116)		3 [1-5] (113)		3 [2-5] (191)		2 [1-4] (377)		‡
	Nigeria	1 [1-3] (203)		2 [1-3] (208)		3 [1-5] (205)		1 [0-3] (294)		*
	Other	3 [1-5] (65)		2 [1-4] (83)		3 [2-5] (135)		2 [1-4] (201)		*
	Column P Combined	* 2 [1-5] (384)		‡ 2 [1-4] (404)		* 3 [1-5] (531)		* 2 [1-4] (872)		*
Median months in location Years (IQR)	Mali	24 [4-60] (107)		12 [3-48] (103)		15 [3-42] (146)		36 [12-84] (257)		*
	Nigeria	6 [4-12] (221)		12 [5-24] (226)		14 [6-36] (210)		9 [4-24] (307)		*
	Other	10.5 [3-36] (72)		5.5 [1-12] (92)		4 [1.5-24] (137)		7 [2-21] (215)		†
	Column P Combined	* 9 [4-24] (400)		‡ 9 [3-24] (421)		* 12 [3-36] (493)		* 12 [3-36] (779)		‡
Median Price for sex (West African Franc CFA)	Mali	1198 [1194-2995]		2264[1132-11316]		2132 [1066-5330]		2500 [1000-4750]		†
	Nigeria	1198 [599-1198]		1132 [566-1132]		1066 [1066-1599]		1000 [1000-1500]		*
	Other	1198 [599-1198]		2264[1132-11317]		1599 [1066-4264]		1500 [1000-3000]		*
	Column P Combined	* 1198 [599-1198]		* 1132 [1132-5660]		* 1066 [1066-3198]		* 1500 [1000-3000]		*
Median income last month (1,000s CFA)	Mali	32.3 [18.0-59.9]		50.9 [22.6-90.6]		44.2 [27.0-64.0]		60.0 [40.0-100.0]		†
	Nigeria	24.0 [12.0-59.9]		34.0 [17.0-88.3]		32.0 [21.3-55.4]		50.0 [20.0-100.0]		*
	Other	30.0 [18.0-72.0]		34.0 [17.0-84.9]		64 [24.0-106.6]		75.0 [50.0-150.0]		*
	Column P Combined	† 27.0 [12.0-59.9]		‡ 34.0 [17.0-88.3]		‡ 43.6 [21.3-69.3]		* 55.0 [30.0-100.0]		*
Median number of sex partners last night (including 0)	Mali	0 [0-2] (127)		1 [0-4] (128)		1 [0-5] (196)		1 [0-4] (196)		*
	Nigeria	3 [2-5] (213)		4 [2-5] (222)		4 [1-5.5] (208)		5 [3-7] (301)		*
	Other	3 [0-4] (71)		2 [0-4] (93)		2 [0-4] (133)		3 [0-5] (205)		*
	Column P Combined	* 2 [0-4] (411)		* 3 [0-5] (443)		* 3 [0-5] (537)		* 3 [0-5] (898)		*

*P<0.001 ‡P<0.01 †P<0.05 IQR Interquartile Range Med. Median

Time in sex work was asked directly in 2006 and 2009. Also, we subtracted “age at first paid sex” from current age to estimate this for all study years (presented in Figure 9.8 below). In 2006 the latter method resulted in somewhat higher values but in 2009 the two methods had very similar results. Nigerians had the least time in sex work (median 1–2 years except in 2006) while Malian and “other” FSW had been in sex work for a median 2–3 years. The 2006 sample of FSW were the most experienced (median 3 years). Note that all of the trends observed over time were statistically significant. The longer FSW are in sex work, the more partners they are likely to have and the more time they have to contract HIV. The longer periods of time in sex work for Malian and other FSW suggest greater vulnerability. Also, the fact that the 2006 sample of FSW was the most experienced in the profession could explain the fact that the highest overall prevalence was that year.

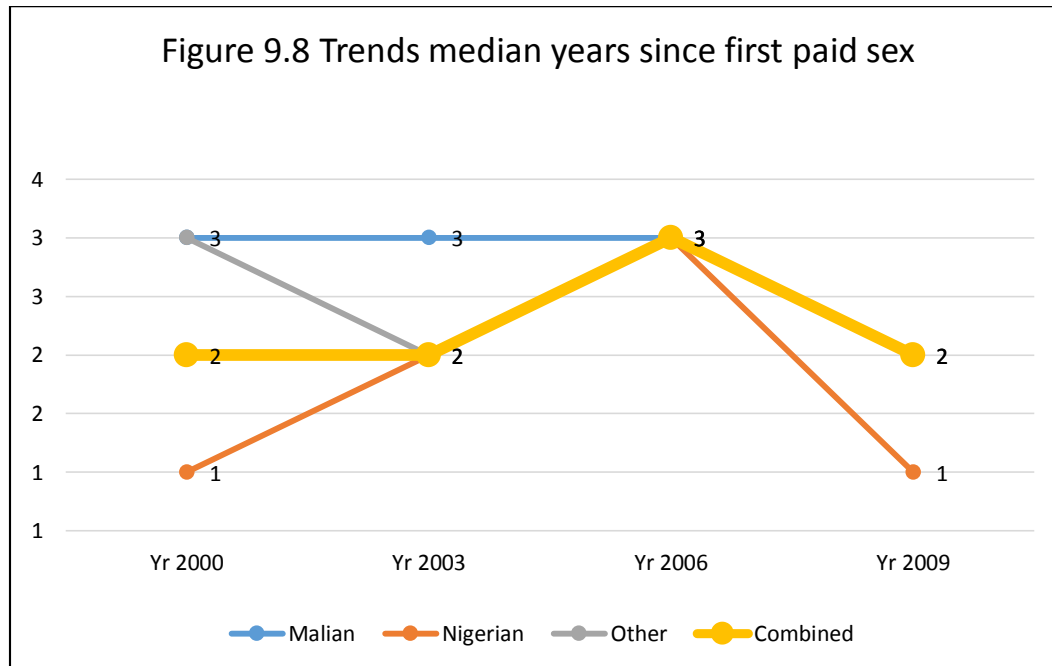


Figure 9.9 presents the median months in location by the FSW interviewed. Malians were the most stable in location while “others” the most mobile except in 2000. The difference in months in location between nationalities within each study year was statistically significant. The trends observed over time are statistically significant for all of the nationality groups, including the combined group. FSW mobility is important to understand because it can affect HIV vulnerability (see Chapter 3). In addition, programs must take FSW mobility into account when providing programming to FSW.

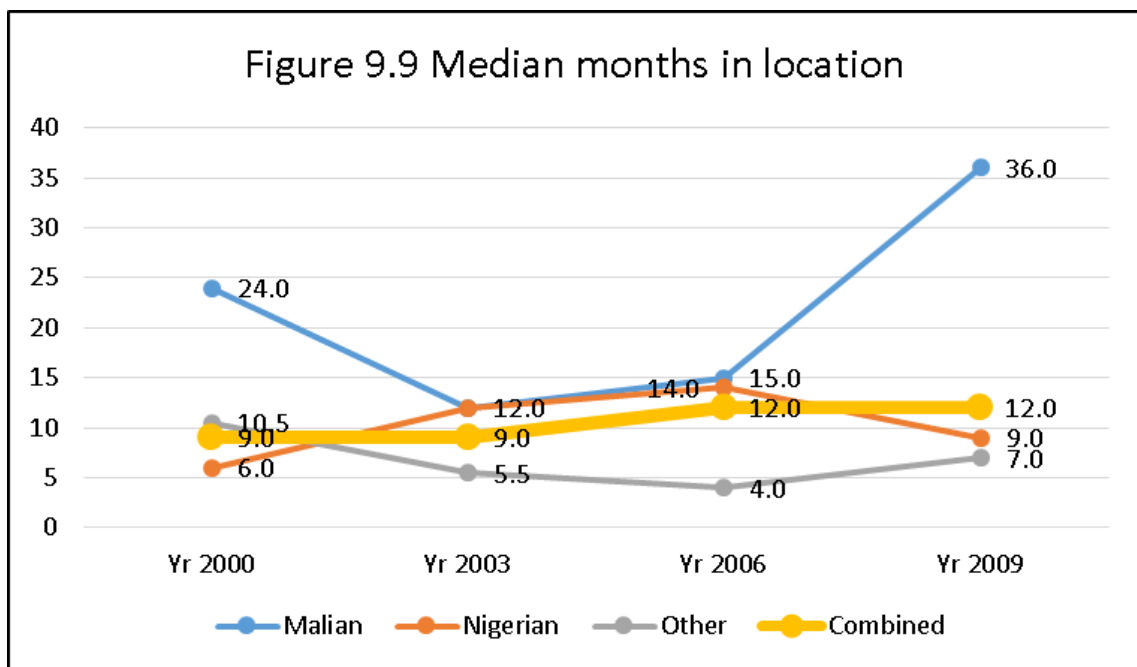


Figure 9.10 shows the trends in price for one sexual encounter. We applied a 2.2%⁸ annual inflation rate backwards to median price for sex (most charged exactly 1000 CFA, about \$2.00 US). Nigerian FSW consistently had charged the least with the median exactly 1000 CFA each year (adjusted for inflation to 1,198 in 2000, 1,132 in 2003 and

⁸Average CPI Inflation rate from 2000–2010. <http://www.tradingeconomics.com/mali/inflation-consumer-prices-annual-percent-wb-data.html> Accessed 8-9-2014.

1,066 in 2006. The decreasing trend observed for Nigerian FSW and the combined dataset in the chart is simply the effect of inflation. Median price for sex between nationality groups was statistically different every year. Price for sex for Malians increased significantly over time above the inflation adjustment. The variation in price for sex among other nationality FSW was not statistically significant. Lower price for sex as well as lower income has been associated with higher HIV risk (see Chapter 2). Their lower price for sex and income could suggest greater vulnerability for Nigerian FSW.

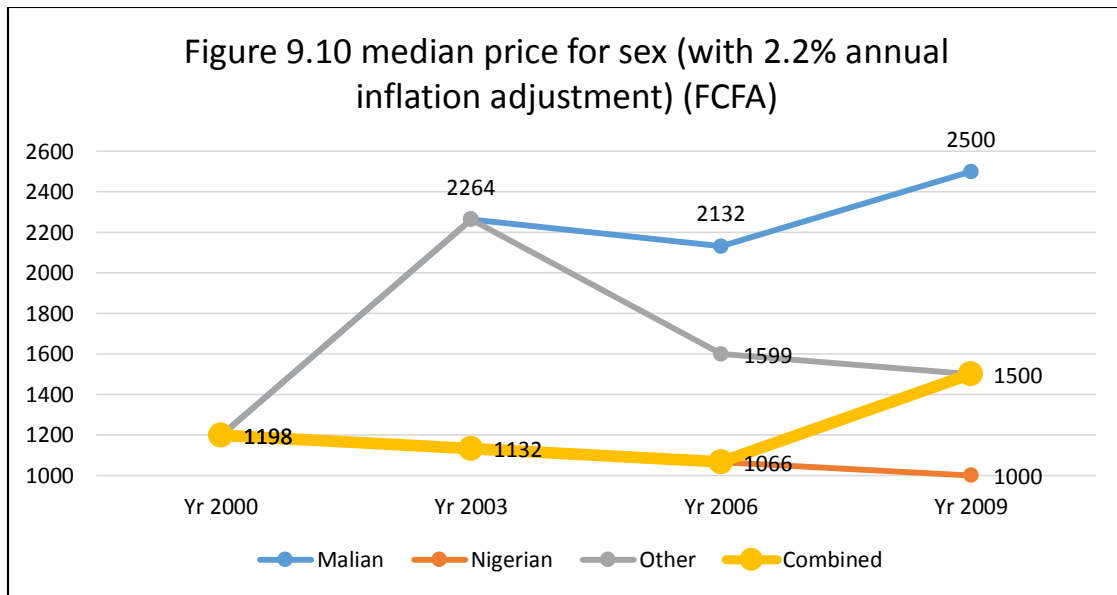


Figure 9.11 shows the trends in FSW income. We applied a 2.2%⁹ annual inflation rate to median monthly income. Nigerian FSW consistently had the lowest income. The differences in median monthly income between nationality groups was statistically different every year except for 2000. Monthly income for all nationality groups increased significantly over time above the inflation adjustment.

⁹Average CPI Inflation rate from 2000–2010. <http://www.tradingeconomics.com/mali/inflation-consumer-prices-annual-percent-wb-data.html> Accessed 8-9-2014.

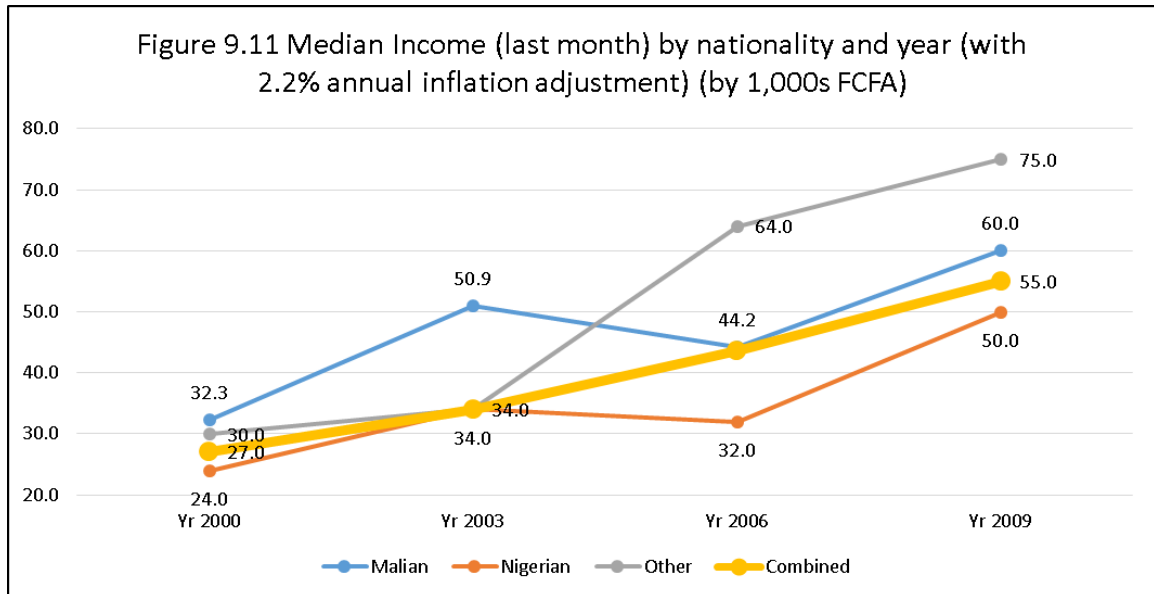
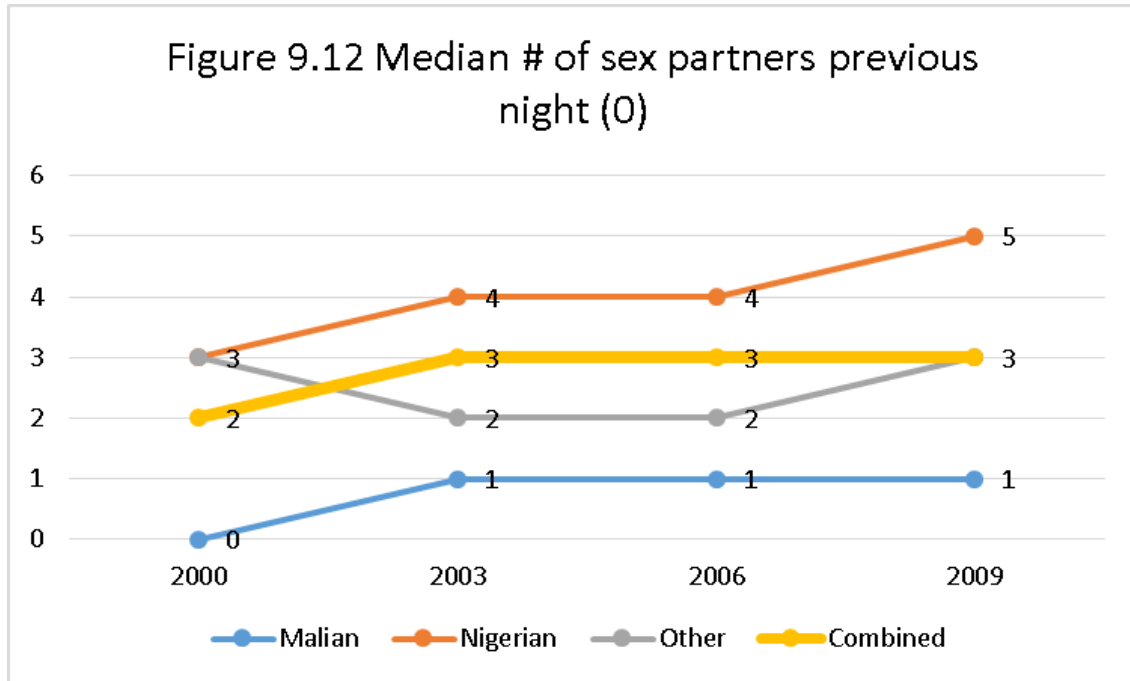


Figure 9.12 provides the number of sex partners FSW reported the previous night. The ISBS did not differentiate clients from other kinds of partners in this survey. The data shows that in general, Nigerian FSW had the largest number of sexual contacts even though they charged the least for sex, had the lowest incomes and were the least likely to have boyfriends. On the other hand, Malian FSW reported the fewest number of clients every year.

The upward trends for Malians and Nigerians were statistically significant although there were no differences over time for the combined group or other nationality FSW.



III. Demographic trends over time in characteristics of FSW in Mali (proportions)

Table 9.3 gives demographic changes over time measured with proportions. The Mantel-Haenszel chi-square test for trends was used to test the statistical significance over time (Row Test P) while the Pearson's chi-Square test was used to test if the proportions were statistically different within a study year between nationality groups (Column X^2 P). Note that the p-value for the column is above the value for the combined group (all nationality) since the statistical tests are only for the differences between individual nationality groups, not the combined dataset. Each variable is presented both in Table 9.3 and in a line chart to enhance understanding of the trends and the differences between nationality groups. Note that the p-values shown in the column X^2 P row are for the global Pearson's chi-square test, which shows that at least one value is different from at least one other value.

TABLE 9.3. Characteristics of FSW in Mali over time 2000, 2003, 2006 and 2009 and by nationality of origin (proportions)

Characteristic	Nationality	2000 (N=425)		2003 (N=477)		2006 (N=558)		2009 (N=970)		Row Test P M-H ²
		%	(n)	%	(n)	%	(n)	%	(n)	
% Attended School at all	Mali	46.56%	(61)	42.88%	(57)	44.50%	(89)	52.44%	(215)	
	Nigeria	82.81%	(183)	82.53%	(189)	89.52%	(188)	85.81%	(266)	
	Other	57.53%	(42)	57.73%	(56)	59.57%	(84)	61.26%	(136)	
	Column X ² P		*		*		*		*	
	Combined	67.29%	(286)	65.80%	(302)	65.52%	(361)	65.52%	(617)	
% Divorced, Separated, or Widowed	Mali	25.95%	(34)	28.24%	(37)	35.50%	(71)	22.55%	(92)	
	Nigeria	17.65%	(39)	18.34%	(42)	19.05%	(40)	11.97%	(37)	†
	Other	52.05%	(38)	50.00%	(48)	46.81%	(66)	29.73%	(66)	*
	Column X ² P		*		*		*		*	
	Combined	26.12%	(111)	27.85%	(127)	32.12%	(177)	20.77%	(195)	‡
% Has a boyfriend	Mali	62.60%	(82)	52.31%	(68)	65.00%	(130)	62.44%	(251)	
	Nigeria	46.15%	(102)	45.37%	(103)	40.00%	(84)	43.37%	(134)	
	Other	49.32%	(36)	46.81%	(44)	50.35%	(71)	54.13%	(118)	
	Column X ² P		†				*		*	
	Combined	51.76%	(220)	47.67%	(215)	51.72%	(285)	54.14%	(503)	
% Ever beaten by client	Mali	19.85%	(26)	17.19%	(22)	22.50%	(45)	18.55%	(74)	
	Nigeria	30.32%	(67)	33.92%	(77)	27.27%	(57)	25.24%	(78)	
	Other	17.81%	(13)	14.89%	(14)	19.15%	(27)	17.13%	(37)	
	Column X ² P		†		*				†	
	Combined	24.94%	(106)	25.17%	(113)	23.45%	(129)	20.45%	(189)	†
% Has Children	Mali	67.18%	(88)	59.54%	(78)	61.00%	(122)	63.39%	(258)	
	Nigeria	45.25%	(100)	48.47%	(111)	53.33%	(112)	46.38%	(143)	
	Other	82.19%	(60)	81.25%	(78)	82.98%	(78)	78.28%	(173)	
	Column X ² P		*		*		*		*	
	Combined	58.35%	(248)	58.55%	(267)	63.70%	(352)	61.26%	(574)	

% First sex < the age of 14 years	Mali	42.75% (56)	55.64% (74)	45.50% (91)	41.95% (172)	
	Nigeria	15.84% (35)	31.44% (72)	18.57% (39)	16.45% (51)	
	Other	28.77% (21)	42.27% (41)	34.75% (49)	29.28% (65)	
	Column X²P	*	*	*	*	
	Combined	26.53% (112)	42.98% (187)	33.33% (179)	32.58% (288)	
% First paid sex as a minor <18 years old	Mali	41.98% (55)	39.85% (53)	30.00% (60)	33.90% (139)	
	Nigeria	18.10% (40)	15.72% (36)	7.14% (15)	7.74% (24)	*
	Other	17.81% (13)	18.56% (18)	10.64% (15)	16.67% (37)	
	Column X²P	*	*	*	*	
	Combined	25.41% (108)	23.31% (107)	16.33% (90)	21.23% (200)	†
% Made a trip to another town past 12 months	Mali	49.62% (65)	51.91% (68)	51.00% (102)	44.58% (181)	
	Nigeria	24.89% (55)	43.17% (98)	47.62% (100)	28.48% (88)	
	Other	31.51% (23)	47.92% (46)	72.34% (102)	55.45% (122)	*
	Column X²P	*	*	*	*	
	Combined	33.65% (143)	46.70% (212)	55.17% (304)	41.82% (391)	†
*P<0.001	‡P<0.01	†P<0.05	P-values for comparisons between nationalities (Columns) from Pearson's X ² . P-values for comparisons over time (Rows) from Mantel-Haenszel (M-H) X ² .			

Figure 9.13 presents the proportions of FSW by nationality group who had ever been to school. Almost all Nigerian FSW had attended school while half or fewer Malians had. The proportion having attended school did not change statistically over time for any nationality. However, the differences between the nationality groups within each study year were significant using the chi-square test. Lower levels of education have been associated with HIV prevalence in other studies, so the fact that more than half of Malian FSW had never been to school could imply greater vulnerability.

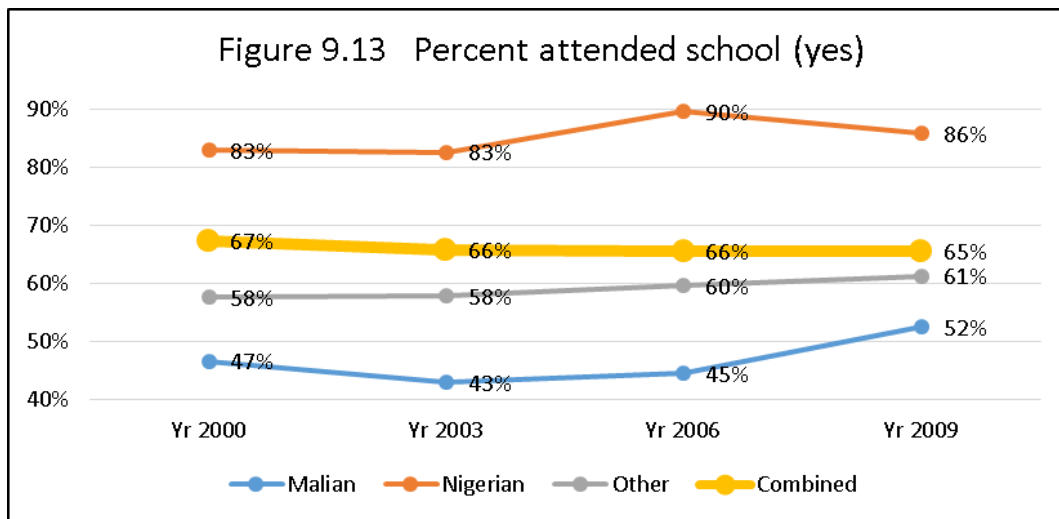


Figure 9.14 shows the proportion of FSW in Mali who were either divorced, separated, or widowed. “Others” were most likely to have been divorced, separated or widowed, substantially so in 2000, 2003, and 2006, suggesting that perhaps that traumatic life events force many women into FSW from neighboring countries. In contrast, Nigerians were the least likely to be divorced, separated, or widowed, suggesting that the phenomenon of sex work for these women is not generally linked to such life events. The downward trends for Nigerian and other nationality FSW were statistically significant using the Mantel-Haenszel chi-square test but the trend for Malian FSW was not.

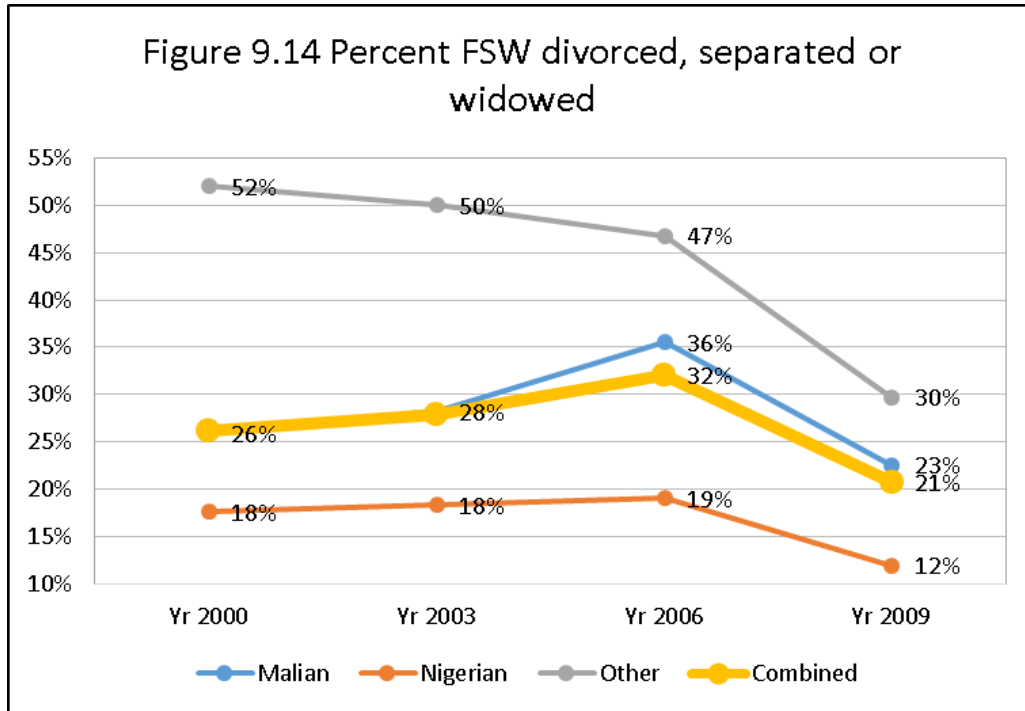


Figure 9.15 presents the proportion of FSW in each nationality group who said that they had a boyfriend at the time of the survey. In each of the four study years, Malians were more likely to report that they had a boyfriend, followed by other nationality FSW and then Nigerian FSW. The differences between nationality groups were significant within every study year except for in 2003. However, the trends observed over time were not significant for any nationality group. As noted in Chapter 2, unprotected sex with boyfriends is usually the norm for FSW.

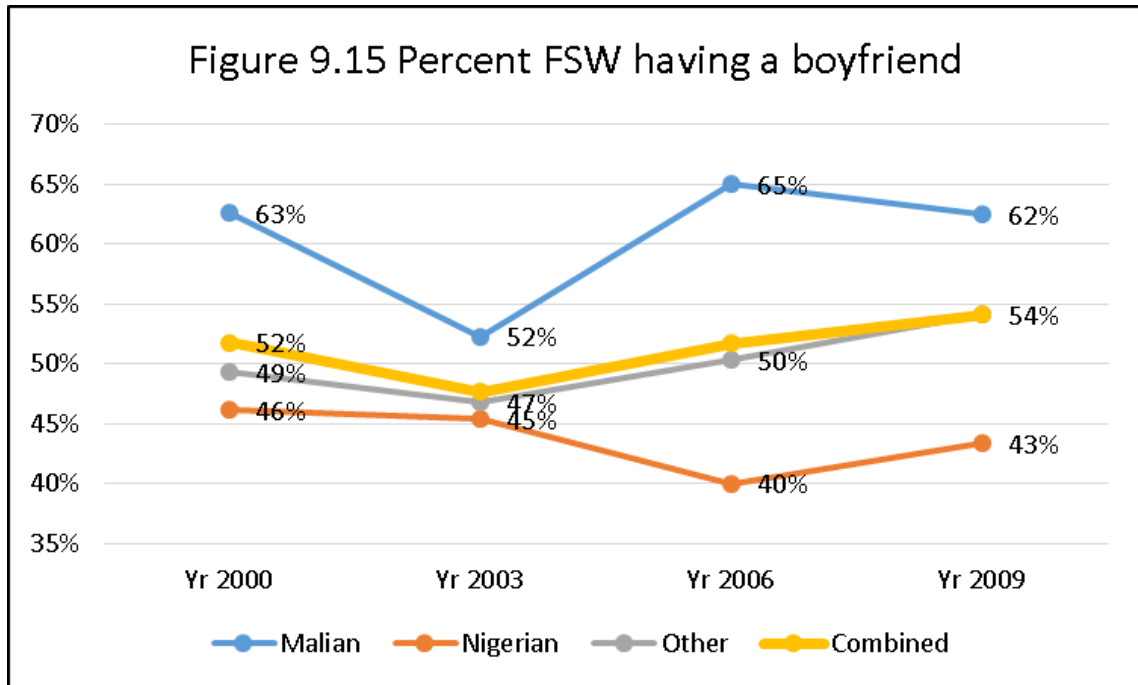


Figure 9.16 presents the proportion of FSW who reported ever having been beaten by a client. Nigerians were most likely to have been beaten by a client (from 25%–34%) which did not change over time. However, the differences were not significant in 2006. They were significant for the other three years. So significant trends occurred over the four study years except for the combined sample which has a slightly downward significant trend. Since, however, none of the nationality groups experienced significant changes in this variable it is possible that the significant trend in the combined dataset is due to the decreasing proportions of Nigerian FSW over the four study years. Something in the nature of sex work for migrant women from Nigeria appears to make them more vulnerable to violence.

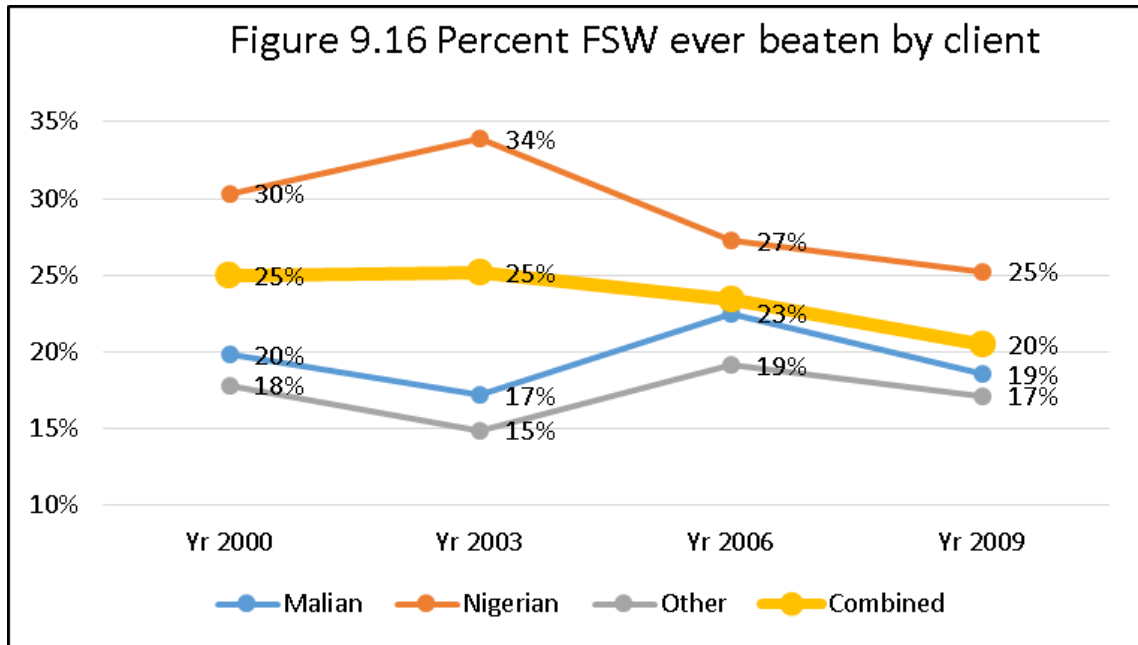


Figure 9.17 shows the proportion of FSW in each nationality group with children. In each study year, the vast majority of other nationality FSW had children. Only about half of Nigerian FSW had children while about two thirds of Malian FSW did. No statistically significant trends were observed over time on this variable. This information is important for service planning for FSW, as it helps us to understand that most Malian FSW have children to support, which may affect their willingness to have unprotected sex for more money.

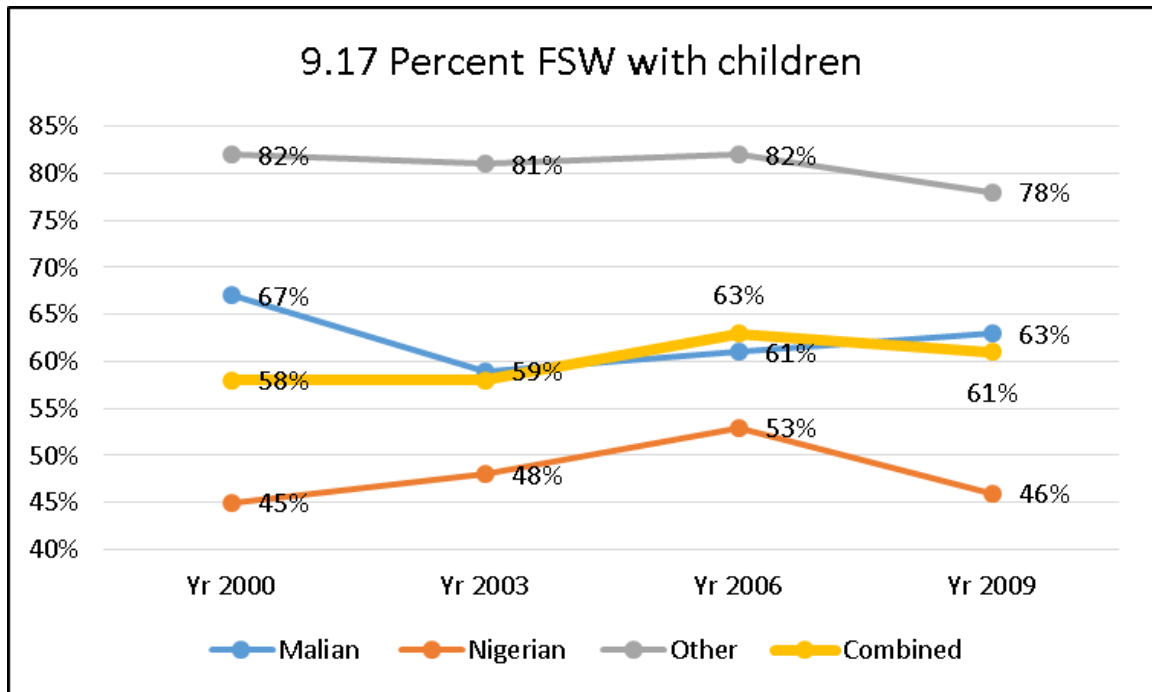


Figure 9.18 presents the proportions of FSW in Mali who had their first paid sex as a minor under the age of 18 years old. Malians were much more likely to report their first paid sex as a minor <18 years old. The differences between nationality groups were significant every study year. The proportion of Nigerians reporting first paid sex as a minor decreased significantly, as did the proportion over time for the combined dataset. However, no significant trends in the proportions of Malian and other nationality FSW were observed.

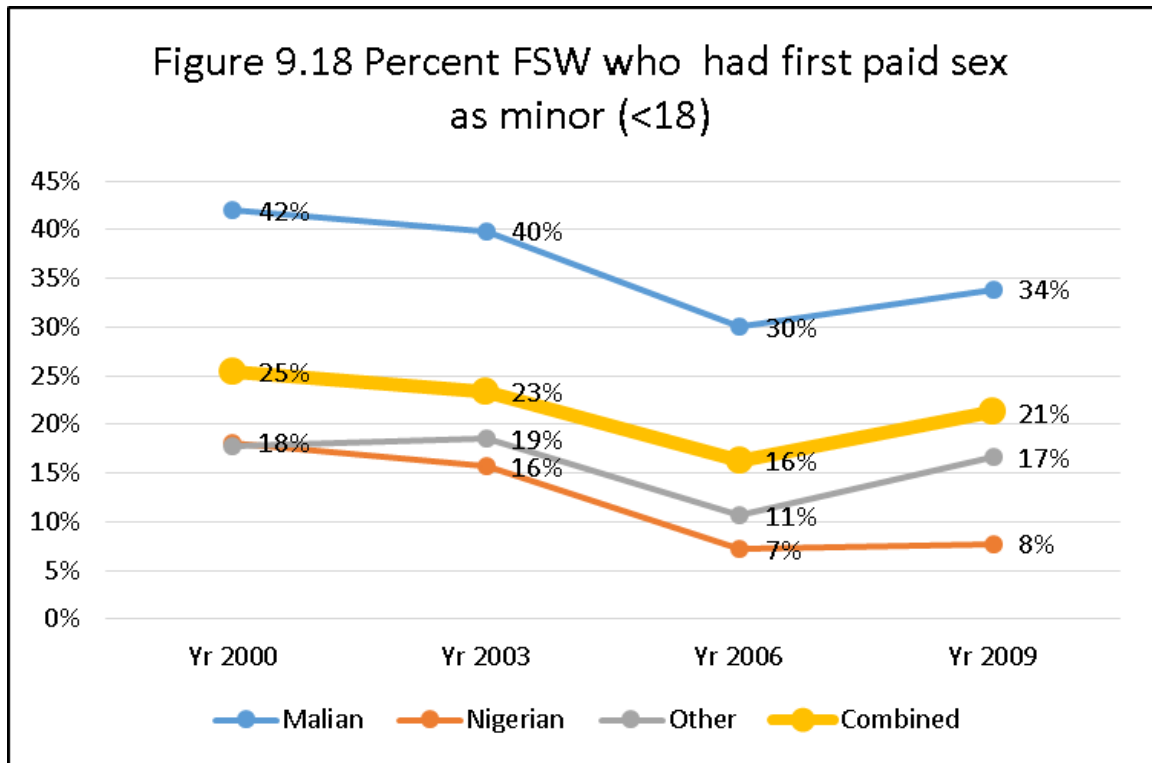
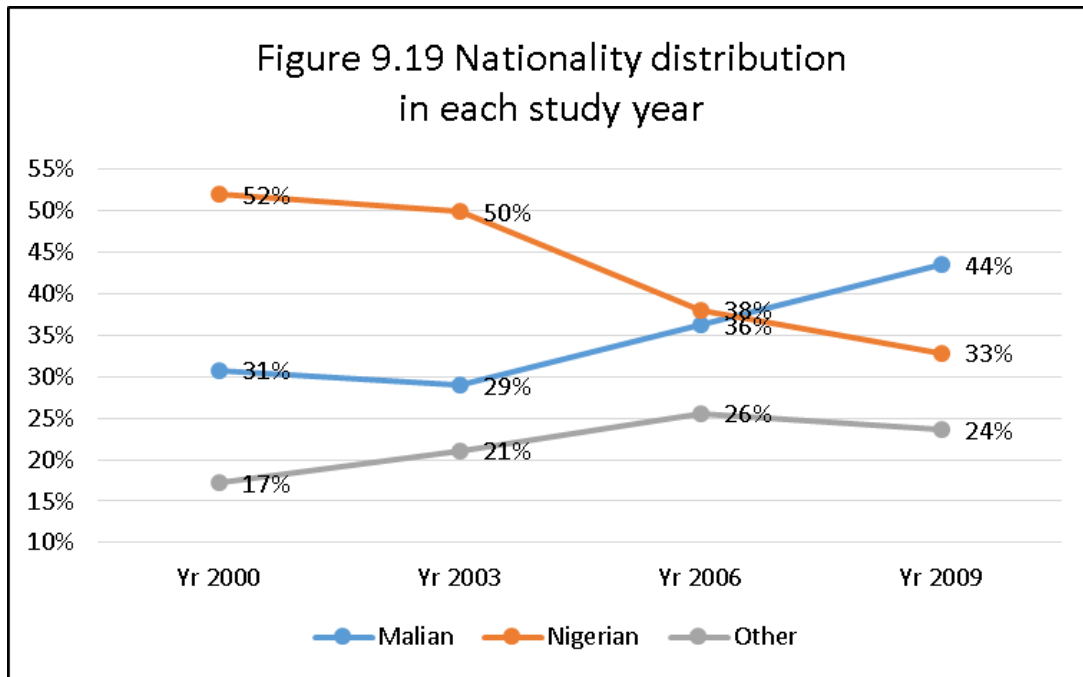


Table 9.4 and Figure 9.19 presents the proportion of each nationality group within the study sample over the four study years. The proportion of Malian FSW increased over time while the proportion of Nigerian FSW decreased. Note that the Pearson's Chi-square, not the Mantel-Haenszel Chi-Square was used to test if the proportions were significant over time and within study years. The test statistics apply to the entire dataset year to year (in the column) and between nationality groups (in Row P), unlike the other tables in which each row and each column had its own test statistic (since there was a third variable being tested in those cases, whereas here there are only two (year and nationality group)).

		Yr 2000	Yr 2003	Yr 2006	Yr 2009	Row X ² P
%	Mali	30.82% (131)	28.98% (133)	36.30% (200)	43.52% (410)	
Nationa-	Nigeria	52.00% (221)	49.89% (229)	38.11% (210)	32.91% (310)	†
lity by	Other	17.18% (73)	21.13% (97)	25.59% (141)	23.57% (222)	
study year	Column	*				
	X² P					



IV. Summary

These data show that the phenomenon of sex work in Mali was distinct for Malian women, migrant women from Nigeria and those from other neighboring West African countries. Malian FSW in Mali were the most vulnerable in a number of ways. They were the youngest and they had the least education. In addition, they started sex work at the youngest ages and were the most likely to have had their first paid sex as a minor under the age of 18. In fact one third of Malian FSW had their first paid sex as a minor. In addition, the median age at their first sex was only 15 years old. Finally, they have had

the most time in sex work. However, they were much more stable in their locations and appeared to migrate less.

Nigerian FSW were relatively young (though slightly older than Malian FSW). They had a great deal more education than other groups and were the least likely to be divorced, separated or widowed or to have children. They were also the least likely to have boyfriends. In addition, Nigerian FSW had their sexual debut and their first paid sex at the oldest ages and had had the least time in sex work. However, they also charged the least for each paid sex and had the lowest incomes. At the same time, they had the largest volume of clients each night. Finally, they were the most likely to have experienced violent attacks. It also appears that fewer Nigerians were coming to Mali each year for the purposes of sex work.

Migrant women from other neighboring countries also showed distinct differences. They were on the average quite a bit older than Malian and Nigerian FSW, although the age difference had decreased dramatically over the years. They were also much more likely to be divorced, separated or widowed and the vast majority were supporting children. While they did not charge as much for each paid sex as Malian FSW, they reported, on the average, higher incomes.

Chapter 10 will present how outcomes (such as HIV prevalence, condom use, testing behavior) evolved over the years in the combined dataset and by nationality group.

CHAPTER 10. RESULTS: ANALYSIS OF HIV PREVENTION OUTCOMES AMONG FSW

Chapter 10 presents the changes in HIV prevention outcomes of the evaluation over time. As significant differences in these trends were noted by nationality group, both the changes over time in the combined dataset as well as the changes among FSW of Malian, Nigerian and “other” nationality are presented in this chapter.

Tables 10.1 and 10.2 give changes in outcomes over time measured with proportions. Table 10.1 will show the trends program outcomes (such as the presence of condoms in bars), knowledge outcomes (such as cites condoms as an HIV prevention method) and behavioral outcomes (such as condom use). Table 10.2 will provide trends over time for biological outcomes, namely HIV and STI prevalence. These variables were all dichotomous, either in the original dataset or after combining responses. The Mantel-Haenszel chi-square test for trends was used to test the presence of a statistically significant trend over time (Row Test P) while the Pearson’s chi-square test was used to test if the proportions were statistically different within a study year between nationality groups (Column X^2 P). In cases where the expected count in a cell was less than five, Fisher’s exact test was used for statistical significance instead of the chi-square test. An “F” is shown in the tables to mark comparisons for which the Fisher’s exact test was used. Note that the p-values shown in the Column X^2 P are for the global Pearson’s chi-square or Fisher’s test, which show that at least one value is different from at least one other value.

There were three groups (Malian, Nigerian and Other) and we used Pearson's chi-square test to see if the three groups were different between study years. However, we did not think it was necessary to test each group against each other. So, where there is a significant difference within a study year, this only means the highest and lowest value in each year are known to be different. It does not show if the middle value is different from either the highest or the lowest. Note that the p-value for the column is above the value for the combined (all nationality) since the statistical tests are only for the differences between individual nationality groups, not the combined dataset. For all statistical tests, the null was rejected if $p < 0.05$.

Each variable is presented both in Tables 10.1 or 10.2 and in a line graph to enhance understanding of the trends and the differences between nationality groups. In the line graphs, the trends in the entire, combined, dataset are presented with a thick yellow line. Trends among Malian, Nigerian and other nationality FSW are depicted, respectively using blue, red and gray lines.

How these results compare with those in other studies, as well as the implications of these results, will be examined in the discussion chapter (Chapter 12).

I. Trends in program, knowledge and behavioral outcomes

Table 10.1 (below) and its associated line graphs present the results by nationality in program, behavioral, and knowledge outcomes by year and over time.

TABLE 10.1. Changes in program, knowledge and behavioral outcomes among FSW in Mali

Characteristic	Nationality of origin	2000 (N=425)		2003 (N=477)		2006 (N=558)		2009 (N=970)		Row M-H X ² P
		%	(n)	%	(n)	%	(n)	%	(n)	
Condoms available at workplace % Yes	Mali	88.56%	(116)	97.69%	(127)	94.00%	(188)	99.01%	(402)	*
	Nigeria	89.59%	(198)	99.12%	(225)	97.62%	(205)	99.03%	(306)	*
	Other	89.04%	(65)	95.79%	(91)	92.91%	(131)	100%	(219)	* (F)
	Column X ² P Combined	89.18%	(379)	98.01%	(443)	95.11%	(525)	99.25%	(927)	*
Has ever tested for HIV % Yes	Mali	35.88%	(47)	30.47%	(39)	50.75%	(101)	67.34%	(268)	*
	Nigeria	38.91%	(86)	52.00%	(117)	67.15%	(139)	83.44%	(257)	*
	Other	50.68%	(37)	50.00%	(47)	68.79%	(97)	80.18%	(174)	*
	Column X ² P Combined	40.00%	(170)	45.41%	(203)	61.61%	(337)	75.73%	(699)	*
Used condoms at last sex with % Yes	Mali	47.59%	(39)	38.24%	(26)	51.54%	(67)	34.80%	(87)	
	Nigeria	20.79%	(21)	32.04%	(33)	52.38%	(44)	52.24%	(70)	*
	Other	25.00%	(9)	44.19%	(19)	49.30%	(35)	37.61%	(44)	
	Column X ² P Combined	*		36.45%	(78)	51.23%	(146)	40.20%	(201)	†
Always used condom with boyfriend in last 30 days % Always	Mali	34.15%	(28)	22.06%	(15)	26.92%	(35)	21.60%	(54)	
	Nigeria	9.80%	(10)	17.48%	(18)	21.43%	(18)	28.36%	(38)	*
	Other	13.89%	(5)	31.82%	(14)	32.86%	(23)	23.08%	(27)	
	Column X ² P Combined	*		21.86%	(47)	26.76%	(76)	23.75%	(119)	
Used condom last sex with client % Yes	Mali	91.54%	(119)	94.57%	(122)	96.00%	(192)	98.75%	(395)	*(F)
	Nigeria	100%	(220)	99.56%	(226)	100%	(210)	100%	(308)	(F)
	Other	95.89%	(70)	98.94%	(93)	100%	(141)	98.16%	(213)	(F)
	Column X ² P Combined	*(F)		† (F)		*(F)		†(F)		‡
Always used condom with	Mali	72.31%	(94)	73.08%	(95)	75.88%	(151)	81.50%	(326)	‡
	Nigeria	92.76%	(205)	86.28%	(195)	93.81%	(197)	90.94%	(281)	‡

client last 30 days % Always	Other	88.89% (64)	89.36% (84)	85.11% (120)	88.48% (192)	
	Column X² P	*	‡	*	*	
	Combined	85.82% (363)	83.11% (374)	85.09% (468)	86.29% (799)	
Used condom last sex with regular client % Yes	Mali	89.53% (77)	85.51% (59)	91.15% (103)	96.37% (239)	‡
	Nigeria	100% (102)	97.96% (96)	100 (83)	100% (150)	(F)
	Other	97.5% (39)	100% (41)	98.57% (69)	99.15% (117)	(F)
	Column X² P	*(F)	‡ (F)	‡ (F)	†(F)	
	Combined	95.61% (218)	94.23% (196)	95.86% (255)	98.06% (506)	†
Always used condom with regular client last 30 days % Always	Mali	80.23% (69)	75.36% (52)	76.32% (87)	91.13% (226)	‡
	Nigeria	97.06% (99)	96.94% (95)	96.39% (80)	96.67% (145)	(F)
	Other	90.00% (36)	90.24% (37)	92.96% (66)	98.31% (116)	† (F)
	Column X² P	*	*	*	‡	
	Combined	89.47% (204)	88.46% (184)	86.94% (233)	94.38% (487)	†
Uses lubricant during sex % Yes	Mali	20.61% (27)	53.08% (69)	57.50% (115)	56.14% (224)	*
	Nigeria	81.00% (179)	84.58% (192)	93.81% (197)	93.20% (288)	*
	Other	68.49% (50)	73.40% (69)	80.85% (114)	76.50% (166)	
	Column X² P	*	*	*	*	
	Combined	60.24% (256)	73.17% (330)	77.31% (426)	73.30% (678)	*
Cites NGO program as HIV info source % Yes	Mali		53.38% (71)	56.50% (113)	45.61% (187)	†
	Nigeria		45.85% (105)	54.76% (115)	51.94% (161)	
	Other		45.36% (44)	59.57% (84)	43.24% (96)	
	Column X² P					
	Combined		47.93% (220)	56.62% (312)	47.13% (444)	
Cites TV/Radio as HIV information % Yes	Mali		92.48% (123)	88.00% (176)	84.39% (346)	†
	Nigeria		93.89% (215)	88.10% (185)	68.39% (212)	*
	Other		91.75 (89)	87.94% (124)	84.68% (188)	
	Column X²				*	
	Combined		93.03 (427)	88.02 (485)	79.19	*

*P<0.001 ‡P<0.01 †P<0.05 M-H Mantel-Haenszel (F) Fisher's Exact Test (one or more expected cell counts was <5)

Figure 10.1 presents the percentage trends for FSW reporting that condoms were available in their bars/brothels. The increasing trends over time were significant for all nationality groups. However, none of the values for any nationality group were significantly different during any study year.

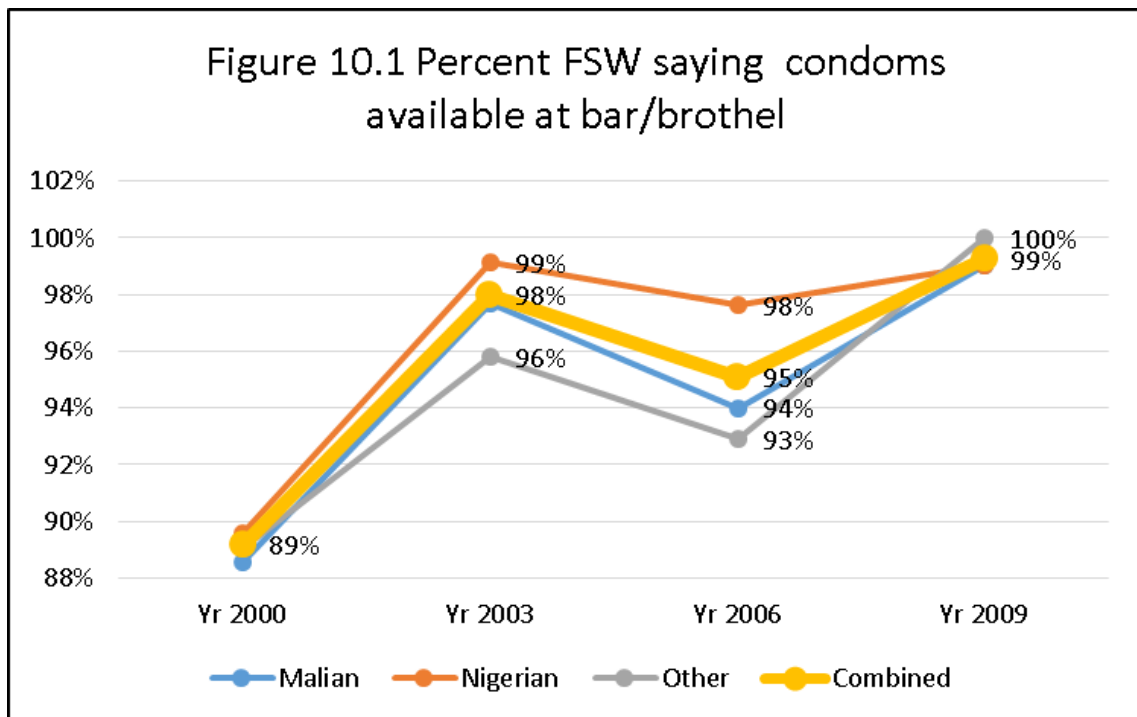


Figure 10.2 shows that the proportions of FSW who had ever tested for HIV increased over time between 2000 and 2009. This would be expected as this service was scaled up during this time period. These trends were statistically significant over time for all nationality groups. In addition, the differences between Nigerian and other nationality FSW when compared with Malian FSW were not statistically significant in 2000, but they were in 2003, 2006 and 2009.

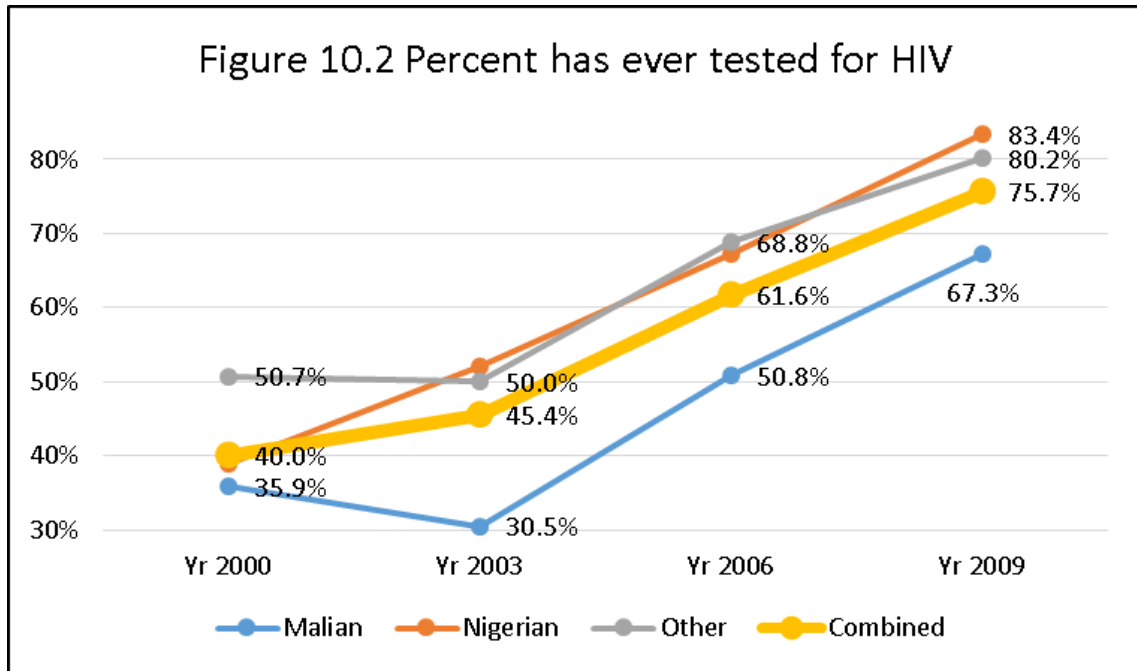


Figure 10.3 demonstrates the trends in condom use at last sex with a boyfriend. Only FSW who said they had boyfriends were included in this analysis. Only the increasing trend among Nigerian FSW as well as the combined group was statistically significant. Also, in 2003 and 2006, the differences between Malian, Nigerian and other nationality were not significant. In 2000, however, Malian FSW were significantly more likely to use condoms at the last sex with their boyfriends than were Nigerians. The opposite was the case in 2009, when Nigerians were significantly more likely to use condoms with their boyfriends.

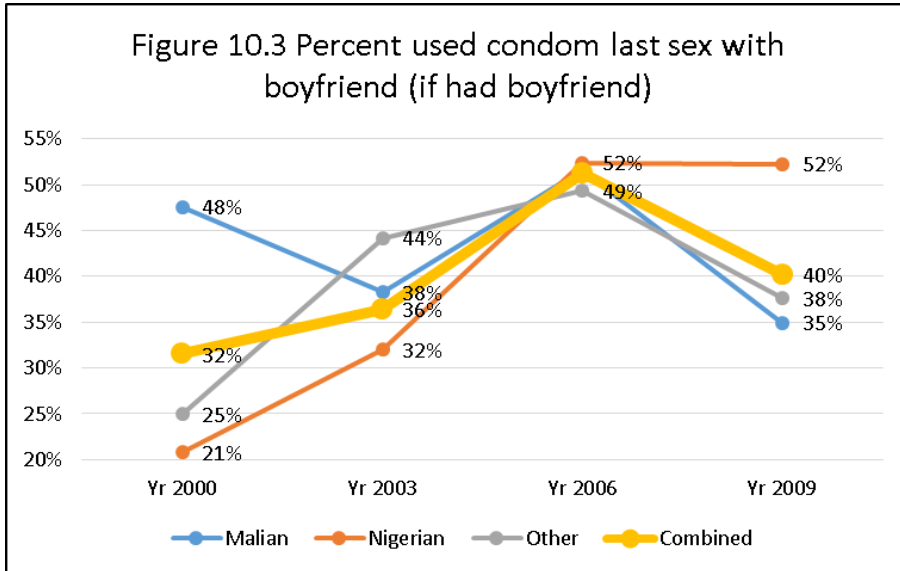


Figure 10.4 shows the proportions of FSW who always used condoms with boyfriends in the last thirty days. Only FSW saying they had boyfriends were asked this question. Only the upward trend among FSW from Nigeria was statistically significant using the Mantel-Haenzel chi-square test. In addition, the differences between nationality groups within study years were significant only in 2000.

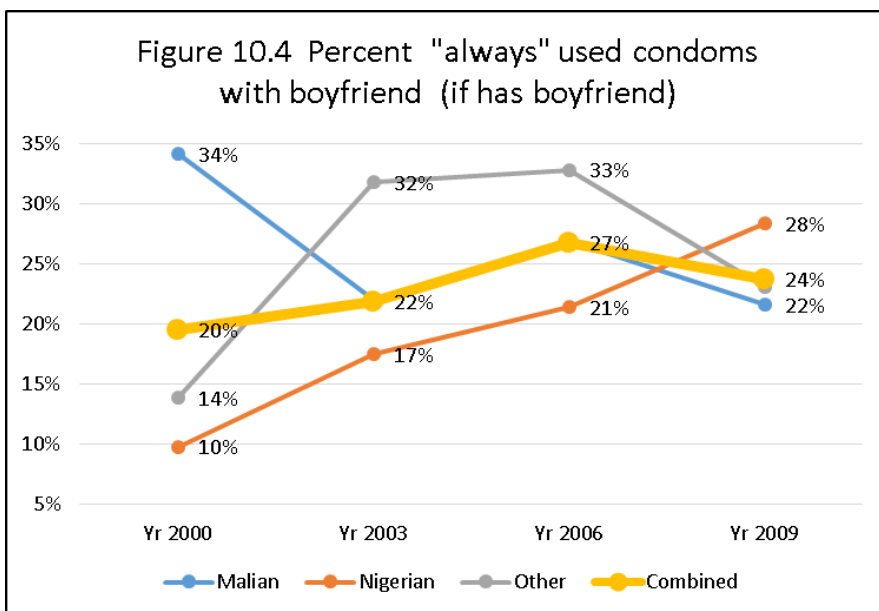


Figure 10.5 presents the proportion of FSW who said they had used a condom during the last sex with a regular client. Regular clients were defined as those the FSW had had sex with five or more times. Only FSW who said they had regular clients were asked this question. Only the upward trends over time for Malian FSW and the combined group were significant. However, the differences within each study year between the highest values (either Nigerian or “other”) and lowest (Malian FSW) were significant.

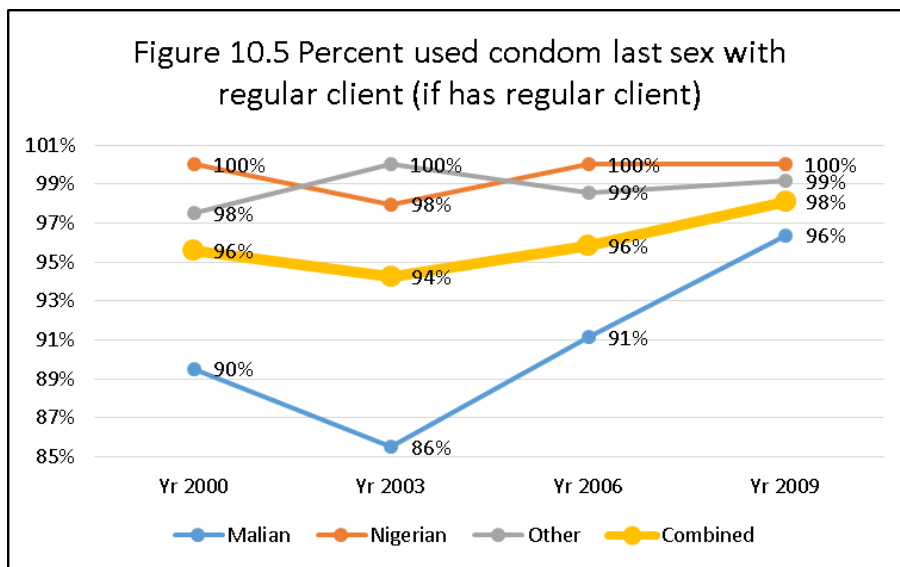


Figure 10.6 shows the proportions of FSW who said they “always” used condoms with regular clients in the last 30 days. Only FSW who had regular clients (defined as those who the sex worker had sex with five or more times) were asked this question. The upward trends for the Malian, other and combined nationalities were significant using the Mantel-Haenszel chi-square for trends. However, there were no changes for FSW from Nigeria. The differences between the highest values (Nigerians except for 2009) and the lowest values (Maliens) were statistically significant each study year. (As a reminder, we

did not test statistical significance separately for the middle value).

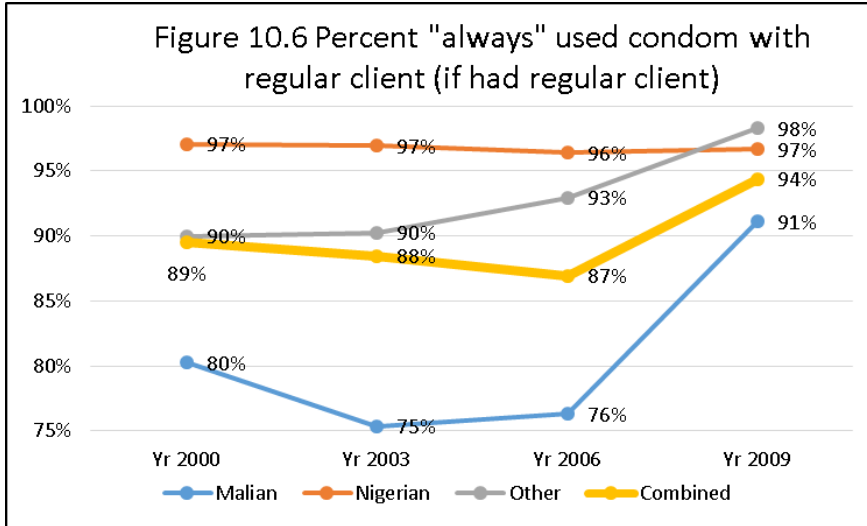


Figure 10.7 shows the trends over time of condom use at last sex with a client. Only the upward trends among Malian FSW and the combined group were statistically significant. Nigerian FSW, whose condom use at last sex with clients approached 100% every study year were significantly more likely to use condoms than were Malians every study year using Fisher's exact test.

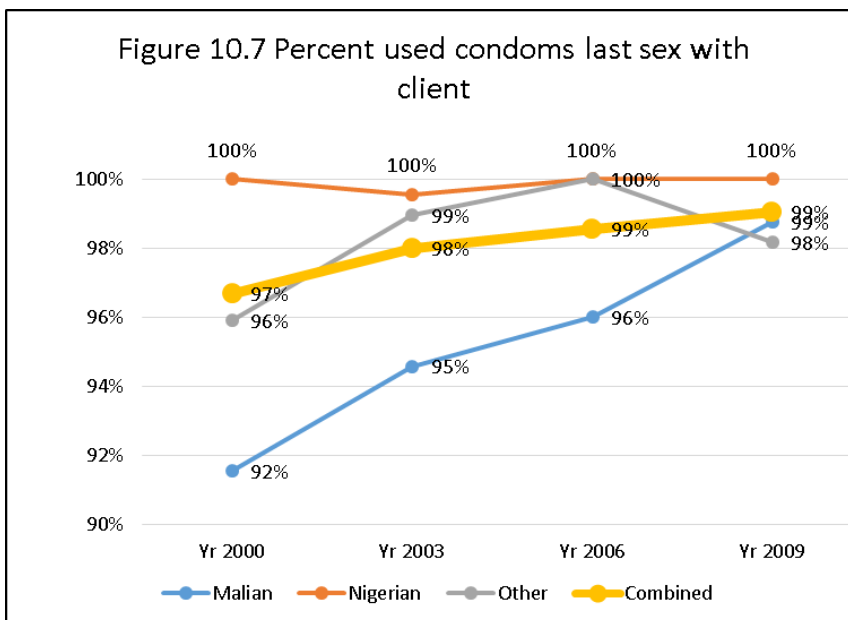


Figure 10.8 shows the percentages of FSW who said they “always” used condoms with clients in the last 30 days. Only the upward trend noted for Malian FSW was statistically significant over time using Mantel-Haenszel chi-square test. However, the within-year differences between Malian (the lowest scoring group each year) and the highest scoring group were significant using Pearson’s chi-square test every study year.

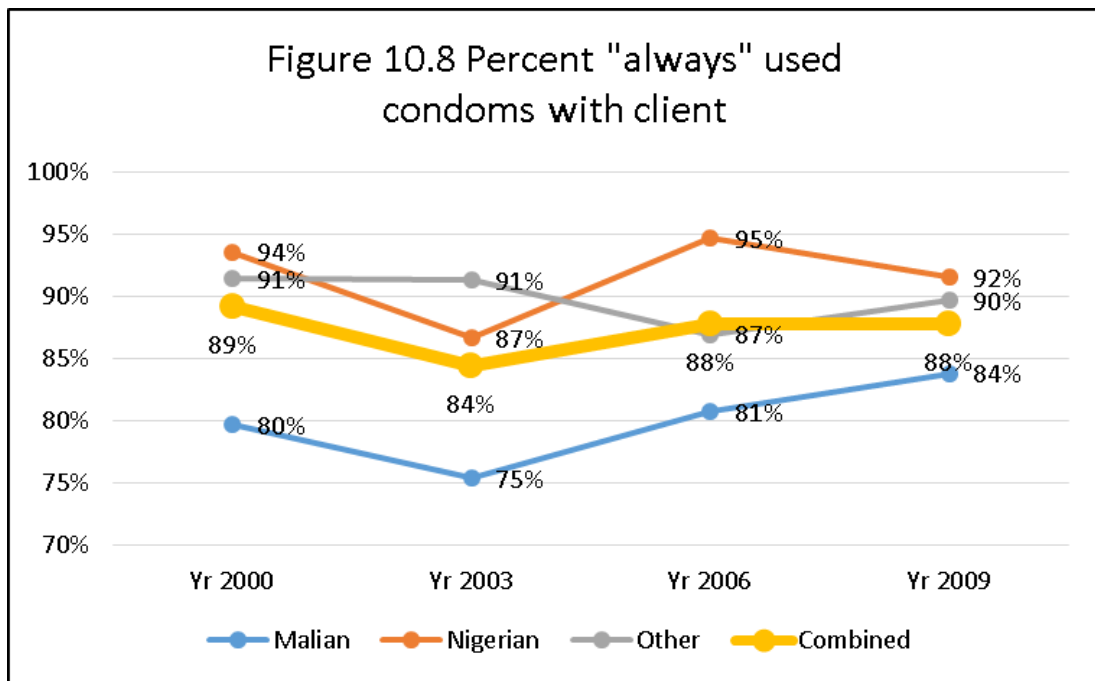


Figure 10.9 demonstrates that sexual lubricant use increased significantly over time for each nationality group except for other nationality FSWs. In every study year, Nigerian FSW were significantly more likely to use lubricant during sex than were Malians.

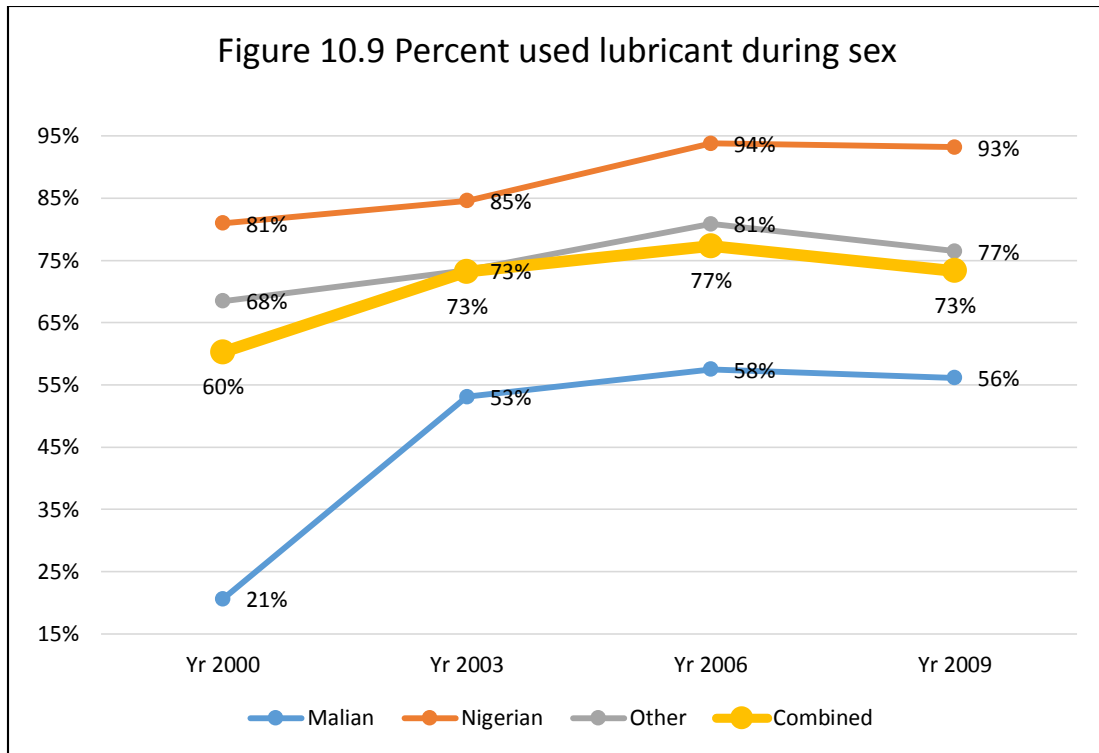


Figure 10.10 presents the proportion of FSW who cited NGO programs, peer educators and animators as sources of HIV information from a long list of possible answers. Interestingly, only about ½ did so, despite the considerable investment in these activities. The only statistically significant trend was the downward trend among Malian FSW. None of the within-year differences were significant. This question was not asked in 2000.

As shown in Figure 10.11, FSW of all nationality groups were actually much more likely to cite TV or radio as their source of information about HIV than NGO programming. The downward trends observed for Malian (behind the combined group), Nigerian and the combined group were statistically significant but the slight trend among other nationality FSW was not. Also, the within-year differences were only significant in

2009. This question was not asked in 2000.

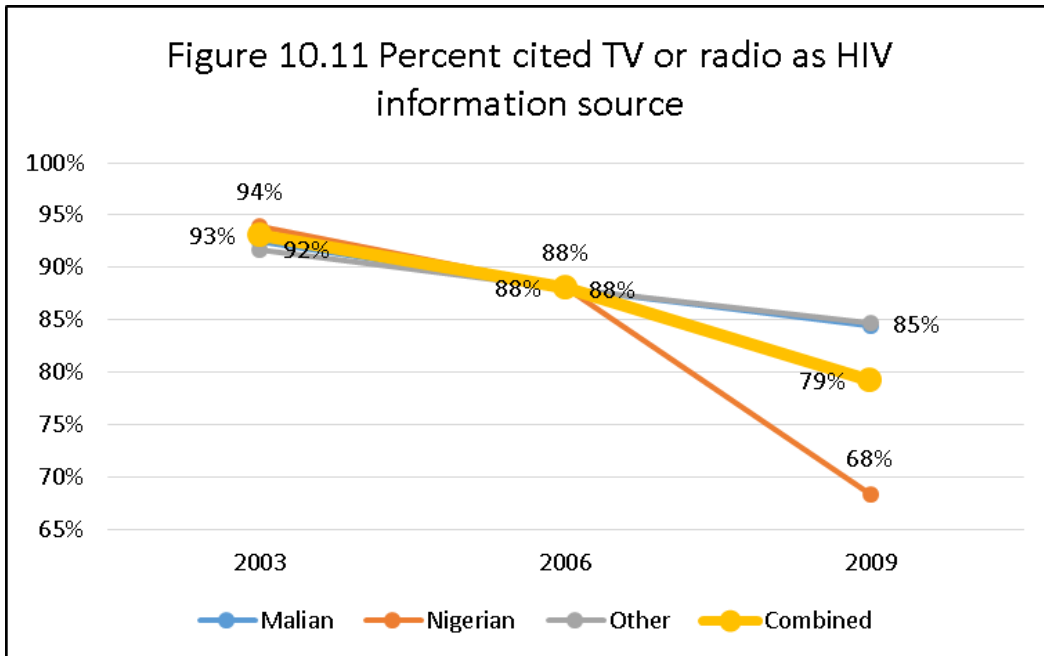
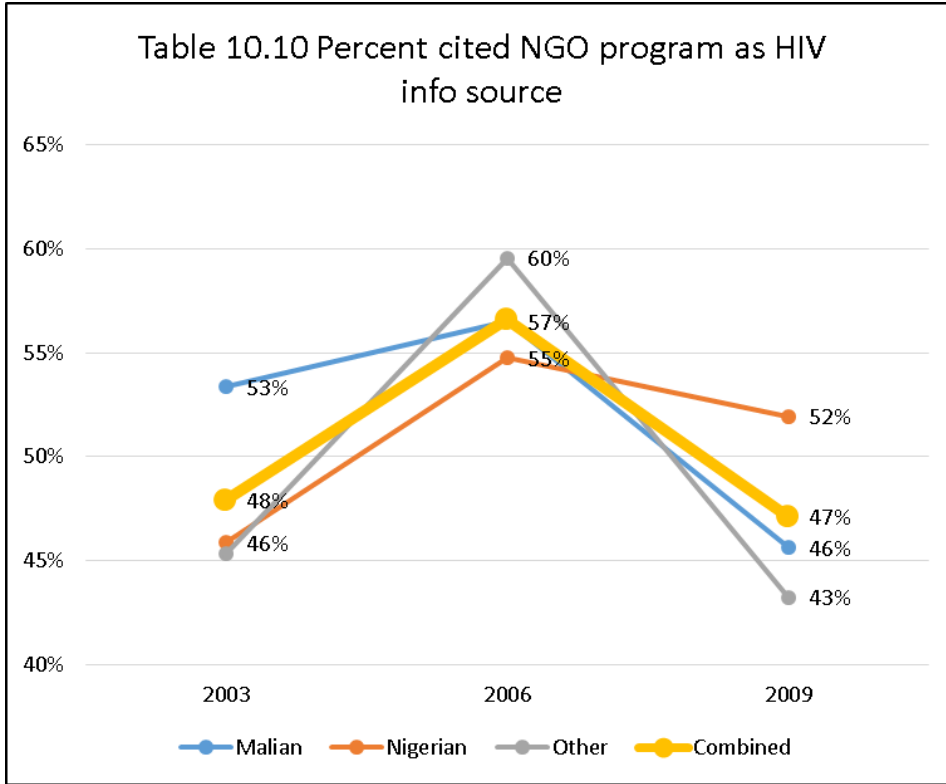
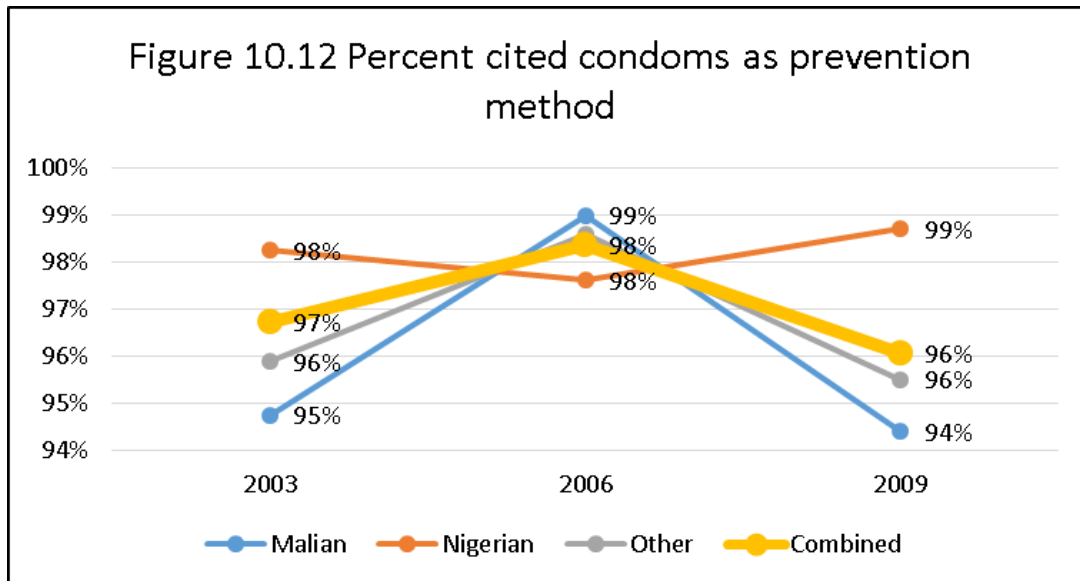


TABLE 10.2. Changes in knowledge outcomes among FSW in Mali 2000–2009

Characteristic	Nationality of origin	2000 (N=425)		2003 (N=477)		2006 (N=558)		2009 (N=970)		Row M-H X ² P
		%	(n)	%	(n)	%	(n)	%	(n)	
Cites Condoms as HIV prevention % Yes	Mali			94.74%	(126)	99.00%	(198)	94.39%	(387)	†
	Nigeria			98.25%	(225)	97.62%	(205)	98.71%	(306)	(F)
	Other			95.88%	(93)	98.58%	(139)	95.5%	(212)	(F)
	Column X ² P Combined			(F)		(F)		†		
				96.73%	(444)	98.37%	(542)	96.07%	(905)	
Cites Abstinence or Faithfulness as prevention % Yes	Mali			26.32%	(35)	16.50%	(33)	11.71%	(48)	*
	Nigeria			14.85%	(35)	12.38%	(26)	9.68%	(30)	
	Other			11.34%	(11)	14.89%	(21)	16.67%	(37)	
	Column X ² P Combined			‡		†		†		‡
				16.77%	(80)	14.34%	(80)	11.86%	(115)	
Knows HIV can be transmitted MTC % Yes	Mali			83.21%	(109)			81.66%	(325)	
	Nigeria			68.78%	(152)			81.17%	(250)	*
	Other			79.45%	(58)			87.71%	(186)	
	Column X ² P Combined			‡						
				75.06%	(319)			82.45%	(761)	‡

Figure 10.12 shows that the proportion of FSW who cited condoms as a prevention method was relatively high every study year (2003–2009, as this question was not asked in 2000) but highest in 2006. Nevertheless, the only trend that was statistically significant was among Malian FSW, and this is difficult to interpret). The proportion of Nigerian FSW who cited condoms as a prevention method was significantly different from the proportion of Malians who did so in 2009. But none of the differences between nationality groups were different in 2003 or 2009.



As shown in Figure 10.13, the proportion of Malians who cited abstinence or faithfulness as a prevention method decreased significantly between 2003 and 2009. However, there were no other significant trends except for the combined group which was heavily influenced by the trend among Malian FSW. It is doubtful that abstinence or faithfulness is highly relevant messaging for FSW, and these trends may reflect less emphasis put on these messages later in the decade.

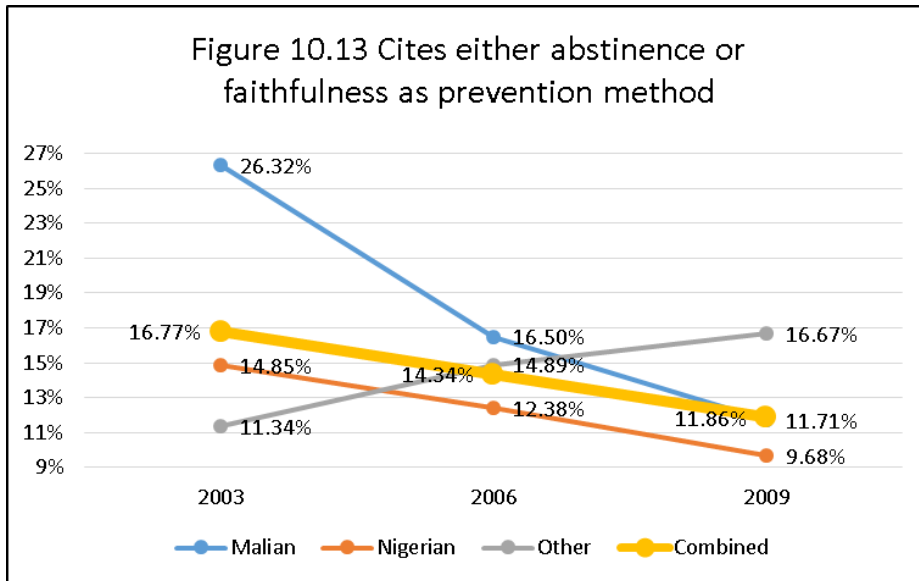
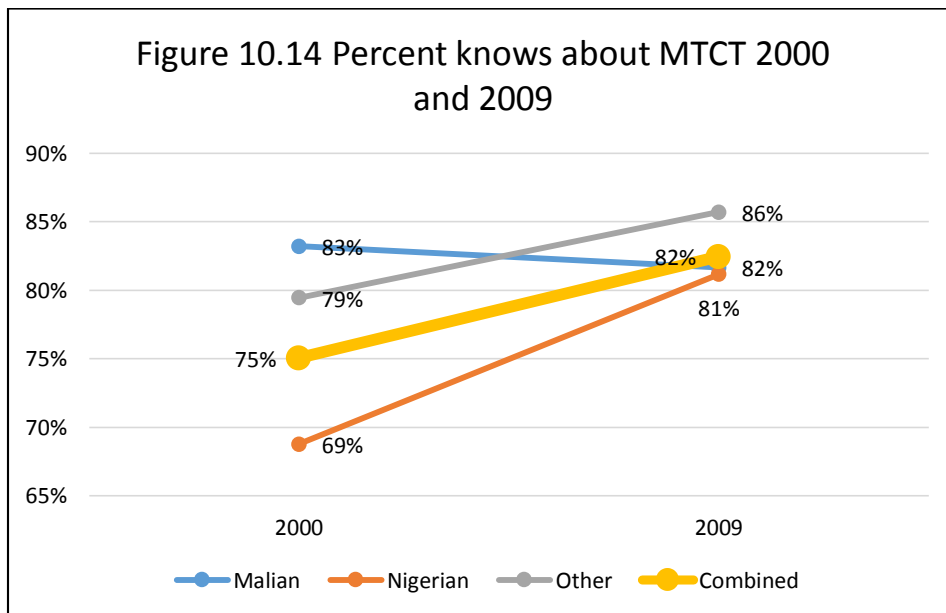


Figure 10.14 shows the proportion of FSW who knew that HIV can be transmitted from mother to child. This question was only asked in 2000 and 2009. While all groups showed upward trends on this indicator, there were no significant changes except among Nigerian FSW who were more likely to know about mother to child transmission in 2000 than in 2009.



II. Changes in biological outcomes and treatment-seeking behavior

Table 10.3 and the corresponding line graphs show the changes in biological outcomes in Mali from 2000 to 2009. Note that because the biological test data from Gao/Kayes was missing in 2000 (the dataset was lost), we could not calculate nationality-specific rates for 2000. However, we were able to include the overall/combined rates because they were printed in the 2000 ISBS report.

TABLE 10.3. Changes in Biological Outcomes among FSW in Mali 2000 – 2009

Characteristic	Nationality of origin	2000 (N=425) % (n)	2003 (N=477) % (n)	2006 (N=558) % (n)	2009 (N=970) % (n)	Row Test P M-H X ² P
HIV prevalence % HIV-positive	Mali	§	44.14% (49)	41.97% (81)	28.49% (102)	*
	Nigeria	§	21.33% (45)	21.18% (43)	12.71% (38)	‡
	Other	§	43.42% (33)	48.00% (60)	33.67% (67)	‡
	Column X ² P		*	*	*	
	Combined	28.9% (116)	31.91% (127)	35.32% (184)	24.18% (207)	†
Had STI symptoms in past 3 months % Yes	Mali	30.53% (40)	21.09% (27)	35.5% (71)	28.39% (113)	
	Nigeria	9.95% (22)	7.93% (18)	10.58% (22)	9.06% (28)	
	Other	19.18% (14)	19.15% (18)	22.70% (32)	20.74% (45)	
	Column X ² P	*	*	*	*	
	Combined	17.88% (76)	14.03% (63)	22.77% (125)	20.13% (186)	†
Test positive for gonorrhea % positive	Mali	§	0.92% (1)	5.24% (10)	21.55% (78)	*
	Nigeria	§	2.86% (6)	1.03% (2)	1.35% (4)	(F)
	Other	§	6.58% (5)	3.97% (5)	7.88% (16)	
	Column X ² P		(F)	*	*	
	Combined	3.2% (13)	3.03% (12)	3.33% (17)	11.37% (98)	*
Test positive for chlamydia % positive	Mali	§	7.34% (8)	6.81% (13)	17.40% (63)	*
	Nigeria	§	0.48% (1)	0	3.37% (10)	‡ (F)
	Other	§	2.63% (2)	5.30% (7)	8.82% (18)	
	Column X ² P		‡ (F)	‡	*	
	Combined	4.6% (19)	2.78% (11)	3.85% (20)	10.54% (91)	*
Received medical treatment last time had STI symptoms	Mali	40.00%	40.74%	35.71%	36.28%	
	Nigeria	45.45%	50.00%	45.45%	25.00%	
	Other	28.57%	50.00%	45.45%	25.00%	
	Column X ² P					
	Combined	39.47%	46.03%	36.59%	32.26%	

*P<0.001 ‡P<0.01 †P<0.05 M-H Mantel-Haenszel (F) Fisher's Exact Test (one or more expected cell counts was <5)

§Unknown as Kayes/Gao HIV data and all chlamydia/gonorrhea data is missing from 2000 ISBS dataset

|| Overall prevalence of HIV, chlamydia, and gonorrhea from the 2000 ISBS report are included and analyzed here

Figure 10.15 shows that HIV prevalence among FSW of all nationalities (the combined group) was lowest (24.18%) in 2009 after increasing from 28.87% in 2000 to 31.91% in 2003 and to 35.32% in 2006 (M-H X^2 4.6382 $P=0.0314$). The decrease in the combined group between 2000 and 2009 was not significant (X^2 3.2207 $P=0.0727$) but the decreases between 2003 and 2009 (X^2 8.3019 $P=0.0040$) and between 2006 and 2009 (X^2 19.7483 $P<0.0001$) were. Nigerians had much lower HIV prevalence in each ISBS. Between 2003 and 2009, HIV prevalence decreased significantly for all nationality groups: by 64.5% among Malians (44.14% to 28.49% M-H X^2 13.111 $P=0.0003$) and 60% among Nigerians (21.33% to 12.71% M-H X^2 6.9932 $P=0.0082$). Among “others” HIV prevalence peaked in 2006 (48%) and dropped 70% to 33.67% in 2009 (M-H X^2 4.0487 $P=0.0442$). The peak in the combined group in 2006 was driven solely by the high HIV prevalence rate among other nationality FSW that year, the fact that the proportion of other nationality FSW was relatively high in 2006, and there had been a 10% decrease in the proportion of Nigerian FSW that year.

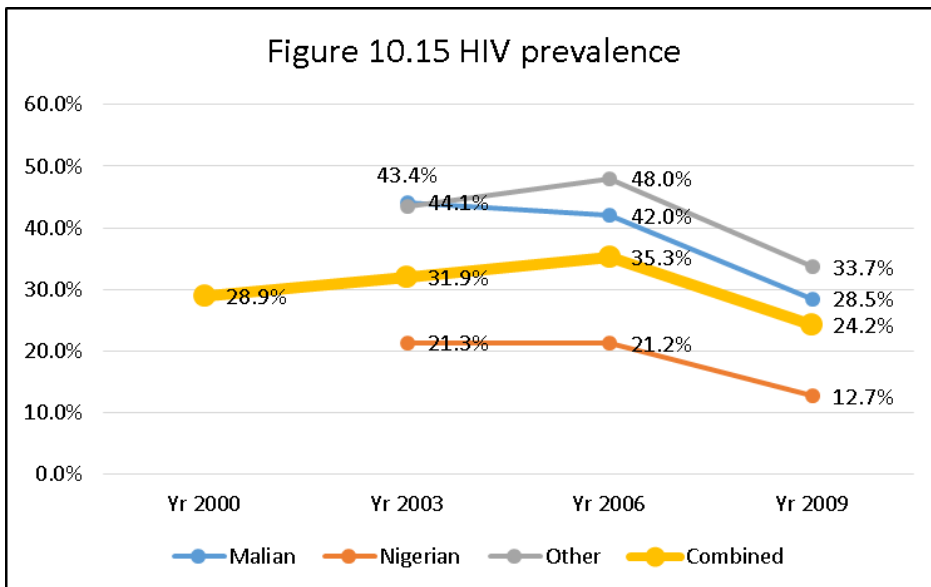


Figure 10.16 shows that in all years, significantly more Malians reported STI symptoms than did Nigerians. (Again, we did not test the statistical significance of the differences between middle values with the lowest and highest values). However, no changes over time were significant except for the combined nationality group in 2006 and 2009. In addition, the time frame requested in the 2006 questionnaire was over the last 6 months, while in 2000, 2003, and 2009 FSW were asked if they had had an STI in the last 3 months. This could have biased these results.

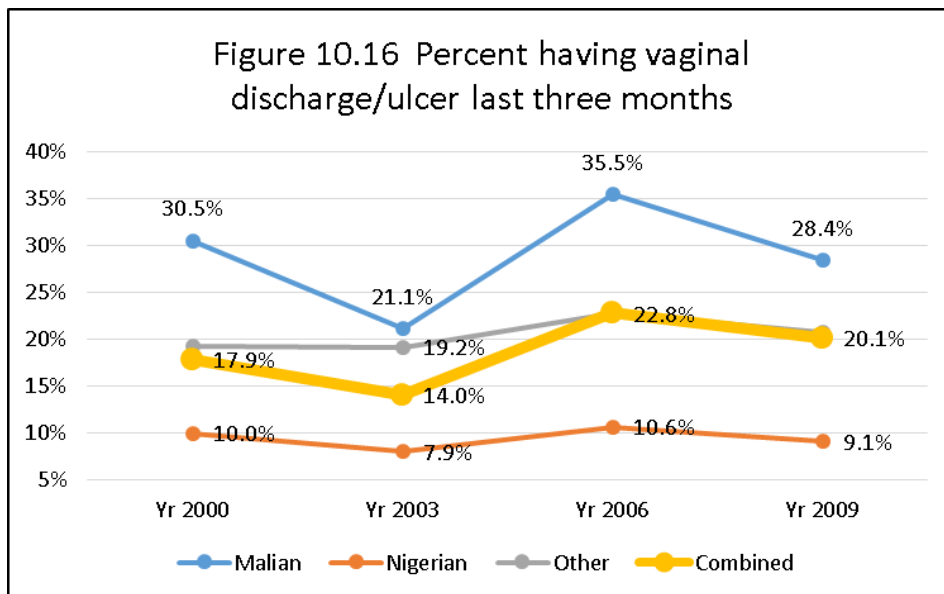


Table 10.17 notes a sharp increase in gonorrhea prevalence among Malian FSW in 2009. Note that the document review and key informant interviews revealed stock-outs of STI drugs after the Canadian SIDA-3 program ended in 2006. Only the upward trends among Malian FSW and the combined group were statistically significant. In addition, the differences between Malian, Nigerian and other nationality FSW in 2003 and 2006 were not significant. The difference between Malian and Nigerian FSW was significant, however in 2009.

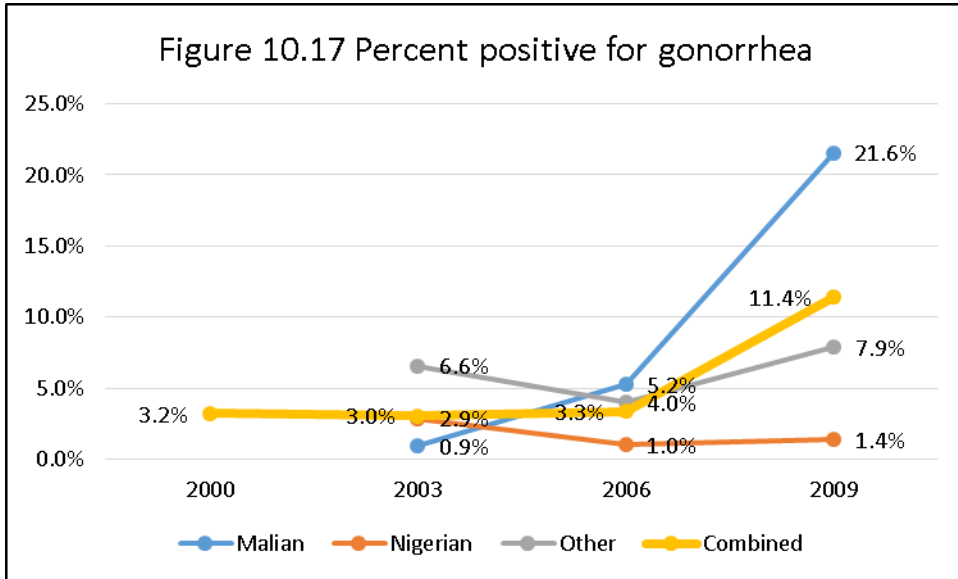


Figure 10.18 shows that a dramatic statistically significant increase in chlamydia prevalence occurred among Malian FSW in 2009. Note that the document review and key informant interviews revealed stock-outs of STI drugs after the Canadian SIDA-3 program ended in 2006. The upward trends for Nigerians and the combined group were also statistically significant. The differences between Malian FSW and Nigerian FSW were significant in all years.

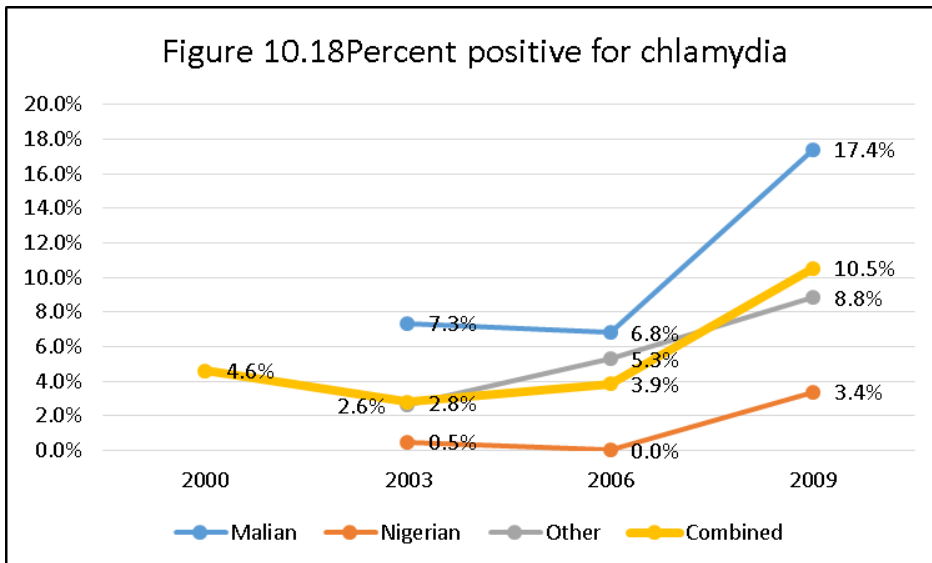
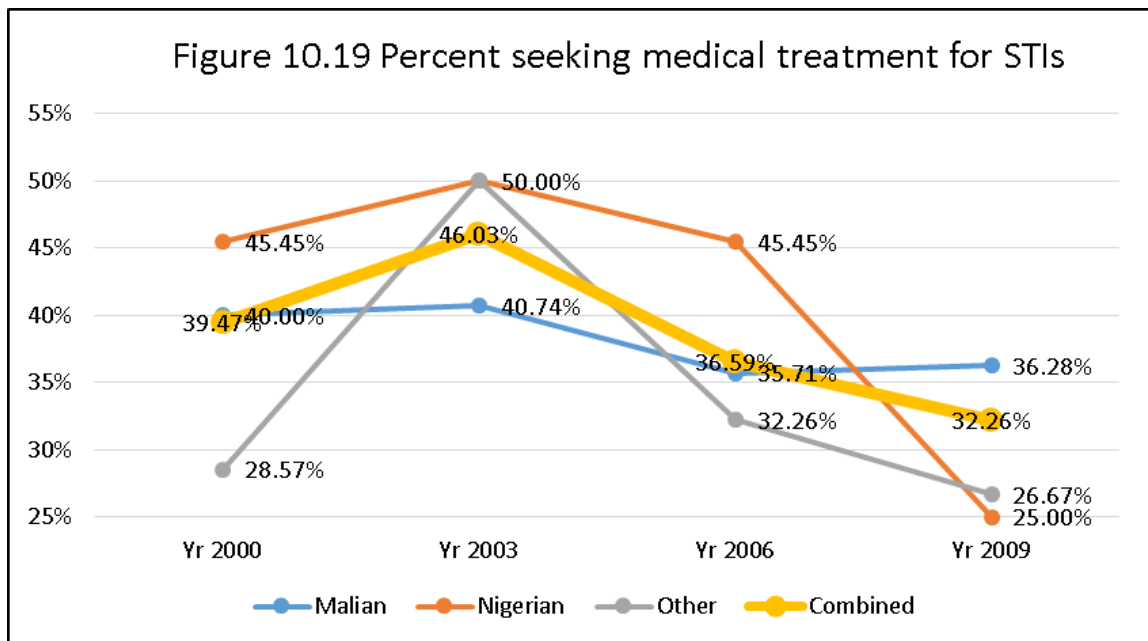


Figure 10.19 shows, basically, that 25% – 50% of FSW said they sought out and received medical treatment the last time they had STI symptoms. While there does appear to be a downward trend, none of the changes over time for any of the groups were statistically significant. The within-year differences between Malian, Nigerian and other nationality groups were not statistically significant either. Sex workers who reported having done nothing or having gone to non-medical sources (like self-medication, friends, or the market) were counted as "non-medical". Those who went to health centers, hospitals, NGOs, etc. were counted as having received "medical" treatment. The sample size was not large (448), since only 450 FSW reported having had STI symptoms. In addition, the time frame requested in the 2006 questionnaire was over the last 6 months, while in 2000, 2003, and 2009 FSW were asked if they had had an STI in the last 3 months. This also could have biased results.



III. Summary

Chapter 10 documents a number of statistically significant improvements in HIV prevention programmatic, knowledge and behavior outcomes from 2000 to 2009.

Dramatic improvements occurred in programmatic outcomes such as condom availability at workplaces and HIV testing. While low among all groups, condom use with boyfriends improved for Nigerian nationality FSW in Mali. Condom use with clients and regular clients improved for Malian nationality FSW but was already high for Nigerian and “other” FSW. We did not note improvements in citing condoms as an HIV prevention method or citing NGO programming as an HIV information source (our proxy indicator for program exposure) for any nationality groups. Interestingly, more FSW got their HIV information from radio and television than from NGOs.

It is important to note that Nigerians appear less vulnerable to HIV than other groups for various reasons. For most knowledge and behavior outcomes, including condom availability, HIV testing, sexual lubricant use, condom use with clients and regular clients, and HIV prevention knowledge, FSW of Nigerian nationality had superior results than Malian FSW in most study years with other nationality FSW having intermediate results. One exception is condom use with boyfriends, in which Nigerian FSW had lower proportions in earlier study years but improved by 2006 and 2009.

Rates of HIV prevalence declined significantly over time between 2003 and 2009 for all nationality groups, including the combined group. Again, Nigerian FSW had the lowest prevalence rates for HIV and gonorrhea and chlamydia in all study years. Finally, sharp increases in STIs were noted for Malian FSW in 2009. Nigerians appeared to have

superior treatment-seeking behavior in the case of STIs though this was not statistically significant.

**CHAPTER 11. FINDINGS FROM BIVARIATE AND MULTIVARIATE
ANALYSES OF KEY HIV PREVENTION OUTCOMES OF ISBS-MALI 2000–
2009**

Chapter 11 presents the results of bivariate and multivariate analyses of key HIV prevention outcomes among FSW. Five key outcomes are analyzed in detail in this chapter:

1. HIV prevalence;
2. Used condom last sex with client;
3. “Always” used condom with client over the last thirty days;
4. Used condom last sex with boyfriend;
5. “Always” used condom last sex with boyfriend in the last thirty days.

The purpose of the ISBS analyses are to answer the evaluation research question 1.

Chapter 11 endeavors to answer questions 1.d, and 1.e in particular.

Research Question 1: What changes in HIV-related knowledge and behaviors and HIV and STI prevalence (outcomes) occurred among Malian sex workers (FSW) from 2000 to 2009 and were these associated with HIV prevention programming?

- a. How and to what extent did FSW HIV prevention knowledge change?
- b. How and to what extent did FSW consistent condom use change with clients and intimate non-paying partners?
- c. How and to what extent did HIV and STI prevalence change among sex workers?
- d. Do the trends observed in FSW outcomes remain when controlled for FSW demographics, such as age and nationality?

- e. Did behavioral and biologic outcomes differ as a result of exposure to programming?

Three statistical methods are used to answer these questions, particularly to determine which factors were associated with each outcome in question. These categorical factors have been shown in the literature to have effects on that outcome in some contexts. First, we constructed contingency tables to show how each outcome differed over each level of the categorical independent variables. We used the Pearson's chi-square test to see if the proportions of FSW reporting that outcome differed globally over the levels of each categorical variable.

Second, we conducted bivariate logistic regression models to create crude odds ratios expressing the likelihood of reporting that outcome compared with the reference level of the categorical variable. Since the ISBS sampled clusters of FSW (every FSW present in a bar or brothel), it was necessary to use the generalized estimating equations (GEE) method for both bivariate and multivariate logistic regression to control for the cluster effect. This is because FSW working in a location may be similar on various factors, and the GEE method controls for this potential clustering in the data.

Finally, multivariate analyses were conducted to predict the odds of the outcomes given the independent predictor variables and adjusting for confounding. In particular, this method was used to see what trends over time (between study years) remained when confounding by other factors was controlled for (Question 1.d) including program exposure (Question 1.e). Variables having a minimum level of effect ($P < 0.2$) (Eluwa et al. 2012) were tested in multivariate logistic regression models to predict the odds of HIV

positive serostatus given the independent predictor variables adjusting for confounding. Variables with an effect of $P < 0.05$ were maintained in the models.

Prior to running the models, we tested for multicollinearity between variables using tolerance testing for all models and did not include two variables showing multicollinearity in any single model. We favored four variables: study year, age, cites NGOs / peer educators as sources of HIV information (a proxy for program exposure) and nationality in all models due to their importance to the analysis questions. The program exposure variable was included in several models even when its effect in bivariate logistic regression had a p-value greater than 0.20. Finally, we favored variables that had fewer missing observations in the final models. We tested these in alternative models and report on the results of those models. We also tested multiple interactions in each model.

I. HIV prevalence

As shown in Table 11.1, ten factors significantly increased the odds of HIV-positive status in unadjusted bivariate logistic regressions for years 2003–2009: older age, year (2003 and 2006), Malian or “other” nationality, genital emission or ulcer, gonorrhea, younger age at first sex, having children, having made a trip to another town in the past month, longer time in sex work, and cited radio/TV as an HIV information source. Factors lowering the odds of HIV infection were being single or married (rather than divorced, separated, or widowed) and having attended school. We could not include 2000 in this analysis because the data from Gao and Kayes had been lost during the 14 years of storage.

Variables having non-significant effects between $P=0.05$ and $P=0.2$ (and thus could be included in the multivariate regression) were first paid sex at as a minor, condom availability, price of sex, site, cites NGO programs and/or peer educators as HIV information source (program exposure) and “always” used condoms with regular clients. Variables having non-significant effects with $P > 0.2$ (not included in the multivariate regression) were having a boyfriend, been beaten by a client, income, lubricant use, has tested for HIV, cites condoms as a prevention method, condom use at last sex or “always” with boyfriends, clients, and regular clients, chlamydia, and number of sexual partners last night.

Fifteen (15) independent variables having an effect of $P \leq 0.2$ in unadjusted bivariate regressions were included in the multivariate GEE logistic regression model. Three variables were excluded: condom use with regular clients (which would exclude FSW without regular clients), years of paid sex (which was too correlated with age using tolerance testing), and price of sex (which had too many missing observations). After adjustment for the other variables, older age, 2003 and 2006 study year, Malian and “other” nationality, non-school attendance, genital emission or ulcer, gonorrhea, having made a trip to another locality in the past 12 months, and age at first sex under 15 were significant ($P < 0.05$) predictors of HIV prevalence.

In another multivariate model including only FSW with regular clients, condom use at last sex with regular clients did not have a significant effect on HIV prevalence. Years in sex work increased the odds of HIV in a separate model without age for the 5th year only (vs. <1 year AOR 1.765 CI 1.057–2.958).

Table 11.1. GEE logistic regression: factors associated with HIV infection 2003–2009

Factors	Contingency Tables % HIV+ (n/N)	Bivariate GEE Logistic Regression Crude OR (95% CI)	GEE Multivariate Logistic Regression AOR (95% CI)
Age (yrs.)			
<21	17.50% (63/360)	1 (Reference)	1 (Reference)
21–24	25.12% (101/402)	1.599 (1.113–2.296) †	2.497 (1.591–3.920)*
25–29	28.31% (141/498)	1.869 (1.329–2.629)*	2.844 (1.823–4.435)*
30–35	40.60% (108/266)	3.217 (2.194–4.717)*	4.296 (2.529–7.298)*
>35	42.51% (105/247)*	3.365 (2.272–4.984)*	4.167 (2.477–7.009)*
Year of ISBS			
2009	24.19% (207/856)	1 (Reference)	1 (Reference)
2006	35.32% (184/521)	1.712 (1.349–2.172)*	1.706 (1.290–2.256)*
2003	31.01% (127/398)*	1.183 (1.116–1.970)‡	1.904 (1.384–2.620)*
Nationality			
Nigeria	17.67% (126/712)	1 (Reference)	1 (Reference)
Mali	35.05% (232/662)	2.643 (1.977–3.533)*	2.198 (1.543–3.132)*
Other	40.00% (160/400)*	3.090 (2.301–4.150)*	2.419 (1.698–3.448)*
Genital ulcer or emission			
No	26.62% (337/1,416)	1 (Reference)	1 (Reference)
Yes	39.38% (139/353)*	1.743 (1.361–2.232)*	1.680 (1.265–2.230)‡
Gonorrhea prevalence			
Gonorrhea-	28.23% (446/1,580)	1 (Reference)	1(Reference)
Gonorrhea+	37.19% (45/121)†	1.468 (1.062–2.029)†	1.578 (1.037–2.402)†
Age at First Sex			
18 years or older	21.42% (115/537)	1 (Reference)	1 (Reference)
15–17 years	32.07% (221/447)	1.673 (1.264–2.214)*	1.372 (0.974–1.933)
<15 years	33.10% (192/580)*	1.816 (1.281–2.302)*	1.430 (1.029–1.986)†
Has ever attended school			
No	38.69% (231/597)	1 (Reference)	1 (Reference)
Yes	24.36 (287/1,178)*	0.523 (0.419–0.652)*	0.701 (0.536–0.918) †

Was elsewhere in past 12 months			
No	25.35% (235/927)	1 (Reference)	1 (Reference)
Yes	33.45% (283/846)*	1.420 (1.158–1.741)*	1.250 (1.005–1.554) †
Has children			
No	22.43% (157/700)	1 (Reference)	
Yes	33.61% (361/1,054)*	1.6468 (1.303–2.062)*	
Marital Status			
Single	24.65% (301/1,221)	1 (Reference)	
Married	33.93% (38/112)	1.523 (0.996–2.330)	
Divorced, Separated, or Widowed	40.59% (179/441)*	1.990 (1.543–2.568)*	
Cites TV/Radio as HIV information source			
No	22.44% (57/254)	1 (Reference)	
Yes	30.31% (461/1,521) †	1.409 (1.029–2.018) †	
Years since 1 st paid sex§			§Not included in multivariate
<1 year	18.75% (54/288)	1 (Reference)	
In 2 nd year	26.42% (84/318)	1.482 (1.020–2.154)†	
In 3 rd year	24.58% (73/297)	1.301 (0.862–1.963)	
In 4 th year	33.62% (77/228)	2.009 (1.331–3.031)*	
In 5 th year	37.41% (55/147)	2.343 (1.473–3.727)*	
In 6 th year or longer	36.95% (143/387)*	2.337 (1.665–3.282)*	

*P<0.001 ‡P<0.01 †P<0.05

§Years since first paid sex could not be included in multivariate regression because of multicollarity with age. In the same model not including age, it had a significant effect, along with year, school attendance, age at first sex, nationality, gonorrhea, and genital ulcers/discharge.

Non-significant (P> 0.05, ≤0.2) variables included in multivariate regression: first paid sex as minor, condoms present at workplace, cites NGO programs and/or peer educators as HIV information source (program exposure) and site. Three excluded because of high # of

missing values: months in location, price for sex and frequency of condom use with regular clients (these were not significant when included). We did not find any significant interactions.

Variables with non-significant ($P \geq 0.2$) effects in bivariate GEE models not included: Gonorrhea and/or chlamydia, has a boyfriend, has been beaten by client, income category, tested for HIV, uses lube, cites condoms as HIV prevention, frequency of condom use with BF, frequency of condom use with client, condom use last sex BF, condom use last sex regular client, condom use last sex client, chlamydia prevalence, number of sex partners last night, price for sex category, and income.

The multivariate regression had a total sample size of 1,693: 489 HIV+ and 1,204 HIV-. 82 observations missing.

II. Condom use last sex with client

As shown in Table 11.2, nine variables significantly increased the likelihood that FSW would report having used condoms during the last sex with a client in bivariate GEE logistressions: condoms being available in bars, Nigerian nationality, school attendance, older age, site (Bamako vs. Mopti), lubricant use, STI symptoms, cites condoms as a prevention method and >4,000 CFA price for sex. Five variables were associated with significantly decreased the odds of condom use at last sex: year (2000), has a boyfriend, first paid sex at <18, younger age at first sex, and gonorrhoea or chlamydia prevalence. A tenth, continuous variable also had an effect in the bivariate model but is not shown in Table 11.2: FSW who used condoms at last sex had more partners last night than those who did not (median 4 vs. 2, GEE OR 1.373 (CI 1.136–1.662). This was not significant in the multivariate model, however.

Three variables had non-significant effects between $P > 0.05$ and $P \leq 0.20$ and thus could be included in the multivariate regression: went on trip in last 12 months, got HIV info from NGO or peer educator (program exposure), got HIV info from the mass media. Variables with non-significant ($P > 0.2$) effects in bivariate GEE logistic regressions that were not included in the multivariate models: has children, beaten by client, marital status, HIV prevalence (2003–2009), gonorrhoea (2003–2009) and chlamydia (2003–2009).

We tested various GEE multivariate logistic regression models. The final model included the following fifteen variables: condoms available in bars, nationality, year, school attendance, has a boyfriend, early first paid sex as a minor, age category, site, age at first

sex, uses lubricant during sex, STI symptoms, numbers of sex partners last night, exposed to NGO programs and exposed to HIV prevention information in the mass media. In our final model, only condoms available in workplace (bars or brothels) and nationality category had a significant effect on condom use during last sex with client when controlling for the effects of the other variables.

Cites condoms as prevention method could not be included due to multicollarity with both study year and mass media exposure. When switched in for year and mass media in a separate model, nationality and condoms in bar were still the only significant variables. Price for sex category was significant in bivariate GEE models but not included because it had too many (181) missing observations. In a separate model it did not have a significant effect. Only age at first sex was significant in that model. Gonorrhea and/or chlamydia were not included because they would limit the analysis to 2003–2009. When included the model failed.

The multivariate logistic regression model underscores the high vulnerability of Malian and “other” nationality FSW when compared to Nigerian nationality FSW. In addition, it shows that ensuring availability of condoms in locations where sex work occurs is critical. Finally, the increasing proportion of FSW reporting condom use during last sex with client over the four study years did not maintain significance when controlling for other factors, calling into question if there really was an improvement at all in this outcome. We detected interaction between age and site as well as year and site but we did not believe stratifying by these factors would provide a useful level of practical detail.

Table 11.2. GEE logistic regression: factors associated with condom use last sex with client

Factors	Condom use last sex client %Yes (n/N)	Bivariate GEE Log. Regression		Multivariate GEE Log. Reg.
		Crude OR	(95% CI)	AOR (95% CI)
Condoms available in bar?				
No	88.37% (76/88)	1 (Reference)		1 (Reference)
Yes	98.67% (2,233/2,263)*	8.960 (4.026–19.939)*		6.055 (2.416–15.177)*
Nationality				
Mali	96.39% (828/859)	1 (Reference)		1 (Reference)
Nigeria	99.9% (964/965)	31.963 (1.425–245.707)*		15.154 (1.787–128.487)†
Other	98.48% (517/525)*	2.384 (1.044–5.444)†		1.495 (0.529–4.230)
Other vs. Nigerian		0.075 (0.009–0.619)†		0.099 (0.011–0.921)†
Year				
2009	99.03% (916/925)	1 (Reference)		
2006	98.55% (543/551)	0.675 (0.193–2.356)		
2003	98.00% (441/450)	0.499 (0.177–1.403)		
2000	96.69% (409/423) †	0.261 (0.101–0.677)‡		
School Attendance				
No	96.87% (1,536/1,551)	1 (Reference)		
Yes	99.03% (773/798)*	3.044 (1.631–5.683)*		
Has a boyfriend?				
No	99.21% (1,124/1,133)	1 (Reference)		
Yes	97.45% (1,185/1,216)†	0.353 (0.168–0.742)‡		
Early first paid sex <18 years old				
No	98.72% (1,847/1,871)	1 (Reference)		
Yes	96.65% (462/478)	0.406 (0.190–0.870)†		
Age category				
<21	96.59% (453/496)	1 (Reference)		
21–24	99.01% (498/503)	3.238 (1.322–7.932)†		
25–29	98.53% (670/680)	2.432 (1.076–5.498)		
30–35	99.39% (366/372)	2.232 (0.884–5.636)		
>35	99.07% (320/323)†	3.977 (1.044–15.142)†		

Site			
Mopti	95.61% (218/228)	1 (Reference)	
Bamako	99.18% (842/849)	4.819 (1.438–16.125)†	
Gao	97.06% (99/102)	1.394 (0.230–5.587)	
Kayes	98.44% (379/385)	2.382 (0.673–8.432)	
Koutiala	98.94% (186/188)	4.626 (0.997–21.474)	
Ségou	98.87% (218/265)	3.848 (0.957–15.476)	
Sikasso	97.29% (323/332)* (F)	1.548 (0.479–5.004)	
Age at first Sex			
>18 years	99.32% (733/738)	1 (Reference)	
15–17 years	98.39% (857/871)	0.465 (0.171–1.267)	
<15 years	97.16% (719/740)‡	0.234 (0.106–0.513)*	
Uses Lube during sex			
No	95.90% (632/659)	1 (Reference)	
Yes	99.23% (1,675/1,688)*	5.069 (2.373–10.828)*	
STI (Ulcer or discharge)			
Yes	97.10% (436/449)	1 (Reference)	
No	98.57% (1,866/1,893)†	1.988 (1.096–3.608)†	
Cites condoms as HIV prevention method§			§Not included in multivariate
No	96.74% (445/460)	1 (Reference)	
Yes	98.68% (1,864/1,889)‡	2.780 (1.344–5.748)‡	
Price Category§			§Not included in multivariate
>4000 FCFA (\$8)	96.05% (389/405)	1 (Reference)	
2,001–4,000	98.63% (287/291)	2.626 (0.743–9.274)	
1,199–2,000	98.31% (281/296)	1.991 (0.730–5.425)	
1,000–1,1198	98.83% (929/940)	1.392 (1.187–7.440)†	
<1,000 (\$2)	99.36% (312/314)*	7.038 (0.829–65.706)	
Gonorrhea and/or Chlamydia§ (2003–2009)			§Not included in multivariate
No	98.90% (1,529/1,546)	1 (Reference)	
Yes	97.59% (364/373)†	0.3483 (0.150–0.808)†	
*P<0.001 ‡P<0.01 †P<0.05 § Cites condom as prevention method not included due to multicollarity with both study year and mass media exposure. When switched in for year and mass media in a separate model, nationality and condoms in bar were still the only			

significant variables. Price for sex category was significant in bivariate GEE models but not included because it had too many (181) missing observations. In a separate model it was not significant. Only age at first sex was significant in that model. Gonorrhoea and/or chlamydia not included because it would limit the analysis to 2003–2009. When included the model failed.

Variables with non-significant effects between $P>0.05$ and $P\leq 0.20$ included: went on trip in last 12 months, got HIV info from NGO or peer educator, got HIV info from the mass media. Interactions between age and site as well as year and site were detected.

Income category was not included as it was missing 930 observations. It was had a significant X^2 but could not be modeled with GEE bivariate regression because the model failed. Gonorrhoea ($P=0.137$) not included because it would limit analysis to 2003–2009.

Years since first paid sex had a non-significant effect ($P=0.1222$) in bivariate GEE but not included due to missing observations (238) and multicollarity with age. In a multivariate model without age, it did not have a significant effect but nationality, condoms available, and age at first sex did. Variables with non-significant ($P>0.2$) effects in bivariate GEE not included in multivariate: Has children, beaten by client, marital status, HIV prevalence, gonorrhoea, chlamydia. 2,277 observations included. 150 missing variables. FSW who used condoms at last sex had more partners last night than those who did not (median 4 vs. 2, GEE OR 1.373 (CI 1.136–1.662) but not significant in multivariate.

III. “Always” used condom with client last 30 days

While condom use at last sex with client is a useful indicator, what is really important for HIV prevention is consistent and correct condom use. The ISBS asked FSW the frequency of their condom use with different kinds of partners during the last 30 days. There were four possible answers: always, often, seldom and never. In order to use the logistic regression method, we combined the latter three so that the possibilities were either “always” or “not always”.

As shown in Table 11.3, six variables were associated with increased odds of consistent condom use with clients in bivariate GEE logistic regression models: condoms available in workplace, uses lubricant during sex, Nigerian or “other” nationality, study site (Bamako, Koutiala and Mopti), older age, lower price of sex and less time in sex work (0–2 years). Five variables were associated with decreased likelihood of consistent condom use with clients: having a boyfriend, STI symptoms, travelled to another town during the last month, first paid sex as minor <18 years old, and first sex under the age of 15 years old. FSW who “always” use condoms with boyfriends had more partners last night than those who did not (median 3 vs. 1 OR 1.075 CI 1.012–1.142) This continuous variable is not in table 11.3 but was included in the multivariate model in which it did not have a significant effect.

Variables that had significant effects in bivariate models were included in the final multivariate GEE logistic regression model except for price of sex (because of too many missing observations) and years in sex work (because of multicollinearity with age using tolerance testing). “Months in location” had a significant effect on “always” used

condoms with client in bivariate logistic regression but was excluded from the multivariate model because of too many missing observations. In separate multivariate models including price of sex and months in location we did not find those variables to have significant effects on the likelihood of “always” using condoms with clients. Another model including years in sex work rather than age found that variable significant.

Variables with non-significant effects in bivariate GEE models where $P < 0.2$ that were included in the multivariate models were received HIV information from peer educators or NGO programs (program exposure), marital status, having had been beaten by a client, and school attendance. Gonorrhoea ($P = 0.133$ in bivariate GEE logistic regression) was not included because that would limit analysis to 2003–2009 (when included, it did not maintain a significant effect). The variables has children, HIV prevalence, study year, chlamydia, cites condoms as HIV prevention and income category were not included because the p-values of their effects in bivariate GEE logistic regression were greater than 0.2.

We tested various GEE multivariate logistic regression models aiming to increase goodness of fit while reducing variables with high numbers of missing observations. In our final model, four variables increased the likelihood of a FSW reporting “always” used condoms with clients in the last 30 days when controlled for the effects of all included variables: condoms available in the workplace, lubricant use, non-Malian nationality, and the Koutiala site. Three variables decreased the likelihood of consistent condom use with clients: having a boyfriend (suggesting some ambiguity perhaps between boyfriends and

clients), genital ulcers of vaginal emission, and having been elsewhere in the past month.

This multivariate model again underscores the extreme vulnerability of Malian nationality FSW and the importance of having condoms easily available in the workplace. Interestingly, since year had no significant effects, it does not appear that there were differences over time on that variable. (In Chapter 10, only Malian nationality FSW showed significant changes in “always” using condoms with clients.) No interaction terms we tested had significant effects.

Table 11.3. GEE logistic regression: factors associated with “always” used condoms with clients in the last 30 days

Factors	Contingency Tables	Bivariate GEE Logistic Regression		Multivariate GEE Logistic Regression
	%Always (n/N)	Crude OR	(95% CI)	AOR (95% CI)
Condoms available in bar?				
No	71.59% (63/88)	1 (Reference)		1 (Reference)
Yes	85.85% (1,941/2,261) *	2.328 (1.398–3.877)‡		1.966 (1.085–3.560)†
Has a boyfriend?				
No	94.26% (1,068/1,133)	1 (Reference)		1 (Reference)
Yes	76.97% (936/1,216)*	0.207 (0.146–0.292)*		0.221(0.154–0.316)*
Uses lube				
No	77.81% (515/661)	1 (Reference)		1 (Reference)
Yes	88.20% (1,488/1,687)*	2.006 (1.566–2.569)		1.394(1.034–1.880)†
STI signs				
No	87.28% (1,654/1,999)	1 (Reference)		1 (Reference)
Yes	77.01% (345/448)	0.529 (0.400–0.700)*		0.675(0.506–0.901)‡
Elsewhere past mo.				
No	87.51% (1,145/1,305)	1 (Reference)		1 (Reference)
Yes	82.57% (865/1,044)	0.821 (0.544–0.855)*		0.633(0.491–0.816)*
Nationality				
Mali	77.53% (666/859)	1 (Reference)		1 (Reference)
Nigeria	90.89% (878/966)	2.741 (1.976–3.803)*		1.683(1.161–2.439)‡
Other	87.79% (460/524)*	2.011 (1.485–2.723)*		1.500(1.078–2.094) †
Study Site				
Sikasso	77.64% (257/331)	1(Reference)		1 (Reference)
Bamako	85.95% (728/847)	1.583 (1.069–2.342)†		1.324(0.862–2.036)
Gao	84.31% (86/102)	1.499 (0.742–3.029)		1.001(0.481–2.084)
Kayes	85.27% (330/387)	1.511 (0.943–2.422)		0.916(0.554–1.515)
Koutiala	91.98% (172/187)	3.151 (1.505–6.595)†		2.698(1.408–5.172)‡
Ségou	90.57% (240/265)	1.337 (0.779–2.435)		1.442(0.742–2.810)
Mopti	83.04% (191/230)*	2.482 (1.462–4.212)*		1.779(0.993–3.187)

Early First Paid Sex		
No	87.25% (1,629/1,867)	1 (Reference)
Yes	77.80% (375/482)	0.528 (0.414–0.674)*
Age		
<21	78.51% (369/340)	1 (Reference)
21–24	87.30% (440/504)	1.786 (1.284–2.483)*
25–29	85.15% (579/680)	1.561 (1.153–2.112)‡
30–35	87.30% (323/370)	1.924 (1.323–2.798)*
>35	90.09% (291/323)*	2.574 (1.644–4.031)*
Age at First Sex Category		
>18	88.59% (652/736)	1 (Reference)
15–17	85.22% (743/873)	0.820 (0.620–1.083)
<15	82.30% (609/740)‡	0.655 (0.483–0.928)†
Price of Sex§		
>4,000	80.79% (238/406)	1 (Reference)
2,001–4,000	81.03% (234/290)	1.011 (0.673–1.519)
1,199–2,000	86.10% (254/295)	1.233 (0.777–1.959)
1,000–1,198	88.83% (835/940)	1.772 (1.213–2.474)‡
<1,000	87.30% (275/315)*	1.589 (0.841–2.685)
Years since first paid sex§		
In 4 th year	80.34% (233/290)	1 (Reference)
In 5 th year	88.21% (172/195)	1.699 (0.977–2.955)
>5 years	84.05% (432/514)	1.239 (0.838–1.830)
<1 year	88.67% (313/353)	1.680 (1.046–2.697)†
In 2 nd year	88.00% (396/450)	1.662 (1.073–2.577)†
In 3 rd year	84.11% (323/384)†	1.263 (0.804–1.983)

*P<0.001 ‡P<0.01 †P<0.05

§Price for sex category, months in location were significant in bivariate models but not included because of # of missing observations. (When included, months in location and price for sex category had no significant effect.) No interaction terms were significant. A separate model using years since first paid sex instead of age (they could not be included in the same model as they were correlated using tolerance testing) found that variable significant for one level.

This model only included variables with ≤ 147 missing observations which had effects of $P < 0.2$. Variables with non-significant effects in bivariate GEE models where $P < 0.2$ that were included were exposed to NGO programs (program exposure), marital status, having had been beaten by a client, and school attendance.

Gonorrhea ($P = 0.133$) not included because that would limit analysis to 2003–2009 (when included, it did not maintain a significant effect). Variables not included because their effect was ≥ 0.2 : Has kids, HIV prevalence, year, chlamydia, cites condoms as HIV prevention method, income category. 2,284 observations included. 147 missing observations.

IV. Condom use last sex with boyfriend

Table 11.4 shows that five variables increased the odds that FSW would report having used a condom during the last sex with a boyfriend in bivariate GEE logistic regression models: 2006 or 2009 study year, all study sites except Bamako and Gao, older age, cites condoms as an HIV prevention strategy and being positive for gonorrhea (for 2003–2009 only). Three variables were associated with decreased likelihood using bivariate logistic regression: lower price for sex (1,198 CFA or less), first paid sex as a minor <18 years of age, and monthly income between 50,000–100,000 CFA. Note that only FSW who said they had a boyfriend (about half) were asked about condom use with their boyfriends. An additional continuous variable: number of partners the previous night, also had a significant effect in the bivariate model. FSW who used condoms at last sex with their boyfriends had fewer sex partners the previous night (median 2, IQR 0 to 5) than those who did not (median 3, IQR 0 to 5 OR 0.941 CI 0.911–0.972). This remained significant in the final model.

These variables were all included in the final multivariate model except for citing condoms as a prevention strategy (because of multicollinearity with study year) and years since first paid sex (because of multicollinearity with age). In a separate model including both of these variables instead, both had statistically significant effects. Income category was not included because of too many (334) missing variables, but when included it had a significant effect. Gonorrhea was not included because that would limit analysis to 2003–2009 (when included, it did not maintain a significant effect.)

Our final model only included variables with ≤ 54 missing observations, which had

effects of $P < 0.2$. Variables with non-significant effects in bivariate GEE models where $P < 0.2$ that were included were signs of STIs, marital status and having had been beaten by a client. Variables with non-significant effects where $P \geq 0.2$ (and thus were not included in the multivariate models) were: has children, HIV prevalence, condoms available in bars, chlamydia, nationality category, cites mass media as HIV information source, school attendance, gonorrhoea and/or chlamydia, took a trip out of town in the last 12 months, lube use, and months in location. Cites NGO programs and/or peer educators as HIV information (program exposure) was included even though the p-value of its effect in the bivariate model was > 0.2 because it was a key variable for the analysis. It did not have a significant effect in the multivariate model.

In the final multivariate GEE logistic regression model, four variables had significant effects. Study year (2006 and 2009), study site (not Bamako or Gao) and fewer sex partners last night were associated with greater odds having used a condom during the last sex with a boyfriend when controlling for the effects of the other variables. One level of the variable, price of sex $\leq 1,198$ CFA (about \$2 U.S.) was associated with a lower probability of condom use during last sex with boyfriend when controlling for the effects of the other variables.

In this multivariate analysis study year were associated with higher rates of condom use at last sex with boyfriend when controlling for the other variables, showing that the improvements observed over time in condom use with boyfriends were robust. It also shows that women who charge less for sex were less likely to use condoms at last sex with boyfriends. There were no significant interactions in the final model.

Alternative models showed the importance of accurate condom knowledge and that having sex and paid sex at younger ages was also associated with increased vulnerability. Women who had been in sex work longer were also less likely to have used condoms during their last sexual encounter with boyfriends.

Table 11.4 GEE logistic regression: condom use at last sex with boyfriend

Factors	Contingency Tables	Bivariate GEE Logistic		Multivariate GEE Logistic
	Condom use last sex boyfriend %Yes (n/N)	Crude OR	(95% CI)	Regression AOR (95% CI)
Study Year				
2000	31.51% (69/210)	1 (Reference)		1 (Reference)
2003	36.45% (78/214)	1.442 (0.895–2.323)		1.062 (0.962–1.171)
2006	52.23% (146/285)	2.501 (1.534–4.075)*		1.216 (1.101–1.343)*
2009	40.20% (201/500) †	1.633 (1.029–2.590)†		1.151 (1.047–1.266) †
Study Site				
Bamako	30.66% (153/499)	1 (Reference)		1 (Reference)
Mopti	55.81% (72/129)	2.567 (1.497–4.469)*		1.218 (1.103–1.346)*
Gao	42.86% (21/49)	1.936 (0.791–4.738)		1.106 (0.958–1.278)
Kayes	55.84% (86/154)	3.086 (2.072–4.596)*		1.279 (1.166–1.403)*
Koutiala	47.47% (47/99)	2.177 (1.346–3.521)‡		1.163 (1.041–1.298)‡
Ségou	36.63% (37/101)	1.354 (0.334–2.201)		1.103 (0.988–1.230)
Sikasso	41.71% (78/187)*	1.669 (1.142–2.439)‡		1.177 (1.079–1.283)*
Price of Sex				
>4,000 CFA	51.06% (120/235)	1 (Reference)		
2,001–4,000 CFA	41.90% (75/104)	0.741 (0.515–1.065)		0.971 (0.883–1.067)
1,199–2,000 CFA	39.88% (65/163)	0.667 (0.427–1.040)		0.955 (0.864–1.055)
1,000–1,198 CFA	37.16% (165/444)	0.557 (0.410–0.813)†		0.718 (0.847–0.994)†
<1,000	36.55% (53/145)*	0.574 (0.364–0.905)†		0.919 (0.821–1.029)
Age at first paid sex <18 years old				
No	42.14% (397/942)	1 (Reference)		
Yes	35.14% (97/276)†	0.675 (0.507–0.898)‡		
Age Category				
<21 years	36.43% (106/291)	1 (Reference)		
21–24 years	37.50% (105/280)	1.183 (0.846–1.655)		
25–29 years	43.19% (149/345)	1.406 (1.006–1.966)†		

30–35	42.13% (75/178)	1.310 (0.904–1.898)	
>35	47.97% (59/123)†	1.749 (1.125–2.718)†	
Cites condoms as HIV Prevention method§			§Not included in multivariate
No	31.95% (97/241)	1 (Reference)	
Yes	42.68% (417/997) ‡	1.673 (1.140–2.457) ‡	
Income Category§			§Not included in multivariate
<25,000	40.81% (91/223)	0.852 (0.601–1.209)	
25,000–50,000	45.50% (101/222)	1 (Reference)	
50,001–75,000	34.07% (46/135)	0.652 (0.437–0.974)†	
75,001–100,000	28.26% (36/92)	0.500 (0.279–0.897)†	
>100,000	40.00% (70/175)†	0.912 (0.642–1.295)	
Years since first paid sex§			
>5 years	48.15% (143/297)	1 (Reference)	§Not included in multivariate
<1 v	40.52% (62/153)	0.788 (0.540–1.149)	
In 2 nd	40.55% (103/254)	0.821 (0.601–1.122)	
In 3 rd yr.	37.91% (80/211)	0.710 (0.499–1.011)	
In 4 th yr.	33.09% (46/139)	0.525 (0.337–0.820)‡	
In 5 th yr.	35.71% (35/98)†	0.674 (0.433–1.050)	
Gonorrhea (03–09) §			§Not included in multivariate
Gon+	30.26% (23/76)	1 (Reference)	
Gon-	42.06% (355/844)†	1.532 (1.014–2.316)	

*P<0.001 ‡P<0.01 †P<0.05

§ Cites condoms as HIV prevention method not included because of multicollarity with year using tolerance testing, but does have a significant effect when included instead. Years since paid not included because of multicollarity with age using tolerance testing, it also did have a significant effect in its own model. Income category not included because of too many (334) missing variables, but when included it had a significant effect. Gonorrhea not included because that would limit analysis to 2003–2009 but it did not maintain a significant effect when included.

This model only included variables with ≤54 missing observations which had effects of P<0.2. Variables with non-significant effects in bivariate GEE models where P<0.2 that were included were signs of STIs, marital status, having had been beaten by a client, and age at first sex. No significant interactions were found. Cites NGO programs and/or peer educators as HIV information (program exposure) was included even though its effect was >0.2 because it was a key variable for the analysis. It did not have a significant effect in the multivariate model. FSW who used condoms at last sex with their boyfriends had fewer clients the previous night (median 2, IQR 0 to

5) than those who did not (median 3, IQR 0 to 5). This effect was significant in both bivariate and multivariate models.

Variables not included because their effect was ≥ 0.2 : Has kids, HIV prevalence, condoms available in bars, chlamydia, nationality category, cites mass media as HIV information source, school attendance, gonorrhea and/or chlamydia, exposed to NGO programs, took a trip out of town in the last 12 months, lube use, months in location.

1,131 observations included in final multivariate regression. 89 missing observations.

V. Always used condoms with boyfriend last 30 days (if has boyfriend)

Table 11.5 shows that two variables increased the odds of FSW reporting “always” using condoms with boyfriends in the last 30 days in bivariate GEE logistic regression models: site (Mopti, Gao, Kayes and Sikasso), and age older than 35 years. Six variables were associated with decreased odds of “always” using condoms with boyfriends in the last 30 days: having STI symptoms, more years in sex work (particularly being in the third or fourth year), having had the first paid sexual encounter as a minor < 18 years old and lower price of first sex. A continuous variable, number of sex partners last night (not shown in table), also had a significant bivariate effect. FSW who “always” used condoms with their boyfriends had fewer sex partners the previous night (median 2, IQR 1 to 4) than those who did not (median 3, IQR 0 to 5 OR 0.929 CI 0.889–0.971).

These variables were all included in the final multivariate GEE logistic regression except for age because of multicollinearity with years since paid using tolerance testing. When included in a model without years since first paid sex, age did not maintain a significant effect.

Variables with non-significant effects in bivariate GEE models where $P < 0.2$ but $P > 0.05$ that were included were nationality category, marital status, age at first sex category, having been beaten by a client and cites condoms as an HIV prevention method. Variables not included because their effect was ≥ 0.2 were: has children, HIV prevalence (03–09), condoms available in bars, chlamydia prevalence (03–09), gonorrhea and/or chlamydia prevalence (03–09), cites mass media as HIV information source, school attendance, took a trip out of town in the last 12 months, months in location, and

uses lube during sex. Income category ($P=0.16$ on one level in bivariate GEE logistic regression) was not included because of too many (334) missing variables. When included in a multivariate model, it did not have a significant effect. Study year not included because of multicollarity with cites condoms as prevention using tolerance testing when included instead of cites condoms, it did not have a significant effect.

The final multivariate GEE logistic regression model only included variables with ≤ 70 missing observations, which had effects of $P < 0.2$. As shown in Table 11.5, only two variables were associated with increased odds of “always” having used condoms with boyfriends in the last thirty days when controlling for the effects of the other variables: site (Mopti, Kayes and Sikasso) and age at first sex between 15 and 17 years. Two variables were associated with reduced odds of reporting “always” using condoms with boyfriends when controlling for the effects of the other variables: STI symptoms and being in the fourth year of sex work. Finally, higher numbers of sex partners the previous night was associated with not always using condoms with boyfriends in the multivariate model.

Cites NGO programs and/or peer educators as HIV information (program exposure) was included even though the p-value of its effect in the bivariate model was > 0.2 because it was a key variable for the analysis. It did not have a significant effect in the multivariate model.

This multivariate regression shows the importance of accurate HIV prevention knowledge. However, many of the other significant results have ambiguous interpretations. Neither nationality nor study year had robust effects when controlling for

the other variables, calling into question improvements over time on this variable. Oddly, this model failed when interaction terms were included.

Table 11.5. GEE logistic regression: factors associated with “always” used condom w/ boyfriend in the last 30 days

Factors	Contingency Tables	Bivariate GEE Logistic Regression		Multivariate GEE Logistic Regression
	% Always use condoms % (n/N)	Crude OR	(95% CI)	AOR (95% CI)
Cites condoms as HIV prevention method				
No	18.60% (45/242)	1 (Reference)		1 (Reference)
Yes	24.54% (240/978)	1.500	(0.996–2.258)	1.638 (1.026–2.617) †
Study Site				
Bamako	15.63% (78/499)	1 (Reference)		1 (Reference)
Mopti	41.09% (53/129)	3.601	(2.147–6.040)*	2.834 (1.754–4.578)*
Gao	32.00% (16/50)	2.742	(1.086–6.927)†	2.212 (0.886–5.523)
Kayes	30.52% (47/154)	2.439	(1.621–3.669)*	2.505 (1.636–3.835)*
Koutiala	25.25% (25/74)	1.741	(0.567–3.169)	1.724 (0.885–3.358)
Ségou	20.59% (21/102)	1.403	(0.854–2.308)	1.520 (0.841–2.746)
Sikasso	24.06% (45/187)*	1.717	(1.075–2.742)†	1.769 (1.093–2.864)†
Years since first paid sex				
>5 years	29.29% (87/297)	1 (Reference)		1 (Reference)
<1 year	22.73% (35/154)	0.742	(0.459–1.200)	0.794 (0.463–1.309)
In 2 nd	26.77% (68/254)	0.963	(0.669–1.388)	0.965 (0.650–1.434)
In 3 rd yr.	19.91% (42/211)	0.646	(0.429–0.973)†	0.653 (0.403–1.058)
In 4 th yr.	17.99% (25/139)	0.558	(0.320–0.971)†	0.548 (0.305–0.986)†
In 5 th yr.	19.39% (87/297)	0.631	(0.375–1.062)	0.613 (0.347–1.082)
First paid Sex <18 yo				
No	24.39% (230/943)	1 (Reference)		
Yes	19.86% (55/277)	0.687	(0.493–0.596)†	
Signs of STIs				
No	24.95% (234/938)	1 (Reference)		
Yes	18.35% (51/278)†	0.685	(0.488–0.960)†	
Price of Sex				
>4,000 CFA	30.08% (71/236)	1 (Reference)		
2,001–4,000 CFA	26.11% (47/180)	0.848	(0.566–1.269)	

1,999–2,000 CFA	22.09% (36/163)	0.672 (0.416–1.086)	
1,000–1,198 CFA	20.95% (93/444)	0.647 (0.426–0.984)†	
<1,000	20.00% (29/145) †	0.609 (0.346–1.074)	
Age category§			§ (Not included in multivariate)
<21	21.23% (62/292)	1 (Reference)	
21–24	20.71% (58/280)	1.118 (0.753–1.658)	
25–29	21.97% (76/346)	1.124 (0.770–1.639)	
30–35	27.12% (48/177)	1.492 (0.914–2.435)	
>35	33.06% (31/124)‡	2.095 (1.259–3.474)‡	

*P<0.001 ‡P<0.01 †P<0.05

§Age category not included because of multicollarity with years since paid using tolerance testing. (When included, age category does not have a significant effect). Income category (P=0.16 on one level in bivariate GEE logistic regression) not included because of too many (334) missing variables. (When included, it did not have a significant effect.)

This model only included variables with ≤ 70 missing observations, which had effects of $P < 0.2$. Variables with significant ($P < 0.05$) effects in bivariate GEE models: early first paid sex, years since first sex category, site, number of partners last night, signs of STIs, price category. Variables with non-significant effects in bivariate GEE models where $P < 0.2$ that were included were nationality category, marital status, age at first sex category, having been beaten by a client, cites condoms as an HIV prevention method. Cites NGO programs and/or peer educators as HIV information (program exposure) was included even though its effect was > 0.2 because it was a key variable for the analysis. It did not have a significant effect in the multivariate model. FSW who “always” used condoms with their boyfriends had fewer sex partners the previous night (median 2, IQR 1 to 4) than those who did not (median 3, IQR 0 to 5 OR 0.929 CI 0.889–0.971), an effect that remained significant in the multivariate model.

Gonorrhea (P=.17 in bivariate GEE logistic regression) not included because that would limit analysis to 2003–2009 (when included, it did not have a significant effect). Study year (P=0.065 for 2000 vs. 2006 in bivariate model) not included because of multicollarity with cites condoms as prevention using tolerance testing (when included instead of cites condoms, it did not have a significant effect). When interactions included the model failed.

Variables not included because their effect was ≥ 0.2 : has kids, HIV prevalence (03–09), condoms available in bars, chlamydia prevalence (03–09), gonorrhea and/or chlamydia prevalence (03–09) cites mass media as HIV information source, school attendance, took a trip out of town in the last 12 months, months in location, and uses lube during sex.

1,076 observations included in final multivariate regression. 147 missing observations.

VI. Summary

When controlled for other factors, the improving trends we observed in HIV prevalence and condom use at last sex with boyfriend remained robust. However the trends by study year for, condom use at last sex with clients, “always” used condoms with clients and with boyfriends during the last 30 days did not. Also, we noted the increased vulnerability of Malian and “other nationality” FSW for HIV prevalence, condom use at last sex with client and “always” used condoms during the last thirty days with client. However, nationality did not retain a robust effect when controlling for other variables for condom use at last sex with boyfriends or “always” used condoms with boyfriends in the last 30 days. This is the answer to Research Question 1.d.

We had hoped to link program exposure to outcomes (Question 1.e). In the ISBS, FSW were asked if they had received HIV prevention information from NGOs, peer educators or animators. This variable had no significant effect either any bivariate or multivariate models, so we cannot conclude that such exposure did have an effect on these outcomes. However, it was a poorly constructed variable for this purpose. More precise questions about what services FSW had received and where could have allowed us to better evaluate if programming had effects on outcomes.

Interestingly, condom availability at the workplace was shown to be a very important factor for both of the condom use with client variables. Older age at first sex was shown to be protective for FSW on HIV prevalence. Also, while having attended school was independently associated with lower HIV prevalence, it had no effect on any of the condom use variables.

CHAPTER 12: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This chapter reflects on the major findings of this study, compares the results to other research and makes recommendations to improve programs and policies that aim to prevent HIV among FSW. This study aimed to address the two research questions of the evaluation noted in the methods.

Although this study was not an impact evaluation with a counterfactual, it documents significant improvements in HIV-related outcomes among FSW in Mali in the context of a range of prevention interventions largely funded by the U.S. Government.

Question 1. What changes in HIV-related knowledge and behaviors and HIV and STI prevalence (outcomes) occurred among Malian sex workers (FSW) from 2000 to 2009 and were these associated with HIV prevention programming?

To answer this question, this study employed bivariate and multivariate analyses of the ISBS surveys conducted in 2000, 2003, 2006, and 2009.

Socio-demographic Information

FSW migrating from Nigeria, those from other West African countries and Malian nationals each had a distinct socio-demographic profile. On almost every indicator, Malian-nationality FSW and “other” nationality FSW compare poorly to Nigerian FSW in terms of factors that increase vulnerability to HIV in other contexts. The proportion of FSWs who were Malian grew over time, from 31% in 2000 to 44% in 2009. In more recent years fewer FSW were migrating from Nigeria to practice sex work in Mali.

While 52% of formal FSW interviewed in Mali were Nigerian in 2000, only 33% of FSW

were Nigerian in 2009. There was a small increase in the proportion of other nationality FSW (from 17% to 23% between 2000 and 2009).

While international migration is a key component of sex work in West Africa, the proportion of FSW in Mali who are foreign nationals is high compared with other countries in the sub-region. For example, Dugas et al., (2015) found that 65.2% of FSW in Benin were from other countries. Schwartz et al., (2015) found that 23% of FSW in Abidjan, Cote D'Ivoire were from Nigeria while 75.5% were Ivoirians and 1.5% were of other nationalities. Grosso et al., (2015) found that 23.7% of FSW in Burkina Faso were foreign migrants. Godin et al., (2008) reports that in Benin most formal FSW were foreigners while in Senegal and Guinea, most were nationals of those respective countries.

The overall median age of FSW in Mali was 25 years, quite similar to other studies in Burkina Faso (Grosso et al. 2015) and Cote d'Ivoire (Schwartz et al. 2015). Malian FSW were slightly younger (median 24 to 25 years old depending on study year¹⁰) than Nigerians (25 to 26 years old). Eluwa et al. 2012 found that FSW in Nigeria had an average age of 26 years in 2010. In our study, both Malian and Nigerian FSW were much younger than other nationality FSW whose median age dropped from 32 to 26 years between 2000 and 2009. Interestingly, other studies found FSW age quite a bit older in Senegal (29 years) (Laurent et al. 2003), Benin (34 years) (Dugas et al. 2015) and Ghana (37) (Deceuninck et al. 2000). These ages were consistent with the ages we found for

¹⁰ Ranges of medians or proportions given in this chapter are lowest to highest by study year.

these nationality groups in our study.

Also highlighting their vulnerability, Malian FSW had both their sexual debut and first paid sex at much younger ages (15 years and 20 years old respectively) compared to Nigerian FSW (18 years and 23 years old, respectively) and other nationality FSW. FSW of other nationality had their sexual debut quite young (16 years, older than Malians but younger than Nigerians), but their first paid sex was much older (decreasing from 27 years of age in 2000 to 24 years in 2009). Most FSW in Africa report entering sex work in their early twenties (Scorgie et al. 2012), so our Malian FSW entered sex work early while Nigerians were comparable to other studies and other nationality FSW entered late.

A concerning result is that 45% to 55% of Malian FSW had their first sex at age 14 or younger. A higher proportion of Malians reported this than Nigerians (16% to 31% reported this) and other nationality FSW (29% to 42%). Interestingly, Malians FSW reported age of sexual debut at age 14 or younger was more than double the rate of young Malian women in the general population (21%) (Mali.CPS/MS and ICF Int. 2014).

Malian FSW were much more likely (30% to 41%, depending on study year) to have had their first paid sex as a minor under the age of 18 than Nigerian FSW (7% to 18%) and other nationality FSW (10% to 18%). Malian FSW in our study reported having started sex work under the age of 18 at higher rates than did FSW in Cote d'Ivoire (28%) (Schwartz et al. 2015) and Burkina Faso (24%–32% depending on town). In the Burkina Faso study, FSW who had started sex work as minors under the age of 18 were more likely to have experienced violence and less likely to have used HIV prevention services and less likely to use condoms with clients (Schwartz et al. 2015).

Many women who find themselves in the sex work industry have little or no education and thus few occupational options. For such women, sex work may be the only choice they have for earning an income (De Zaluondo 1991). Malian FSW in our study were much less likely to have attended school and had fewer years of school if they had. Fewer than 50% of Malian nationality FSW had ever attended school, an extreme result even in West Africa. Other studies found much higher levels of education in neighboring countries, including Cote d'Ivoire (82.6% had attended) (Schwartz et al. 2015), Guinea (60.6% had attended) (Aho et al. 2010) and Senegal (57.1% had attended). Almost all Nigerian FSW (80% to 90%) attended school for an average of six to eight years. As primary school is almost universal in Nigeria, our results are similar to those in that country showing the vast majority (well over 85%) of FSW having had been to school (Oyefara 2007). About 60% of other nationality FSW had been to school for an average of 5.5 to 7 years.

Most studies in Africa show that FSW report having been in sex work for three to four years or less (Scorgie et al. 2012). In our study, the median number of years in sex work for all FSW was two years. Importantly, Malian FSW in our study had been in sex work for longer periods of time than Nigerians in 2000, 2003 and 2009 and for longer than other nationalities in 2003. Malian FSW had a median duration in sex work of 3 years in 2000, 2003 and 2006 and of 2 years in 2009. Nigerian FSW had a median of only one year in sex work in 2000 and 2009, 2 years in 2003 and 3 years in 2006. A study in Nigeria found a median of two years in sex work for FSWs there. (Eluwa et al. 2012) In our study, other nationality FSW had been in sex work for a median of two years in 2003

and 2009 and three years in 2000 and 2006, more than FSW in a study in Senegal (median 2 years) (Laurent et al. 2003) but less than in Burkina Faso (mean 4.4 years in Ouagadougou and 7.12 years in Bobo-Dioulasso) (Grosso et al. 2015).

FSWs frequently migrate within countries to follow demand for sex work. Most cohort and experimental studies of FSWs have high loss to follow-up for this reason (Scorgie et al. 2012). Malian FSW were much less mobile than Nigerian and other nationality FSW, staying in the same location from 1–3 years on average, depending on the study year. About 50% said they had made a trip to another town in the last 12 months. Other nationality FSW were the most mobile, with an average of 4–10 months in a location and 32% to 72% having made a trip to another town in the last 12 months. Among Nigerian FSW the median time in location was 6 to 14 months and 25% to 48% had made a trip out of town in the last 12 months. We did not find other studies in the region that reported on this indicator, so it is difficult to understand how internal mobility affects sex worker vulnerability in other contexts.

FSW in Africa often report a history of being either divorced, separated or widowed, ranging from 1/3 to 2/3 in most studies, a life event which often precipitates entry into sex work and increases vulnerability (Scorgie et al. 2012). In our study, Malian FSW were more likely to be divorced, separated or widowed (23% to 36%) than Nigerian FSW, among whom 12% to 19% reported this. FSW of other nationalities were most likely to be divorced, separated or widowed although this decreased over time from 52% in 2000 to 30% in 2009. In this regard, FSW of other nationality in our study were similar to those in other studies in West Africa including Senegal (50.9%) (Laurent et al. 2003),

Niger (well over 50%) (N. Fraser et al. 2015), Guinea (40.7%) (Aho et al. 2010), Burkina Faso and Togo 36.3% (Wirtz et al. 2015) and Burkina Faso (35.5%) (Papworth et al. 2015). In contrast, the proportion of FSW who reported being divorced, separated or widowed was lower in Cote d'Ivoire (20%) (Schwartz et al. 2015).

FSW frequently describe the need to support children and as a reason why they are in sex work (WHO 2011a). In our study, most Malian FSW had children (60% to 67%), more than Nigerians (45% to 53%) but less than other nationality FSW. Almost all FSW of other nationality (about 80% every study year) reported having children, similar to studies in Burkina Faso and Cote d'Ivoire. The Burkina Faso study found that the need to provide for children may lead a woman to enter sex work, to have unprotected sex, and reduce her ability to find other sources of income. Three fourths (76.6%) had at least one biological child (Papworth et al. 2015). The study in Cote d'Ivoire found that 74% of FSW had children (Schwartz et al. 2015).

While Nigerian FSW seemed less vulnerable than Malian and other nationality FSW on most measures, they were more vulnerable on a few.

First, Nigerian FSW had the lowest incomes every study year except 2003 when the differences between nationality groups were not statistically significant. Some studies in Africa have noted that FSW with lower incomes were less able to negotiate safe sex. (Scorgie et al. 2012) Our study showed that FSW incomes (last month) increased overall from 27,000 CFA (about \$45) to 55,000 CFA (about \$95). Among Nigerians incomes increased from 25,000 CFA (\$43) to 50,000 CFA (\$85) while among Malians the change was from 32,000 CFA (\$55) to 60,000 CFA (\$102). Other nationality FSW earned the

most in 2006 and 2009. Their reported income last month increased from 30,000 CFA (\$51) to 75,000 CFA (\$128) from 2000 to 2009. It is important to note, however, that these incomes were less than sex worker incomes reported in Burkina Faso, where 80% of FSW made \$150 or more each month (Papworth et al. 2015).

In addition, Nigerian FSW had the lowest prices for sex. FSW charging lower prices may be more pressured to have more clients or unprotected sex (Scorgie et al. 2012). In 2000, most FSW in all nationality groups reported charging exactly 1000 CFA for sex (about \$2 without adjusting for inflation). However, by 2009 Malian FSW were charging a median 2,500 CFA (\$4.30) and other nationality groups were charging 1,500 CFA (\$2.60), although this change was not statistically significant. Nigerians, however, still charged 1,000 every year.

Finally, Nigerian FSW in our study were also the most likely to report having been beaten: from 25% to 34% depending on study year. Sex workers in many studies in Africa and the West African sub-region have reported that fear of violence from clients and others can make them less able to negotiate safe sex (Scorgie et al. 2012; N. Fraser et al. 2015; Lim et al. 2015; Wirtz et al. 2015; Grosso et al. 2015). In contrast, only 17% to 22% of Malian FSW and 15% to 19% of other nationality FSW reported having been beaten. It is possible that something about sex work for migrant women from Nigeria make them more vulnerable to violent attacks.

The diversity of FSW in Mali, often working in the same bar and brothel, poses challenges to effective prevention efforts. In particular, the language diversity in West Africa makes it difficult to reach all of the women in their native languages, and English,

French and Bambara may be the only practical choices.

HIV Knowledge

We analyzed two questions regarding HIV prevention knowledge: awareness that HIV could be transmitted from mother to child (only asked in 2000 and 2009) and another question in which FSW were asked how to prevent HIV (for which there were multiple possible answers). The proportion of Nigerian FSW who knew that HIV could be transferred from mother to child increased from 69% to 82% between 2000 and 2009. However, among Malian and other nationality FSW knowledge of mother to child transmission was already high in 2000 (80% or above) and did not change significantly. There were no significant changes in the percentage of FSW who cited condoms as an HIV prevention method from 2003–2009, though this was quite high (above 95%) in all nationality groups every year. The proportion of FSW citing abstinence or faithfulness decreased between 2003 and 2009 for all nationality groups, significantly so only for Malian FSW (26% to 12%).

These questions on HIV prevention knowledge were worded too ambiguously to be useful. FSW had a laundry list of potential responses to the HIV prevention methods question. Since the Mali ISBS did not follow the standard five questions from the United Nations General Assembly Special Session on HIV/AIDS on HIV prevention (UNAIDS 2010b) we found no studies in the literature that used Malian ISBS's questions. However, we did find that 42% of FSW in Nigeria in one study answered the 5 questions correctly (Eluwa et al. 2012). Also, we did not find any other study asking FSW about abstinence or faithfulness. The UNGASS questions do not include abstinence at all and asks a more

specific question (can you avoid HIV transmission by having sex only with one HIV-negative partner) rather than a vague question about faithfulness.

In the document review, we learned that HIV testing and counseling services were scaled up in this period. The ISBS analysis showed a corresponding improvement in HIV testing behavior and knowledge of serostatus among FSW in Mali. In 2000, only 40% of FSW had ever tested for HIV. In 2009, however, HIV testing had improved for all nationality groups: to 67% for Malians, 83% for Nigerians, and 80% for other nationality FSW.

Condom availability and use

FSW in sub-Saharan Africa who use condoms consistently have a much lower risk for HIV (Scorgie et al. 2012). There are numerous examples of programs that have greatly increased consistent condom use among sex workers (WHO 2011a; Foss et al. 2007). Our analysis found that condoms were already widely available to FSW in 2000 (89% of FSW of all nationalities reported this). However, by 2009 condom availability in FSW workplaces reached 99% for all nationalities, a significant improvement.

In this study, Nigerian FSW in Mali tended to have the highest rates of condom use with all different types of partners. Condom use with clients and with regular clients (both at “last sex” and “always” in the last thirty days) were already high (93% or higher) in 2000 among Nigerian and other nationality FSW. The only statistically significant trends were for Malian FSW. Condom use at last sex and “always” in the last thirty days increased significantly with both clients and regular clients among Malian FSWs. Nevertheless, only 81.5% of Malians reported “always” using condoms with clients in

2009. As condom use must be consistent and correct to be effective, more work in this area is needed.

In multivariate analysis, availability of condoms where FSW work was one of the most powerful predictors of using condoms at last sex with clients and “always” with clients in the last thirty days. Many programs have had good results partially by ensuring that condoms were easily available to FSW where they work (Wariki et al. 2012; Bradley et al. 2010; Egger et al. 2000; Shahmanesh et al. 2008). Condom unavailability was cited by 8% of sex workers as a reason for not using them in Zimbabwe (Ray et al. 2001). Nationality was also an important predictor of condom use with clients both at “last sex” and “always” over the last thirty days. In both cases, Nigerian FSW were significantly more likely to use condoms than Malian and “other” FSW. Disappointingly, study year was not significant in either bivariate or multivariate models for “always” used condoms in the last thirty days. For condom use at last sex, FSW were significantly more likely to use condoms in 2009 than in 2000 for the bivariate analysis only. This effect did not remain robust in the multivariate model.

Condom use with boyfriends was generally low, but improved among Nigerian FSW, a hopeful result. Between 2000 and 2009, there were statistically significant trends of increased condom with boyfriends use both “at last sex” (from 21% to 52%) and “always” in the last thirty days (from 10% to 28%) among Nigerian FSW. FSW in Africa rarely use condoms with intimate partners (Eluwa et al. 2012; Heise and Elias 1995; Feldblum et al. 2007; Kerrigan et al. 2003) as condom negotiation is more difficult, (Heise and Elias 1995) they desire trust and intimacy, and wish to distinguish their

intimate partners from clients (Scorgie et al. 2012; Feldblum et al. 2005). However, boyfriends present a significant risk for HIV infection for FSW and act as a bridge for HIV transmission to the general population. In South Africa, half of FSW said their boyfriends had other concurrent partners (Wechsberg et al. 2006). In Benin and Guinea, 70% of boyfriends of FSW reported having sex with FSW in addition to their girlfriends (Voeten et al. 2007). Boyfriends of FSW in Benin had twice the HIV prevalence as clients (16% vs. 8%)(Lowndes et al. 2007; WHO 2011a).

Neither the bivariate nor multivariate analyses found significant differences by nationality in condom use “at last sex” or “always” with boyfriends in the last thirty days. However, women who had been sex workers for longer periods of time were less likely to report condom use with boyfriends on either of these indicators. Also, women who volunteered “condoms” as an HIV prevention method were more likely to use condoms at last sex with their boyfriends, although this trend was not consistent on every level of age or time in sex work. Lower price of sex with clients was also correlated with lower condom use with boyfriends. These factors could indicate lower levels of personal power to negotiate condoms, such as economic dependency.

Some programs have had modest success in promoting condoms to couples in high risk relationships, including FSW and their intimate partners (Foss et al. 2007). But increasing condom use in these relationships is very difficult. Some program reports in Mali even characterized efforts to increase condom use between FSW and their boyfriends as “hopeless” (Soutoura 2007a) p. 14. Future qualitative research is needed to explore more deeply FSW relationships with these men and how to protect both partners

from HIV transmission in these high-risk relationships. It is important to note that FSW may intend in some cases to form a family and become pregnant with their intimate partners. Reproductive intentions are important factors influencing risk behavior and HIV acquisition (Braunstein and Ingabire 2011b; Scorgie et al. 2012; Aklilu et al. 2001) but the ISBS did not collect this information.

HIV Prevalence

Most importantly, we found statistically significant decreases in HIV prevalence among Malian, Nigerian, and “other” nationality FSW in bivariate and multivariate logistic regression models between 2003 and 2009. This finding is in contrast to previous research in West Africa where changes in overall HIV prevalence were functions of changing proportions of nationalities (Mukenge-Tshibaka et al. 2002; Ghys et al. 1995; Souleymane Diabaté et al. 2011). In fact, we found that changing proportions in nationalities actually obscured very real decreases in HIV prevalence. The apparent peak in HIV prevalence in among FSW that occurred in Mali in 2006 (35.3%) in the combined group was in fact due to the sharp decrease in the proportion of low-prevalence FSW from Nigeria and a sharp increase in the proportion of high-prevalence “other nationality” FSW. This underscores the importance of sub-group analysis of these data in countries where FSW bring different risk factors (and factors of protection) from their countries of origin.

Age

Older age was associated with higher HIV prevalence in our study. FSW who were younger than 21 years had an HIV prevalence of 17.5% while those who were older than

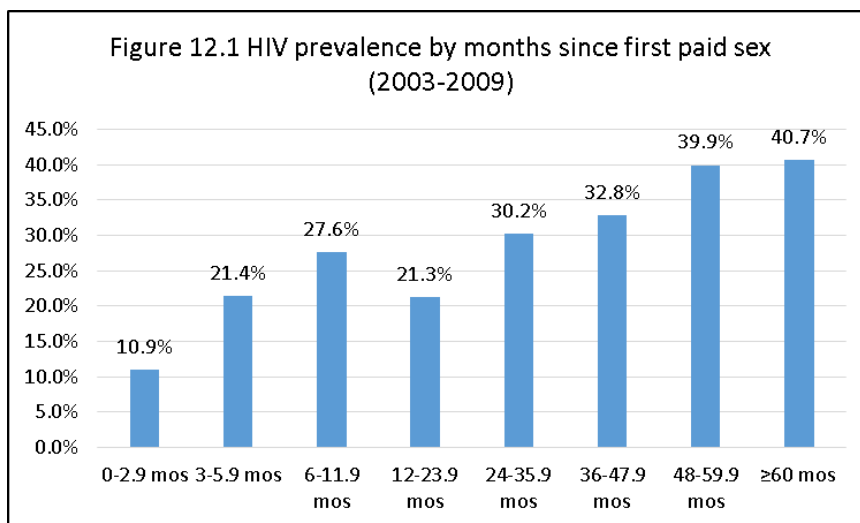
35 years had an HIV prevalence of 42.5%. The odds ratios became even more pronounced after adjustment in the multivariate analysis, indicating that differences in age were more explanatory than those attributed to other variables. FSW age in Mali was consistent with other African studies showing median age of FSW between 24–30 years old (Scorgie et al. 2012). Older age was significantly associated with HIV status, similar to what has been observed elsewhere in Africa, including in Benin (Alary et al. 2002), Nigeria (Eluwa et al. 2012), Senegal (Wang et al. 2007), and Togo (Sobéla et al. 2009), perhaps because of more time exposed to HIV (Scorgie et al. 2012). While older age may be associated with higher HIV prevalence among “others”, Malian FSW, who were younger but had a higher HIV prevalence than Nigerians. While older age was associated with higher rates of condom use with both clients and boyfriends (both at last sex and “always” in the last thirty days) in bivariate models, this effect did not remain robust in any of the multivariate models.

Time in Sex Work

In our analysis we found that, similar to other African studies (Scorgie et al. 2012), turnover is high and women do not stay long in sex work. Most FSW in Mali had been working for 1–3 years at the time of the surveys and over 25% had been working in sex work for less than one year. This explains why age at first paid sex was highly correlated with current age (Pearson’s correlation=0.851 $P<0.0001$). Because of this correlation, we could not include age and time in sex work in the same multivariate models. Nigerians had less time in sex work in 2000 and 2009, which may help explain their lower HIV prevalence. Like older age, more time in sex work was associated with higher HIV

prevalence in the bivariate analyses and was significant in multivariate models excluding age. HIV prevalence among FSW increased with time in sex work in studies conducted in Senegal (Wang et al. 2007), Togo (Sobéla et al. 2009), and Cote d'Ivoire (P. D. Ghys et al. 1995), but not in Nigeria (Eluwa et al. 2012).

An extremely concerning but useful finding is that FSW who had less than one year of experience in sex work already had an HIV prevalence rate of 27.6%. In a separate analysis limited to FSW with less than three months in sex work in 2006 and 2009 only, we found that 5.56% of Nigerians, 9.23% of Malians and 22.22% of FSW of “other” nationality were already HIV positive. However, these data could suggest that FSW rapidly acquire HIV once they enter sex work, emphasizing that interventions must be of high and intensive enough coverage so that they give women who have just entered the profession the tools they need to protect themselves from HIV. However, it is also possible that women who have been rejected by their families *because* they were found to be HIV positive are entering sex work out of necessity. More research is necessary on this topic.



Education

School attendance had a powerful independent protective effect on HIV prevalence in the bivariate and multivariate models, similar to that observed in studies worldwide (Baral et al. 2012) and in Africa (Scorgie et al. 2012), including Nigeria (Eluwa et al. 2012) and Senegal (Wang et al. 2007). The low school attendance among Malian FSW is extreme even in Africa (Scorgie et al. 2012) and Nigerian FSWs' high levels of schooling are likely protective. Interestingly, however, more Malian FSW (42.88%–52.44%) had been to school than women in the general population (21.8%) or women in urban areas (40.9%) (Mali.CPS/MS et al. 2006). Oddly, however, school attendance was not linked to condom use at all in any of our four multivariate models. It only had a bivariate effect on condom use at last sex with client. Why it had such a powerful effect on HIV prevalence but not on condom use would be worth exploring further in future research.

Age at first sex

Malians had the youngest age at first sex, which was independently associated with HIV prevalence in our bivariate and multivariate analyses, similar to findings in Senegal (Wang et al. 2007; Sagay et al. 2009).

Experience of Violence

In our study, 20–25% of FSW reported having been beaten by a client. Studies in Benin (Toukara et al. 2014) and Niger found higher HIV prevalence among FSW who reported being victims of violence (Fraser et al. 2015), and a study in Togo and Burkina Faso found lower condom use among FSW who were victims of violence (Wirtz et al. 2015). However, in our study violence had no effect on HIV prevalence or on our four condom

use variables in either bivariate or multivariate logistic regressions. It is important to note, however, that violence comes in other forms than beatings and from other perpetrators than clients. It is important to note, however, that violence comes in other forms than beatings and from other perpetrators than clients. A study in Namibia which asked more comprehensive questions about violence found that 72% had experienced abuse, but only 17% of this abuse was at the hands of clients (Hubbard and Zimba 2003).

The majority (about 60%) of FSW in Mali had children. Sex workers with children were 1.65 times more likely to be HIV positive than those who did not. However, this bivariate effect was only on HIV prevalence (not on any of the condom use models) and did not remain significant in that multivariate model. This is in contrast to a study in Burkina Faso that found lower condom use with FSW who had children (Papworth et al. 2015). It is possible that this result betrays a missed opportunity for prevention messaging. Other studies have found that staying healthy to care for children was a powerful motivation for adopting and maintaining HIV prevention behaviors (Patterson et al. 2008).

Marital Status

Other variables that had no effect on our outcomes included marital status. FSW who were divorced, separated or widowed had higher HIV prevalence (40.6%) than did those who were married (33.9%) and single (24.7%). However, these differences did not remain robust in the multivariate models. Marital status had no effect in either the bivariate or multivariate models of condom use with clients and boyfriends. However, FSW with boyfriends were *less* likely to use condoms with clients in bivariate models at

“last sex” or “always in the last thirty days”. For the latter analysis, but not the former, the effect remained robust in the bivariate models. Why FSW with boyfriends would use condoms less with clients is unknown, and perhaps there is some ambiguity between clients and boyfriends in the minds of the FSW that is responsible for this result.

The increased rates of STIs over time found in this study, particularly among Malian FSW, are concerning. In our study, STI symptoms and gonorrhea (but not chlamydia) were associated with higher HIV rates in both bivariate and multivariate models, similar to other African studies (Sobéla et al. 2009; Braunstein and Ingabire 2011b; Ghys 1995). The high rates of STI symptoms and gonorrhea (in 2009) and chlamydia (in 2003, 2006, and 2009) among Malian FSW may help explain their higher rates of HIV prevalence. However, while some research in Africa has suggested a causal link between STIs and HIV (Kapiga et al. 2007) other explanations are possible (Sexton, Garnett, and Rottingen 2005; Gray and Wawer 2008). Clinical trials of STI treatment have not consistently reduced HIV transmission (Grosskurth et al. 2000; Kaul et al. 2004). STIs may instead be markers for high-risk sexual behavior, which could suggest our FSW over-reported condom use (Damacena et al. 2011; Aho et al. 2010). In our multivariate analysis, STIs were associated with less-than consistent (not “always”) condom use with both clients and boyfriends. None of the condom variables had any predictive value on HIV prevalence in any bivariate or multivariate model. This could be because condom use is too “upstream” an indicator for later HIV prevalence or it could be that our FSW overstate condom use. Other studies have elicited frank responses from

FSW by asking indirect questions, such as in which situations FSW would agree to have sex without a condom (Eluwa et al. 2012).

I. Question 2: What were the underlying theory, strategies, scope, coverage, successes, and challenges of HIV prevention programming for FSW in Mali between 2000 and 2010?

This question was answered using through an extensive review of 166 documents from program implementers, USAID, the Government of Mali and CDC as well as in-depth individual interviews with 23 key informants: 13 program implementers/policymakers and 10 FSW animators and peer educators.

Formative research and community planning

The U.S. government and its partners funded and implemented most of the formative research on HIV (not just for FSW) in Mali. The “Mali Surveillance Triangle” consisting of three DHS surveys (2001, 2006, 2012/13) in the general population: four ISBS surveys (2000, 2003, 2006 2009) among FSW, truckers, and other groups, and six ANC surveys among pregnant women.

In addition, both *Soutoura* (which provided services to FSW from 2001 onwards) and Population Services International (PSI) collected and analyzed program data to inform programming. Research by *Soutoura* with all FSW and male clients and partners found that while STIs were highly prevalent at first visits, STI prevalence was much lower on subsequent clinic visits. In addition, the organization documented high condom use with clients but could not get condom use with boyfriends to budge. From 2001–2006, PSI conducted frequent (one every year or two) knowledge, attitudes and practices

(KAP) surveys with FSW. The surveys allowed PSI to target programming to the key barriers to services or healthy behaviors. For example, these studies showed FSW did not use condoms with boyfriends because of trust. In addition, they found that fear of HIV-related stigma was very high and so service providers needed to instill confidence that confidentiality would not be breached. PSI also conducted frequent checks of brothels to ensure condom availability.

While these KAP studies were very useful, there were no more after 2006 and data analysis by *Soutoura* also stopped. In addition, the 2012–2013 version of the ISBS was not conducted due to the instability in the country. With new USAID-funded programs as well as an expected ISBS in 2015, there is an opportunity to return to higher standards of evidence-based programming.

Theory of human behavior underlying programming

PSI developed the materials and messages for FSW programming based on a behavioral model that combined elements of social marketing and various theories. While the documents did not specify these theories, this study found elements of Bandura's social cognitive theory and the health belief model. PSI's model for behavior change, which appears in several program documents, emphasized social marketing concepts such as availability, affordability, brand attractiveness and product attributes. Health belief model concepts, such as risk perception, risk severity and costs and benefits are also part of PSI's approach. Finally, the social cognitive concepts of self-efficacy and social support were a part of the model. All USG-funded and non-USG funded programs used these materials and messages. Also, these elements of behavior change were measured in PSI's

KAP studies in order to guide the emphasis of programming.

FSW peer educators used interpersonal communication to reach their peers with commodities and to mobilize them to access services. A strategy called “The Participative Model” aimed to engage FSW in conversations about their risks (using games and visual picture books) and help them to come up with solutions in the group. PSI conducted an outcomes evaluation in late 2006 to evaluate the model. The study compared KAP studies conducted 2003 and 2006. It found that two-thirds of FSW had been touched by the program (52% moderately touched and 15% highly touched.) The outcome results, however were disappointing. Despite the fact that the project had produced a booklet and materials on this topic, fewer FSWs knew at least two signs of STIs in 2006 (27.4%) than in 2009 (39.7%). For most outcomes, however, there was no change. For instance, condom use with non-regular partners was 79.6% in 2003 and 79.8% in 2006. Knowledge of at least two modes of transmission went from 74.8% to 81.6%. Most behavior and KAP indicators did not change even with high program exposure. Finally, 33% of FSW had not been exposed at all (PSI 2007b).

Despite these disappointing results, when Care International took over the programming in 2008, it did not adjust the model. It continued to use the same materials and the participatory method. Worse, it did not conduct operational research to test it, nor did it develop any new materials. It did not discuss its results, challenges and successes in terms of the theory underlying the programming as PSI did.

Coverage of programming for FSW

The USG (USAID and CDC) spent over \$35 million on HIV prevention since 2003, at a

consistent \$4.5 million per year. USG has been the key funder for HIV prevention for FSWs since the late 1980s. Since 2001, large-scale HIV prevention activities for FSWs and their clients covered most urban areas and transport hubs in Mali. In addition, the USG was the key partner for the Government of Mali (GOM) for VCT, STI treatment, and BCC programming targeting FSW as well as the general population. The USG was never involved in HIV treatment or PMTCT.

Program documents showed that USG partners exceeded their goals, making over 1.3 million BCC contacts with FSWs, their clients and partners. In our analysis of ISBS data, HIV testing, lubricant use and condom availability improved among FSW of all nationalities in Mali between 2000 and 2009. This is a positive result as these are key areas of programming that have been scaled up since 2000.

It is important to note that FSW were just one of many target groups from 2000 to 2011 and it is difficult to know if the intensity of the programming was sufficient given the need and the rapid HIV acquisition we have seen in the ISBS analysis. Some evidence suggests that the intensity was not sufficient. First, only about than 50% of FSW said they received HIV prevention information from peer educators, animators or NGOs and this did not improve. In addition, several HIV funding analyses by the Malian Government noted that overall funding for FSW programs was less than \$200,000 in some years, and the 2006 PSI analysis of its KAP surveys found that 1/3 of FSW had not been exposed to program messages. In 2011, the USG (both USAID and CDC) began to focus more funding and programming on FSW and other key populations and began to spend more of its funding on these activities.

In addition to intensity of services, the service mix is also being updated in Mali. Mali has adopted the minimum package of services in the 2014 WHO guidance which includes more emphasis on human rights, cervical cancer screening and TB screening. Also, the minimum package includes stronger linkages to ART for HIV-positive FSW and the psychological care and adherence support needed to help ensure they remain in care and reach and sustain undetectable viral load for their own health and to prevent further transmission.

Training and supervision of program staff

The Malian programs used both peer education and clinic-based counseling to provide program messages and services to FSW, similar to evaluated programming in Madagascar (Hoke et al. 2007), Kenya and Zimbabwe (Elizabeth Ngugi et al. 1996). However, it is critical to emphasize fidelity to the program messages with peer educators, as they are not always the most reliable channels (Nyagero et al. 2010). For peer education programs to work, they need good standards, training and supervision. Peer educators are a highly cost-effective channel for prevention messages (Rekart 2005).

Program reports and key informant interviews revealed that training and supervision of program staff and peer educators were, and continue to be key elements of USAID-funded programming. The different implementers described quarterly or semi-annual supervisions from the central level (by CDC, PSI, Care) that included government partners. Animators and peer educators were supervised monthly by their supervisors. The USG also funded and led updates on STI diagnosis and treatment algorithms and conducted several trainings and supervisions on STIs in both government and NGO

settings.

In key informant interviews with peer educators, this study found that these women were highly knowledgeable about their roles and functions. They had been carefully chosen for their leadership capabilities and social skills. In addition, they were highly motivated by their desire to help their peers, their pride in their mission and their capabilities they acquired as peer educators. This suggests indeed that the training and supervision these peer educators received over time were of high quality and intensity.

Key success of HIV prevention programming for FSW in Mali

The HIV program funded by the U.S. Government experienced a number of key successes in the 2000–2013 period. The USG was the largest donor for HIV services prior to 2006, when the Global Fund to Fight AIDS, TB and Malaria began to provide funding to Mali. Thus, much of the infrastructure and programming for HIV was funded (and in many cases led technically) by the USG. One of the most important of these was the development of a robust HIV surveillance system with the “Mali Surveillance Triangle”. Also, the USG funded the scale-up of testing and counseling, behavior change communications programming, diagnosis and treatment of STIs, and provision and promotion of condoms and lubricant, services that served the general population but were integral to HIV prevention for FSW.

One of the most important successes for the USG was the development of *Soutoura*, which provided a high quality package of HIV prevention services to FSW from 2001 until the present. Between 2001 and 2013 the NGO expanded from Bamako to Niono, Kayes and Kati and became an example of technical and managerial excellence,

reaching a large number of FSW and their clients in these cities. In addition, *Soutoura* pioneered a structural intervention: organizing membership cards that provided some relief from police harassment. These membership cards were later adopted by other organizations, including *Groupe Pivot* and *Danayaso*. Finally, *Soutoura* was able to document reduced STI rates among FSW who came to receive clinical services after the first visit.

The USG also funded and developed the federation of NGOs, *Groupe Pivot/Santé Population* that, along with PSI and then Care International, delivered behavior change messaging to FSW in many of the key cities and transportation routes in Mali. *Groupe Pivot* noted that the training and supervision that its local NGOs received on a regular basis were extremely helpful to the ability of those NGOs to deliver services. In addition, the participatory approach to peer education and the games and materials were attractive to FSW and their clients and facilitated communication to them. A key success in 2011 was when Care International advocated with USAID to begin purchasing STI medications and HIV tests for the GOM health facilities to which it referred clients. This greatly increased STI and VCT service uptake and improved the morale of staff and peer educators who had become frustrated making referrals. As no product does mean no program, future planners must not neglect ensuring commodity supply.

Key challenges

Information from the program document review and from key informants highlighted a number of key challenges related to aspects of sex work and characteristics of FSW in Mali. First and foremost was the mobility of FSW that made follow-up very difficult and

required a level of intensity of interventions that was not easy to assure. This mobility was also challenging for recruitment and retention of peer educators. In addition, the difficulty of convincing FSW to use condoms with their boyfriends was often discussed as a major barrier to HIV prevention. Several cases of violence against FSW from the police and from the community made it difficult to reach the FSW with services for certain periods of time. Also, their low rates of literacy made it difficult to find and train peer educators. Finally, service providers said that they did not know of the importance of non-formal, clandestine FSW to the HIV epidemic or how to reach them.

The most important programmatic challenges were short-term contracts for local NGOs (which led to lack of continuity and predictability for programming and human resources), projects not budgeting effectively for vehicles, maintenance and fuel, and late payments which delayed activities and forced the NGOs to have too much activities in short periods of time.

External challenges also hampered effective service delivery. The CDC noted in several program reports that they were unable to elicit internal motivation from the GOM in assuring STI diagnosis and treatment in GOM facilities, despite intensive capacity building and training from the CDC. In 2010, the suspension of the Global Fund grants did not affect USG-funded projects directly, but meant that the USG again became the key funder for HIV prevention services and VCT. (The Global Fund maintained treatment services.) The Global Fund suspension of prevention programming led to important gaps in services, particularly in zones not covered by the USG. Several program reports (from Care International and Group Pivot) noted that between 2008 and

2011, beneficiaries referred to GOM facilities for STI diagnosis and treatment and VCT were turned away due to lack of commodities. They highlighted that this was because the GOM did not take over STI treatment after SIDA-3 closed in 2006. In addition, the GOM no longer could provide VCT to an adequate level after the collapse of the Global Fund grant. Finally, the March 2012 coup d'état and rebellion in Northern Mali led to the collapse of many Malian government services and to security challenges (such as thefts of vehicles and the inability to offer any services at all in Northern Mali). In addition, FSW fled the north and also began to follow the UN peacekeeping force, the effects of which are currently unknown.

We learned from the key informant interviews that after the Canadian-funded SIDA-3 project ended in 2006 and stopped providing antibiotics to treat STIs, neither USAID nor the Malian Government stepped in to fill the gap. These key informants said that from 2006 to 2011, USAID-funded projects referred FSW to government clinics for STI treatment when these clinics usually had stock-outs and thus could not provide the services. In addition, project documents from the CDC noted that the GOM did not prioritize this service after the CDC had provided much of the technical assistance and training so that the Malian health system could treat STIs in public clinics. It is possible that this rupture in commodity supply led to the high rates of chlamydia and gonorrhea in 2009. USAID, recognizing the importance of STI treatment both to reduce sequelae of STIs as well as to reduce HIV transmission, began to purchase these supplies and provide them to implementers in 2011, which was much appreciated by one of the key informants interviewed.

II. Limitations

This research had a number of limitations that prevented us from being able to draw conclusions. The M&E system during the period counted only “contacts” with targeted populations and was not sophisticated enough to follow how many individual FSW and their clients and non-paying partners received different services. Worse, in many years behavior change communication contacts, VCT or STI services provided were not distinguished by population type (FSW, truckers, ambulatory vendors, etc.) making it very difficult to estimate actual program coverage.

While this study was able to demonstrate improvements in HIV outcomes including HIV prevalence, HIV testing and condom use with clients, as the ISBS was cross-sectional, causation cannot be attributed between the independent and outcome variables, nor can we determine the relationship between the decreases in HIV prevalence observed among FSW and the decreases observed in the general population in the DHS and ANC studies. While this study aimed to link outcomes with programming, the study was unable to do so because there were no increases in the proportion of FSW who reported HIV information from non-governmental organizations. As noted, this variable turned out to be a poor proxy for program exposure due to the vagueness of the wording. Another potential problem that could introduce bias is that the time frame for STI symptoms (specifically genital ulcers and vaginal discharge) was six months in 2003 but three months in other years. In general, STI symptoms is a poor measure because many things, such as allergies, can lead to genital irritation. In addition, the ISBS intended to track syphilis prevalence but was only successful in 2009 so this could not be analyzed

(Mali.CSLS/MS et al. 2010; Mali.CSLS/MS et al. 2001; CSLS/MS et al. 2003; Mali.CSLS/MS et al. 2006).

Unfortunately, although the data show improved outcomes in the context of many services available, we were unable to definitively link those outcomes with programming. FSW in the four ISBS surveys were asked from which channels they had received HIV prevention information. There were many possible answers, including TV and radio. We considered FSW who said they had received their information from an NGO, a peer educator and/or an animator to have been exposed to programming. We tested this variable both in bivariate and multivariate GEE models with each of the five outcomes (HIV prevalence, condom use with client (“last sex” and “always” in the last 30 days) and condom use with boyfriend (“last sex and “always” in the last 30 days)). No significant differences were found. Thus, we were unable to show that outcomes were affected by programming. In future research, it would be more helpful to ask more precise questions to understand which services FSW have received and from which service providers.

All STI results and HIV results from the 94 FSW in Gao and Kayes in 2000 were misplaced during their 14-year storage, so we were unable to calculate nationality-specific HIV/STI rates for the year 2000. Fortunately, the 2000 ISBS report provides the HIV and STI prevalences overall which were included in the analyses. As the missing data could introduce bias into the bivariate and multivariate analyses for HIV prevalence (Table 11.1), we excluded 2000 and performed these analyses only for 2003–2009. Also, from 2000–2009 the refusal rate for the interview was 2.78% (70/2,430). For 2003–2009

it was 10.97% (220/2005) and 12.12% (243/2005) for urine and blood tests, respectively, which could have introduced bias if these FSW differed from those who consented. For example, if FSW who already knew they were HIV positive refused the blood test for HIV, HIV prevalence among the population would be underestimated by the test.

Finally, the ISBS did not ask FSW a number of important questions. For instance, alcohol and drug use and reproductive intention are important factors influencing risk behavior and HIV acquisition (Braunstein and Ingabire 2011b; Scorgie et al. 2012; Aklilu et al. 2001), but the ISBS did not collect this information. Finally, the ISBS did not follow informal/ clandestine FSW whose importance to the HIV epidemic is unknown. Time-location studies are not appropriate for such hidden populations, which have been studied using Respondent Driven Sampling (RDS) elsewhere (Damacena et al. 2011; Y. Li et al. 2010; Makyao et al. 2011).

III. Recommendations

The ISBS analysis uncovered both positive trends regarding HIV vulnerability for FSW as well as key challenges and areas of improvement. In addition, the document review and key informant interviews showed that while much had been done well, there were also missed opportunities. In this section, recommendations based on these findings will include programmatic recommendations for funders and implementers, policy recommendations and recommendations for future research, including recommendations for the next version of the ISBS surveys expected to be in the field in late 2015 or early 2016.

Programmatic recommendations

While programmatic recommendations specifically involve what program implementers should be doing, these activities must be funded and evaluated by the Government of Mali, the USG (CDC and USAID) as well as other actors such as the Global Fund to fight AIDS, TB and Malaria and its principal recipients in Mali.

- High coverage and intensity of programming is needed. FSW's high rates of HIV prevalence, rapid acquisition of HIV upon entry to sex work and high mobility call for *high intensity and high coverage* so that new FSW are immediately provided with services. From 2000–2013, neither coverage nor intensity was adequate. Fortunately, these services are already being scaled up in Mali with the launch of the Global Fund prevention project for FSW by Plan-Mali after 5 years of suspension and the intensified focus of USAID and CDC on FSW programming. The 2013 coordination agreement between the USG and the Global Fund provides a further opportunity for expansion into zones not previously covered with services.
- Strong linkages to high-quality ART, adherence support and positive health, dignity and prevention. As one quarter of FSW are HIV positive, programs must *ensure strong linkages with ART for FSW and their partners* both for their own health and for HIV prevention. The GOM and GFATM must *resolve the current crisis of availability of CD4 and viral load* testing in Mali to ensure that ART has an impact both on health outcomes and reduced HIV transmission. Also, for FSW to have the best outcomes possible, *make positive health, dignity and prevention services, including adherence counseling and support be part of the minimum package.*

- Programming tailored to a highly diverse group of FSW in terms of nationality and language. The population of FSW in Mali is highly diverse, even compared with other countries in the region, and FSW from different nationalities have different needs in terms of HIV prevention services. This *necessitates targeted and differentiated programming* for FSW of different languages, nationality groups and education levels. In addition, *recruit peer educators and animators from various nationality groups* capable of communicating with FSW in various languages. FSW from Nigeria and Ghana need prevention messages and materials in English.
- Programming tailored to a highly diverse group of FSW in terms of education. Many FSW have never been to school and many of those who have did not even finish primary school, especially Malian FSW. For this reason, it is critical to *provide HIV prevention messaging that is easy to understand, using oral and pictorial supports in Bambara*. In addition, provide *training in life skills, basic literacy and numeracy and income generation*. On the other hand, most Nigerian FSW *have* been to school and many have completed secondary school. *Provide written materials (pamphlets, posters) using more complex concepts supplementing peer education for Nigerian FSW*.
- Use of gender empowerment motivational interviewing as a HIV prevention strategy. Many FSW in Mali, particularly Malian nationality FSW had a very young sexual debut (median 15 years for Malian FSW) and many had their first paid sex as minors under the age of 18. These young ages (as well as high levels of non-schooling) suggest extreme power imbalances with clients, non-paying partners and bar

managers. The Women's Co-op Project in South Africa (Wechsberg et al. 2006; W. Wechsberg et al. 2011) achieved excellent outcomes by *increasing awareness and consciousness about gender power* among a highly vulnerable group of FSW.

- Use strategies that facilitate FSW's access to services in the context of their high mobility. Positive health, dignity and prevention services (including adherence counseling and support) for HIV-positive FSW must help them to *create strategies for treatment adherence when they change location*. Mali's ART sites must coordinate so that FSW can access treatment easily at multiple treatment sites. A portable medical record could facilitate this. Do not allow trained peer educators to be lost when they migrate within Mali; instead, *adopt a portable peer education certificate to facilitate peer educators being integrated quickly in new locations*.
- Continue to ensure access to condoms and emphasize/promote consistent and correct condom use with all kinds of clients. While condom use with clients (and regular clients) is high, there is still room for improvement, especially with Malian FSW. Also, as new FSW are constantly entering sex work, *promotion of consistent and correct condom use with clients will always be a top priority*. In addition, as our study showed that availability of condoms in sex work locations was highly associated with condom use with clients. *Continue to ensure uninterrupted supply of condoms in bars and brothels and other locations where FSW work*.
- Scale-up and institutionalize efforts to document and respond to violence and other human rights abuses against FSW. In our study, 20–25% of FSW reported having been beaten by a client. Violence against FSW was also reported by program managers and

peer educators. *Document and help FSW to address cases of violence, rape, arbitrary arrests and other human rights violations* per WHO guidance (WHO 2014). As Mali's National HIV/AIDS Plan and National M&E plan for Key Populations include objectives on these activities, *include them in all programs for FSW*. Support NGOs such as Soutoura and ARCAD-SIDA document abuses, help victims, and work to create a safer environment for FSW.

- Continue to ensure an uninterrupted supply of medications to treat STIs at all levels. Sharp increases occurred in gonorrhea and chlamydia prevalence among Malian FSW in 2009 (17% and 22%, respectively). Key informants reported severe stock outs in STI medications after the Canadian-funded SIDA-3 project ended in 2006 and stopped providing these. USAID began to purchase these supplies in 2011, which was much appreciated by the key informants. The rupture in commodity supply from 2006–2011 likely led to high STI rates in 2009. We recommend that USAID *continue to ensure supply of these essential commodities*. Engage the MOH to assume responsibility to ensure availability of STI diagnosis and treatment in the public health system.
- Continue to ensure an interrupted supply of HIV testing kits. The proportion of FSW who had tested for HIV increased from 51% to 80% between 2000 and 2009. This is a good programmatic result. However key informants reported stock-outs of HIV test kits in CSCOMs between 2006 and 2010. USAID would do well to *continue to ensure supply of these essential commodities* to its programs.
- Budget appropriately for vehicles, avoid short-term contracts with local NGOs and pay on time. Programmatic challenges included short-term contracts for local NGOs

(which led to lack of continuity and predictability for programming and human resources), projects not budgeting effectively for vehicles, vehicle maintenance and fuel and late payments which held up activities and forced the NGOs to have to implement too much activity in short periods of time. Short-term contracts provide a less than ideal environment for local actors to succeed in influencing long-term public health problems. We recommend that USAID and other funders *aim for 3–5 year programs* with local NGOs. Budget appropriately for vehicles and their maintenance as these are key limiting factors in programs. Finally, *make an effort to pay on time*.

- Make the behavior change theory underlying programming explicit so that all actors understand how activities result in outcomes. This best practice has been linked to better results in many studies. This has not been established practice in Mali and likely had negative impacts on program quality.
- Utilize and support the Malian National M&E plan for key populations in all programming for FSW. Program documents showed that USG partners exceeded their goals, making over 1.3 million BCC contacts with FSWs, their clients and partners. This is a positive program result. However, the M&E system was not consistent and did not track individual FSW until 2011. Indicators that were tracked were very rudimentary. The recently validated national M&E plan for key populations is based on WHO recommendations (WHO 2014) and is comprehensive but not overly burdensome. All funding partners should support implementers in incorporating the national M&E system into their programming.

Recommendations for future ISBS surveys

Mali's fifth ISBS survey is planned for late 2015 or early 2016. Funding from the Global Fund to Fight AIDS, TB and Malaria has been allocated to Plan-Mali and the United Nations Development Program in Mali for implementation. These recommendations are specifically for the Mali ISBS, but many of these suggestions would be relevant in other contexts.

- Perform analysis by subgroup (nationality) and over time. Without controlling for nationality, the ISBS surveys showed a rising HIV prevalence peaking in 2006. However, by controlling for nationality, we found that HIV prevalence actually went down for all groups between 2003 and 2009 and the “peak” was actually due to shifting proportions of nationality groups. Analysis by nationality is critical for understanding the HIV epidemic among FSW in countries like Mali with high levels of international migration in the sex work environment.
- Perform multivariate analysis. The multivariate analyses that were a part of this study resulted in important findings that otherwise would have been missed. We recommend that this step not be omitted in future ISBS surveys in Mali and elsewhere.
- Include comprehensive questions on the human rights environment for FSW including other kinds of violence and perpetrators. The ISBS surveys asked FSW if they had ever been beaten by a client. However, FSW are often victims of other kinds of violence and other human rights violations (rape, trafficking and extortion) by different kinds of perpetrators (police, partners, pimps other FSW). Mali's national M&E plan for key populations, based on WHO guidance (WHO 2014), requires

programs to report on violence and other human rights violations. As fear of violence (as well as strategies FSW use to avoid it) is important to FSW's HIV risk, we recommend that future ISBS surveys include this information.

- Ask the five questions on HIV knowledge from the United Nations General Assembly Special Session on HIV/AIDS (UNGASS) on HIV prevention knowledge. The questions on HIV prevention knowledge were worded too ambiguously to be useful. FSW had a laundry list of potential responses to the HIV prevention methods question.
- Ask FSW about their reproductive intentions and family planning needs. Reproductive intention is an important factor influencing risk behavior and HIV acquisition but the ISBS did not collect this information. This information is needed to better plan for HIV prevention, contraceptive, and PMTCT services.
- Ask more comprehensive questions about HIV history, knowledge of HIV serostatus and prevention strategies. In an analysis limited to FSW with less than three months in sex work in 2006 and 2009 only, we found that 5.56% of Nigerians, 9.23% of Malians and 22.22% of FSW of "other" nationality were already HIV positive. Although these differences were not statistically significant, this could suggest that FSW rapidly acquire HIV once they enter sex work. Alternatively, women who have been rejected by their families *because they were found to be HIV positive* are entering sex work out of necessity. While the ISBS asked FSW if they had ever been tested for HIV, it did not ask if they knew their serostatus or what they do (if anything) to avoid further transmission. *Ask women who had been tested for HIV what the result was and what services they received if HIV-positive. Ask HIV positive FSW what they do to prevent*

further transmission to clients, partners or mother to child. Ask HIV positive FSW if they were already HIV positive upon entry to sex work. Ask HIV positive FSW about their ART service needs.

- Ask FSW more precise questions regarding which services FSW have received and from which service providers. Although the data shows many improved outcomes and scaled up service access, we were unable to definitively link those outcomes with programming. FSW in the ISBS surveys were asked from which channels they had received HIV prevention information. However, this question was too ambiguous and there were many possible answers.
- Include questions on alcohol and drug use. Alcohol and drug use are important factors regarding HIV risk. The ISBS did not collect this information.
- Ask more indirect questions about condom use. FSW may overstate condom use due to social desirability bias. Other studies have used more indirect questions to overcome this problem. For example, many studies ask FSW if they sometimes have unprotected sex with clients who offer to pay more for it.

Recommendations for other future research

In addition to future ISBS studies, this evaluation uncovered other gaps in knowledge that are important to future HIV prevention planning but are not appropriate for ISBS methods.

- Conduct in-depth research to develop effective strategies to reduce HIV transmission risk between FSW and their boyfriends. Condom use with boyfriends at last sex or “always” was low. NGOs reported this as a key challenge, even “hopeless”. Women

who had been sex workers for longer periods of time were less likely to report condom use with boyfriends on either of these indicators although this trend was not consistent for every level of time in sex work. Also, women who volunteered “condoms” as an HIV prevention method were more likely to use condoms with their boyfriends (both at last sex and “always”). Lower price of sex was also correlated with less condom use with boyfriends. These factors could indicate lower levels of personal power to negotiate condoms. It is important to note that FSW may intend in some cases to form a family and become pregnant with their intimate partners. Future qualitative research is needed *to explore more deeply FSW relationships with these men in order to develop new strategies to protect both from HIV transmission in these high-risk relationships. Pilot studies on using clinical interventions such as treatment as prevention and pre-exposure prophylaxis with FSW.*

- Collect and use knowledge, attitude, and practices (KAP) data to guide programming. USG-funded programs collected knowledge, attitudes and practices (KAP) data and used this data to adjust messaging and programming. This stopped in 2006. *Collect and use KAP data to guide programming.* This is best practice for behavior change communication.
- Test a “Stay HIV-free until you go back home” messaging. Most FSW in Mali do not intend to stay long in the business and many, especially Nigerian FSW, intend only to remain in Mali for a short period of time and then return home. We recommend testing this messaging with FSW (even many Malian FSW are far from home) in Mali to increase healthy HIV prevention behaviors.

- Continue to monitor the HIV/AIDS epidemic in Mali but update current tools to reflect best practice and new prevention and treatment options. The USG funded most formative research on HIV (not just for FSW) in Mali between 2000 and the present. The “Mali Surveillance Triangle” consisted of three DHS surveys (2001, 2006, 2012/13) in the general population, four ISBS surveys (2000, 2003, 2006 2009) among FSW, truckers, and other groups, and six ANC surveys among pregnant women. The information provided by the DHS, ANC and ISBS surveys are comprehensive and provide an excellent model of best practice in HIV surveillance in Africa. We recommend that the ISBS surveys should focus on populations at high risk for HIV and collect recommended data for best practice.
- Test messaging on staying healthy to care for children. As over 60% of FSW in Mali have children and many may also care for other dependents. Some Malian peer educators we interviewed expressed great pride in putting children through school and otherwise being the principal source of income for their families. In Mexico, helping women realize that they wanted to stay healthy because their children depended on them was an effective motivational technique (Patterson et al. 2008).
- Determine if child marriage is associated with entry to sex work. An extremely concerning finding was 44.9% of Malian FSW had had their first sex at age 14 or less. This is double the rate of sexual debut at age 14 or less for women of comparable age in the DHS 2012 (21%).
- Determine the size of the population of informal “clandestine” FSW and their importance to the HIV/AIDS epidemic in Mali. The ISBS surveys were conducted in

formal sex work venues (bars and brothels). However, very little is known about informal sex workers who work on the streets, hotels and by telephone and internet. Few services are offered to these sex workers.

Recommendations for policymakers in Mali

This final set of recommendations are specifically for policymakers in Mali.

- Promote school attendance for girls as a top public policy priority. School attendance had a powerful independent protective effect on HIV prevalence in the bivariate and multivariate models, similar to that observed in studies worldwide. FSW who had been to school had an HIV prevalence rate of 24% while 39% of FSW who had never been to school were HIV positive.
- Train police and justice officials about the importance of human rights for these populations and actively prosecute and deter violations. Mali has committed (in the National HIV/AIDS plan and in the 2004 Declaration) to protecting the human rights of key populations such as FSW. In our study, 20–25% of FSW reported having been beaten by a client. Violence, rape and extortion against FSW (sometimes at the hands of police) were reported by program managers and peer educators in addition to mentions of violent occurrences in the documents reviewed.
- Ensure the supply of STI commodities as well as the presence of staff well trained in STI management in public clinics and hospitals. As noted, there were very high rates of chlamydia and gonorrhoea in the ISBS 2009. Project documents noted that the GOM did not prioritize this service after the CDC had provided much of the technical assistance and training so that the Malian health system could treat STIs in the regions.

Interviews and documents from HIV programs noted that FSW referred to public sites for STI treatment were often turned away for lack of supply.

- Improve options/rights for women in cases of divorce, widowhood or becoming HIV positive. In our analysis, we noted that ten percent of (10%) in 2009 were already HIV positive by three months. More data is necessary, but many studies in Africa have shown that women often enter sex work because they have no other options after being divorced, widowed or becoming ostracized after becoming HIV positive.

Women have few rights in the case of divorce, child custody, and inheritance. The law allows marriage of girls aged 16 and over and there are widespread reports of judges ignoring even this rule (US Dept. of State 2011)

IV. Conclusions

The most important conclusion of this evaluation that marked improvements in outcomes such as HIV prevalence, HIV testing and condom use did improve, at least among certain nationality groups. In addition, the different vulnerabilities of different nationality FSW should be considered in programming and future research in West Africa. As Malian and “other” nationality FSW appear to be highly vulnerable to HIV, interventions targeting them should intensify. Their low levels of education underscore the need for behavior change communication presented orally in the local languages. In addition, the high turnover and mobility of FSW in Mali combined with evidence that they quickly acquire HIV upon entry to sex work necessitates higher intensity and coverage of prevention programming.

Using multiple methods, we were also able to document the scale up of services to FSW during the time period 2000–2013, including VCT, STI treatment and care and condom availability. This is positive. However, a broader package of services is needed at higher intensity with greater geographic. One positive development is that the new national M&E system for key populations includes a modernized, comprehensive package of services, which is more comprehensive. It also proposes indicators that will allow the GOM, funders and implementers to track FSW on an individual level and will more comprehensively measure exposure to the full range of recommended services. In particular, the new system will ensure linkage to ART for HIV positive FSW and adherence and social support to ensure that they are able to stay on their medications and reach full viral control for their own health that of . A pioneering component of the M&E system is to document and address violence and other human rights violations against key populations in Mali. We recommend that the new minimum package and the M&E system continue to be supported by the USG, the GOM and the Global Fund.

ANNEX 1: ENGLISH KEY INFORMANT INVITATION LETTER

Date

Name
Organization
Address

Subject: Request for 90 minute interview for evaluation of USAID Sex Worker Programs

Dear <Name>:

We are writing to request a 90-minute interview with you, or with someone in your organization for the purpose of an evaluation. USAID is conducting an evaluation of its HIV prevention programming for female sex workers conducted between 2000 and 2010. The purpose of the evaluation is to assess the strategies and coverage used in the overall programming, not the performance of any single individual or organization. As a part of this evaluation, we are conducting interviews with people who were involved in the conception, planning, and execution of HIV prevention programs for sex workers between 2000 and 2010.

We believe that you may have valuable information to share on how the programs were conceived, planned, and/or implemented and would like to talk to you about this. If you chose to participate, you will help us understand the programming and help us to make it better in the future.

Your participation is fully voluntary: you are not obligated to participate and no one will know if you participated or not. The interview will take place in our office. We will reimburse you CFA 7,500 (\$15 USD). If you prefer, we can come visit you in your office or another neutral place you suggest. The interview will last approximately 90 minutes.

Confidentiality will be strictly observed for these interviews. Your name and organization will not be recorded and no one will know whether or not you participated.

If you would like to participate, please call ___ at ___ or e-mail him/her at _____. We would also be interested in interviewing others who you believe might have useful information, particularly peer educators and animators. If you have employees or subordinates you think would be helpful for us to interview, please give us several people to contact in order to protect their confidentiality, and we will contact them directly.

Thank you,

ANNEX 2. FRENCH KEY INFORMANT INVITATION LETTER

Date :

Nom

Organisation

#, rue

Bamako, Mali

Objet: Requête pour un entretien de 90 minutes pour une évaluation de programmes de prévention du VIH parmi les professionnelles du sexe et des autres groupes à risque.

Monsieur/Madame : _____

J'ai l'honneur de vous informer d'une évaluation et de vous inviter à y participer. Nous vous écrivons pour demander un entretien de 60–90 minutes avec vous, ou avec quelqu'un d'autre dans votre organisation. L'USAID souhaite conduire une évaluation de ses programmes de prévention du VIH parmi les professionnelles du sexe et les autres groupes à risque (les coxieurs, les routiers et les vendeuses ambulantes) au Mali qu'elle a financés entre 2000 et 2010. L'objectif de l'évaluation est de juger les stratégies et la portée de la programmation dans son ensemble, mais pas la performance des organisations spécifiques de la mise en œuvre. Comme partie de cette évaluation, nous conduisons des entretiens avec des informateurs clés, qui ont été impliqués dans la conception, planification, et mise en œuvre de ces programmes.

L'objet de cette lettre est de solliciter votre participation à cette évaluation. Je vous demande un entretien de 90 minutes avec vous, ou avec quelqu'un d'autre dans votre organisation. Nous croyons que vous pourriez posséder de l'information valable à partager concernant la façon dont ces programmes ont été conçus, planifiés, et mis en œuvre. Si vous décidez d'y participer, vous nous aideriez à mieux comprendre les programmes et à les améliorer dans le futur.

Votre participation est totalement volontaire : vous n'êtes pas obligé de participer et personne ne saura si vous avez participé ou pas. L'entretien aura lieu dans notre bureau. Si vous le préférez, les enquêteurs pourraient venir à votre bureau ou à un autre endroit neutre que vous suggérez. L'entretien durera 90 minutes. La confidentialité sera strictement respectée pour ces entretiens. Ni votre nom ni votre organisation ne sera noté et personne ne saura si vous avez participé ou pas.

Si vous voulez y participer, vous êtes priés d'appeler ____ au _____ ou envoyez-lui un e-mail à _____. Aussi, nous serions très intéressé à interviewer d'autres personnes que vous pensez pouvoir aider lors de cette étude. Dans ce cas, il vous est demandé de nous donner plusieurs noms afin que leur confidentialité soit protégée, et nous les contacterons directement.

En vous remerciant pour confiance que vous nous témoignez, nous vous prions d'agréer, Monsieur/Madame, l'assurance de notre considération distinguée.

ANNEX 3. ENGLISH KEY INFORMANT CONSENT FORM

Background

We are giving you this form to tell you about a research study. After we tell you about it, you can decide if you want to participate. A team of researchers from the Center for Global Health and Development (CGHD) at Boston University are conducting this study. The lead researchers are Clinton H Trout III and Prof. Lisa Messersmith (CGHD). The study is called, “Reducing HIV Transmission among Sex Workers in Mali: A Retrospective Evaluation of Community-based Individual and Small Group Information, Education, and Communication (IEC) Interventions from 2000 to 2010.”

You are being asked to participate because we think that you may have information that would be helpful for the study. We are happy to answer any questions you might have before you decide whether or not to participate.

Purpose

Why are we carrying out this study? HIV/AIDS is an important health problem in Mali. This study is trying to understand the effectiveness of HIV prevention programs for female sex workers. We hope the study results will help us recommend ways to improve HIV prevention services for sex workers and their clients and partners here in Mali.

What Happens In This Research Study

The research will take place in Bamako, Mali. You will be one of approximately 15 subjects who will be asked to participate in a private interview.

To participate in this key informant interview in this study, you must have been a policy maker or funder, a program manager or a HIV peer educator involved in HIV prevention programming for female sex workers in Mali between 2000–2010. You must give your consent to participate and speak French or English fluently.

If you agree, you will participate in a face-to-face interview that will last about 90 minutes. The interview can happen today or at another time that is more convenient for you. In the interview, a researcher will ask questions about services provided to sex workers. Written notes will be taken during the interview, and the conversation will be audio tape-recorded. The recording will be used to check the accuracy of the notes.

Risks and Discomforts

The main risk of this study is that your information might be accidentally shared with someone outside of the interview. This might happen because they overhear the interview, or if a person not working on the study gained access to the recording of our conversation.

To reduce these risks, we will not collect any identifying information about you, such as

your name, where you work, or your address. We will ask you not to identify your organization or any of your colleagues during the interview. We will also not inform anyone about your involvement in this study, whether or not you agree to be interviewed. You may stop at any time during the interview and you may refuse to answer any questions that make you feel uncomfortable. Nobody will have any knowledge of whether or not you participated. Our interview will be conducted in a private location. The recording of this interview will be kept on a password-protected computer and only people working on the study will have the password. No one else will be able to listen to the recording. (Remember; if you decide to participate do not mention your name, where you work, or the names of other individuals during the course of your interview. This will help to ensure that this information will not be present in any study recordings.)

Potential Benefits

If you decide to participate, we will reimburse you CFA 7,500 (\$US 15). Your participation may help the investigators better understand how to provide better HIV prevention services to female sex workers.

Alternatives

Your alternative is to not participate in the study.

Subject Costs and Payments

There are no costs to you for participating in this research study. If you participate in the study, we will reimburse you CFA 7,500 (\$15 US).

Confidentiality

Your participation in this study is confidential. No one but the researchers will be allowed to see or hear your answers to the questions. While all efforts will be made to ensure confidentiality, confidentiality cannot be fully guaranteed. All the information that is written down and recorded will be stored in a secure place. Information from this study may be reviewed and photocopied by state and federal regulatory agencies in the U.S., such as the Office of Human Research Protection, and the Institutional Review Board of Boston University Medical Center. Information from this study may be used for research purposes and may be published, but your name will not be used. (Remember, if you decide to participate do not mention your name, where you work, or the names of other individuals during the course of your interview. This will help to ensure that such information will not be present in any study recordings.)

Subject's Rights

By consenting to participate in this study you do not waive any of your legal rights. Giving consent means that you have heard or read the information about this study and that you agree to participate. You will be given a copy of this form to keep. If at any time

you withdraw from this study, you will not suffer any penalty or lose any benefits to which you are entitled.

You may get more information about your rights or answers to other questions about this research by calling Clinton Trout in Mali at 233 2070 2300. You may also contact Dr. Lisa Messersmith in the U.S. at +1 617 414 1449.

The investigator or a member of the research team will try to answer all of your questions. If you have questions or concerns at any time, or if you need to report an injury while participating in this research, contact the local study team, which will try to answer all of your questions: 233 xx xx xxxx.

Right to Refuse or Withdraw

Taking part in this study is voluntary. You have the right to refuse to take part in this study. If you decide to be in the study and then change your mind, you can withdraw from the research. Your participation is completely up to you. Your decision will not affect your employment. If you choose to take part, you have the right to stop at any time.

The investigator may decide to discontinue your participation without your permission if he/she decides that staying in the study will be bad for you, or if the sponsor stops the study.

ANNEX 4. FRENCH KEY INFORMANT CONSENT FORM

Contexte

Nous vous donnons ce formulaire afin de vous informer sur une étude de recherche. Après que nous vous aurions expliqué l'étude, vous pourrez décider si vous voulez y participer ou non. Une équipe d'investigateurs du Centre de Santé Globale et Développement à l'Université de Boston et de Measure Evaluation est en train de conduire cette étude. Les investigateurs clés s'appellent Clinton H Trout , Professeur Lisa Messersmith, et Dr. Mounkaila Billo. L'étude s'appelle Réduction de la transmission du VIH parmi les Professionnelles du Sexe au Mali: « Une évaluation rétrospective d'interventions d'information, d'éducation et de communication en petits groupes ou individuel à base communautaire de 2000 à 2010. »

Nous sollicitons votre participation parce que nous pensons que vous pourriez posséder des informations qui pourraient être bénéfiques pour l'étude. Nous serons contents de répondre à toute question que vous pourriez avoir avant que vous ne décidiez si vous participerez ou non.

But/objectif d'étude

A quelle fin conduirons-nous cette étude ? Le VIH/SIDA est un problème important de la santé au Mali. Cette étude essaie de comprendre l'efficacité des programmes de prévention du VIH/SIDA pour les professionnelles du sexe. Nous espérons que les résultats de l'étude nous aideront à recommander des actions pouvant améliorer les services de prévention du VIH pour les professionnelles du sexe et leurs clients ici au Mali.

Que va-t-il se passer pendant cette étude ?

La recherche aura lieu à Bamako, Mali. Vous serez l'un des 15 sujets approximativement qui seront invités à participer à un entretien individuel. Pour participer à un entretien, vous devriez avoir été une paire éducatrice ou animatrice impliquée dans les programmes de prévention du VIH pour les professionnelles du sexe au Mali entre 2000 et 2010. Vous devriez donner votre consentement pour y participer. Vous devriez pouvoir parler couramment soit français soit anglais.

Si vous êtes d'accord, vous participerez à un entretien individuel en face à face qui durera à peu près 90 minutes. L'entretien peut avoir lieu aujourd'hui ou un autre jour qui vous conviendra mieux. Pendant l'entretien, un investigateur vous posera des questions concernant les services fournis aux professionnelles du sexe. Des notes écrites seront prises pendant l'entretien, et la conversation sera enregistrée sur bande magnétique. L'enregistrement sera utilisé pour vérifier la précision des notes.

Risques et déconforts

Le risque principal de cette étude est que votre information pourrait être accidentellement partagée avec quelqu'un hors de l'entretien. Cela pourrait se passer parce que la personne

entendrait l'entretien par hasard ou si une personne qui ne faisait pas partie de l'étude accédait à l'enregistrement de notre conversation.

Afin de réduire ces risques, nous ne ramasserons aucune de vos informations d'identification personnelle, comme votre nom, où vous travaillez, votre adresse. Nous ne vous demanderons pas d'identifier ni votre organisation ni aucun de vos collègues pendant l'entretien. Nous n'informerons personne concernant votre implication dans cette étude, si vous acceptez d'y participer ou si vous refusez. Vous pouvez arrêter à n'importe quel moment pendant l'entretien et vous pourriez refuser de répondre à n'importe quelle question vous mettant mal à l'aise. Personne ne saura si vous avez participé ou pas. Notre entretien sera conduit dans un endroit privé. L'enregistrement de l'entretien sera gardé dans un ordinateur protégé et seulement les gens travaillant avec l'étude auront le mot de passe. Il ne sera permis à personne hors de l'étude d'écouter l'enregistrement. (Si vous décidez de participer, évitez de mentionner votre nom, le nom de votre organisation, ou les noms des autres individus pendant l'entretien. Cela nous aidera à assurer que cette information ne sera pas présente dans l'enregistrement.)

Bénéfices potentiels

Si vous décidez d'y participer, nous vous donnerons 7.500 CFA (\$US 15). Votre participation pourrait aider les investigateurs à mieux comprendre comment fournir les services de prévention aux professionnelles du sexe.

Alternatives

Vous avez le droit de décider de ne pas participer à l'étude. Vous êtes libre de participer ou pas à cette étude.

Coût et paiements des sujets

Il n'y a aucun coût pour vous pour votre participation à cette étude. Si vous décidez d'y participer, nous vous donnerons 7.500 CFA (\$US 15).

Confidentialité

Votre participation à cette étude est confidentielle. Il ne sera permis à personne, sauf les investigateurs, de voir ou d'entendre vos réponses aux questions. Pourtant, bien que tout effort soit fait pour assurer votre confidentialité, celle-ci ne peut être garantie totalement. Toute information qui sera écrite et enregistrée sera gardée dans un endroit sûr et protégé. L'information de cette étude pourrait être révisée et photocopiée par les agences régulatrices aux Etats-Unis, comme le Bureau de Protection de Recherche Humaine et le Comité d'Ethique à l'Université de Boston. L'information de cette étude pourrait être utilisée à des fins de recherche, mais votre nom ne sera jamais utilisé. (Évitez de mentionner votre nom, le nom de votre organisation, ou les noms des autres individus pendant l'entretien. Cela nous aidera à assurer que cette information ne sera pas présente dans l'enregistrement.)

Droits des sujets

En donnant votre consentement à participer à cette étude, vous ne dérogez à aucun de vos droits légaux. Votre consentement signifie que vous avez entendu ou lu l'information concernant cette étude et que vous-êtes d'accord d'y participer. Vous serez muni d'une copie de ce formulaire pour la garder. Si à un moment quelconque vous vous retirez de l'étude, vous ne souffrirez d'aucune sanction ou perdrez aucun bénéfice auquel vous avez droit.

Vous pourriez obtenir plus d'information sur vos droits ou les réponses aux autres questions en appelant Jean-Marie N'Gbichi au +233 2021 2145 ou Clinton Trout au Mali au +223 2070 2300. Vous pourriez aussi contacter Prof. Lisa Messersmith aux Etats-Unis au +1 617 414 1449.

L'investigateur ou un membre de l'équipe de recherche essaiera de répondre à toutes vos questions. Au cas où vous auriez une question ou un doute quelconque, ou si vous avez besoin de rapporter un préjudice ou un heurt dont vous avez été victime pendant cette recherche, contactez l'équipe d'étude locale, qui essaiera de répondre à toutes vos questions : au +233 2021 2145.

Droit de refuser ou de se retirer

La participation à cette étude est complètement volontaire. Vous avez le droit de refuser de participer à cette étude. Si vous décidez d'y participer et après vous changez d'avis, vous pourrez vous retirer de la recherche. Votre participation n'engage que vous. Votre décision n'affectera pas votre emploi. Si vous choisissez d'y participer, vous pourrez arrêter à n'importe quel moment.

L'investigateur pourrait décider d'interrompre définitivement votre participation sans votre permission s'il/elle décide que rester dans l'étude sera mal pour vous, ou si le financeur de l'étude arrête son financement.

Consentement éclairé oral

Comme nous l'avons mentionné avant, aucune information d'identification personnelle ne sera collectée pendant cette étude : ni votre nom, ni votre lieu d'emploi, ni les noms des autres personnes. C'est pourquoi nous ne vous demandons pas de donner votre signature pour donner votre consentement éclairé. Vous pouvez donner votre consentement éclairé seulement verbalement.

ANNEX 5. ENGLISH CONVERSATION GUIDES

Appendix: Conversation guide for policy and funding specialists

Introduction

As you now know, we are talking to people who were involved in one way or another in HIV prevention programs over the past 10 years or so. Before we talk about those topics, please tell me a little about yourself and about what you are now doing professionally.

- How long have you been in your current position?
- What aspects of your job do you enjoy a lot?
- What knowledge and expertise do you use in your job?

We've been told that you were a program planner or funder or policy expert for an HIV prevention program in recent years. Please tell us how you got involved with this program, and what role you played in program activities.

Let's talk a little about the program objectives. What were they?

- How did you learn about them?
- What did you think about them at the time?
- Were they realistic?
- How did the program try to reach its objectives? Through what activities?

Let's talk a little more about these program activities.

- Where did these activities take place?
- With what population?
- How did people respond to program activities? What did they think?
- What behaviors did the program expect to change within the population?

You have said that the program was aimed at groups of people like _____ and _____ and _____. How do you think they get exposed to the HIV virus? What kinds of things could be changed to reduce their risk of HIV?

How did the program you were involved with try to change things for these populations?

- Were the populations identified easily?
- How did individual respond to program activities?
- What could have been done to improve program activities?

To what extent did the program reach its objectives?

- What activities worked well?
- Which activities were less successful?
- In your opinion, what did the program actually achieve?

- How did that come about?
- Which program activities did not seem to make any difference to anyone?

-What sort of changes did you see in program activities over time?
 -If you could return in time and begin the program again, what would you change?
 -What else can you tell us about how the program operated or its effect on people?
 -What else do you have to add to complete the picture?

Conversation guide for program managers

Introduction

As you now know, we are talking to people who were involved in one way or another in HIV prevention programs in Mali over the past 10 years or so. Before we talk about those topics, please tell me a little about yourself and about what you are now doing professionally.

- How long have you been in your current position?
- What aspects of your job do you enjoy?
- What knowledge and expertise do you use in your job?

We've been told that you were a Program Manager with a program that dealt with HIV prevention some years ago. Tell me about how you became program manager.

Let's talk a little about the program objectives. What were they? Did you play a role in defining the objectives? What did you think about them at the time? Were they realistic?

How did your program try to reach its objectives? Through what activities?

Let's talk a little more about program activities.

- Where did these activities take place?
- With what population?
- How did people respond to program activities? What did they think?
- What behaviors did the program expect to change within the population?

You have said that the program was aimed at groups of people like _____ and _____ and _____. How do you think they get exposed to the HIV virus? What kinds of things could be changed to reduce their risk of HIV?

How did the program you were involved with try to change things for these populations?

- Were the populations identified easily?
- How did individual respond to program activities?
- What could have been done to improve program activities?

To what extent did the program reach its objectives?

- What activities worked well?
- Which activities were less successful?
- In your opinion, what did the program actually achieve? How did that come about?
- Which program activities did not seem to make any difference to anyone?

-What sort of changes did you see in program activities over time?

-If you could return in time and begin the program again, what would you change?

-What else can you tell us about how the program operated or its effect on people?

-What else do you have to add to complete the picture?

Conversation guide peer educators and “animators”

Introduction

As you now know, we are talking to people who were involved in one way or another in HIV prevention programs in Mali over the past 10 years or so. Before we talk about those topics, please tell me a little about yourself and your experience as a peer educator or animator.

- How long were you/have you been a peer educator/animator?
- What are/were your duties and responsibilities as a peer educator or animator?
- What aspects of your being a peer educator/animator do you enjoy?
- What knowledge and expertise do you use as a peer educator/animator?

We’ve been told that you were a Peer Educator/Animator with a program that dealt with HIV prevention some years ago. Tell me about how you became program manager.

- What attracted you to be a peer educator/animator?
- Did the program turn out as you expected?
- During what period were you a peer educator/animator?
- What was your role in program activities?

Let’s talk a little about the program objectives. What were they? Did you play a role in defining the objectives? What did you think about them at the time? Were they realistic?

How did your program try to reach its objectives? Through what activities?

Let’s talk a little more about program activities.

- Where did these activities take place?
- With what populations?

- How did people respond to program activities? What did they think?
- What behaviors did the program expect to change within the population?

To what extent did the program reach its objectives?

- What activities worked well?
- Which activities were less successful?
- In your opinion, what did the program actually achieve? How did that come about?
- Which program activities did not seem to make any difference to anyone?

-What sort of changes did you see in program activities over time?

-If you could return in time and begin the program again, what would you change?

-What else can you tell us about how the program operated or its effect on people?

-What else do you have to add to complete the picture?

ANNEX 6. FRENCH CONVERSATION GUIDES

Annexe: Guide de conversation pour décideur, financier, expert

Introduction

Comme vous le savez, nous sommes en train de nous entretenir avec les gens qui ont été impliqués d'une manière ou d'une autre dans les programmes de la prévention du VIH pendant les dix dernières années. Avant que nous n'abordions ces sujets, s'il vous plait, parlez-moi un peu de vous et de ce que vous faites professionnellement maintenant.

- Combien de temps avez-vous travaillé à votre poste actuel ?
- Quels sont les aspects de votre travail qui vous plaisent le plus ?
- Quelles connaissances et expertises utilisez-vous pour votre travail?

On nous a dit que vous étiez un planificateur, financeur, ou expert de politique pour un programme de la prévention du VIH/SIDA pendant les récentes années.

S'il vous plait, racontez-nous comment vous êtes arrivé à être impliqué dans ce programme. Quel a été votre rôle?

Parlons un peu des buts et des objectifs du programme. Quels étaient-ils ?

- Comment les avez-vous appris ?
- Qu'en avez-vous pensé à ce moment-là.
- Est-ce qu'ils étaient réalistes ?
- Comment le programme a-t-il essayé d'atteindre ces objectifs. À travers quelles activités?

Parlons un peu plus de ces activités du programme.

- Où s'étaient-elles déroulées ces activités?
- Avec quelles populations?
- Comment les gens avaient-ils répondu? Qu'en ont-ils pensé?
- Quels comportements le programme a-t-il espéré changer parmi cette population?

Vous avez dit que le projet était ciblé vers les groupes comme _____ et _____ et _____. Comment pensez-vous qu'ils sont exposés au virus du VIH?

Quels genres de choses pourraient-elles être changées afin de réduire leur risque du VIH?

Comment est-ce que le programme dans lequel vous avez été impliqué a-t-il essayé de changer la situation pour ces populations ?

- Était-il facile d'identifier ces populations ?
- Comment les individus ont-ils répondu aux activités ?
- Qu'est-ce qui aurait pu être fait afin d'améliorer les activités du programme?

Dans quelle mesure pensez-vous que le programme a atteint ses objectifs ?

- Quelles activités ont-elles bien marché ?
- Quelles activités avaient-elles moins de succès ?
- Selon vous, qu'est-ce que le programme a-t-il vraiment accompli?
- Le changement, comment s'est-il produit?
- Quelles activités n'avaient-elles rien fait pour personne?

Quel genre de changements avez-vous vu concernant les activités du programme au fil du temps ?

Si vous pouviez remonter dans le temps, que changeriez-vous?

Quoi d'autre pouvez-vous nous raconter concernant la façon dont le programme s'est-il déroulé ou sur ses effets aux gens?

Quoi d'autre avez-vous pour compléter l'histoire ?

Guide de conversation pour les gestionnaires des programmes/projets

Comme vous le savez, nous sommes en train de nous entretenir avec les gens qui ont été impliqués d'une manière ou d'une autre dans les programmes de la prévention du VIH pendant les dix dernières années. Avant que nous n'abordions ces sujets, s'il vous plait, parlez-moi un peu de vous et de ce que vous faites professionnellement maintenant.

- Combien de temps avez-vous travaillé en votre poste actuel ?
- Quels sont vos devoirs et vos responsabilités ?
- Quels sont les aspects de votre travail qui vous plaisent le plus ?
- Quelles connaissances et expertises utilisez-vous pour votre travail?

On nous a dit que vous étiez un gestionnaire de programme de la prévention du VIH/SIDA pendant les années récentes. S'il vous plait, racontez-nous comment vous-êtes arrivé à être impliqué dans ce programme. Quel a été votre rôle?

Parlons un peu des buts et des objectifs du programme. Quels étaient-ils? Est-ce vous avez joué un rôle quand les objectifs ont été développés et définis? Qu'en avez-vous pensé à ce moment-là. Est-ce qu'ils étaient réalistes ?

Comment le programme a-t-il essayé d'atteindre ses objectifs. À travers quelles activités?

Parlons un peu plus de ces activités du programme.

- Où s'étaient-elles déroulées ces activités?

- Avec quelles populations?
- Comment avaient répondu les gens ? Qu'en ont-ils pensé?
- Quels comportements le programme a-t-il espéré changer parmi cette population?

Vous avez dit que le projet était ciblé vers les groupes comme _____ et _____ et _____. Comment pensez-vous qu'ils sont exposés au virus du VIH?

Quels genres de choses auraient-elles dû être changées afin de réduire leur risque du VIH?

Comment est-ce que le programme dans lequel vous avez été impliqué a-t-il essayé de changer la situation pour ces populations ?

- Etait-il facile d'identifier ces populations ?
- Comment les individus ont-ils répondu aux activités ?
- Qu'est-ce qui aurait dû être fait afin d'améliorer les activités du programme?

Dans quelle mesure pensez-vous que le programme a atteint ses objectifs ?

- Quelles activités ont-elles bien marché ?
- Quelles activités avaient-elles moins de succès ?
- Selon vous, qu'est-ce que le programme a-t-il vraiment accompli?
- Le changement, comment s'est-il produit?
- Quelles activités n'avaient-elles rien fait pour personne?

Quel genre de changements avez-vous vu concernant les activités du programme au fil du temps ?

Si vous pouviez remonter dans le temps, que changeriez-vous?

Quoi d'autre pouvez-vous nous raconter concernant la façon dont le programme s'est-il déroulé ou sur ses effets aux gens?

Quoi d'autre avez-vous pour compléter l'histoire ?

Guide de conversation Paires Educatrices/Animatrices

Introduction

Comme vous le savez, nous sommes en train de nous entretenir avec les gens qui ont été impliqués d'une manière ou d'une autre dans les programmes de la prévention du VIH pendant les dix dernières années. Avant que nous n'abordions ces sujets, s'il vous plaît, parlez-moi un peu de vous et de votre expérience comme paire éducatrice/animatrice.

- Combien de temps avez-vous été une paire éducatrice/animatrice ?
- Quels sont/étaient vos devoirs et vos responsabilités ?
- Quels sont/étaient les aspects d'être une paire éducatrice/animatrice qui vous plaisent le plus ?
- Quelles connaissances et expertises utilisez-vous pour votre travail comme paire éducatrice/animatrice?

S'il vous plaît, racontez-nous comment vous-êtes arrivée à être impliquée dans ce programme. Quel a été votre rôle?

- Qu'est-ce qui vous a attirée à devenir une paire éducatrice/animatrice?
- Est-ce que le fait d'être paire éducatrice/animatrice s'est avéré comme vous avez espéré?
- Pendant quelle période avez-vous été une paire éducatrice/animatrice?
- Quel rôle avez-vous joué dans les activités du projet ?

Comment le programme a-t-il essayé d'atteindre ses objectifs. À travers quelles activités?

Parlons un peu plus de ces activités du programme.

- Où s'étaient-elles déroulées ces activités?
- Avec quelles populations?
- Comment les gens avaient-ils répondu? Qu'en ont-ils pensé?
- Quels comportements le programme a-t-il espéré changer parmi cette population?

Dans quelle mesure pensez-vous que le programme a atteint ses objectifs ?

- Quelles activités ont-elles bien marché ?
- Quelles activités avaient-elles moins de succès ?
- Selon vous, qu'est-ce que le programme a-t-il vraiment achevé?
- Le changement, comment s'est-il produit?
- Quelles activités n'avaient-elles rien fait pour personne?

Quel genre de changements avez-vous vu concernant les activités du programme au fil du temps ?

Si vous pouviez remonter dans le temps, que changeriez-vous?

Quoi d'autre pouvez-vous nous raconter concernant la façon dont le programme s'est-il déroulé ou sur ses effets aux gens?

Quoi d'autre avez-vous pour compléter l'histoire ?

ANNEX 7. ENGLISH RESEARCH PROTOCOL

Reducing HIV Transmission among Sex Workers in Mali:
A Retrospective Evaluation of Community-based Individual and Small Group
Information, Education, and Communication (IEC) Interventions
from 2000 to 2010

Department of International Health
Boston University School of Public Health

Research Protocol

Clinton Trout, MA, MPH
DrPH Candidate

Faculty Advisor: Lisa Messersmith, PhD

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ACRONYMS

AIDS – acquired immunodeficiency syndrome
ANC – antenatal clinic
ART – antiretroviral therapy
ARV – antiretroviral
AV – ambulatory vendor
BUSPH-Boston University School of Public Health
CD4 – cluster of differentiation 4 helper T-cell
CDC – US Centers for Disease Control and Prevention
CI - confidence interval
CSLS/MS-Coordinating Committee of the Sectorial Division to Fight HIV/AIDS in the Ministry of Health
DHS – Demographic and Health Survey
FSW – female sex worker/commercial sex worker
GHFP-II Global Health Fellows Program-II
GOM – Government of Mali
HCNLS – National High Council to Fight AIDS/ <i>Haut Conseil National de Lutte contre SIDA</i>
HIV – human immunodeficiency virus
HSV – Herpes Simplex Virus
HSA – Health Surveillance Assistants
INRSP – Mali Institute for Public Health Research
ISBS – Integrated Sexually Transmitted Infection Prevalence and Behavior Survey
LIC – low-income country(ies)
LMIC – low- and middle-income country(ies)
MARPs – most at risk populations
MSM – men who have sex with men
MTC – mother-to-child transmission (of HIV)
NGO – non-governmental organization
OI – opportunistic infection
OR – odds ratio
PHC – primary health care
PHI – Public Health Institute
PLWHA – person(s) living with HIV/AIDS
PMTCT – prevention of mother-to-child transmission (of HIV)
PSA – prostate specific antigen

PY – person year
 RCT – randomized clinical trial
 RR – relative risk
 STD/STI – sexually transmitted diseases/infections
 SW –female sex worker
 TB - tuberculosis
 UNAIDS – Joint United Nations Program on HIV/AIDS
 UNDP – United Nations Development Programme
 USAID – United States Agency for International Development
 USG – United States Government
 VCT – voluntary counseling and testing
 WHO – World Health Organization

SCIENTIFIC ABSTRACT

Context: The HIV/AIDS epidemic is generalized in urban areas in Mali. Female sex workers (SW) had an HIV prevalence of 24% in the 2009 Integrated Sexually Transmitted Infection (STI) Prevalence and Behavior Survey (ISBS). In West Africa a large proportion of HIV transmission is linked to sex work. HIV prevention interventions of high quality and coverage are needed to protect the health of SW and to reduce HIV and STI transmission between SW, their clients, regular partners, and the general population.

Objective: This public health evaluation is a systematic investigation into the merit, worth, and significance of HIV prevention programming in Mali for sex workers funded by USAID between 2000 and 2010 in order to improve and account for it. (U.S. CDC 1999) It will evaluate changes in HIV-related knowledge and behaviors and HIV and STI prevalence (outcomes) among Malian sex workers (SW) from 2000–2009. In addition, the nature and scope of interventions for Malian SW (inputs, activities, and outputs) funded by the U.S. Government (USG) will be described.

Methods: This study uses three research methods to reach its objectives: secondary quantitative data analysis, a document review, and key informant interviews.

ISBS data conducted in Mali in 2000, 2003, 2006, and 2009 will be combined. Outcomes will be tracked over time controlling for changes in demographics and analyzing sub-groups. To determine exposure, the ISBS surveys asked respondents where they received assistance when they had an STI and where SW got information about HIV.

The nature and scope of interventions for Malian SW (inputs, activities, and outputs) funded by USAID will be assessed through a document review and 16 key informant

interviews if the security situation in Mali allows. Key informants will include SW peer educators and program managers as well as policymakers and funders.

PLAIN LANGUAGE ABSTRACT

In countries with a generalized HIV epidemic such as Mali, prevention interventions for high-risk groups, such as female sex workers (SW) and their clients are critically important both for the health of these individuals and their close contacts as well as to prevent transmission within the general population. This dissertation is designed to assess the value and worth of prevention programming for SW in Mali from 2000–2010 funded by USAID. First, this study will establish how HIV prevention knowledge, attitudes, and behavior (particularly the correct and consistent use of condoms) and HIV and STI prevalence changed over this time period among SW, who were surveyed regarding these issues in 2000, 2003, 2006, and 2009. In addition, the study will also describe the interventions themselves and their scope and coverage, using documents such as program reports and 16 interviews with people who were involved in these programs during this time. The information gathered and analyzed in this study will help USAID understand the impact of its funding, and to plan future programs.

INVESTIGATORS AND INSTITUTIONAL AFFILIATIONS

Boston University School of Public Health Center for Global Health and Development: BUSPH has the total responsibility for the design and management of this study and assuring that it conforms to ethical standards of research through its Institutional Review Board.

Lisa J. Messersmith, MA MPH PhD, Associate Professor: Dr. Messersmith is the principal investigator for this study. As the expert in qualitative methods and evaluation, she will oversee and supervise the study.

Clinton H. Trout III, MA MPH: Mr. Trout will develop the protocol and tools, will conduct all data analysis and coding, and will produce final reports.

National AIDS Program, Mali (Coordinating Committee of the Sectorial Division to Fight HIV/AIDS in the Ministry of Health) (CSLS/MS): The CSLS/MS is the national body responsible for the implementation of the ISBS Studies and will be a principle beneficiary of the findings of this study. The CSLS will participate in the interpretation of the results and their utilization.

High National Council in the Fight against AIDS, (HCNLS): The HCNLS is the national body responsible for coordinating national policy regarding HIV and will also be a principle beneficiary of the findings of this study. It will also participate in the interpretation of the results and their utilization.

United States Agency for International Development (USAID): The USAID mission in Mali uses funds from the American people to increase Malians' incomes and well-being, improve health and education standards, and provide tools to govern effectively and transparently. USAID Mali has four main programs: high impact health services, improved quality of basic education, governance and communications, and accelerated economic growth. USAID is the primary financing agency and recipient of the results of this study. USAID funded the four ISBS studies as well as sex worker interventions during the time period covered. The purpose of this evaluation study is to describe the impact of USAID's investments in HIV prevention for SW and their clients from 2000–2010. USAID will supervise the ongoing work of this study, will participate in the interpretation of results, and ensure their relevance to future programming.

Centers for Disease Control and Prevention (CDC): The CDC was the principle provider of technical assistance for the ISBS studies. The CDC will not be directly involved in this evaluation, but will provide technical advice, access to data, and will participate in interpretation of study results, particularly the ISBS analysis. As CDC is also involved in prevention services for key populations, including SW, it will also help ensure that study results will be used in future programming.

Measure Evaluation-Mali: Measure evaluation will conduct the 16 key informant interviews and will provide the interview transcripts and notes (with personal identifying information removed) to Mr. Trout.

Mounkaila Billo, MD PhD: Dr. Billo will assist with the development of the protocol; oversee the recruitment and training of interviewers, data collection from key informants, and transcription.

Infostat-Mali: Infostat is a private health research firm involved in data collection and analysis for the four ISBS studies. Infostat will not be directly involved in this evaluation, but will provide technical advice, access to data, and will be consulted during the validation of the ISBS analysis.

Public Health Institute (PHI): PHI is funded by a cooperative agreement with USAID to administer the Global Health Fellows Program-II, which provides technical staff to USAID. PHI is the employer of Mr. Trout and will provide oversight through its Institutional Review Board.

Table I. List of investigators and institutional affiliations		
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HCNLS (Haut Conseil National de Lutte Contre le Sida)	Daouda Diakité Tel : +223 20 22 36 15 Email : dydiakite1@yahoo.fr	Co-investigator with no access to subjects or data
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STUDY LOCATION AND SOURCE OF FINANCING

Location: Bamako Mali. **Financing:** USAID-Mali through Public Health Institute-Global Health Fellows Program-II and Measure Evaluation cooperative agreements

I. BACKGROUND, RATIONALE, AND PURPOSE

Mali is one of the countries in the world with the lowest level of human development (175/186 in the human development index) and gender equality (175/187 in the gender inequality index). (UNDP 2011) Mali's HIV prevalence in the general population is low (1.3%) (Demographic and Health Survey (DHS) 2006), and the epidemic is concentrated in highly vulnerable groups, particularly female sex workers (SW). Prevalence among pregnant women in mostly urban and peri-urban antenatal care (ANC) sites has been falling since 2002. It was 2.7% in 2009, down from 2.8% in 2007, 3.4% in 2005, and 3.8% in 2002. (Mali.CSL/MS 2010) In the general population, the 2006 DHS found that few women (5.9%) and men (25.3%) reported sex with an extramarital or non-cohabiting partner in the last year, but condom use in these relationships was low (16.7% for women and 38.8% for men.) (Mali.CPS/MS et al. 2006).

In West Africa, SW and their clients are highly vulnerable to HIV infection. UNAIDS estimates that 0.6–1.0% of women in the region are formal SW, 3–17% of men visit SW, and 4–11% of women are the sexual partners of men who visit SW. (UNAIDS and The World Bank 2010) SW in the neighboring country of Senegal had a pooled prevalence of 19.9% (CI 18.0–21.9), 23.7 times the background prevalence among women of reproductive age (1.0%, similar to Mali). This suggests that 11.5% of HIV infections in Senegal are among female SW. In Guinea, the pooled HIV prevalence for SW was 36.7% (CI 33.6–39.8%). Against a general HIV prevalence of 1.72% among women of reproductive age, SW were 33.1 times more likely to be HIV positive and they represent 2.5% of total HIV infections. Finally, in Nigeria (where many SW working in Mali come from), SW had an average prevalence of 33.7% (CI 32.1–35.3%). Compared to 4.5% prevalence among women of reproductive age, Nigerian SW were 10.7 times more likely to be HIV positive and they represent 4.5% of HIV infections. (Baral et al. 2012)

In Mali, data on formal SW in urban areas was tracked through the Integrated STI Prevalence and Behavior Surveys (ISBS) in 2000, 2003, 2006, and 2009. The ISBS collected biological markers (prevalence of HIV and STIs), demographic information, and data on HIV/STI knowledge and behaviors. The mean HIV prevalence among SW was 24.2% in 2009, down from 35.5% in 2006, 31.9% in 2003, and 28.9% in 2000. HIV prevalence in SW was much higher (24.2%) than the 1.8% prevalence among urban women (DHS 2006), 2.8% among urban and peri-urban pregnant women (ANC 2009), and 3.8% among “ambulatory vendor women” (ISBS 2009). SW in Mali also had high levels of STIs: 11.3% had gonorrhea compared to 2.3% among female ambulatory vendors (AVs), and 10.5% had chlamydia compared to 6.3% among AVs. Almost all SW reported using condoms with their last regular (98.1%) and non-regular (98.8%) clients. Very few SW were married (4.8% in 2009), but 55.1% reported one or more regular

partners. Only 40.1% used condoms during last sex with a regular partner. Fully 70% had been tested for HIV and received the results, though only 18% said they knew an HIV positive person. Similar to elsewhere in West Africa, over half of SW were migrants from other West African countries. While 44% of the SW were Malian, 32% percent were from Nigeria; 8% were from Burkina Faso, 5% from Côte d'Ivoire, and the rest from Senegal, Ghana, and other neighboring countries. (Mali.CSLS/MS et al. 2010)

This study is an outcomes evaluation of HIV prevention interventions for female sex workers financed by USAID in Mali from 2000 to 2010. HIV/AIDS is a key health issue in Mali, especially in urban areas, and sex work is linked with a high proportion of HIV transmission. This dissertation will result in key information on the performance and impact of this programming, for the purpose of improving future programming both in Mali and in the West Africa region. The study will be critical in designing future programming for this population. This dissertation will fulfill the requirements of the Doctor of Public Health degree at Boston University School of Public Health for Mr. Trout, who currently provides expert technical assistance in HIV prevention to USAID through the PHI-GHFP-II in Mali.

II. STUDY SPECIFIC AIMS

A public health evaluation is a systematic investigation into the merit, worth, or significance of public health programs to improve and account for them. (U.S. CDC 1999) The goal of this study is thus to establish the merit, worth, and significance of HIV prevention programming in Mali targeting female sex workers (SW) funded by USAID between 2000 and 2010.

The principle aim is to evaluate changes in HIV-related knowledge and behaviors and HIV and STI prevalence (outcomes) among Malian sex workers (SW) from 2000–2009. Data from the Integrated Sexually Transmitted Infection (STI) Prevalence and Behavior Surveys (ISBS) conducted in Mali in 2000, 2003, 2006, and 2009 will be analyzed to measure changes in outcomes over time. This will be the first time most of the data in this large, rich information source will be analyzed and tracked over time, controlling for changes in the sex worker demographics, and analyzing sub-groups. To determine exposure, all four ISBS surveys asked respondents where they received assistance when they had an STI. The 2003, 2006, and 2009 (but not the 2000) surveys also asked for sources of information about HIV. The 2009 survey also asked if respondents had received HIV/STI services from an NGO.

The nature and scope of interventions for Malian SW (inputs, activities, and outputs) funded by the U.S. Government will be assessed through a document review and 16 key informant interviews, if the security situation in Mali allows. Key informants will include policymakers/funders, program managers, and peer educators/animators (paid peer education managers who are former sex workers).

This evaluation study uses similar methodology as the Avahan program, a model nation-wide HIV prevention program for SW in India: triangulating program monitoring documents and qualitative data with ISBS outcomes analysis.(Deering, Boily, et al. 2011) (Mainkar et al. 2011) (Thilakavathi et al. 2011) (Ramesh et al. 2010) The evaluation uses mixed methods: a combination of qualitative and quantitative sources of evidence (Bowen 2009), in this case a document review and analysis, key informant interviews, and a quantitative analysis of ISBS data from 2000, 2003, 2006, and 2009.

The evaluation aims to answer the following two Research Questions:

1. **Research Question 1**: What changes in HIV-related knowledge and behaviors and HIV and STI prevalence (outcomes) occurred among Malian sex workers (SW) from 2000 to 2009 and were these associated with HIV prevention programming?
 - a. How and to what extent did SW HIV prevention knowledge change?
 - b. How and to what extent did SW consistent condom use change with regular and non-regular clients and intimate non-paying partners?
 - c. How and to what extent did HIV and STI prevalence change among sex workers?
 - d. Do the trends observed in SW outcomes remain when controlled for SW demographics, such as age and nationality?
 - e. Did behavioral and biologic outcomes differ as a result of exposure to programming?

This question will be answered by univariate, bivariate, and multivariate analysis of the ISBS surveys conducted in 2000, 2003, 2006, and 2009.

2. **Question 2**: What were the underlying theory, strategies, scope, coverage, successes, and challenges of HIV prevention programming for SW in Mali between 2000 and 2010?
 - a. Describe the formative research and community planning process prior to implementation.
 - b. Describe underlying theory of behavior change and how this was incorporated in program messages and channels of communication.
 - c. Describe the coverage expected and achieved.
 - d. Describe training for program staff and peer educators and how the program ensured staff fidelity to the messages throughout the program.
 - e. Describe successes and challenges of the program.
 - f. Describe key changes in the environment, program strategy, or program resources that may have affected program outcomes.

This question will be answered through a review of documents and 16 key informant interviews.

III. SUBJECT SELECTION AND ENROLLMENT CRITERIA

A. Subject inclusion and exclusion criteria

For key informant interviews, inclusion criteria are the following:

1. Was a peer educator (volunteer), “animator” (paid peer educator and coordinator), program manager, and/or policymaker/planner/funder in USAID-funded prevention programs for sex workers in Mali.
2. Worked in this function in Mali between 2000–2010
3. Willing and able to provide a 90-minute interview.
4. Speaks French or English fluently.
5. Lives in Mali at the time of enrollment or can be reached by Skype/telephone.

Exclusion criteria: Any person who does not meet all of the 5 inclusion criteria, and/or cannot understand the purpose of the study and/or informed consent will be excluded. Individuals will be interviewed only once.

B. Inclusion of vulnerable populations

Current peer educators are by definition practicing female sex workers. Some may also be migrants and immigrants, either of regular or irregular legal status. Most “animators” are former sex workers now working full-time coordinating SW interventions.

C. Translation of consent and study documents

All consent and study documents will be translated in English and in French. Some sex worker peer educators and animators are immigrants or temporary workers from Anglophone countries. Thus, English documents will be made available in addition to French, the official language in Mali.

IV. RECRUITMENT

A. Methods of recruitment

1. For Section One, ISBS Data Analysis: Recruitment took place in 2000, 2003, 2006, and 2009 and only secondary data analysis will be conducted. All four ISBS were implemented in seven cities: Bamako, the capital, Koutiala, a transport hub and population center, and five regional capitals: Gao, Segou, Kayes, Sikasso, and Mopti. One exception is that the 2000 study did not include Koutiala. Most SW in the surveys were brothel based. Formative research, including bar/brothel mapping, conducted in 1999 was the basis of cluster lists. A ‘cluster’ for sex workers was a brothel or bar/club. The clusters were randomly sampled and then all sex workers in the cluster were interviewed. For the 2003, 2006, 2009 ISBS, teams were sent out prior to sampling to verify the clusters (bars/brothels) used during the previous years, adding and subtracting new clusters as necessary. (Mali.CSLs/MS et al. 2010)

2. For Section Two, key informant interviews: USAID (Mr. Trout) will provide Measure Evaluation with a list of organizations and individuals who are known to have been involved in USAID prevention programming for SW between 2000 and 2010. Measure Evaluation will contact these organizations and individuals by letter and/or e-mail which explain the purpose and general topic of the evaluation and the interviews. Next, they will be invited by telephone to participate and the interviewer/note taker (Measure Evaluation staff/consultants) will come to interview them in a neutral location: the Measure Evaluation office or the participant's office/place of work only if that is preferred by the participant. The participant will be reimbursed 7,500 CFA/\$15 for participation. If the participant fails to appear, the interviewer will attempt once to reschedule the interviewer by telephone and after this will move to another potential participant until the total number of interviews desired will be completed. The 16 key informants interviewed in this evaluation will include policymakers/funders [3], program management staff [4], and peer educators/animations of local NGO's [9]. In the event that unrest and insecurity in Mali make these key informant interviews difficult or impossible, it may be necessary to reduce their number and use Skype and e-mail.

B. Screening plans

The inclusion criteria will be included in the communication with the proposed key informants prior to the interview. These will also be gone over with them in person at the beginning of the interview.

C. Plans for obtaining consent, who will consent, when and how consent will be obtained

For Section One, ISBS secondary data analysis: The National AIDS Program, Centers for Disease Control and Prevention (CDC), and Mali Institute for Public Health Research (INRSP) supervised the ISBS studies and a private firm (Info-Stat) administered the questionnaires in 2000, 2003, 2006, and 2009. INRSP lab technicians took and controlled blood and urine samples. NGOs sensitized SW to the goals of the study and obtained their support. The study was anonymous: no personal identifiable information was collected. Each interviewee received a card with a unique ID number that gave them access to health services and test results (rapid tests were not used.) All participants received counseling, condoms, and STI treatment if needed. Post-test counseling was offered for HIV and syphilis. Participation in the study was voluntary and separate informed consent was collected for the questionnaire, urine testing, HIV testing, and syphilis testing. The institutional review boards from the INRSP and the CDC approved the studies. (Mali.CSLs/MS et al. 2010)

For Section Two, Key Informant Interviews: Each key informant will be asked to give oral informed consent using an English or French informed consent form. They will be notified of the purpose of the evaluation, how data will be collected and stored, that their participation is optional, and that they have the right to skip any question or stop the interview at any time. The key informant interviews will be anonymous: no personal identifying information will be collected from the participants.

D. Recruitment Materials

1. Recruitment letter/e-mail (English/French) (attached in annexes)
2. Informed consent forms (English/French) (attached in annexes)

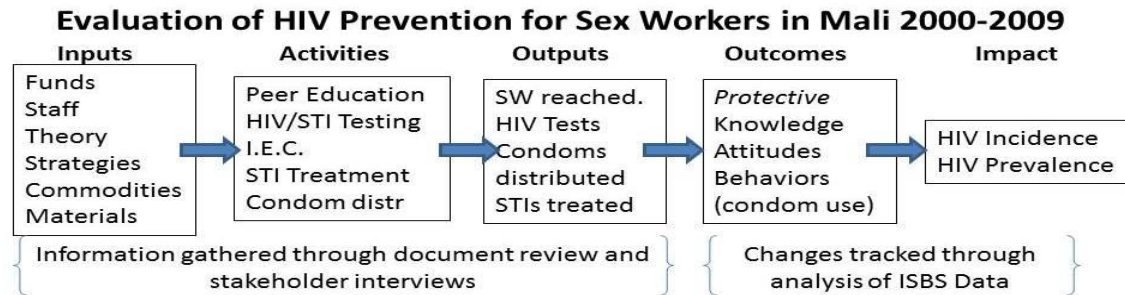
V. STUDY PROCEDURES

A. Research Strategies Overview

This evaluation study uses three research strategies:

- 1) HIV and STI prevalence, condom use, and HIV knowledge among sex workers in Mali has been tracked every three years by the ISBS since 2000, but this study will be the first to combine them and adjust by important demographic factors, such as age and nationality. The following changes in knowledge, attitudes, and behaviors will be compared over time over time: ability to correctly identify ways of preventing sexual transmission of HIV; likelihood to reject major misconceptions about HIV transmission; condom use during sex with clients (regular and non-regular) and regular sexual partners; and recent knowledge of HIV serostatus through HIV testing. Finally, bivariate and multivariate analyses will be used to identify the most important factors associated with the outcomes.
- 2) A review of program monitoring data, program reports, and other documents will allow the construction of a narrative and timeline describing prevention activities for SW in Mali from 2000 to 2010, the nature and scope of the interventions, the strategies employed, their funding levels, the successes and challenges they experienced, and their program outputs, such as numbers of sex workers reached, condoms distributed, and numbers tested and counseled for HIV;
- 3) In-depth qualitative interviews [16] with key informants, including program managers [4]/ peer educators [9] and policymakers/funders [3] will explore further the strategies, scope and coverage, and challenges and lessons learned and compare them with international standards. If the security situation in Mali makes it impossible to conduct these qualitative interviews, the team will use Skype, e-mail, and contracted interviewers to validate the information found in the document review.

The results framework below demonstrates the standard evaluation practice of showing how program inputs should be transformed into public health impact in this study. (U.S. CDC 1999) The document review and key informant interviews will serve to gather information on the inputs, activities, and outputs, and attempt to link them with changes in HIV-related knowledge, attitudes, and behaviors, and finally impact, in this case, the prevalence of STIs and HIV among SW.



B. Study Procedures Section One: ISBS Secondary Data Analysis:

The ISBS 2000, 2003, 2006, and 2009 used methodology recommended by UNAIDS, WHO, and USAID and is one part of the “triangle” for HIV surveillance in Mali. (UNAIDS and WHO 2011) (UNAIDS and World Health Organization 2000) (World Health Organization 2004) (Pisani et al. 1998) ISBS was designed to measure changes in the HIV/AIDS epidemic among “core groups” such as HIV and STI prevalence, as well as risk behaviors. Demographic and Health Surveys (DHS) were repeated in Mali every five years in the general population and sentinel surveillance among pregnant women in urban antenatal clinics was timed to correspond with the ISBS every three years. In addition to SW, core groups in the ISBS in Mali included truck drivers, ticket tout, female “ambulatory vendors”, and female domestic house staff. (Mali.CSLS/MS et al. 2010)

All four ISBS were implemented in seven cities: Bamako, the capital, Koutiala, a large transport hub and population center, and five regional capitals: Gao, Segou, Kayes, Sikasso, and Mopti. One exception is that the 2000 study did not include Koutiala. Most SW in the surveys were brothel based. Formative research conducted in 1999 was the basis of cluster lists. A ‘cluster” for sex workers was a brothel or bar/club. The clusters were randomly sampled and then all sex workers in the cluster were interviewed. For the 2003, 2006, 2009 ISBS, teams were sent out prior to sampling to verify the clusters used during the previous years, adding and subtracting new brothels as necessary. (Mali.CSLS/MS et al. 2010)

The ISBS survey questionnaires included seven sections:

- 1.) Socio-demographic characteristics;
- 2.) Origin and migratory movements;
- 3.) Sexual practices;
- 4.) STI health seeking behavior;
- 5.) STI/HIV/AIDS knowledge and attitudes;
- 6.) Questions about the brothel/bar;
- 7.) STI/HIV prevalence through blood/urine tests: HIV, syphilis, chlamydia, and gonorrhoea.

C. Study Procedures for Section Two: Key Informant Interviews

The purpose of the key informant interviews (and document review) is to describe inputs, activities, and outputs achieved by HIV prevention programming for sex workers. The U.S. Government funded almost all of this programming during this period. In order to answer this Question 1 (above), and its six sub-questions, an extensive document review and 16 key informant interviews will be conducted.

1. Data collection team

Mr. Trout will conduct the document review. The key informant interviews will be conducted by two interviewers from Measure Evaluation. USAID (Mr. Trout) will provide Measure Evaluation with a list of potential individuals and organizations to contact. Measure Evaluation staff/consultants will conduct the interviews and transcribe them in the language of each interview. The names of the interviewees will stay with Measure Evaluation for the purpose of the confidentiality of the subjects but they will not be kept in any documents. Mr. Trout and Dr. Messersmith will lead the analysis of the notes/transcriptions.

2. Training for data collection team

Data will be collected by Measure Evaluation researchers with previous experience conducting qualitative interviews. Prior to beginning data collection, a 3–5 day training workshop for interviewers will be held by the BUSPH/Measure researchers. The workshop will include detailed discussions of study participant recruitment, the informed consent process, and other ethical issues, including confidentiality and privacy matters. Given the sensitive nature of sex work in Mali, it is critical that interviewers and all researchers who collaborate in this project fully understand the need to protect the privacy of participants. The team will therefore reinforce all ethical issues regarding research involving human subjects and ensure that study staff understand and will be in a position to follow appropriate enrollment and data collection procedures for the study. Powerpoint slides on the protection of human subjects that have used previously in many studies in sub-Saharan Africa and that will be adapted and used for this study (see attached English and French PPT slides), and practice procedures such as obtaining informed consent until confident that these procedures can all be conducted appropriately. A log will be kept onsite with the names of research staff who have been trained and the date on which they were trained. This log will be updated continuously and will be available for review at any time.

3. Structure of Key informant interviews

Semi-structured questionnaires and interview guides (**attached**) will be prepared in advance and piloted with one program manager/peer educator. If changes to the interview guides are deemed necessary during this process, they will be resubmitted to the IRBs for approval. The interviewers will be Measure Evaluation staff/consultants who will be provided with training before entering the field. The interviews will be semi-structured,

allowing for a conversational style in which key questions can be probed. To facilitate summarization and reduce bias, key informants should be carefully selected and no more than 35 should be interviewed.(USAID 1996) (Kumar 1989) In this case, only 16 will be interviewed.

The 16 key informants interviewed in this evaluation will include policymakers/donors [3] and program managers [4], and peer educators/animations [9]. In the event that unrest and insecurity in Mali make these key informant interviews difficult or impossible, it may be necessary to reduce their number and use Skype and e-mail to validate the document review findings.

After recruitment (see prior section) and the interviewer and interviewee meet for the interview, the first step for the interviewer is to determine whether the interviewee is better equipped to participate in English or in French. (In general, only Nigerian animators/peer educators will speak English.) The peer educators/animations will be reimbursed 7,500 CFA (\$15 USD). After a short introduction to the study, the interviewer will use the interview guide (in annex) to establish that person is eligible to participate and is willing to do so. The individual will then be invited to participate in the study. The interviewer will also obtain verbal informed consent using the consent form (**attached** in annex) for each participant. Consent will include permission to tape record the session for transcription and for note-taking. Individuals who are willing to participate in the study but do not want their interview tape recorded will be allowed to do so, but will be asked if they can give an extra 20 minutes to allow for more extensive notes. Participants will be asked not to mention their names, the names of organizations or individuals in order to protect privacy. The purpose of the interviews is to get general information about the programming rather than information specific to organizations or individuals. A code will be used to link the notes with the tape recording and to note the type of interviewee (Peer Educator/Manager/Program Manager, Policymaker/Funder).

The interview will last approximately 90 minutes and will take place in a quiet, private room where the participant will not feel pressured or judged by his/her supervisor. Interviews will generally take place at the Measure Evaluation Office or another a neutral location determined by the interviewee and interviewer. Sessions will be tape-recorded, and the note-taker will also formulate questions that will assist the interviewer to probe deeper for information. After the interview, the note taker and interviewer will discuss their interpretations of the interview. The interviewer and note taker will work together to transcribe these notes and recordings in English or French, according to the language of the interview.

These procedures will be followed for the three types of interviewee (Peer Educator/Animator, Program Manager and Policymaker/Funder). Two different interview guides will be used to get relevant information from each of the two types of participant. See annex for the specific interview guides.

Data collection: basic procedures

- **Conduct screening of potential participant**

If eligible ↘
↓

- **Review Informed Consent Form**

If agrees participate → Verbal consent/assent is given
↘

- **Conduct key informant interview using questionnaire/guide** —

Once completed ↓

- **Thank participant and provide incentive (CFA 7,500)**

C. Medications or equipment used in this study None-not applicable

VI. DATA MANAGEMENT AND ANALYSIS

A. For Section 1: ISBS Secondary Data Analysis:

The purpose of the ISBS analysis is to disprove the “null hypothesis” that HIV-related knowledge, attitudes, and behaviors and HIV and STI prevalence did not improve over the four datasets (2000, 2004, 2006, 2009) when controlling for potential confounding factors, including program exposure. Prevalence of HIV, STIs and condom use will be among the outcomes analyzed. The following table shows the crude rates of HIV prevalence, gonorrhea, and chlamydia, as well as some other factors, over each of the four data collection periods presented before.

	2000	2003	2006	2009
Crude HIV Prevalence	28.9%	31.9%	35.5%	24.2%
Chlamydia Prev	4.7	2.8	3.8	10.5%
Gonorrhea	3.2%	3%	3.3%	11.5%
Average Age	26.8 years	26.9 years	27.9 years	26.2 years
% Malian	36.5%	29.0%	36.3%	43.4%
% Nigerian	46.8%	49.9%	38.1%	32.9%
Average years in school	5.4	6.9	6.6	6.5
Condom last sex client	95.6%	94.2%	95.1%	98.8%
Condom last sex boyfriend	31.4%	36.3%	51.2%	40.1%

SAS version 9.1 software will be used for statistical analysis. The four ISBS datasets are stored in SPS and Stata databases. The data will be converted to SAS format and merged into one dataset to perform the analyses, adding study year as a variable. The first step of the analysis will be univariate analysis: variables of interest will be recalculated for each year and presented in tables to confirm the published report of each dataset.

The second step will be bivariate comparisons, which will show if outcomes within the combined dataset are correlated with particular explanatory variables. Using the combined dataset, comparative contingency tables will be created on the outcome (dependent/response) variables, such as HIV and STI prevalence, HIV knowledge, and condom use. Independent variables tested will include nationality, program exposure, age, marital status, year, education level, and city. These variables are either already categorical/ordinal, or they will be put into categories in the case they are discreet/continuous. The Chi Square test will be conducted at $\alpha=0.05$ to test if the differences between groups are significant. As this is a large dataset, it is not expected to have tables with expected cell counts of less than 5, so the Chi Square statistic (goodness of fit or exact binomial) should be valid, without the need for a Yates correction. In some cases, groups with small numbers can be combined. For analyses with continuous independent variables, the means will also be compared using t-test or ANOVA.

The third step will be to break the tables into strata to show the different outcomes in each subset over the four time points. Given the difference in the proportion of different nationalities (Malian, Nigerian, and other), this subgroup analysis is likely to show significant differences. In addition, outcomes will be separated by age groups and by length of time in sex work over the four study years because the composition of the four data sets appears to be quite different in terms of these factors. This will be accomplished by creating contingency tables by year, dependent/outcome variable, and the third independent variable (i.e. nationality, age, and length of time in SW). The Chi Square test will be performed at $\alpha=0.05$ to test if the differences between groups are significant.

Table III (below) gives an example of one of the contingency tables that will be calculated. For the Chi-square statistic to be valid, none of the cells can contain less than 5 observations. Thus, the minimum sample size would be 120 in total, with at least 30 in each year. As this is a much larger dataset (see table I above), it is not expected to have tables with cells with less than 5 examples, so the Chi Square statistic (goodness of fit or exact binomial) should be valid, without the need for a Yates correction. In some cases, groups with small numbers can be combined. (For example, with regards to nationality, small groups such as Senegalese and Ghanaian SW will be combined into “other”.) For analyses with continuous independent variables, the means will also be compared using ANOVA to test for statistical significance.

	2000		2003		2006		2009	
	HIV+	HIV-	HIV+	HIV-	HIV+	HIV-	HIV+	HIV-
Malian	≥5	≥5	≥5	≥5	≥5	≥5	≥5	≥5
Nigerian	≥5	≥5	≥5	≥5	≥5	≥5	≥5	≥5
Other	≥5	≥5	≥5	≥5	≥5	≥5	≥5	≥5

The final stage of the analysis will be the multivariate analyses. Logistic regression will be used to predict the probability of an outcome variable given a set of independent predictor variables. Logistic regression also quantifies the association between a predictor and an outcome while adjusting for other variables (confounding). The outcomes of interest are all categorical (such as HIV prevalence), so logistic regression will be used to quantify the association various independent variables that will be included in a stepwise fashion to create a logit model. As the data was collected from randomized clusters, clusters being determined by bar/brothel, it will be necessary to include the cluster in the model to control for / adjust the correlation matrix within that cluster.

Tables IV and V (below) give the independent/explanatory and dependent/outcome variables that will be analyzed to determine if the independent variables explain or confound the outcomes. The 2000 questionnaire contained fewer questions than the 2003 and 2006 questionnaires, which, in turn, contained fewer questions than the 2009 survey. The table gives the question number in each questionnaire, as well as the code used for that data in the dataset. In some cases, outcome variables will also be analyzed as independent variables. For example, condom use variables will be tested to see if they are correlated with HIV prevalence but they are also behavioral outcomes themselves. For the bivariate analyses, the dependent variables are already nominal/categorical data (such as HIV knowledge, question 603, which identifies correct prevention methods and rejects incorrect ones). Independent variables are continuous (such as age) or categorical (such as nationality). For contingency tables, continuous variables (such as age and education level) will be converted into categories. In some cases, groups with small numbers can be combined. For analyses with continuous independent variables, the means will also be compared using t-test or ANOVA to test for statistical significance.

See tables 4.3 and 4.4 for IV and V

B. For Section 2 Key informant interviews:

Sample size is not fixed in qualitative research; it is up to the researcher (and the user of the information) to determine if the number of people included is enough to be credible. In addition, samples are not random, but purposeful, people with key information are specifically sought out. (Marie C. Hoepfl 1997) In this case, 16 key informant interviews are sufficient to verify and complement the information on program strategies, design, and implementation gleaned from the document review.

In this evaluation transcripts of interviews (stripped of any personal identifiable information) will be analyzed by at least two researchers and will be available for verification. Another key to ensuring quality is triangulation of multiple methods and multiple data sources that aim to ensure inclusion and examination of various points of view, leading to more comprehensive findings. In this evaluation, three data sources of different types will be included: a document review, the key informant interviews, and the quantitative analysis of ISBS data. In both the document review and key informant interviews, the tools developed will be open-ended to avoid overly simplistic findings. Finally, it is critical that data that go against the general findings (minority reports) of the research be presented and discussed, to increase validity.(Golafshani 2003) (Tracy 2010)

The document review will be conducted first, though key informants will be given the opportunity to provide additional documents to be included in the analysis. If the documentary evidence is corroborative with other sources, the final conclusions of the evaluation are strengthened. If it is not, it will be necessary to investigate further. (Bowen 2009)

Data analysis will be led by Mr. Trout and Dr. Messersmith with assistance from the Measure Evaluation team. Interview transcripts and typed notes (stripped of all personal identifying information) will be left in their original language: in English or French, depending on the language of the key informant. Field notes in French will not be translated into English. Analysis will be done in the language spoken. Analysis for the key informant interviews will begin with the team reading each set of notes/transcripts several times before open coding of the notes. NIVIO will be used to code and analyze the key informant interviews. Coding will not begin until all of the interviews are completed. Initial codes will address the six sub-questions of Research Question 2. This will not be by name, as the interviews will be anonymous and no personal identifying information will be collected, but only by type of interviewee (Peer Educator/ Program Manager and Policymaker/Funder). Direct quotations will be reported as frequently as possible to ensure that interviewees' voices are expressed in the research report. The next phase of analysis is axial coding in which "the discrete categories identified in open coding are compared and combined in new ways as the researcher begins to assemble the

‘big picture.’” (Marie C. Hoepfl 1997) (p.55) NIVIO will be used so that notes and quotes are grouped by code. Causal events and descriptive details related to the implementation of prevention programming for sex workers, and their ramifications will be explored and analyzed. The final step is to create the story line that will be read in the report. Frequency tables will be used whenever possible to present the strength of discrete views and opinions. See (Marie C. Hoepfl 1997) et (Kumar 1989).

VII. PROTECTION OF HUMAN SUBJECTS

These interviews are asking people to discuss elements of their jobs for the purpose of quality improvement, not personal information about subject’s behavior. This study is not doing Human Subjects Research as is exempt from a full IRB review.

A. Risks and Discomforts

Potential risks to human subjects are very low in this evaluation. There is no risk related to any of the secondary analyses, neither the document review nor the ISBS data analysis. As the key informant interviews will be with policymakers and program managers, there could be risk to these individuals’ employment, professional relationships, and careers should information shared in confidence be revealed. As in any evaluation, program implementers, government officials, and USAID staff may feel vulnerable to criticism. They may also not feel comfortable participating in the evaluation and may not have time to do so. SW animators and peer educators may feel loyalty to the NGOs they work with and not want to disclose potentially negative information to them. The time they take out of their day to participate in the interviews may also be difficult for them to afford.

B. Potential Benefits

There is no immediate direct benefit for participants in this study, though peer educators and animators will be paid 7,500 CFA (about \$15) for their participation. However, the goal of this evaluation is to improve programming for HIV prevention for SW, their intimate partners, and their clients, which would have a positive effect in their lives by avoiding infection, and to Malian society as a whole. For organizations involved in implementation, the evaluation is an opportunity to showcase their success and to identify challenges that can be addressed in future programming and to express difficulties that may have their origin in USAID’s processes, allowing USAID to improve. The evaluation will be shared with the GOM, USAID and CDC, and the affected community, which may be empowering for individuals to better design and manage programming.

C. Monitoring (including Data and Safety Monitoring)

This study falls under the jurisdiction of three Institutional Review Boards:

1. Boston University Medical School
2. Measure Evaluation (for key informant interviews only)
3. Mali School of Medicine, Pharmacy, and Dentistry

The requested exempt status of this study (due to its quality improvement goals, lack of human subjects research, and lack of biological/medical/behavioral testing) means that potential adverse events are very unlikely. However, Mr. Trout, Dr. Billo, and Dr. Messersmith will report to the IRBs as necessary.

D. Risk/Discomfort Mitigation: plan to protect patient privacy and confidentiality of the data

The protection of human participants (key informants and the sex workers who participated in the ISBS) is a priority. The study protocol will be reviewed and approved by the Institutional Review Boards (IRB) at Boston University Medical Center, Measure Evaluation, and the Mali School of Medicine, Pharmacy, and Dentistry. The data collected will be only for evaluation and quality improvement purposes. This evaluation will include primary qualitative data from program managers, government officials, and US government stakeholders. The study will also include a secondary analysis of ISBS data from sex workers including HIV/STI prevalence, demographic information, and HIV related knowledge, attitudes, and behavior. These data were collected anonymously, and no personal identifiable information was included. The CDC and INRSP IRBs approved and monitored the ISBS in 2000, 2003, 2006, and 2009.

The key risk to key informant interview participants will be breach of confidentiality. Thus, every effort will be made to avoid this potential risk. Interviews with key informants will be wholly voluntary and will be confidential. No identifying information will be collected from the key informant interviews. Data in the form of notes pages and cassettes will be collected and stored in a secure locked metal cabinet at Measure Evaluation in Mali for no more than five years. Key informants will be identified only by category “Policymaker/funder” or “Program manager” or “Peer Educator/Animator”. Electronic data (in the forms of interview notes and transcripts washed of personal identifying information) will be stored on password-protected computers. Interviews will be conducted only in neutral, private spaces. Finally, the purpose of the evaluation is to assess the effectiveness of the strategy and program as a whole over the time period. This strategy included many actors and organizations. The purpose is not to evaluate individuals or their organizations. Sufficient interviews will be conducted so that anonymity can be protected in the data analysis stage. Interviews will last a maximum of ninety (90) minutes. USAID will assist with the analysis of only the transcribed interviews which will have been washed of any potential personal identifying information.

ANNEX 8. FRENCH RESEARCH PROTOCOL

Réduction de la transmission du VIH parmi les Professionnelles du Sexe au Mali :

Une évaluation rétrospective d'interventions d'information, d'éducation et de
communication en petits groupes ou individuel à base communautaire

de 2000 à 2010

Département de Santé Internationale

Université de Boston, Faculté de Santé Publique

Protocole de Recherche

Clinton Trout, MA, MPH
DrPH Candidate

Faculty Advisor: Lisa Messersmith, PhD

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LISTE DES ABREVIATIONS

ANC-Antenatal Clinic (Clinique anténatale)
 ARV-antirétroviral
 BUSPH-Boston University School of Public Health (Université de Boston Faculté de Santé Publique)
 CSLS-Cellule Sectorielle de Lutte contre le SIDA
 CDC-Centers for Disease Control and Prevention
 CD4 – cluster of differentiation 4 helper T-cell
 CSCOM-Centre de Santé Communautaire
 EDS/DHS –Enquête Démographique et de Santé au Mali
 GHFP-II Global Health Fellows Program-II
 IEC-Information Education Communication
 IC – intervalle de confiance
 INRSP-Institut National de Recherche en Santé Publique
 ISBS-Integrated STI prevalence and Behavior Surveillance Survey (Enquête intégrée sur la prévalence et les comportements en matière d'IST/VIH)
 IST-Infection sexuellement transmissible
 GOM-Government of Mali (Gouvernement du Mali)
 ONG-Organisation Non Gouvernemental
 ONUSIDA-Organisation des Nations Unies contre le SIDA
 PS-Professionnelle du Sexe
 PVVIH-Personne Vivant avec le VIH
 RR – Risque Relatif
 SIDA-Syndrome d'Immunodéficience Acquise
 UNDP/PNUD - United Nations Development Programme/Programme des Nations Unies pour le Développement
 USAID-United States Agency For International Development/Agence des Etats-Unis pour le Développement
 VA-Vendeuse Ambulante
 VIH-Virus de l'Immunodéficience Humaine
 WHO/OMS – Organisation Mondiale de la Santé/World Health Organization

RESUME SCIENTIFIQUE

Contexte : L'épidémie du VIH/SIDA au Mali est généralisée en milieux urbains. L'Enquête Intégrée sur la Prévalence des IST/VIH et les Comportements en Matière d'IST (ISBS) de 2009 a révélé une prévalence de 24% parmi les Professionnelles du Sexe (PS). En Afrique de l'Ouest, une partie significative de la transmission du VIH est liée à la prostitution. Les interventions de prévention du VIH de haute qualité et de couverture géographique adéquate sont primordiales afin de protéger la santé des PS et de réduire la transmission du VIH et des IST entre les PS, leurs clients, leurs partenaires non-payants, et la population générale.

Objectif : Cette évaluation en matière de santé publique est une investigation du mérite, de la valeur et de l'importance des programmes de prévention du VIH pour les PS au Mali financés par l'USAID de 2000 à 2010 afin d'en rendre compte et de les améliorer. (U.S. CDC 1999) L'étude évaluera des changements de connaissances et de comportements en matière de VIH et la prévalence du VIH et des ISTs (conséquences/aboutissements) parmi les PS au Mali de 2000 à 2009. En plus, le caractère, le cadre et la portée des interventions pour les PS Maliennes (intrants, activités et résultats) financées par le gouvernement américain seront décrits.

Méthodes : Cette étude utilisera trois méthodes de recherche pour atteindre ses objectifs : analyse secondaire de données quantitatives, un bilan des documents et des entretiens avec des informateurs clés.

Les données de l'ISBS conduites au Mali en 2000, 2003, 2006 et 2009 seront combinées. Les conséquences seront filées à travers le temps, en contrôlant pour les changements démographiques dans les échantillons et en analysant les sous-groupes. Afin de déterminer l'exposition aux programmes de prévention, les ISBS ont demandé aux participantes où elles ont reçu la prise en charge lorsqu'elles ont eu une IST et où elles ont été informées par rapport au VIH.

Le caractère, le cadre et l'étendue des interventions pour les PS Maliennes (intrants, activités et résultats) financées par l'USAID seront déterminés à travers un bilan des documents relationnels aux projets et 16 entretiens avec des informateurs clés au cas où la situation sécuritaire le permettrait. Les informateurs clés seront des paires éducatrices et « animatrices » PS, des gérants de programmes, et des décideurs des gouvernements malien et américain.

RESUME NON-SCIENTIFIQUE

Dans les pays avec des épidémies du VIH généralisées, comme le Mali, les interventions de la prévention pour les groupes à haut risque, comme les Professionnelles du Sexe (PS) et leurs clients sont primordiales pour la santé de ces individus et de leurs contacts proches, et aussi pour prévenir la transmission parmi la population générale. Cette thèse du doctorat jugera la valeur et le mérite de la programmation de prévention du VIH/SIDA

chez les PS au Mali de 2000 à 2010 financée par l'USAID. Au début, l'étude évaluera si leurs connaissances, leurs attitudes, et leurs comportements (en particulier l'utilisation correcte et consistante du préservatif) ont changé pendant la période en 2000, 2003, 2006, et 2009. En outre, l'étude décrira les interventions elles-mêmes, leur portée, et leur couverture en examinant des documents du programme comme les rapports et 16 entretiens avec des personnes impliquées dans ces programmes pendant la période. L'information collectée et analysée pour cette étude aidera l'USAID à mieux comprendre l'impact de son financement et à planifier la programmation à l'avenir.

INVESTIGATEURS ET AFFILIATIONS INSTITUTIONELLES

L'Université de Boston Faculté de Santé Publique Centre de Santé Globale et Développement : BUSPH a la responsabilité totale de l'étude ainsi que sa mise en œuvre, y compris l'élaboration du protocole. BUSPH va assurer que l'étude se conformera aux standards éthiques de recherche par son Comité d'Ethique.

Lisa J Messersmith, MA MPH PhD, Professeur Adjoint : Dr. Messersmith est l'investigateur principal de cette étude. Etant l'expert en méthodes qualitatives et évaluation, elle supervisera l'étude.

Clinton H. Trout II, MA MPH : Mr. Trout développera le protocole et les outils. Il conduira toutes les analyses et codages. Il sera responsable des rapports finaux et de la dissémination des résultats.

Haut Conseil National de Lutte Contre le SIDA, (HCNLS) : Le HCNLS est l'organisme national chargé de coordonner les politiques nationales sur le VIH et sera également l'un des principaux bénéficiaires des résultats d'étude. Le HCNLS participera à l'interprétation des résultats et leur utilisation.

L'Agence des Etats-Unis pour le Développement International (USAID) : L'USAID au Mali utilise le financement du peuple américain pour augmenter les ressources financières des Maliens et améliorer leur état de santé et d'éducation, et pour fournir des outils afin que le pays soit gouverné efficacement et de manière transparente. L'USAID-Mali travaille dans 4 secteurs: la santé, l'éducation, la gouvernance, et l'agriculture et croissance économique accélérée. L'USAID est l'agence principale du financement et récipiendaire des résultats de cette étude. L'USAID a financé les 4 enquêtes ISBS aussi bien que les interventions de la prévention du VIH/SIDA pendant la période des enquêtes. L'objectif de cette étude d'évaluation est de décrire l'impact des investissements de l'USAID dans la prévention du VIH/SIDA chez les PS de 2000 à 2010. L'USAID supervisera l'étude, participera à l'interprétation des résultats et assurera qu'ils seront utilisés dans la programmation au futur.

Centres du Contrôle et Prévention de la Maladie (CDC) : Les CDC ont été le fournisseur principal d'assistance technique pour les enquêtes ISBS. Les CDC ne seront pas impliqués directement dans cette étude, mais ils fourniront des conseils techniques, l'accès aux données des ISBS, et participeront à l'interprétation des résultats d'étude. Comme les CDC sont engagés dans des services de prévention pour les populations clés, telles que les PS, ils aideront à assurer que les résultats soient utilisés dans les projets au futur.

Mesure Evaluation : Mesure Evaluation conduira les 16 entretiens d'informateurs clés, les transcrira, donnera les notes et les transcriptions (sans aucune information d'identification personnelle) à Mr. Trout, et aidera au codage et analyse.

Mounkaila Billo, MD PhD : Dr. Billo aidera au développement du protocole, supervisera le recrutement des intervieweurs, la collecte des données qualitatives, et leur transcription.

InfoStat-Mali : Infostat est une firme privée de recherche engagée dans la collecte et l'analyse des données pour les 4 études ISBS. InfoStat ne sera pas impliquée dans cette étude, mais fournira des conseils techniques, accès aux données des ISBS, et sera consultée pendant l'analyse des ISBS.

Institut de Santé Publique (PHI) : PHI est financé par l'USAID pour la mise en œuvre du *Projet des Attachés Temporaires d'Etudes et de Recherche de Santé Globale -II (Global Health Fellows Program-II)*. Le projet fournit personnel à l'USAID. PHI est l'employeur de Mr. Trout.

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LIEU D'ETUDE ET SOURCE DE FINANCEMENT

Lieu : Bamako, Mali

Financement : L'USAID à travers l'Institut de Santé Publique et Mesure Evaluation

I. BUT, CONTEXTE, ET JUSTIFICATION DE L'ETUDE

Le Mali est un des pays du monde avec le niveau le plus bas du développement humain (175/186 dans l'index de développement humain) et égalité du genre (175/187 dans l'index d'égalité du genre). (UNDP 2011) La prévalence du VIH au Mali parmi la population générale est basse (1,3%) (Demographic and Health Survey (DHS) 2006), et l'épidémie est concentrée parmi les groupes hautement vulnérables, particulièrement les Professionnelles du Sexe (PS). La prévalence chez les femmes enceintes enquêtées dans les centres des soins prénataux dans les milieux urbains et péri-urbains a baissé depuis 2002. Elle a été de 2,7% en 2009, à la baisse de 2,8% en 2007, 3,4% en 2005, et 3,8% en 2002. (Mali.CSLS/MS 2010). Selon l'EDS 2006 parmi la population générale, peu de femmes (5,9%) et d'hommes (25,5%) ont rapporté avoir eu des relations sexuelles hors des liens du mariage ou le cohabitage, mais l'utilisation du préservatif a été faible durant ces relations. (Cellule de Planification et de Statistique, Ministère de la Santé, & Macro International Inc., 2006)

En Afrique de l'Ouest, les PS et leurs clients sont hautement vulnérables à l'infection du VIH. L'ONUSIDA estime que entre 0,6% et 1,0% de femmes dans la région sont des PS, entre 3,0% et 17% sont des clients de PS, et entre 4,0% et 11,0% sont des partenaires des clients de PS. (UNAIDS and The World Bank 2010) Une importante analyse groupée extensive de la prévalence en Afrique de l'Ouest a montré la forte vulnérabilité au VIH des PS. Au Sénégal, pays voisin du Mali, la prévalence groupée du VIH parmi les PS a été de 19,9% (IC 18,0–21,9), 23,7 fois la prévalence parmi les femmes en âge de procréation (1,0% pareil au Mali). Cela suggère que 11,5% des transmissions au Sénégal sont parmi les PS. En Guinée, la prévalence groupée du VIH parmi les PS a été de 36,7% (IC 33,6%–39,8%). Contre une prévalence de 1,72% parmi des femmes d'âge de reproduction, les PS ont eu 33,1 fois plus de chance d'être positives au VIH, représentant 2,5% des infections du VIH. Finalement, au Nigéria (d'où viennent beaucoup de PS travaillant au Mali), la prévalence groupée parmi les PS a été de 33,7% (IC 32,1% – 35,3%). Par rapport à la prévalence de 4,5% parmi les femmes d'âge reproductif, les PS nigériennes ont eu une probabilité 10,7 fois plus élevée et représentent 4,5% de transmissions. (S. Baral et al. 2012)

Au Mali, les données de PS formelles en milieux urbains ont été collectées par l'Enquête Intégrée sur la Prévalence des IST/VIH et les Comportements en Matière d'IST (ISBS) en 2000, 2003, 2006, et 2009. Les ISBS ont enquêté sur l'information biologique (prévalence du VIH et des IST), l'information démographique, et l'information concernant leurs connaissances et comportements en matière de VIH et des IST. La prévalence moyenne du VIH parmi les PS en 2009 a été de 24,4%, à la baisse de 35,5%

en 2006, 31,9% en 2003, et 28,9% en 2000. La prévalence du VIH a été beaucoup plus élevée par comparaison avec celle de femmes urbaines de 1,8% (EDS 2006), 2,8% parmi les femmes enceintes en milieux urbains et péri-urbains (ANC 2009), et 3,8% parmi les « vendeuses ambulantes » (ISBS 2009). Les PS au Mali ont eu des taux élevés d'IST : 11,3% ont eu la blennorragie, en comparaison avec 2,3% parmi les vendeuses ambulantes et 10,5% ont eu la chlamydie, en comparaison avec 6,3% parmi les vendeuses ambulantes. En 2009, presque toutes les PS ont rapporté avoir utilisé le préservatif avec leur dernier client régulier (98,1%) et non-régulier (98,8%). 70% ont été dépistées pour le VIH. Seulement 18% ont rapporté qu'elles connaissaient une personne VIH-positive. Tout comme ailleurs en Afrique de l'Ouest, plus de la moitié ont été des migrantes d'autres pays de la région. Pendant que 44% des enquêtées ont été des Maliennes, 32% sont venues du Nigéria ; 8% sont venues du Burkina Faso, 5% sont venues de la Côte d'Ivoire, et le reste du Sénégal, du Ghana, et d'autres pays voisins. (Mali.CSLMS/MS et al. 2010)

Cette étude est une évaluation des résultats des programmes de prévention du VIH pour les professionnelles du sexe financés par l'USAID au Mali de 2000 à 2010. Le VIH/SIDA est un problème important de santé publique au Mali, surtout dans les milieux urbains. Au Mali, une importante proportion de la transmission du VIH est liée à la prostitution. Cette thèse de doctorat fournira des informations clés concernant la performance et l'impact de cette programmation, dans le but de l'améliorer au Mali ainsi que la région d'Afrique de l'Ouest. Les résultats de cette étude seront importants pour désigner et planifier projets de prévention du VIH/SIDA chez les PS. Cette thèse de doctorat satisfera les préalables pour le titre de Doctorat en Santé Publique à l'Université de Boston Faculté de Santé Publique pour Mr. Trout, qui fournit actuellement assistance technique experte à l'USAID en matière de prévention du VIH au Mali à travers PHI/GHFP-II.

II. PLAN D'ETUDE

Une évaluation en santé publique est une investigation systématique du mérite, de la valeur, ou de l'importance de programmation en santé publique afin de l'améliorer et de la justifier. (U.S. CDC 1999) Ainsi, l'objectif de cette étude est d'établir le mérite, la valeur, et l'importance de la programmation de prévention du VIH en ciblant les professionnelles du sexe (PS) au Mali financée par l'USAID entre 2000 et 2010.

L'objectif principal est d'évaluer les changements de connaissances et de comportements en matière de VIH et d'IST et leur prévalence (conséquences/aboutissements) chez les professionnelles du sexe (PS) au Mali de 2000 à 2009. Les données collectées par l'Enquête Intégrée sur la Prévalence des IST/VIH et les Comportements en Matière d'IST (ISBS) conduites au Mali en 2000, 2003, 2006, et 2009 seront analysées afin de mesurer les conséquences/aboutissements au fil du temps. Cela sera la première fois que ces données seront combinées et tracées au fil du temps, en contrôlant statistiquement pour

les changements démographiques et en analysant par sous-groupes. Afin de déterminer l'exposition des PS à la programmation, les 4 ISBS ont demandé aux PS où elles avaient reçu l'assistance médicale au cas d'une IST. Les ISBS de 2003, 2006, et 2009 (mais pas celle de 2000) aussi ont demandé leur source d'information sur le VIH. L'enquête de 2009 a aussi demandé si les personnes enquêtées avaient reçu des services du VIH/IST d'une ONG.

Le caractère, le cadre et la portée des interventions pour les PS Maliennes (intrants, activités et résultats) financées par l'USAID seront déterminés à travers un bilan des documents relatifs aux projets et des entretiens avec des informateurs clés au cas où la situation sécuritaire le permettrait. Les informateurs clés seront des paires éducatrices PS, des gérants de programmes, et des décideurs des gouvernements malien et américain.

Cette étude d'évaluation utilisera une méthodologie similaire au programme « Avahan », un programme modèle de prévention du VIH pour les PS de cadre national en Inde : triangulation des données du suivi de programme et données qualitatives avec les aboutissements des ISBS. (Deering, Boily, et al. 2011) (Mainkar et al. 2011) (Thilakavathi et al. 2011) (Ramesh et al. 2010) L'évaluation utilisera des méthodes mixtes: une combinaison des sources d'information quantitatives et qualitatives (Bowen 2009) dans ce cas-ci un bilan des documents, des entretiens avec des informateurs clés, et une analyse quantitative des données des ISBS de 2000, 2003, 2006, et 2009.

Cette évaluation a pour but de répondre aux deux questions de recherche suivantes :

1. Question de Recherche 1 : Quels changements se sont-ils produits dans les connaissances et les comportements en matière de VIH et des IST et leur prévalence chez les professionnelles du sexe maliennes (PS) de 2000 à 2009 et est-ce qu'ils ont été associés à la programmation de prévention ? (Conséquences/Aboutissements)

- a. Comment et dans quelle mesure les connaissances des PS en matière de prévention des IST et du VIH ont-elles changé ?
- b. Comment et dans quelle mesure l'utilisation de préservatif par les PS avec leurs clients réguliers et non-réguliers a-t-elle changé ?
- c. Comment et dans quelle mesure la prévalence du VIH et des IST chez les PS a-t-elle changé ?
- d. Est-ce que les tendances observées chez des PS en matière de VIH et des IST demeurent lorsqu'elles seront statistiquement contrôlées par l'information démographique, comme l'âge et la nationalité ?
- e. Est-ce que les conséquences/aboutissements comportementaux et biologiques ont été différents par rapport à l'exposition à la programmation de prévention ?

Cette question de recherche sera résolue par analyse uni variée, bi variée, et multi variée des enquêtes ISBS de 2000, 2003, 2006, et 2009.

2. Question de Recherche 2 : Quelles théories de changement du comportement et quelles stratégies étaient-elles sous-jacentes de la programmation de prévention du VIH pour les PS au Mali entre 2000 et 2010 ? Quels étaient leur cadre et étendue et leurs succès et défis ? (Intrants, Activités et Résultats)

- a. Décrire la recherche formative et le processus de planification avant la mise en œuvre.
- b. Décrire la théorie de changement du comportement sous-jacente et comment elle a été incorporée dans les messages du programme et les canaux de communication.
- c. Décrire le cadre et la portée espéré et atteints.
- d. Décrire la formation des équipes et des paires-éducatrices et comment les projets ont assuré la fidélité aux messages.
- e. Décrire les succès et défis du programme.
- f. Décrire les changements importants dans l'environnement, la stratégie du programme, et les ressources de programme qui pourraient avoir affecté les résultats/aboutissements ?

Cette question de recherche sera résolue par le bilan des documents et 16 entretiens avec des informateurs clés.

III. SUJETS D'ETUDE

A. Critères d'inclusion et d'exclusion de l'étude.

Pour les 16 entretiens avec des informateurs clés, les critères d'inclusion sont les suivants:

1. A été une paire éducatrice (bénévolat), une « animatrice » (coordinatrice payée des paires éducatrices), un/e gérant/e de projet, et/ou un/une décideur, planificateur, ou financeur de projets pour la prévention du VIH/SIDA et des IST pour les PS au Mali.
2. A travaillé comme tel entre 2000–2010.
3. Est disponible, disposé et prêt à participer à un entretien de 90 minutes.
4. Parle couramment l'anglais ou le français.
5. Habite au Mali au moment de l'inscription d'étude ou peut être interviewé/e par téléphone/Skype.

Critères d'exclusion : Quiconque ne remplissant pas tous les 5 critères d'inclusion, et/ou ne peut pas comprendre les objectifs d'étude et/ou le consentement éclairé sera exclu. Personne ne sera interviewé plus d'une fois.

B. Inclusion de populations vulnérables

Les paires éducatrices sont, par définition, des PS pratiquantes. La plupart des « animatrices » sont des anciennes PS. Elles peuvent être aussi des migrantes et des immigrantes, de statut régulier ou irrégulier.

C. Traduction de documents de consentement éclairé

Tous les documents d'étude, incluant ceux du consentement éclairé seront traduits en anglais et en français. Certaines paires éducatrices et animatrices sont des migrantes et des immigrantes des pays anglophones. Ainsi, les documents en anglais et en français seront rendus disponibles.

IV. RECRUTEMENT

A. Méthodes de Recrutement

1. Section 1: Analyse secondaire de données ISBS : Le recrutement s'est tenu pour les ISBS en 2000, 2003, 2006, et 2009 et seulement une analyse secondaire sera conduite. Toutes les enquêtes ISBS ont été conduites dans sept (7) villes : Bamako, la capitale, Koutiala, un centre de transport et de population, et cinq (5) capitales régionales : Gao, Ségou, Kayes, Sikasso, et Mopti. Par exception, l'enquête de 2000 n'a pas inclus Koutiala. La majorité des PS enquêtées ont été basées dans une maison close. L'enquête de base en 1999 a localisé toutes les maisons closes et bars/clubs avec PS dans chaque ville. Chaque maison close, bar, et club ont été considéré comme une grappe pour l'enquête. Les grappes ont été choisies selon un processus d'échantillonnage aléatoire et toutes les PS dans chaque grappe choisie ont été interviewées. Pour les enquêtes ISBS en 2003, 2006, et 2009, des équipes ont été envoyées avant l'échantillonnage afin de vérifier les grappes des enquêtes des années précédentes, ajoutant et soustrayant des grappes si nécessaire. (Mali.CSLS/MS et al. 2010)

2. Section 2: Entretien avec des informateurs clés : L'USAID (Mr. Trout) fournira une liste des organisations et des individus reconnus d'avoir participé aux projets de prévention du VIH pour les PS entre 2000 et 2010 à Measure Evaluation. Measure Evaluation contactera ces individus et organisations par lettre et/ou courrier électronique (voir annexe) qui expliquera les thèmes et les objectifs de l'évaluation et les entretiens. Ensuite, les informateurs clés seront invités à y participer et l'intervieweur et le secrétaire (contractés par Measure Evaluation) viendront pour les interviewer dans un endroit neutre : Le bureau de Measure Evaluation, l'endroit de travail de l'individu s'il/elle le préfère, ou un autre endroit. Les paires éducatrices/animatrices seront récompensées CFA 7,500 (\$15) pour leur temps. Si le participant n'apparaît pas, l'intervieweur essaiera de modifier le programme d'entretien une fois par téléphone. Ensuite, l'intervieweur recommencera avec un nouveau participant jusqu'à ce que le nombre d'entretiens désirés [16] soit accompli. Les 16 informateurs clés de cette évaluation seront des paires éducatrices (bénévolat), des « animatrices » (coordinatrices payées des paires éducatrices)[9], des gérants de projet [4 entretiens], et les décideurs, planificateurs, ou financeurs de projets [3 entretiens] pour la prévention du VIH/SIDA et des IST pour les PS au Mali. Dans l'éventualité d'une agitation sociale ou insécurité rendant ces entretiens

difficiles ou impossibles, il pourrait arriver qu'il soit nécessaire de réduire le nombre des entretiens et d'utiliser Skype, le téléphone, ou courrier électronique.

B. Plan de sélection

Les critères d'inclusion seront inclus dans les communications avec les informateurs proposés avant les entretiens. Ceux-ci seront répétés avec les informateurs clés au début des entretiens.

C. Sollicitation de consentement éclairé

1. Section 1: Analyse secondaire de données ISBS : La CNLS, les CDC, et l'INRSP ont supervisé les enquêtes ISBS et une firme privée (Info-Stat) a élaboré les questionnaires en 2000, 2003, 2006, et 2009. Les techniciens de laboratoire de l'INRSP ont pris et ont contrôlé les échantillons d'urine et de sang. Des ONGs ont sensibilisé les PS de chaque ville aux objectifs des enquêtes ISBS et ont obtenu leur soutien. Les enquêtes ISBS ont été complètement anonymes : aucune information d'identification personnelle n'a été ramassée. Chaque personne enquêtée a reçu une carte avec un numéro d'identification unique qui lui a donné accès à ces résultats d'analyse d'urine et de sang et aux services de santé. Les tests de dépistage rapides n'ont pas été utilisés pendant l'étude. Toutes les participantes ont reçu des conseils, des préservatifs, et le traitement des IST si nécessaire. Les conseils « posttest » ont été offerts pour le VIH et la syphilis. La participation à l'enquête a été complètement volontaire et le consentement éclairé séparé a été demandé pour le questionnaire, les tests d'urine, le test du VIH, et le test de la syphilis. Les comités d'éthique de l'INRSP et des CDC ont approuvé et ont suivi les enquêtes. (Mali.CSLS/MS et al. 2010)

2. Section 2: Entretiens avec des informateurs clés: Le consentement éclairé oral de chaque informateur clé sera sollicité en utilisant un formulaire de consentement éclairé en anglais ou en français. Ils seront informés des objectifs et des thèmes d'évaluation, comment les données seront collectées et entreposées, que leur participation est complètement optionnelle, et qu'ils ont le droit de refuser de répondre à une quelconque question ou même d'arrêter l'entretien à tout moment s'ils le désirent. Les entretiens avec les informateurs clés seront complètement anonymes: aucune information d'identification personnelle ne sera ramassée.

D. Documents de recrutement

1. Lettre/courrier électronique de recrutement (anglais/français) (annexés)
2. Formulaire de consentement éclairé (anglais/français) (annexés)

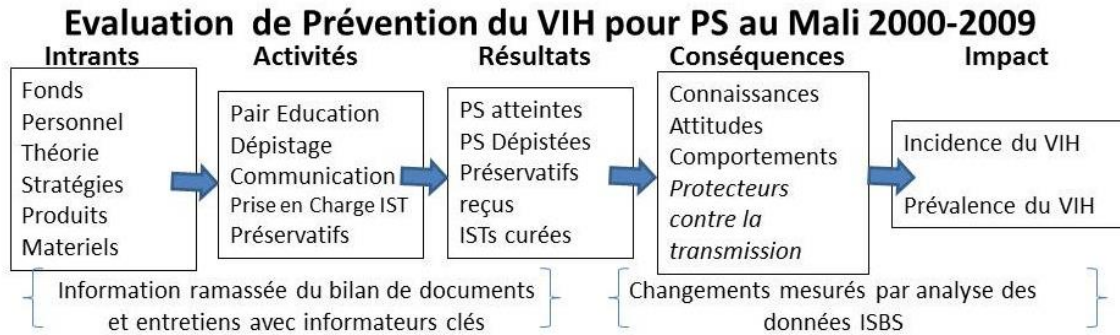
V. PROCEDURES D'ETUDE

A. Sommaire des stratégies de recherche

Cette étude d'évaluation utilisera trois stratégies de recherche:

- 1) La prévalence du VIH et des IST, l'utilisation du condom, et les connaissances en matière de VIH et des ISTs parmi les PS au Mali ont été suivis tous les trois ans depuis 2000 par les enquêtes ISBS, mais cette étude sera la première à les combiner et à les ajuster par des facteurs démographiques importants, comme l'âge et la nationalité. Ces changements en connaissance, attitudes et comportements seront comparés au fil du temps : capacité d'identifier correctement les actions principales de prévenir la transmission du VIH par voie sexuelle ; probabilité de rejeter des idées fausses concernant la transmission du VIH ; utilisation du préservatif pendant les rapports sexuels avec les clients réguliers et non-réguliers et les partenaires réguliers non-payants ; et connaissance récente du statut de sérologie du VIH par le dépistage. Enfin, des analyses bi variées et multi variées identifieront les facteurs les plus importants associés avec ces conséquences/aboutissements.
- 2) Une analyse des données de suivi de programmes, les rapports de programmes, et d'autres documents permettra la construction d'un narratif et une chronologie décrivant les activités de prévention pour les PS au Mali de 2000 à 2010, le caractère et la portée de ces activités, les stratégies employées, leur niveau de financement, les succès et les défis majeurs expérimentés et leur résultats comme le nombre de PS atteint, préservatifs distribués, et le nombre de PS dépisté et conseillé pour le VIH.
- 3) Entretiens qualitatifs approfondis avec les informateurs clés [16], incluant des gérants de projets [4], des paires éducatrices/animatrices [9] et des décideurs/financeurs [3] exploreront plus loin les stratégies, la portée et la couverture, les défis et les leçons apprises. Ceux-ci seront comparés avec les standards internationaux. Si la situation sécuritaire au Mali rend impossible la conduite de ces entretiens qualitatifs, l'équipe utilisera Skype, le courrier électronique et intervieweurs contractés.

Le cadre de résultats suivant démontre la pratique standard en matière d'évaluation pour montrer comment les intrants du programme devraient être transformés en impact de la santé publique dans cette étude. (U.S. CDC 1999) Le bilan de documents et les entretiens avec les informateurs clés serviront à ramasser l'information concernant les intrants, activités et résultats et essayer de les lier avec changements de connaissance, attitudes et comportements en matière de VIH/SIDA (les conséquences/aboutissements) et, finalement, l'impact, dans ce cas, la prévalence des IST et VIH parmi les PS.



B. Section 1: Analyse secondaire des données ISBS

Les enquêtes ISBS en 2000, 2003, 2006 et 2009 ont utilisé une méthodologie recommandée par UNAIDS, WHO, et l'USAID et les ISBS sont une partie du « triangle » de surveillance au Mali. (UNAIDS and WHO 2011) (UNAIDS and World Health Organization 2000) (World Health Organization 2004) (Pisani et al. 1998) La méthodologie des ISBS a été conçue pour mesurer des changements de l'épidémie du VIH/SIDA parmi les groupes à haut risque comme la prévalence du VIH et des IST, et les comportements à risque. Les Enquêtes de la Démographie et de la Santé ont été répétées au Mali tous les cinq ans parmi la population générale. Les enquêtes de surveillance sentinelle du VIH et des IST chez les femmes enceintes ont été coordonnées afin d'être conduites tous les trois ans avec les ISBS. En plus des PS, les ISBS ont compris les routiers, les coxeurs (hommes vendeurs de billets), les vendeuses ambulantes, et les aides ménagères. (Mali.CSLS/MS et al. 2010)

Toutes les enquêtes ISBS ont été conduites dans sept (7) villes : Bamako, la capitale, Koutaila, un centre de transport et de population, et cinq (5) capitales régionales : Gao, Ségou, Kayes, Sikasso et Mopti. Par exception, l'enquête de 2000 n'a pas inclus Koutaila. La majorité des PS enquêtées ont été basées dans une maison close. L'enquête de base en 1999 a localisé toutes les maisons closes et bars/clubs avec PS dans chaque ville. Chaque maison close, bar, et club a été considéré comme une grappe pour l'enquête. Les grappes ont été choisies selon un processus d'échantillonnage aléatoire et toutes les PS dans chaque grappe choisie ont été interviewées. Pour les enquêtes ISBS en 2003, 2006, et 2009, des équipes ont été envoyées avant l'échantillonnage afin de vérifier les grappes des enquêtes des années précédentes, ajoutant et soustrayant des grappes si nécessaire. (Mali.CSLS/MS et al. 2010)

Les questionnaires des enquêtes ISBS ont contenu sept (7) sections :

- 1.) Caractéristiques sociodémographiques ;
- 2.) Origines et mouvements migrateurs ;
- 3.) Comportements sexuels ;
- 4.) Que faire au cas d'IST ;
- 5.) Connaissances et attitudes en matière de VIH et des ISTs ;

- 6.) Questions concernant la maison close/bar ;
- 7.) Prévalence du VIH et des IST par des examens de l'urine et du sang : VIH, syphilis, chlamydie, blennorrhagie.

C. Section 2: Entretien avec des informateurs clés

L'objet des entretiens avec des informateurs clés (et le bilan des documents) est de décrire les intrants, les activités, et les résultats atteints par la programmation de prévention du VIH pour les professionnelles du sexe. Le gouvernement américain a financé presque toute cette programmation pendant cette période. Ces entretiens avec des informateurs clés et le bilan des documents seront conduits afin de répondre à la Question de Recherche 1 (précédente) et ses six [6] sous-questions.

1. Equipe de collecte des données

Mr. Trout conduira le bilan des documents. Les entretiens avec des informateurs clés seront conduits par deux intervieweurs de Measure Evaluation. L'USAID fournira les questionnaires, le formulaire de consentement éclairé, et une liste des individus et organisations à Measure Evaluation pour qu'ils puissent être contactés et interviewés. L'équipe de Measure Evaluation conduira les entretiens et les transcrira. Measure Evaluation ne partagera pas les noms des individus interviewés et ceux-ci ne seront pas maintenus dans les documents pour l'analyse afin que leur confidentialité soit protégée. Mr. Trout et Dr. Messersmith mèneront l'analyse qualitative des transcriptions.

2. Formation d'équipe de collection de données

Les données seront recueillies par des investigateurs de Measure Evaluation ayant expérience précédente en la conduite des entretiens qualitatifs. Avant le commencement de collection de données, un atelier de formation pour les intervieweurs de 3 à 5 jours sera organisée par les investigateurs de Measure Evaluation. L'atelier inclura des discussions détaillées du recrutement de participants, le processus de consentement éclairé, et les autres questions éthiques, incluant la confidentialité et le secret personnel. Etant donné le caractère sensible de la prostitution au Mali, il est essentiel que les intervieweurs et investigateurs qui collaborent pendant ce projet comprennent complètement le besoin de protéger la confidentialité des participants. Ainsi, nous renforcerons tous les standards éthiques concernant la recherche avec les sujets humains et nous nous assurerons que l'équipe comprenne et puisse suivre les procédures pour le recrutement et collection de données de cette étude. A cette fin, nous utiliserons des diapositives PowerPoint concernant la protection de sujets humains utilisés antérieurement pendant plusieurs études en Afrique sub-Saharienne et en Asie et qui nous adapterons pour cette étude (**voir les 3 diapositives PowerPoint annexées**). De plus, nous répèterons ces procédures comme l'obtention de consentement éclairé jusqu'à ce que nous soyons confiants que ces procédures puissent être suivies correctement. Une feuille de contrôle sera gardée et utilisée avec les noms des membres d'équipe qui ont été

formé et les dates où ils ont reçu la formation. Cette feuille de contrôle sera mise au point continuellement et sera disponible pour vérification à tout moment.

3. Structure d'entretiens avec des informateurs clés

Trois (3) questionnaires semi-structurés/guides d'entretien (annexés) seront préparés et pilotés avec un gérant du programme et une paire éducatrice. Si des changements aux guides d'entretiens sont jugés nécessaires pendant ce processus, ils seront resoumis aux comités d'éthique pour approbation. Les intervieweurs seront les employés ou les consultants de Mesure Evaluation qui seront formés avant de se rendre sur le terrain. Les entretiens seront semi-structurés, ce qui permettra un style conversationnel et le sondage de questions clés en profondeur. Afin de faciliter la récapitulation et de réduire des biais, les informateurs clés (pas plus de 35) doivent être soigneusement sélectionnés. (USAID 1996) (Kumar 1989) Pour cette étude, seulement 16 seront interviewés.

Les 16 informateurs clés de cette évaluation seront les paires éducatrices (bénévolat), les « animatrices » (coordinatrices payées des paires éducatrices)[9entretiens], les gérants de projet [4 entretiens], et les décideurs, planificateurs, ou financeurs de projets [3 entretiens] pour la prévention du VIH/SIDA et des IST pour les PS au Mali. Dans l'éventualité d'une agitation sociale ou insécurité rendant ces entretiens difficiles ou impossibles, il pourrait arriver qu'il soit nécessaire de réduire le nombre des entretiens et d'utiliser Skype, le téléphone, ou courrier électronique.

Après le recrutement (voir la section précédente), quand les intervieweurs et les informateurs clés se réunissent pour l'entretien, la première étape pour l'intervieweur sera de déterminer si l'informateur est mieux équipé pour y participer en anglais ou en français. (En général, seulement les animatrices et les paires éducatrices nigérianes parleront l'anglais.) Les paires éducatrices/animatrices seront remboursées 7.500 CFA (\$15) pour leur temps. Après une introduction à l'étude, l'intervieweur utilisera le guide d'entretien pour le type de participant (**voir les 3 questionnaires annexés**) pour établir que la personne est éligible pour y participer et accepte de le faire. Puis, l'individu sera invité à participer à l'étude. L'intervieweur va aussi obtenir le consentement éclairé verbal de chaque informateur clé en utilisant le formulaire de consentement éclairé (**annexé**). Le consentement éclairé inclura le permis d'enregistrer la session pour transcription et pour la prise de notes. Au cas où un individu serait d'accord pour participer à l'étude, mais ne veut pas que l'entretien soit enregistré, il lui sera demandé si 'il pourrait donner 20 minutes de plus pour les notes plus extensives. Il sera demandé aux informateurs clés de ne pas mentionner leurs noms ou les noms des individus et organisations afin de protéger leur confidentialité. L'objet des entretiens est d'acquérir information générale concernant la programmation plutôt que l'information spécifique aux organisations ou aux individus. Un code sera utilisé pour lier les notes avec les enregistrements et de recorder le type d'entretien (paire éducatrice/animatrice/gérant de programme et décideur/financeur.)

L'entretien durera 90 minutes et se déroulera dans un bureau privé et silencieux où le participant ne se sentira ni pressé ni jugé par son superviseur. En général, les entretiens auront lieu au bureau de Measure Evaluation ou une autre localité déterminée ensemble par l'informateur clé et l'intervieweur. Les sessions seront enregistrées, et le preneur de notes formulera des questions pour aider l'intervieweur à sonder plus profondément pour les informations clés. Après l'entretien, l'intervieweur et le preneur de notes discuteront leurs interprétations de l'entretien. L'intervieweur et le preneur de notes travailleront ensemble pour transcrire les enregistrements et les notes en anglais ou en français, selon la langue de l'entretien.

Ces procédures seront suivies pour les trois types d'informateurs clés (paire éducatrice/animateuse, gérant de programme et décideur/financeur.) Trois guides d'entretien différents seront utilisés afin d'obtenir l'information de chacun des deux types de participant. (Voir annexe pour les guides.)

Collection de données: procédures

- **Déterminer si la personne est éligible**

Si éligible →

- **Lire le formulaire de consentement éclairé**

Si elle veut
participer →

Consentement
éclairé oral
donné →

- **Conduire entretien avec l'informateur clé suivant le questionnaire**

Lorsque l'entretien
est terminé →

- **Remercier le participant et remettre motivation (7,500 CFA)**

E. Médicaments ou dispositifs de l'étude (N/A) Aucun, non-applicable.

VI. GESTION ET ANALYSE DES DONNEES

A. Section 1: Analyse secondaire des données ISBS

L'objectif de l'analyse des ISBS est de prouver la fausseté de l'hypothèse nulle que les connaissances, les attitudes, et les comportements en matière de VIH et des ISTs et leur prévalence (conséquences/ aboutissements) ne sont pas améliorées au fil du temps des 4 bases de données en contrôlant statistiquement par des facteurs qui peuvent confondre ou influencer les résultats en incluant l'exposition au programmes. La prévalence du VIH et

des ISTs et l'utilisation de préservatifs seront parmi les conséquences/aboutissements du programme analysés. Le cadre suivant montre les taux bruts de prévalence du VIH, blennorragie, et chlamydie dans les 4 ISBS ainsi que certains autres facteurs.

Cadre II. ISBS-Mali, Changements en prévalence brute du VIH et d'autres facteurs parmi PS				
	2000	2003	2006	2009
Prévalence brute du VIH	28,9%	31,9%	35,5%	24,2%
Chlamydie	4,7	2,8	3,8	10,5%
Blennorragie	3,2%	3%	3,3%	11,5%
Age Moyen	26,8 ans	26,9 ans	27,9 ans	26,2 ans
% Malienne	36,5%	29,0%	36,3%	43,4%
% Nigériane	46,8%	49,9%	38,1%	32,9%
Années de scolarisation	5,4	6,9	6,6	6,5
Condom dernier sexe client	95,6%	94,2%	95,1%	98,8%
Condom dernier sexe copain	31,4%	36,3%	51,2%	40,1%

Le logiciel version SAS 9.1 sera utilisé pour l'analyse statistique. Les bases de données des quatre (4) ISBS sont entreposés en format de logiciels SPS et STATA. Les données seront converties en format SAS et fusionnées en une base de données pour faire les analyses, ajoutant l'année d'étude comme variable nouvelle. La première étape d'analyse sera uni variée : les variables d'intérêt seront recalculées pour chaque année et présentées en cadres pour confirmer les rapports déjà publiés de chaque ISBS.

Puis, la deuxième étape sera la comparaison bi variée, qui montrera si les conséquences/aboutissements dans la base de données sont en corrélation statistique avec certaines variables explicatives. En utilisant la base de données fusionnée, les tableaux de contingence seront créés avec les variables d'aboutissement (variable dépendante/de réponse), comme la prévalence du VIH/ISTs, la connaissance du VIH et l'utilisation de préservatif. Les variables indépendantes testées incluront la nationalité, l'exposition aux programmes, l'âge, l'état civil, l'année, la scolarisation et la ville. Ces variables sont déjà en forme catégorique ou ordinale, ou elles seront mises en forme catégorique au cas où elles seraient discrètes/continues. Le test chi-carré sera conduit à $\alpha=0,05\%$ pour examiner si les différences entre les groupes sont significatives statistiquement. Il va falloir qu'aucune cellule du tableau n'ait moins de 5 observations afin que le test chi-carré soit valide. Comme la base de données combinée sera très grande, il est probable qu'aucune cellule du tableau n'aura moins de 5 exemplaires, alors la statistique chi-carré devrait être valide, sans besoin d'une correction de Yates. Dans certains cas, il pourrait être nécessaire de combiner certains groupes avec petits nombres. Pour les analyses avec les variables indépendantes continues, les moyens seront comparés en utilisant le t-test ou ANOVA.

La troisième étape sera de diviser les tableaux par stratum pour démontrer les aboutissements dans chaque sous-ensemble au fil de quatre (4) points en temps. Etant donné que la proportion des nationalités (Maliennes, Nigériennes, et autres) est différente dans chaque ISBS, cette analyse de sous-groupes démontrera probablement les différences significatives. En plus, les conséquences/ aboutissements (variables dépendantes /de résultat) seront séparés par groupes d'âge et la durée de temps étant en prostitution, pendant les quatre années d'étude ISBS car la composition de chacune des quatre bases de données ISBS apparaît d'être plutôt différente en terme de ces facteurs. Cela sera accompli en créant les tableaux de contingence par année, variable dépendante/aboutissement et une troisième variable indépendante (comme nationalité, âge et durée de temps en prostitution). Le test chi-carré sera conduit à $\alpha=0,05\%$ pour examiner si les différences entre les groupes sont significatives statistiquement. Cadre III (suivant) est un exemple d'un tableau de contingence qui sera calculé. Il va falloir qu'aucune cellule du tableau n'ait moins de 5 observations afin que le test chi-carré soit valide. Alors, la taille d'échantillon minimum sera de 120 au total, avec au moins 30 observations en chaque année. Comme la base de données fusionnée sera très grande, il est probable qu'aucune cellule du tableau n'aura moins de 5 exemplaires, alors la statistique chi-carré devrait être valide, sans besoin d'une correction de Yates. Dans certains cas, il pourrait être nécessaire de combiner des groupes avec petits nombres. (Par exemple, à propos de nationalité, petits groupes comme PS Sénégalaises et Ghanéennes seront combinés dans la catégorie « autre »). Pour les analyses avec les variables indépendantes continuées, les moyens seront comparés en utilisant ANOVA.

Cadre III. Analyse clé: Prévalence du VIH par année et par nationalité								
	2000		2003		2006		2009	
	VIH+	VIH-	VIH+	VIH-	VIH+	VIH-	VIH+	VIH-
Maliennne	≥5	≥5	≥5	≥5	≥5	≥5	≥5	≥5
Nigérienne	≥5	≥5	≥5	≥5	≥5	≥5	≥5	≥5
Autre	≥5	≥5	≥5	≥5	≥5	≥5	≥5	≥5

L'étape finale sera les analyses multi variées. La régression logistique sera utilisée pour prédire la probabilité d'une variable dépendante étant donné un groupe des variables indépendantes/prédicatrices. En plus, la régression logistique quantifie l'association statistique entre une variable prédictive et un aboutissement en contrôlant pour les autres variables qui pourraient confondre l'association statistique. Puisque les aboutissements d'intérêt sont tous catégoriques (comme prévalence du VIH), la régression logistique sera utilisée pour quantifier l'association des variables indépendantes qui seront incluses dans un modèle logit. Comme les données ont été collectées par grappe (les maisons closes et bars), il sera nécessaire d'inclure la grappe dans le modèle pour ajuster la matrice de corrélation dans chaque grappe.

Cadres IV et V (suivants) donnent les variables indépendantes/explicatives et les variables dépendantes/aboutissements qui seront analysées pour déterminer si les variables indépendantes expliquent ou confondent les variables dépendantes. Le

questionnaire en 2000 a contenu moins de questions que ceux de 2003 et 2006 qui ont contenu moins de questions que le celui de 2009. Les cadres donnent le numéro de question en chaque questionnaire ainsi que le code utilisé pour les données dans chaque base de données. Dans certains cas, les variables dépendantes/aboutissements seront analysées aussi comme variables indépendantes. Par exemple, les variables concernant l'utilisation de préservatif seront analysées pour examiner si elles sont corrélées avec prévalence du VIH. Pour les analyses bi variées, les variables dépendantes sont toutes déjà nominales/catégoriques (comme connaissance du VIH, la question 603 en 2003, 2006 et 2009 qui identifie les méthodes correctes et réjection de méthodes incorrectes.) Les variables indépendantes sont continuées (comme âge) ou catégoriques (comme nationalité). Dans les tableaux de contingence, les variables continuées (comme âge et années de scolarisation) seront converties en catégories. Certains petits groupes seront combinés. Pour les analyses avec les variables indépendantes continuées, les moyens seront comparés aussi en utilisant le t-test ou ANOVA pour tester la signifiante statistique.

*****Verez tables 4.3 et 4.4 pour IV et V*****

B. Section 2: Analyse des entretiens avec des informateurs clés

La taille d'un échantillon n'est pas fixée en recherche qualitative ; l'investigateur (et l'utilisateur d'information) devrait déterminer si le nombre de sujets inclus est suffisant pour être crédible. De surcroît, les échantillons ne sont pas aléatoires, mais bien réfléchis. Des individus avec une information importante seront cherchés spécifiquement. (Hoepfl 1997) Dans ce cas précis, 16 informateurs clés suffiront pour compléter l'information concernant les stratégies de programmes, la conception, et l'exécution glanée du bilan des documents.

Pendant cette évaluation, les transcriptions des entretiens (avec toute l'information d'identification personnelle enlevée) seront analysées par au moins deux investigateurs et seront disponibles pour vérification. Une autre clé pour assurer la qualité d'une évaluation est la triangulation des méthodes multiples et des sources de données multiples qui a pour but d'assurer l'inclusion et l'examen de points de vue variés. Pour cette évaluation, trois sources de données seront incluses : un bilan des documents, les entretiens avec des informateurs clés, et l'analyse quantitative des données d'ISBS. Les outils développés pour le bilan des documents et les entretiens avec des informateurs clés seront ouverts et flexibles pour éviter que les résultats soient trop simplistes. Enfin, il est de la plus grande importance pour la validité que les données contredisant les résultats généraux (rapports de la minorité) soient présentées et traitées. (Golafshani 2003) (Tracy 2010)

Le bilan des documents sera conduit premièrement, mais il sera donné l'occasion aux informateurs de fournir des documents supplémentaires pour inclure dans l'analyse. Si

l'évidence documentaire est corroborant avec les autres sources, les conclusions finales de l'évaluation seront renforcées. Si elle ne l'est pas, il sera nécessaire d'investiguer plus profondément. (Bowen 2009)

L'analyse de données qualitatives sera menée par Mr. Trout et Dr. Messersmith avec l'assistance de Measure Evaluation. Les transcriptions d'entretiens et les notes dactylographiées (avec toute l'information d'identification personnelle enlevée) resteront dans la langue originale : en français ou en anglais, en fonction de la langue d'informateur clé. Les notes de terrain en français ne seront pas traduites en anglais. L'analyse sera faite dans la langue du document. L'équipe lira les notes de terrain et les transcriptions plusieurs fois pour commencer l'analyse pour les entretiens avec des informateurs clés. Le logiciel NIVIO sera utilisé pour analyser et coder les entretiens avec les informateurs clés. Le codage ne commencera pas avant que tous les entretiens ne soient terminés. Les codes initiaux aborderont les six sous-questions de la Question de Recherche 2. Pourtant, il sera possible que de nouveaux thèmes sortent. Ces nouveaux thèmes pourraient être révélateurs et nécessiteront le codage. Il est important que le type de participant et le contexte soient identifiés. Comme les entretiens seront anonymes et qu'aucune information d'identification personnelle ne sera collectée, cela ne sera pas par nom mais par les trois types d'informateurs clés (paire éducatrice/animatrice, gérant de programme et décideur/financeur.) Les citations exactes seront rapportées le plus fréquemment possible pour assurer que la voix de chaque informateur clé soit exprimée dans le rapport de recherche. La prochaine phase d'analyse sera le « codage axial » dans lequel « les catégories discrètes identifiées pendant le codage ouvert seront comparées et combinées en des manières nouvelles pour assembler la vue d'ensemble. » (Hoepfl 1997) (p.55) Le logiciel NIVIO sera utilisé pour grouper et organiser les notes et citations exactes par code. Les évènements causals et les détails descriptifs par rapport à la mise en œuvre de programmes de prévention du VIH pour les professionnelles du sexe et leurs ramifications seront explorés et analysés. L'étape finale sera de créer un scénario qui sera lu dans le rapport. Des tableaux de fréquence seront utilisés si possible pour présenter la force d'opinions et points de vue. [Voir (Hoepfl 1997) et (Kumar 1989)]

VII. CONSIDERATIONS RELATIVES AU SUJETS HUMAINS

Pendant les entretiens, l'équipe demandera aux informateurs clés de parler sur les éléments de leur travail dans le but d'amélioration de qualité, pas de leurs comportements. Comme cette étude ne fait pas de Recherche avec Sujets Humains, elle est exempte d'une revue complète des comités d'éthique.

A. Risques ou inconforts

Les risques potentiels aux sujets humains liés à cette évaluation sont très bas. Il n'y a aucun risque relatif aux analyses secondaires, au bilan des documents à l'analyse des données de l'ISBS. Comme les entretiens avec des informateurs clés seront faits avec les

décideurs et gérants de programmes, il pourrait y avoir un risque de compromettre leurs emplois, leurs relations professionnelles ou leurs carrières au cas où l'information sensible partagée de façon confidentielle serait révélée. Comme c'est le cas de toutes les évaluations, les personnes chargées de la mise en œuvre des programmes, les fonctionnaires du gouvernement et les employés de l'USAID pourraient se sentir vulnérables aux critiques. En plus, ils ne pourraient pas se sentir à l'aise d'y participer et ils ne pourraient pas avoir le temps de le faire. Les PS animatrices et paires éducatrices pourraient se sentir loyales aux ONGs avec lesquelles elles travaillent et puis elles ne voudraient pas divulguer l'information de nature potentiellement négative. Le temps qu'elles donneraient pour participer à l'étude pourrait être cher pour elles.

B. Bénéfices

Les participants à cette étude seront remboursés 7,500 CFA (\$15) pour leur transport et leur temps. En plus, le but de cette évaluation est d'améliorer la programmation pour la prévention du VIH pour les PS, leurs partenaires intimes et leurs clients qui auraient un effet positif dans leur vie et celle des Maliens parmi la population générale en évitant l'infection. Pour les organisations impliquées dans la mise en œuvre, l'évaluation est une occasion de mettre en valeur leur succès et d'identifier des défis qui pourraient être adressés par la programmation future. Elle est aussi l'occasion d'exprimer les difficultés qui pourraient avoir leur origine dans les processus de l'USAID, permettant à l'USAID de s'améliorer. L'évaluation sera partagée avec le Gouvernement du Mali, l'USAID et les CDC, et la communauté affectée qui pourrait aider à responsabiliser des individus à mieux designer et gérer la programmation.

C. Suivi de la protection de sujets humains

Cette étude sera supervisée par trois [3] comités d'éthique :

1. L'Université de Boston, Faculté de Médecine
2. Measure Evaluation (Seulement pour les entretiens avec des informateurs clés)
3. Faculté de Médecine, Pharmacie et Odonto Stomatologie du Mali

Le statut d'exemption sollicité pour cette étude (en raison de ses objectifs d'amélioration de qualité, le manque de recherche de sujets humains, et le manque des essais biologiques, médicaux, ou comportementaux) signifie que la probabilité des effets défavorables est très peu plausible. Toutefois, Mr. Trout et Prof. Messersmith rapporteront aux comités éthique si nécessaire.

D. Confidentialité

La protection des participants humains (les informateurs clés et les PS qui ont participé aux ISBS) est une priorité. Le protocole d'étude sera passé en revue et approuvé par les Comités d'Ethique de la Faculté de Médecine à l'Université de Boston, Measure

Evauation (pour les entretiens), et la Faculté de Médecine, Pharmacie et Stomato-Odontologie du Mali. Les données collectées seront seulement pour les objets d'évaluation et l'amélioration de la qualité. L'évaluation inclura des données qualitatives primaires des gérants de projets, des fonctionnaires gouvernementaux, et des parties prenantes du gouvernement américain. L'étude inclura aussi une analyse secondaire des données des ISBS collectées auprès des PS comme la prévalence, l'information démographique, et les connaissances, les attitudes et les comportements en matière de VIH. Ces données ont été collectées en anonymat complet. Aucune information d'identification personnelle n'a été ramassée de ces individus. Les comités d'éthique des CDC et de l'INRSP ont approuvé et ont suivi les ISBS en 2000, 2003, 2006 et 2009.

Le risque le plus important pour les informateurs clés sera la violation de la confidentialité. Ainsi, toute précaution sera prise pour empêcher ce risque potentiel. Les entretiens avec des informateurs clés seront entièrement volontaires, confidentiels, et anonymes. Tous les membres d'équipe, incluant les intervieweurs, recevront une formation concernant la confidentialité et anonymat. Aucune information d'identification personnelle ne sera collectée pendant les entretiens avec des informateurs clés. Les données en forme de feuilles de notes et de cassettes seront entreposées dans un classeur métallique, verrouillé, sûr au bureau de Measure Evaluation pour une durée de cinq [5] ans au plus. Les informateurs clés seront identifiés seulement par leur type (paire éducatrice/animatrice, gérant de programme et décideur/financeur.) Les données en forme numérique (notes d'entretien et transcriptions avec toute information d'identification personnelle enlevée) seront entreposées dans les ordinateurs protégés par mot de passe. Les entretiens seront conduits dans des espaces neutres et privés. Enfin, le but de cette évaluation est de juger l'efficacité de la stratégie et le programme dans son ensemble pendant la période de son déroulement. Cette stratégie a impliqué beaucoup d'intervenants et d'organisations. L'objet n'est pas d'évaluer ni les individus ni leurs organisations. Un nombre suffisant d'entretiens sera conduit afin que l'anonymat soit protégé pendant l'étape d'analyse de données. Les entretiens dureront au maximum 90 minutes. L'USAID aidera avec l'analyse des entretiens transcrits qui auront été lavés de toute information d'identification personnelle.

ANNEX 9. AUTHORIZATION FROM MINISTRY OF HEALTH TO USE ISBS DATA

MINISTRE DE LA SANTE

SECRETARIAT GENERAL

CELLULE DE COORDINATION DU COMITE
SECTORIEL DE LUTTE CONTRE LE VIH/SIDA



REPUBLIQUE DU MALI
Un Peuple - Un But - Une Foi

Bamako, le 09 NOV 2011

**AUTORISATION D'EXPLOITATION
DES DONNEES DE L'ETUDE ISBS**

Je soussigné Docteur Aliou SYLLA, Coordonnateur de la Cellule du Comité Sectoriel de lutte contre le VIH/SIDA du Ministère de la Santé, autorise Monsieur Clint Trout, STA (Senior Technical Advisor(II) à l'USAID/Mali, a exploité les résultats de l'étude intégrée sur la prévalence des IST/VIH et les comportements sexuels (ISBS) (éditions 2000 ; 2003 ; 2006 ; 2009), pour la rédaction de sa thèse.

En foi de quoi, je lui délivre la présente autorisation pour servir et valoir ce que de droit.

LE COORDONNATEUR

DR ALIOU SYLLA
OFFICIER DE L'ORDRE NATIONAL



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CURRICULUM VITAE

