

Research Agenda for People at High Risk for HIV in Ghana

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Abbreviations and Acronyms

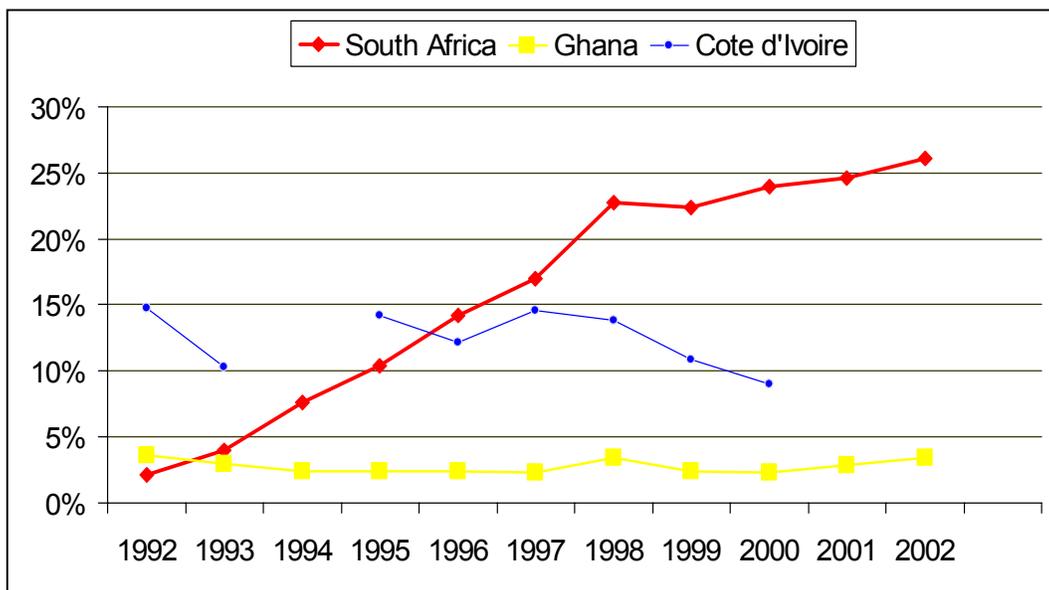
AIDS	acquired immunodeficiency syndrome
ANC	antenatal care
BSS	Behavioral Surveillance Survey
CHAG	Christian Health Association of Ghana
CSW	commercial sex workers
DfID	Department for International Development
FHI	Family Health International
GSMF	Ghana Social Marketing Foundation
HDA	Health and Development Africa
HIV	human immunodeficiency virus
HPNO	Health, Population, and Nutrition Officer
NACP	National AIDS Control Programme
NPO	national program officer
PLACE	Priorities for Local AIDS Control Efforts
ProTEST	<i>Promoting Testing</i> of HIV through Voluntary Counseling and Testing
STI	sexually transmitted infection
TB	tuberculosis
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children’s Fund
UNFPA	United Nations Fund for Population Activities
USAID	United States Agency for International Development
WAPCAS	West African Program to Combat AIDS and STI
WHO	World Health Organization

1. Background

The HIV epidemic in Ghana to date has shown a different pattern from those in many other countries in sub-Saharan Africa. National levels of HIV infection are estimated to have risen more slowly than elsewhere, from around 2.4 percent in 1994 to around 3.4 percent in 2002.

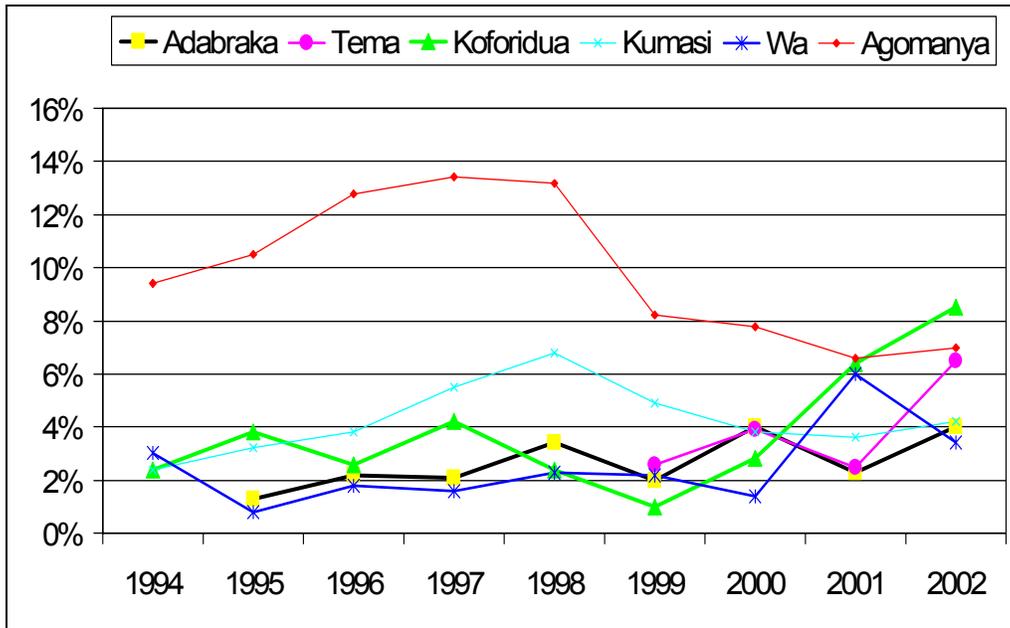
It is increasingly recognized that national-level trends may well mask important concentrations of HIV infection in vulnerable populations. This revelation is borne out by the trends in HIV infection observed at antenatal sites, which for some sites seem to be following a gradient similar to those seen in countries farther South that have more advanced epidemics. Figure 1 compares trends in HIV infection estimated for selected antenatal sites in Ghana with national-level trends in South Africa and Côte d'Ivoire.

Figure 1: HIV Prevalence Among Antenatal Clinic Attendees in Ghana, South Africa, and Côte d'Ivoire



Sources: Ghana Health Services 2003; National HIV and Syphilis Surveillance Antenatal Seroprevalence Report, 2002 (South Africa); and UNAIDS Data Sheet (Cote d'Ivoire)

Figure 2: Trends in HIV Prevalence at Selected Sites in Ghana



Source: Ghana Health Services 2003

There are many reasons HIV could spread rapidly in Ghana. Increasing urbanization, increasing migration and travel, civil unrest and political dissension, youthful populations, a culturally sanctioned low status of women, and a low literacy rate characterize Ghana, as they do much of West Africa. These conditions could favor transmission of HIV and sexually transmitted infections (STIs) in general and high-risk behavior in particular. Although adult HIV prevalence in West Africa has generally remained under 5 percent, prevalence in the three countries surrounding Ghana (Côte d’Ivoire, Burkina Faso, and Togo) has exceeded 5 percent (Buve, Bishikwabo-Nsarhaza, and Mutangadura 2002). The hardest hit countries in the subregion include Cameroon, with an HIV prevalence of 11.8 percent, the Central African Republic (12.9 percent), and Nigeria (5.8 percent) (UNAIDS and WHO 2002). The sharp rise in HIV prevalence among pregnant women in Cameroon between 1998 and 2000 (which more than doubled in some age groups) shows how suddenly the epidemic can surge.

To date, not much information is available on HIV infection in Ghana among groups other than antenatal care (ANC) attendees. Information available for commercial sex workers (CSWs), however, illustrates high levels of HIV and STI prevalence among that subpopulation (AIDS 3/WAPCAS 2003). Other groups may be susceptible to HIV infection, but currently few data exist about such groups. A greater understanding of the HIV-susceptibility and vulnerability profiles of these groups is required to design appropriate and targeted interventions to combat HIV/STI. For example, a study of factors associated with HIV infection among female sex workers in Burkina Faso revealed a prevalence of 58 percent (Lankoandé, Meda, Sangaré, et al. 1998). Lack of knowledge about HIV and lack of effective measures for STI detection and control were major problems for this population. Interventions proposed were AIDS education and support for adopting safer sexual practices, and screening and management of STIs among

female sex workers. In particular, the study recommended reducing the costs of STI screening tests for commercial sex workers.

2. Purpose of Report

The purpose of this report is to assist in developing an approach to identify high-risk groups in Ghana. The report proposes an approach toward systematic collection of information on risk behavior and HIV prevalence among potential high-risk target groups.

The reasons for further research of these groups include enabling more precise targeting and design of interventions and resources, tracking the effects of national-level interventions, and providing information on trends and early warning signs for a more generalized epidemic that may require more specific attention.

The primary objectives are:

- To identify potential high-risk groups for HIV infection in Ghana
- To perform a rapid appraisal of the data available on these groups, and to identify data gaps
- To develop a set of research activities to fill these gaps
- To consult with stakeholders to develop a common understanding on high-risk groups in Ghana

3. Methods

The methods of data collection included:

- Key informant interviews
- A limited review of secondary data
- A stakeholders workshop

This activity was a rapid appraisal in which data were sought from interviews with key informants. An exhaustive review of all available literature on high-risk groups in Ghana was not intended.

4. Developing an Approach to Identify High-Risk Groups in Ghana

4.1. Definition of High-Risk Groups

How do we define high-risk groups for the purpose of interventions?

Identifiable groups are those that:

- Practice high-risk sexual behavior or have known higher HIV prevalence than the general population
- Are susceptible due to socioeconomic position in society, or to known or presumed factors that might predispose to them HIV infection (e.g., travel away from home)
- Are reachable in terms of both interventions and research
- Have potential for cost-effective interventions

4.2. Categorizing High-Risk Groups

Three main categories of populations were identified from the information available on HIV and risk behavior in Ghana. This categorization may assist in developing a research approach to the three groups.

- Group 1: Subpopulations that are known from biological testing to have high levels of HIV. These vulnerable population groups include commercial sex workers and antenatal care attendees at specific sites where prevalence far exceeds that in the rest of the country.
- Group 2: Subpopulations with known or highly suspected high-risk behavior, but with unknown HIV prevalence.
- Group 3: Subpopulations that are thought to be vulnerable to HIV infection because of social circumstances, but for which there are limited data on sexual behavior and no HIV-prevalence data.

Available data from Ghana are reviewed below for each of these categories. Based on the review and the purpose of data collection, a research approach to each group is discussed in the following section.

4.3. Summary of Available Information

4.3.1. Group 1: Known High HIV Prevalence

As is the case in many countries, most data on the HIV epidemic in Ghana are derived from routine sentinel site surveys of HIV among women attending public sector antenatal clinics. Information is also available on HIV infection among commercial sex workers and STI clinic attendees in Ghana.

4.3.1.1. Specific Antenatal Sites and Regions

- Within the antenatal data on HIV among women attending public sector antenatal services, certain regions and sites show higher overall prevalence.
 - o Koforidua and Tema (2002: 8.5 percent and 6.5 percent, respectively) seem to merit a special focus owing to relatively rapid increases in prevalence in recent years; Agomanya (7 percent) has shown fluctuating rates.
 - o Some of the variability at individual sites year after year may be based on sampling, but trends over many years are likely to be indicative.

- Generally, information on HIV prevalence in rural areas is lacking. In 2002, there was only one rural antenatal clinic out of the total 26 sites; rural coverage by the surveillance system is currently being strengthened through the addition of rural sites.
- Other sociodemographic factors, such as migration history (i.e., where these women are from originally, if not from the local area) and occupational group, are not currently documented.

4.3.1.2. Select Commercial Sex Worker Populations and Their Clients

- HIV prevalence among commercial sex workers was estimated in 1997/1998 at 74 percent among 496 “seater” sex workers, and 26 percent among 507 “roamer” sex workers in Accra. A repeat study in 1999 found a prevalence of 77 percent among 391 seaters and 23 percent among 240 roamers. In 1999, 282 sex workers in Kumasi had a prevalence of 82 percent (UNAIDS, UNICEF, and WHO 2002).
- The 2002 data show an HIV prevalence of 23 percent among 300 roamers in Accra, and 54 percent among 149 seaters and 16 percent among 148 roamers in Kumasi (AIDS 3/WAPCAS 2003).
- Data on HIV prevalence among clients of sex workers are limited, but a survey conducted in Accra in 2001 indicated an HIV prevalence of 16 percent among clients of seaters and 5 percent among clients of roamers (AIDS 3/WAPCAS 2003).

The high levels of HIV among commercial sex workers are alarming, but so far, there is little evidence of the epidemic’s having spread widely among clients and their partners in the general population. This may be partially based on high levels of condom use among clients of sex workers. In 2001, a survey showed that 90 percent of the clients of roamers and seaters used condoms during the last transactional intercourse (AIDS 3/WAPCAS 2003). In 2002, this rate was 96 percent among client of seaters. Although investigators believe these estimates to be robust, the reliability of condom use by commercial sex workers and their clients is difficult to assess at behavioral surveillance survey sites. In one assessment, the low number of commercial sex workers who claimed that they used condoms or initiated condom use were unable to produce a condom during interview.

Condom use seems to be gaining popularity among commercial sex workers in other parts of Ghana. In a 1998 survey of the mining town of Obuasi, 74 percent of the commercial sex workers indicated that their clients used condoms (Anarfi and Kannae 2000).

4.3.1.3. Select STI Clinic Attendee Populations

- HIV prevalence among attendees at an STI clinic in Accra rose from 2.1 percent in 1988 to 8.6 percent in 1991, after which data were no longer available for that site.
- The most recent available data show an HIV prevalence of 27 percent (1998) and 39 percent (1999) among female STI clinic attendees in Accra and a prevalence of 6.3 percent (1998) in Kumasi (UNAIDS, UNICEF, and WHO 2002).

4.3.1.4. Patients with Tuberculosis

Out of 12,352 new tuberculosis (TB) cases reported in 1999, an estimated 2,500 cases (20 percent) could have been related to HIV (NACP 2000). The continued use of the HT drug regimen (isoniazid and thiacetazone) in Ghana in an era of HIV is a source of worry. HIV screening of TB patients is only done for those who do not respond adequately to treatment. In one study, HIV prevalence among 634 TB patients was 23 percent at the Komfo Anokye Teaching Hospital (Frimpong, Lawn, Antwi, et al. 1997). In the same hospital six years earlier, 15 percent of TB patients were HIV positive (Ankrah, Roberts, and Antwi 1994).

Because sub-Saharan Africa accounts for 70 percent of all tuberculosis and HIV coinfections and the incidence of HIV-related tuberculosis in many countries has been increasing, the World Health Organization (WHO) has launched a new initiative in sub-Saharan Africa called Promoting Testing of HIV through Voluntary Counseling and Testing (ProTEST). This initiative is a platform to integrate HIV and tuberculosis interventions and to reduce the burden of HIV-related tuberculosis (Godfrey-Fausett, Maher, Mukadi, et al. 2002). The initiative has not been mainstreamed into HIV or tuberculosis control in Ghana.

4.3.1.5. Concluding Remarks about Group 1

For these groups with known high HIV prevalence, information is limited or nonexistent on the factors that put infected people and groups at higher risk, on the sociodemographic characteristics of people newly infected, and on their sexual networking with potential bridging populations.

4.3.2. Group 2: Known or Suspected to Practice High-Risk Behavior, Unknown HIV Prevalence

Information is available on the sexual behavior of various population groups in Ghana, primarily youth, miners, commercial drivers, and uniformed service personnel. Information is limited, however, on the sexual behavior of other groups, such as teachers and apprentices.

Tables 1a and 1b present findings for youth and occupational categories, respectively, on illustrative key indicators of multiple partners, condom use, STI symptoms, and teenage pregnancy.

4.3.2.1. Surveys Among Youth

- Six surveys of high-risk behavior among Ghanaian youth (Table 1a) were identified. Two surveys were national samples, two were household-based surveys in selected urban areas, and two were school-based surveys; one of the school-based surveys included data collection on out-of-school youth.
- Period of data collection varied; data collection took place between 1997 and 2000.

- The ages of youth surveyed included 12–24 years old, although different studies used different age cutoffs for inclusion and different forms of age disaggregation in the presentation of findings.
- Information elicited from respondents about multiple partners varied by time cutoff in the definition, which made comparisons between studies difficult. Some studies asked about multiple partnerships in the past three months (2 studies), in the past 30 days (1 study), lifetime partnerships (1 study), and no time specified (1 study) (see Table 1a).
 - o Despite discrepancies in definitions, it generally seemed that greater proportions of urban compared with rural respondents reported having more than one partner.
 - o In general, male youth were more likely to report having more than one partner than female youth (10 percent to 11 percent vs. 3 percent in national samples).
- Information elicited on condom use also varied, ranging from “ever use” (2 studies), “use at last sexual intercourse” (2 studies), and “use with nonregular partner” (1 study) to “consistent use with current partner” (1 study).
 - o Overall, “ever use” of condoms seems fairly high, but “consistent use” seems fairly low.
- Measures of the presence of STIs among respondents varied from “ever had an STI” (with the specification of prompts, if these were used) to “not reported” to questions on various symptoms, such as discharges, ulcers, etc.
 - o There was a high level of reporting of genital discharge by females in most studies that asked about discharge (not shown), leading to concerns about the interpretation of the question by respondents. Self-reports of ulcers were less widely measured (1 study), and this study showed about 11 percent of males and 14 percent of females reporting ulcers.
- Teenage pregnancy was reported in three studies, ranging from 29 percent to 42 percent of sexually active females (15–24-year-olds) having ever been pregnant. Breakdown by age, however, was not presented.

In a national adolescent reproductive health survey undertaken in 1999 by the Ghana Health Service in five regions, 96 percent of the adolescents were aware of HIV/AIDS and 10 percent did not know any routes of transmission (Garshong, Abbey, Huijts, et al. 1999). Among the older adolescents, 24 percent reported having at least one sexual partner during the study period; 37 percent of older adolescents who were out of school reported having at least one partner. Overall, 16 percent of adolescents had had at least one sexual partner within the past year, and 5 percent had had sex with a new partner. Only about half of the latter reported using a condom with the new partner.

4.3.2.2. Surveys Among Other Occupational Categories

- Six surveys were identified that elicited information on sexual behavior for specific occupational categories in Ghana. These categories included miners (2 studies), police and uniformed service personnel (1 study), and commercial drivers (1 study); there was limited information on teachers (1 study) and apprentices (1 study, subgroup of a larger youth study) (Table 1b).
- Data were collected between 1997 and 2002.
- Information elicited from respondents about multiple partners was consistent across four studies. Definitions and interpretation of some questions (for example, “regular partner” vs. “nonregular

partner”) were not immediately obvious, and without documentation of prompts, if they were used, and reassurance that these were consistent across the studies, it is hard to interpret these data as presented.

- o Between 14 percent (teachers) and 44 percent (commercial drivers) of respondents indicated sex with one or more regular partners.
- o There were some reporting discrepancies between the 2000 Behavior Surveillance Survey (BSS) for Miners and the 2000 BSS data reported in the comparative document for miners, which included both 2000 and 2002 data (Table 1b). Data from both sources are presented in the Table 1b.
- o Overall, while apprentices were considerably more likely to be sexually active than their in-school peers, they were no more likely to report multiple partnerships than their in-school peers.
- Condom use varied from 50 percent to 66 percent with last nonregular partner; however, wide regional variability was noted and condom use was low among apprentices, with about 50 percent choosing “ever use” (“use at last sex” was not asked for this group).
- Measures of STIs were not consistent between teachers and the other groups combined, and they were not measured for apprentices. Where specific symptoms were prompted (not shown except for ulcers), there seemed to be an over-reporting of genital discharge among women.

4.3.2.3. Key Issues Relating to Available Data for Group 2

- The available data could not determine the extent to which youth are a high-risk group for HIV nor the categories of youth that may be most susceptible. Gaps include:
 - o Standardization of indicators, possibly with a particular focus on biological markers, such as STIs and teenage pregnancy
 - o Information on persons with whom sexually active youth are having unprotected sex, in order to fully assess likely HIV transmission to young people. Although there is evidence of high levels of unprotected sex among youth, there is limited information on their sexual partners and whether these relationships are likely to present an HIV risk to these young people now or in the future. In particular, there is a need to explore the issue of intergenerational sex among young people.
- Comparisons of risk behavior among various potential high-risk groups are difficult to interpret because of different data collection methods in some instances, inconsistently applied definitions, and sample methods that are not clearly described.
- Tracking national-level behavior change is currently not easily accomplished with the existing BSS of miners, police, and commercial drivers. Many of these groups are primarily part of an intervention program that is focused in particular regions or towns. Where these interventions are not scaled up nationally, the data will not provide information about risk behavior changes for subpopulations in the country as a whole, and thus will not inform understanding of the likely course of the epidemic in Ghana. Secondly, some BSS studies appear to have differing samples and lack clear descriptions of sampling methods to guide data interpretation.

- Limited information on teachers and apprentices suggests that these groups may be fruitful for further research, although targeting subpopulations within these fairly large and diverse groups is likely to be necessary.
- Many BSS studies have examined sexual behavior among different groups, but these studies so far have not been systematically linked to biological markers such as HIV prevalence or STI prevalence. Although the planned AIDS module within the Demographic and Health Survey in 2003 will address this issue for the population as a whole, sufficient numbers of participants in certain subpopulations and bridging populations may not understand the risk determinants. Plans to link biological and behavioral markers in future behavior surveillance surveys, with due regard for streamlined data collection and presentation, are likely to provide useful information on epidemic trends and drivers of the epidemic in Ghana.

Table 1a: Summary of Data on Sexual Behavior Among Groups in Ghana: Youth

	Youth ¹	Youth ²	Youth ³	Youth ⁴	Students ⁵	Students ⁶
Study population and date	National sample of 2,500 households: 3,107 males 12–24 years old; 2,533 females 12–24 years old; and 2,147 adults. 2000	Within high-density areas in Accra and Kumasi: males aged 20–24 years and females aged 18–22 years. N=2,550. 2000	National sample: N=3,739; unmarried 12–24 year olds. 1998	Three regional urban capitals: N = 704 never married 12–24 year olds; stratified by in school, in apprenticeship, and unaffiliated. 1997	Greater Accra, Volta and Eastern Regions: 15 schools; baseline survey in intervention setting. N=1625 students;? 2002	Dodowa, Greater Accra: N=398 and 12 focus groups; aged 15–24 years; stratified at JSS and SSS levels and out-of-school youth; 2001
No. sexual partners in past year	10% male and 3% female with >1 partner in previous 3 months	Not reported	11% male and 4% female with > 1 partner in previous 3 months	29% had more than 1 partner in previous 30 days; women less likely than men	Median 1–2 partners; Range 1–10	43% had >1 partner; 55% male and 26% female
Condom use at last sexual intercourse	71% male and 58% female had ever used a condom	84% male with CSW, and 53% male with nonregular partner; 42% female with nonregular partner	24% male and 20% female reported consistent condom use with current or last partner	50% ever use	40%	59%
STI symptoms in past year	20% sexually active males and 8% females reported having had an STI ⁷	Ulcers: 11% male; 14% female	Not reported	28% male and 8% female reported ever having had an STI	Not reported	22%, ⁸ time period not stated; (?) lifetime
Median age at sexual debut	17 years (mean only reported)	16–18 years (female); 17 years (male)	17 years for both male and female	Not reported	16 years (mean only reported)	Not reported
Teenage pregnancy	Of sexually active females, 42% had ever been pregnant; not age disaggregated	Not reported	Not reported	Of sexually active females, 35% had ever been pregnant; 87% unwanted; not age-disaggregated	Not reported	Of sexually active females, 29% ever pregnant; 19% had a child

¹ Ghana Social Marketing Foundations 2000.

² BSS 2000, FHI.

³ Mehryar, Magnani, Morgan, et al. 2003.

⁴ Glover, Bannerman, Wells Pence, et al. 2003.

⁵ Fayorsey 2003.

⁶ Afenyadu and Goparaju 2003.

⁷ Self report of STD, symptoms not described.

⁸ The nature of the STI symptoms is not described in the report.

Table 1b: Summary of Data on Sexual Behavior Among Groups in Ghana: Occupational Categories

	Miners ⁹	Miners ¹⁰	Police ⁹	Commercial drivers ¹¹	Teachers ⁶	Apprentices ⁴
Study population; year	Obuasi: N=466; 2000	Obuasi: N is not reported; 2002	Accra: N=467; 2000	Greater Accra, Asafo, Techiman, Takoradi, Tamale: N=603 in transport hubs; 2000	Greater Accra, Volta and Eastern Regions; 15 schools: N=133 teachers; (?) 2002	3 regional urban capitals: apprentices N=300 never married 12–24 years; 1997
No. sexual partners in past year	25% had sex with nonregular partner in past 12 months; also cited as 33% ¹⁰	18% had sex with nonregular partner in past 12 months	29% had sex with nonregular partner in past 12 months	44% with one or more nonregular partners; 11% with >1; 9% with >1 regular partner ¹²	14% with >1 partner; time period not reported	% not reported, but more than reported for in-school youth controlling for age
Condom use at last sex	51% condom use with last nonregular sex; also cited as 64% ¹⁰	66% condom use with last nonregular sex	61% condom use with last non-regular sex	20% with regular partners; 64% with nonregular; 78% with commercial; wide regional variability	50%	Ever use at approximately 50%
STI symptoms in past year	8% ulcers; also cited as 11% ¹⁰ ; 9% urethral discharge; cited as 13% ¹⁰	3% ulcers 6% discharge	4% ulcers; 6% urethral discharge	4% ulcers 10% discharge	48% of young teachers reported any symptoms, unspecified	Not measured
Teen preg. or impreg. a teen	Not reported	Not reported	Not reported	Not reported	Not reported	45% ever been pregnant

⁹ Behavioural Surveillance Survey 2000.

¹⁰ Male Miners in Obuasi, Comparative Analysis Ghana BSS 2000 and 2002. Undated document.

¹¹ Ghana Social Marketing Foundation 2000.

¹² Percentage that had more than one partner cannot be calculated from available data.

4.3.3. Group 3: Vulnerable to HIV Infection Because of Social Circumstances, But Limited Data on Sexual Behavior and No HIV-Prevalence Data

Anecdotal reports and a few studies suggest that some groups listed below may be in social circumstances that predispose them to multiple partners, early age of sexual debut, unprotected sex, and reliance on transactional sex, but there is insufficient data to support this suggestion definitively. Subpopulations that likely fall into this category include:

- Apprentices
 - This group includes, for example, youth in organized apprenticeship programs to learn skills of hairdressers, carpenters, masons, wayside mechanics, and dressmakers.
 - As these young people engaged in learning a trade are often without other sources of income, many, particularly young women, are reported to rely on sexual networking. These networks are usually two to three older male “helpers” who provide various material needs in exchange for sex.
 - Glover, Bannerman, Wells Pence, et al. (2003) found that apprenticed and unaffiliated youth were two to three times more likely to be sexually experienced than in-school youth, after adjusting for age. In this study, however, among sexually experienced youth only, apprentices were no more likely than other youth to report multiple partners.¹³
- Teachers and other civil servants
 - This is a large group in Ghana. Structural factors within the profession, such as frequent postings away from home areas and frequent transfers in response to service needs, are postulated to cause increased high-risk sexual behavior among teachers.
 - Information available on sexual behavior among teachers is limited.
- Funeral participants
 - Dynamics and practices at funerals are thought to pose risk due to anecdotal reports of increased unprotected sex around these occasions, and at festivals and christenings.
- National service personnel
 - New university graduates (approximately 6,000–8,000 per year) are posted across the country to perform one year of community service, which is postulated to lead to high-risk behavior.
- Market women and traders
 - The high mobility of many market women who move from town to town to sell, as well as their economic instability, is thought to position these women at high risk of unprotected sex and HIV.
 - Poor young women migrate to towns, where they work as porters in the markets. They often do not have a permanent place to sleep and are considered vulnerable because of their limited income.
- Refugees
 - In recent years, Ghana has experienced an influx of refugees fleeing conflict in neighboring states. Many of these countries, such as Côte d’Ivoire, have HIV prevalence substantially higher than that of Ghana.
 - There is no indication at this stage that the influx of refugees is associated with increased prevalence in Ghana; however, refugees are normally a vulnerable group that requires further research and intervention where necessary.
 - Factors that encourage the spread of HIV among refugees include (UNAIDS 1997):

¹³ This analysis does not examine females separately, but includes gender as a variable in the multivariate model.

- Vulnerability of displaced people to sexual abuse and violence
- Possibility that children, who may have little else to engage their interests and no one to look after them, may become sexually active earlier than they normally would
- Occurrence of transactional sex as a survival strategy for people who are cut off from their regular sources of income
- Displacement of rural populations to urban areas, where HIV prevalence is higher and where they engage in risky behavior because of their socioeconomic circumstances
- Higher than normal risk of transfusing unscreened blood
- o Techniques for the rapid assessment of STIs in refugee camps have been described (Mayaud, Msuya, Todd, et al. 1997). Such an assessment for STIs, including HIV, could have relevance for planning resource allocation, provide information on risk behavior in refugee populations, guide development of appropriate interventions, and provide baseline information for measuring the impact of an intervention to reduce STI/HIV transmission.
- University students
 - o Approximately 40,000 such students are across Ghana. Information on their risk behavior is limited, but they are a strategic group for HIV-prevention interventions.
- Other groups thought to be at risk
 - o Bar girls, taxi drivers, farmers, prisoners, orphans and vulnerable children, food sellers on the road, Trokosi victims, men who have sex with men, and injecting drug users.

In assessing HIV risk, the extent to which individuals in these subpopulations are having unprotected sex with HIV-infected partners is far more important than the extent of unprotected sex.

5. Suggested Approach to Research and Data Collection

This section outlines an approach based on information currently available for each group discussed. The suggested approach draws heavily on the interviews with key informants in Ghana listed in the acknowledgments.

The National AIDS Control Programme (NACP), with support from WHO, published Guidelines for Second Generation Surveillance in Ghana. The National HIV/AIDS and STI Policy stipulates that behavioral surveillance shall be conducted periodically among various target groups to monitor the impacts of various interventions in order to inform appropriate policy and program modifications. The National AIDS/STI Control Programme will be responsible for ensuring that a behavior surveillance survey is conducted among adults and young persons in the general population, particularly among those around sentinel sites. The Guidelines for Second Generation HIV/AIDS and STI Surveillance in Ghana will direct this process. The document provides guidelines for undertaking behavior surveillance survey among adults around sentinel sites, in-school youths, and female sex workers.

The research approach and activities included in this document are expected to complement to the surveillance activities conducted by the NACP and the Ghana AIDS Commission.

5.1. Approach to Group 1: Known High HIV Prevalence

- Confirm existing regional ANC data with data from other sources, i.e., blood transfusion service, AIDS cases, mortality, and Demographic and Health Services HIV data.
 - In Ghana, HIV prevalence among blood donors is likely to be informative. Comparisons with antenatal care by age and regional distribution will be important, and infection levels among males can be tracked over time.
- Ensure validity and reliability of antenatal and STI clinic data. Ongoing efforts to strengthen ANC surveillance remain critical.
- Use the ANC information available in existing data sets through further analyses related to age, occupation, and HIV among the 15–19 year-old age group.
- Routinely check for biases and confounders in ANC information, including national and regional trends in the proportion of pregnant women attending public sector services and any factors that may lead to systematic selection of high- or lower-risk women over time through, for example, increase of fees (potentially turning away more high-risk women) or increases in quality and user friendliness (increasing high-risk women).
- Study sexual networking among groups with known high HIV prevalence.

5.2. Approach to Group 2: Known or Suspected to Have High-Risk Behavior, Unknown HIV Prevalence

- Link sexual behavior with biological markers, such as HIV, STIs, hepatitis C, and teenage pregnancy. This linkage may be particularly important in Ghana because, due to fairly low levels of HIV in the general population, unprotected sex alone may not be a good predictor of HIV risk for subpopulations.
- Agree on a core set of behavioral indicators and tools. These indicators and tools exist in the national monitoring and evaluation framework. The value of the behavior surveillance survey will be enhanced if there is greater ability to compare across years and between samples.
- Periodically evaluate which groups qualify for behavioral surveillance.
- Ensure samples are comparable year to year and clarify methods and reporting of sampling and study populations. Without clear reporting on methods and appropriate data disaggregation, data interpretation is difficult.
- Consider combining data collection for some surveys, e.g., Family Health International and Ghana Social Marketing Foundation.
- Evaluate interventions separately from surveillance, or include clearly defined control groups and present data disaggregated by whether an intervention is underway in the group.

5.3. Approach to Group 3: Vulnerable to HIV Infection Because of Social Circumstances, But Limited Data on Sexual Behavior and No HIV-Prevalence Data

- Carry out *ad hoc* surveys to determine risk behavior and, possibly, HIV prevalence.
- Perform in-depth formative, qualitative research before the aforementioned surveys.
- Analyze existing mortality data (on teachers and other formal employment groups).
- Use the Priorities for Local AIDS Control Efforts (PLACE) methodology to identify at-risk groups. Align data collection methods and instruments.
 - o Types of indicators that could be routinely considered per PLACE site using standard indicators include: information on sexual networks; occupation; age; residence status and mobility; use of commercial sex workers; condom use; STI symptoms; number and sociodemographic characteristics of sexual partners; biological markers; and use of antenatal services.
- General approach to teachers include:
 - o Background: USAID has a particular interest in exploring whether teachers are at high risk for HIV, and to what extent they should be targeted for interventions. Teachers are a large group, the biggest employee group in Ghana. The group has a high strategic value in terms of achieving Ghana's development objectives. Information from other countries suggests that teachers may be at greater risk compared with other adults (Kelly 2000), but the evidence is patchy. In Ghana, the way that the service is structured may place teachers at risk, particularly as there is widespread posting of teachers away from their families. There are anecdotal reports of high-risk behavior among teachers and occurrence of teacher-student relationships, which is especially pronounced among national service personnel. Existing school-based studies in Ghana did not focus on sexual behavior among teachers, and limited data are available.
 - o Research Approach: Research into HIV risk among teachers may be intended to: (1) establish patterns of high-risk behavior to design an appropriate intervention; (2) use teachers as a sentinel population; (3) establish HIV prevalence to assist with education sector planning; (4) provide a baseline for intervention; and (5) advocate for HIV units to use.

It is important to clarify the purpose of the proposed research to ensure the most appropriate study design; suggested activities are provided in the work plan (section 5.5) tentatively addressing intentions (1) and (4) above.

5.4. General Issues

- It is not necessary to wait for perfect data before intervening.
- Training of field workers and on-site quality control of field surveys need extensive support when field workers are expected to collect information on sensitive topics.
- Perform monitoring and evaluation of interventions to consider the UNAIDS framework and to include appropriate indicators.

5.5. Suggested Activities and Work Plan

Activity	Intended output	Timing	Duration
Overarching and coordination activities			
1.1 Stakeholder workshop	Minimum standard sets of indicators Data presentation guidelines, including sampling and disaggregation Streamlined and coordinated data collection Agreement on analysis plan for demographic and health survey to ensure access to key data as early as feasible	As soon as possible	2–3 weeks, including 2 weeks set-up and 1–2 days of workshop
Analysis of routinely collected data sets			
2.1 Compile, review, and archive a list of research documents on HIV risk, including STIs, TB, etc.	Database of available literature on high-risk groups in Ghana.	Immediate	
2.2 Secondary analysis of antenatal-care survey data 1994–2002	Other demographic trends Reexamine national extrapolation model	Immediate	6 weeks, including sourcing of data and overview of potential biases
2.3 Secondary analysis of AIDS case data	Distribution of cases by: occupation; age trends	Immediate	6 weeks, including sourcing of data
2.4 Analysis of blood donor data	HIV prevalence by: region; age; gender; and occupation if available	Immediate	1 month, including sourcing of data
2.5 Analysis of mortality data (teachers and other civil servants)	Trends by: age; occupation	Immediate	2 months, including sourcing and data capture
2.6 Secondary analysis of PLACE baseline pilot data sets	Risk behavior by: occupation; region; age; gender	Immediate	1 month
2.7 Review of PLACE data collection instruments	Data collection instruments aligned with national surveillance strategy where appropriate	Immediate	1 month in conjunction with secondary analysis of data
Primary research			
3.1 Sexual networking studies with: clients of CSW; STI clinic attendees (Group 1)	Advanced understanding of sexual networks and behavior to further identify high-risk groups and bridging populations	Soon	6 months

<p>3.2 Review and streamlining of BSS and intervention evaluations (Group 2)</p>	<p>Possibly inclusion of biological markers, e.g., HIV, STIs, hepatitis C, and teenage pregnancy; ensure alignment with national strategy</p> <p>Design of evaluations to include control groups where appropriate or BSS independent of focused interventions in key groups</p> <p>Revision of BSS target groups in conjunction with 3.3 and 3.4 below</p>	<p>Soon</p>	<p>1 month</p>
<p>3.3 Formative research on potential high-risk groups (Group 3 in Approach):</p> <ul style="list-style-type: none"> • In-depth 1-to-1 interviews 	<p>Advanced understanding of sexual behavior and HIV risk</p> <p>Information to feed into design of quantitative studies (e.g., study population definition, stratification parameters, and questionnaire design)</p> <p>Definition of further or replacement groups for BSS surveillance</p>	<p>Soon</p>	<p>4 months</p>
<p>3.4 Questionnaire of sexual behavior among teachers; Possibly targeted subsample for follow up and measurement of biological markers</p>	<p>Identification of teacher risk overall</p> <p>Identification of high-risk groups within the teaching profession</p> <p>Input into design of interventions</p> <p>Baseline for interventions</p>	<p>Following formative research (i.e., phase 2)</p>	<p>6–9 months</p>
<p>3.5 Prevalence of HIV in TB patients</p>	<p>Baseline as part of interventions around voluntary counseling and testing, but also important to monitor trends</p>		

6. Conclusions

To our knowledge, this is the first attempt to systematically develop a holistic research agenda for people at high risk for HIV in Ghana. From the stakeholders meeting held on November 6, 2003, the consensus is that:

- The list of high-risk groups compiled is reasonable.
- The approach proposed to research groups at high risk for HIV groups is acceptable.
- Findings from studies on groups at high risk for HIV groups could guide targeted interventions to reduce HIV transmission in Ghana.
- There is some difficulty in prioritizing the groups or research gaps for urgent study.
- The identification of teachers as a high-risk group is somewhat controversial.
- There is the need to develop and standardize research methodology, and to train professionals in that methodology for high-risk groups, in particular, in eliciting sensitive information in sexual behavioral surveys.
- A multidisciplinary team of researchers is needed for most of the studies.
- Although USAID is the lead agency for funding studies related to high risk for HIV, other funding agencies were free to fund studies. Coordination of these studies is advised.
- Research activities, surveillance, and interventions related to groups at high risk for HIV have to be undertaken within the framework of the national strategic plans of the National AIDS Commission and the National AIDS Control Programme.
- Research priorities and activities defined under the second generation HIV surveillance that is currently being developed by the National AIDS Control Programme and development partners should not conflict with those outlined in this document.

In an attempt to guide the prioritization of research activities, we have proposed a set of criteria to be used in a scoring system. Appendix C presents the criteria, which include the plausibility of high HIV prevalence, population attributed to be at risk for HIV, feasibility, and cost-effectiveness.

USAID is expected to review the proposed research activities, finalize and prioritize them, and call for research proposals accordingly. It is important to expedite the process to sustain the interest of stakeholders in the exercise.

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Appendix A: Outcomes of the Stakeholders Workshop

A workshop was held at the M-PLAZA Hotel in Accra on November 6, 2003. The workshop's objective was to complete the process for developing an approach to identifying high-risk groups in Ghana by consulting stakeholders to develop a common understanding on high-risk groups and developing an agenda for research and targeting in Ghana. Appendix C lists the workshop participants.

Proceedings started at 9:30 a.m., chaired by Dr. Phyllis Antwi of Family Health International. Mrs. Ursula Nadolny welcomed participants and indicated the importance of the meeting to highlight the approaches to defining high-risk groups for targeting interventions.

Dr. Agnes Dzokoto gave background on defining high-risk groups in Ghana. She highlighted the objectives of the meeting and the importance of targeting to ensure cost-effective intervention in Ghana. She described the epidemic in Ghana and raised the issues of core transmitters, bridging population, and the general population.

Dr. William Bosu gave a presentation on defining an approach for research on high-risk groups in Ghana. He described different groups and how they are defined. He then highlighted some of the data available for the groups and raised issues for discussion.

Dr. Saul Johnson presented proposed research activities on high-risk groups. He highlighted the areas for research that could be undertaken in each group and in various subgroup populations. Some discussion centered on the following:

- Description of emerging epidemics
- Validation of results and its importance in the sexual behavior studies
- Issues of men who have sex with men
- Limitation of studies and how they are used in policy
- Issue of defining teachers as high-risk groups, especially considering the possible future stigmatization

The participants then broke into small groups and deliberated on the following topics:

- Who are the high-risk and vulnerable groups in Ghana?
- What are the researchable data gaps on these groups?
- What research activities should be prioritized?

The groups considered all the questions, but each group was asked to report on one particular question. The groups presented the following reports to the plenary.

Who Are the Highly Vulnerable Groups?

Youth

- Basic, secondary, and tertiary students
- Out-of-school youth
 - Apprentices
 - Porters, *kaya yei*
 - Street children
 - Transit youth, sex workers
 - *Trokosi*

Mobile groups

- Civil servants – subject to discussion
- Commercial drivers, taxi drivers
- Traders
- Internationals cross borders
- Intracity travel, fisher folk

Special groups

- Refugees
- Physically challenged (deaf, dumb, blind, and abused)
- Uniformed personnel, military police, firemen
- Other uniformed personnel
- Civil servants

Prioritize

- Youth
- Mobile population
- Special groups and prisoners

Other comments

- Power, position, and money could make people vulnerable to HIV infection.
- We may need to categorize according to behavior and not according to high risk. We could consider reachable groups instead of high-risk groups.
- Other high-risk groups identified were:
 - Street children
 - Trekking officers
 - Prisoners, refugees
 - University students (clandestine sex workers)
 - National service personnel
- Considering list presented, need to add:
 - Chiefs and elders

- o Politicians
- o Rich businessmen
- o Parliamentarians
- o Sports men and women
- o Musicians and others in show business
- Behaviors
 - o Polygamous relationships
- For reinforcing on the list
 - o Apprentices. Many have migrated and have economic circumstances (e.g., the lack of money and availability of money, power, and position) that predispose them to engage in risky behavior.
- The need to address street children
- The need to look at teachers because they may be using their ‘power’ and ‘position’ over students as well as their mobility.
- The national service personnel consists of young people straight from university who tend to live rough and may be forced to do things to be a little more comfortable.

What Are the Researchable Data Gaps on These Groups?

- There is a paucity of data in general.
- There is a need to mainstream HIV/AIDS data so that it can be easily collected.
- A methodology manual is needed to standardize methodology and make data collection more comparable (a manual similar to the one developed for malaria).
- Validation of data is still a challenge; more tools for validation need to be developed.

Information gaps existed for each of the three identifiable risk groups.

- In Group 1, it is important to collect more behavioral data for the groups for which HIV-prevalence data are available. There is the need to disaggregate the data that are available and to subject the data to analysis. There is also the need to have more in-depth information on HIV prevalence in the geographic areas that have antenatal sentinel sites and compare data. In addition, there may be the need to collect additional behavioral information in these areas.
- In Group 2, it is important to obtain information on HIV prevalence, and more information on sexual behavior may need to be collected. In Group 3, there was the need to collect information on behavior and HIV prevalence.

Other comments

- For Group 1
 - o Post diagnosis for people living with HIV/AIDS: Understand the psychological coping strategies and response
 - o Reason for asking the question is to advise the research to be undertaken.

- o Need to talk about the three groups. Group 1 is fixed, and research is being done so there is information.
- Vulnerable groups are broken into broad categories; need to divide them into subgroups.
- Sexual behaviors need to be related to youth, geography, and culture.
- Health workers may need to be considered a vulnerable group; little research has been done.
- Causes of deaths should be noted in order to have a better sense of AIDS-related deaths among various groups.

What Research Activities Should Be Prioritized?

Issues to be considered for prioritization:

- Groups and research activities
 - o Youth
 - In school
 - Out of school
 - Apprentices
 - Street children
 - o National Service Personnel
 - o Teachers
- The National Strategic Framework

Other comments

Dr. Addo stated that the National AIDS Control Programme is in the process of putting structure into surveillance in Ghana and that second-generation guidelines have been put in place. Next year, Ghana will start second-generation surveillance within various groups, including those (e.g., youth) that were discussed today. A yearlong youth survey and a yearlong antenatal survey were suggested. There is the need to harmonize and see how these processes fit into today's discussions. More dialogue is needed.

The Way Forward

The workshop participants reached a consensus on who were the high-risk groups and on the need for more data. The workshop recommendations included finalization of this report and a list of activities to be forwarded to USAID for funding consideration.

Appendix B: Stakeholders Workshop Participants

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Appendix C: Criteria for Selecting High-Risk Groups for Research and Intervention

Because many groups in Ghana are potentially at risk for HIV infection, and resources are limited, it may be useful to develop a set of criteria for evaluating high-risk groups in Ghana. For each criterion, a score between 1 and 5 should be given, as directed in the guidelines. No one person is in a position to complete this table; it is preferable for a group of stakeholders to complete the table by consensus.

Criterion	Score (1-5)	Guidelines
1. HIV prevalence		5 = higher than the national or regional average 2.5 = similar to the national average, or HIV prevalence unknown 1 = less than the national or regional average
2. High-risk sexual behavior		5 = sexual behavior indicators show high-risk behavior common 2.5 = sexual behavior shows mixed results, or unknown. 1 = studies show no or little high-risk behavior
3. Important group for strategic reasons in terms of the potential impact of HIV/AIDS		5 = either large group, or strategically placed 1 = not a strategically important group
4. Contact with high-prevalence or known high-risk groups		5 = known contact with high-prevalence or high-risk groups, e.g., commercial sex workers, border area with high-prevalence neighbors, etc. 1 = no known contact with these groups
5. Reachable		5 = group is easy to reach and work with and/or research 1 = group is difficult to reach or to work with
6. Known, cost-effective intervention methods for groups like this		5 = there are well-described cost-effective interventions for this group 1 = there are no or few interventions described for this group, or the intervention is costly
Total		