SIERRA LEONE

HIV MODES OF TRANSMISSION STUDY

KNOW YOUR EPIDEMIC, KNOW YOUR RESPONSE

2010

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HIV MODES OF TRANSMISSION AND PREVENTION RESPONSE ANALYSIS

Draft Report
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Study Team

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CLOSING THE GATES

By

Modelling the expected distribution of new HIV infections by exposure groups

and
Understanding the sources of new
HIV infections for programme planning
and
Supporting the work of programme pillars:

Know your Epidemic, Know your Response: For guiding the development of:

Final Joint Programme Review:
To undertake comprehensive consultative Review in respect of the NSP 2006-2010; Provide recommendations that will guide the development of a new National Strategic Plan 2011-2015, the new National M&E Plan 2011-2015 and an Operational Plan.

National Strategic Plan on HIV/AIDS 2011-2015
For guiding the development of a new National Strategic Plan for HIV/AIDS (2011 – 2015)

National M&E Plan on HIV/AIDS 2011-2015
For the development of the new National M&E Plan for HIV/AIDS (2011 – 2015)

Two-Year (2011-2012) Budgeted Operational Plan 2011-2012
For the development of a national Budgeted Operational Plan for the period 2011-2012

Sierra Leone

HIV Modes of Transmission and Prevention Response Analysis

Study Team

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This study is the outcome of close collaboration between UNAIDS and UNICEF, Sierra Leone Country Offices to support the Government of Sierra Leone to combat the scourge of HIV epidemic in the country through NAS by initiating the UNAIDS Modes of Transmission model for Sierra Leone. The purpose of the model is to understand the sources of new HIV infections for better programme planning and support of programme pillars. The model results, together with existing epidemiological data and the conclusions of recently completed studies on the factors driving Sierra Leone's HIV epidemic are compared with data on HIV funding allocations, to derive recommendations for strengthening Sierra Leone's HIV prevention response and also for improving HIV prevention based on evidence on what works to prevent new infections.

Keywords: Sierra Leone, **HIV**, AIDS, epidemiology, epidemic, **modes of transmission**, **incidence,** prevalence, prevention, **Know Your Epidemic**, **Know Your Response**, expenditures, **synthesis**, **Sierra Leone** National HIV and AIDS Secretariat (NAS), UNAIDS

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The Know Your Epidemic (KYE) and Know Your Response (KYR) Modes of Transmission (MoT) study was commissioned and guided by the Government of Sierra Leone through the National AIDS Secretariat (NAS). The study process was supported by UNAIDS Sierra Leone Country Office in collaboration with UNICEF, Sierra Leone Office and coordinated by the M&E Adviser, UNAIDS Country Office.

We, the consultants would like to thank NAS together with the National AIDS Control Programme (NACP) of the Ministry of Health and Sanitation MOH&S for their good collaboration and cooperation during the period of the study. Our thanks also go to UNAIDS for having given us the opportunity to be involved in this process with its wide and technical experiences. This involvement has strengthened our capacity to use this methodology and enabled us to participate in such an important undertaking that has far reaching consequences on evidence-based planning for HIV programs in Sierra Leone.

This synthesis report is the result of a four month intensive process of collaborative research, analysis and thinking, and the MoT Team of Consultants is highly indebted to the Technical Working Group (TWG) and the Expanded Technical Working Group (ETWG) for steering and overseeing the process. The consulting researchers/consultants would also like to express their sincere gratitude to the continuous support by the NAS Policy Team headed by the Director, NAS, which is responsible for translating these research findings into policy and programming.

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ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ADB	African Development Bank
ANC	Anti Natal Clinic
ART	Anti-Retroviral Therapy
ARVs	Anti retro-viral
BCC	Behaviour Change Communication
CACs	Chiefdom AIDS Committees
CBOs	Community Based Organizations
CCM	Country Coordinating Mechanism
CHOs	Community Health Officers
CRS	Catholic Relief Services
CSOs	Civil Society Organizations
DACs	District AIDS Committees
ETWG	Expanded Technical Working Group
FSWs	Female Sex Workers
GBV	Gender Based Violence
GFATM	Global Fund to fight AIDS Tuberculosis & Malaria
GoSL	Government of Sierra Leone
HAART	HIV/AIDS Antiretroviral Therapy
HIV	Human Immunodeficiency Syndrome
HCT	HIV Counselling and Testing
IBBS	Integrated Biological and Behavioural Survey
IDPs	Internally Displaced Persons
IDU	Injecting Drug Use
IEC	Information Education Communication
ILO	International Labour Organization
IMF	International Monetary Fund
IOM	International Organization for Migration
JPR	Joint Programme Review
KAP	Knowledge Attitude and Practice
KYE	Know Your Epidemic
KYR	Know Your Response
MARPs	Most At Risk Populations
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health Aides
MCP	Multiple Concurrent Partners
MDA	Ministries, Departments and Agencies
MDG	Millennium Development Goal
MOHS	Ministry of Health and Sanitation
MOT	Mode of Transmission
MSM	Men having Sex with Men
MTCT	Mother to Child Transmission
NAC	National AIDS Council
NACP	National AIDS Control Program

NASA	National AIDS Spending Assessment
NAS	National HIV and AIDS Secretariat
NGO	Non Governmental Organization
NSF	National Strategic Framework
NSP	National Strategic Plan
OVC	Orphans and Vulnerable Children
PHUs	Peripheral Health Units
PLHIV	People Living with HIV
PMTCT	Prevention of Mother to Child Transmission
PPASL	Planned Parenthood Association, Sierra Leone
PRSP	Poverty Reduction Strategy Paper
SHARP	Sierra Leone HIV/AIDS Response Project
SHARP/MOH&S	Sierra Leone HIV/AIDS Response Project/Ministry of Health & Sanitation
SL DHS	Sierra Leone Demographic Health Survey
SSA	Sub Saharan Africa
SSL	Statistics Sierra Leone
STI	Sexually Transmitted Infection
SVAW	Sexual Violence against Women
SW	Sex Worker
TWG	Technical Working Group
UNAIDS	Joint United Nations Program on HIV/AIDS
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly
UNICEF	United Nations Children's Fund
US CDC	United States Centre for Disease Control
VCCT	Voluntary Confidential Counselling and Testing
WB	World Bank
WANEPB	West African Network for Peace Building
WHO	World Health Organization

GLOSSARY OF TERMS

Casual Heterosexual Sex: sex with a non-regular, non-cohabiting partner during the last 12 Months;

Commercial Sex Worker: person who exchanges sex for money or other items as an occupation

Cross-generational Sex: is defined as sex with a much older partner (an age gap of 10 years or more is usually considered "much older"); in most cases it involves an element of exploitation due to economic and social vulnerability

Discordant couple A couple where one partner is HIV positive and the other is HIV negative;

Drivers: the structural and social factors, such as poverty, gender inequality and human rights violations that are not easily measured which increase individuals' vulnerability to HIV infection (UNAIDS 2007b. Other sources define drivers as the main factors resulting in new infections.)

Incidence The proportion of people who have become infected with HIV during a specified period of time (usually one year, i.e. annual incidence).

Most-At-Risk Populations (MARPs): Populations in whom there is a concentration of risk behaviours for HIV transmission (notably: unprotected sex with multiple partners, anal sex, needle-sharing) that may then drive the majority of new infections; may include commercial sex workers and their partners, long distance truck drivers, fisher folk, uniformed services, men who have sex with men (MSM) and injecting drug users (IDU)

Prevalence Proportion of individuals in a population who are HIV infected at a specific point in time **Risk (of HIV).** The probability that a person may acquire HIV infection;

Risk: the probability that a person may acquire HIV infection;

Risk factors: Factors which are directly linked or on the causal pathway to HIV infection (e.g. concurrent partners, sharing contaminated instruments, low condom use).

Sexual Abstinence: The avoidance of sexual intercourse as well as any genital contact or genital stimulation

Synthesis The combination of components to form a connected whole;

Transactional Sex: is defined as sex in exchange for money or other items in which the person providing sex does not regard her/himself as a sex worker; it may involve exploitation when the sexual partner is in a vulnerable socio-economic situation

Types of HIV prevention: HIV prevention activities were classified as follows (see also: UNAIDS, 2008a):

a) ***Interventions affecting knowledge, attitudes and beliefs and influencing psychological and social risk correlates:*** This refers to all mass media, interpersonal education-related interventions intended to change attitudes and/or behaviour of the population regarding HIV/AIDS. Other activities in this component are family life education which targets both in school and out of school youth and other segments of the population, education to promote universal precautions, prevention counselling, environmental interventions that enable prevention interventions, social mobilization and condom promotion.

b) ***Risk reduction*** (lowering risk associated with behaviour without eliminating the behaviour): This category includes all programmes that intervene to lower risk of behaviours: condom distribution, reducing harm for intravenous drug users and livelihood alternatives for sex workers, providing safe spaces for vulnerable populations.

c) ***Biological/ biomedical interventions that reduce HIV infection and transmission risk:*** These include diagnosis and treatment of STIs, PEP, FP services, male circumcision, PMTCT, breastfeeding substitutes (for HIV positive mothers), screening blood products, disinfection of medical equipment, use of gloves & protective clothing, proper disposal of biohazard waste as well as drug treatment.

d) ***Standardized hybrid interventions in common use***: This category includes testing and counselling (aside from PMTCT), condom social marketing, comprehensive sex education and social mobilization.

Universal precautions: Standard infection control practices to be used consistently in all healthcare settings to minimize the risk of exposure to pathogens, e.g. the use of gloves, barrier clothing, masks and goggles to prevent exposure to tissue, blood and body fluids, safe disposal of sharps.

Vulnerability factors: A range of factors that reduce the ability of individuals and communities to avoid HIV infection, such as personal factors like lack of knowledge and skills required to protect oneself and others; factors pertaining to the quality and coverage of services; societal factors such as social and cultural norms, practices, beliefs and laws that stigmatize and disempower certain populations, and act as barriers to essential HIV prevention messages. These factors, alone or in combination, may create or exacerbate individual vulnerability and, as a result, collective vulnerability to HIV.

EXECUTIVE SUMMARY

Background and Rationale

Sierra Leone's HIV epidemic can be characterized as slow and mixed epidemic which means that it is both concentrated among sex workers and at the same time generalized and heterogeneous, affecting different population sub-groups in the general population as demonstrated by the high incidence not only in clients of sex workers and sex workers themselves, but also among other members of the population including casual heterosexual sex, which comprise of men and women who have multiple sex partners or have sex with non-regular, non-cohabiting partners. The patterns of the transmission of HIV in Sierra Leone are dynamic and have been changing slowly over time. It is therefore probable that the main risk factors and drivers of the epidemic may have changed over time as evidenced, for instance, by the occurrence of a significant proportion of new infections among steady monogamous and discordant couples in union. In order to adapt prevention strategies to changing patterns of risk, it will be necessary to regularly monitor the behaviours that put people at risk of infection and how new infections are distributed among risk groups. There is insufficient understanding of the current modes of transmission of HIV in Sierra Leone as well as where and among whom incident HIV infections are occurring. This lack of clear understanding of where new infections are occurring may imply that national HIV prevention plans are not driven by evidence and may result in a mismatch between populations most at need and those that receive the available resources. Therefore a study of mode of transmission was conducted to describe the current status and drivers of the epidemic; identify the sources of new infections and modes of transmission of HIV in Sierra Leone and review the allocation of prevention resources.

Methods

The standard Modes of Transmission methodology was applied as described in the NAIDS/GAMET guidelines. A desk review of recent reviews of the epidemiology of HIV and other documentations in Sierra Leone was conducted and reviewed recent available data, applied the UNAIDS incidence model to predict the distribution of new infections, used the MoT prevention review tool to describe the current prevention policies and programs and reviewed the current allocation of resources for HIV prevention. The findings of the epidemiologic review were then synthesized with the outputs of the incidence modelling to obtain the "Know Your Epidemic" (KYE) synthesis and the prevention review and resource allocation data to obtain the "Know Your Response" (KYR) synthesis. Finally, the GAMET synthesis process was used to assess whether prevention policies, programs and resources are aligned to the populations in need. The study was implemented by a team of four national experts guided by international consultant and coordinated by the M&E Advisor, UNAIDS Country Office with logistical support from UNAIDS,UNICEF and NAS. A national Technical Steering Committee provided oversight and also peer reviewed the process.

Findings

Know Your Epidemic (KYE) Synthesis

The HIV epidemic in Sierra Leone is mixed, generalized and heterogeneous affecting different population sub-groups and resulting in multiple and diverse epidemics with different transmission dynamics. If it were not for the herd immunity provided by the high level of Abramic male circumcision of more than 96 percent on average, the prevalence of HIV in the country would not be different from the levels found in Eastern and Southern Africa. It is estimated that the overall

national HIV prevalence rate was 1.54% in Sierra Leone in 2008 among men and women aged 15 – 49 years (SLDHS2008) and that there were a total of 49,000 people living with HIV and AIDS by December 2008 of whom 27,000 (55.1%) were women and 2,700 (5.5%) were children under 15 years (Spectrum model l, 2008). There were an estimated total of 5,000 adults (15 -49) newly infected with HIV in 2008 and 2,800 deaths due to AIDS occurred in the same year. The latest UNAIDS Report on the Global AIDS Epidemic (UNAIDS 2009) estimates 47,000 (range 40,000 – 63,000) PLWHA in Sierra Leone by December 2009. The epidemiology review indicates that the prevalence in the 15 – 19 age group is slowly declining while the prevalence in the 20 – 24 age group has stabilized or at least stagnated for a while at 1.5 percent prevalence. The cause for the decline is attributable to abstinence and being faithful but no condom use, which has drastically dropped during the same period. HIV prevalence in ANC pregnant mothers has been rising from 3.1 percent in 2003 to 4.9 percent in 2007 and by 2009 it had declined to 3.2 percent. The prevalence in ANC pregnant mothers is currently excessive due to the choice of sentinel surveillance sites, which are mostly in urban areas and not representative of the general population of Sierra Leone, thereby presenting the urban prevalence that is not representative of the country as a whole.

There exists untoward behavioural indicators especially an increase in multiple concurrent partnerships. There has also been a shift in the epidemic from spreading mainly in sex work networks and casual relationships to also seeing a large proportion of new infections in people in long-term stable relationships. Data from the DHS 2008 show that HIV prevalence and incidence rates might be rising in some population sub-groups chiefly from the clients of sex workers and multiple partnerships and including stable monogamous unions.

Incidence modelling revealed that of all new HIV infections in adults (15-49 years) in 2008, commercial sex workers, their clients and partners of clients contributed 39.7% of new infections. People in discordant monogamous relationships in the past 12 months contributed 15.6% of new infections whereas people reporting multiple partnerships and their partners contributed 40%. Of these multiple sex partnership groups the casual heterosexual sex group and their partners contributed about 15% whereas Fisherfolks contributed the second highest incidence in of 10.8% in this group followed by traders, transporters and mine workers with 7.6%, 3.5% and 3.2% respectively. 15.6% of the new HIV infections in 2008 were among people in discordant monogamous relationships in the past 12 months while MSM and IDU are slowly emerging where they had not been suspected to exist with incidence contribution of 2.4% and 1.4% in that order. Mother to child transmission is estimated (using Spectrum) to have contributed about 800 new HIV infections in 2008. In all (including incidence through MTCT), 34.7% of infections (adults and children) are attributable to multiple partnerships, 13.5% occurred within discordant monogamous couples, 13.7% were due to mother to child transmission while 34.2% arose in commercial sex networks. There exists prevalence heterogeneity by age and gender with concentration of the epidemic from younger women in 15 – 19 age group (1.2%) and men aged 40 years and above with the highest prevalence of (2.2%). Based on the review of the epidemiology of HIV (especially drawing on the analysis of the DHS and various studies carried out among vulnerable populations between 2005 and 2008, the risk factors and contextual factors driving the HIV epidemic in Sierra Leone are summarized in the table below.

Summary of Risk Factors and Contextual Factors Driving the HIV Epidemic in Sierra Leone
Risk Factors for HIV Transmission Contextual factors of the HIV/AIDS Epidemic

Risk Factors for HIV Transmission	Contextual Factors of the HIV/AIDS Epidemic
• Commercial sex networks • Multiple partners • Discordance and non-disclosure • Lack of condom use • Alcohol and drug use • Presence of STIs, especially HVS-2 • Transactional sex • Cross-generational sex	• Human rights, stigma & discrimination • Wealth and poverty • Low status of girls & women • Socio-cultural factors • Inequity and access to prevention • Care and treatment

The prevention review revealed that **national policies and technical guidelines f**or key HIV prevention services are available, evidence-based and are regularly updated -- particularly for the biomedical services of Prevention of Mother To Child Transmission (PMTCT), HIV/AIDS Counselling and Testing (HCT)/VCCT, condom promotion, blood safety, Sexually Transmitted Infection (STI) treatment, medical infection control and post HIV exposure prophylaxis, and for HIV education in schools. There are national targets and roll out plans for most of these interventions.
Sierra Leone's current HIV prevention strategy comprises a comprehensive package of multiple integrated prevention interventions targeting either the general population or specific high risk groups. However, the review found that there are some vulnerable groups (IDUs and MSM) included in the NSP but who were not attended to with any intervention due to the existing legal frameworks concerning these groups. There were also very few programmes or intervention among commercial sex workers in the country and especially given the current scenario revealed by the MOT that the highest HIV incidence comes to the population via sex work networks. There were also no clear guidelines and policies guiding Information Education Communication (IEC), mass media, behavioural change interventions, targeted services for Most-At-Risk Populations (MARPs) and programmes addressing environmental interventions for HIV transmissions such as Sexual and Gender Based Violence (SGBV), livelihood support for HIV prevention etc. The role of safe medical male circumcision in HIV prevention is well recognized and though there exists no policy on this, the Sierra Leonean population is well endowed with a tradition of Abramic circumcision where by the average national male circumcision rate is above 96% and sometimes over 98% in some regions of the country. This rate has provided the needed herd immunity that the country has benefitted on in minimizing the high prevalence of HIV the country would have experienced without it.

Regarding **coverage of prevention interventions,** the review noted that there is a recent increase in coverage of some key prevention services, notably VCCT and PMTCT. For instance, the proportion of adults who have ever tested and received their HIV test results increased from 3% in 2008 to 10% in 2009. A review of articles related to HCT/VCCT indicates that the coverage of voluntary HIV counselling and testing (VCCT) can be improved by using alternative VCT models such as mobile VCCT, routine offer of VCCT and home-based VCCT . The number of women receiving PMTCT services increased from virtually none in 2003 to 99,256 at the end of 2009. However, despite Sierra Leone's commitment to accelerate HIV prevention, many people still do not have access to key HIV prevention services. For example: about 90% of adults do not know their HIV sero-status; over 50% of pregnant women cannot access PMTCT service; there are few outreach programmes for MARPs and vulnerable populations; less than 10% of risky sex acts are protected using condoms. Although STI services have been integrated into PHC they are only

available in 60% of PHC facilities, their quality is still low with less than half of clients being appropriately diagnosed and managed by Syndromic management approach as adequate staff has not been trained on Syndromic management and there are chronic shortages of STI drugs. Furthermore, in-school and out-of-school youths are not adequately covered by HIV/AIDS education.

Another finding was the **lack of adequate strategic information on coverage** of most HIV prevention services. While sufficient data are available for periodic national outcome and impact evaluation, there are major gaps, especially in knowledge of the size of population groups and corresponding coverage of key prevention services. Process and output level indicators essential for monitoring coverage of programmes are available for biomedical interventions but not for behavioural interventions. This strategic information is necessary to guide performance and identify persistent problems. About 70% of the population still does not know where to get condoms when they need them and a similar proportion do not know where to go for counselling and testing. The condom advocacy, procurement and distribution of condoms throughout the country requires urgent recasting as it is not fulfilling its appropriate functions currently and as a result the utilization of condoms is very low in the country, again for reasons not yet very well established. This is an area that requires operations research to come up with outcomes that will be used to formulate a robust condom strategy that will increase condom uptake in the country for the current very low levels of use at all levels.

Allocation of HIV spending: A total of US $ **7,616,723** was estimated to have been spent on the national response, of which US $ 3,704,586 (49%) was spent on HIV prevention interventions in 2006. Most funding was from multilateral agencies which accounted for US$7,101,461(93%) with the Government of Sierra Leone contributing a meagre 2.2% of all resources for the national response. Among the multilateral agencies, the **Global Fund contributed 25% (USD 2,259,712)** followed by the **World Bank contributing 22% (USD 2,008,030)** of the total expenditure in 2007. The total financial expenditure on HIV and AIDS from local and international sources rose from **$7,616,723 in 2006 to 9,172,666 in 2007**. The overall increase of the international spending was mainly due to bilateral donors whose contribution increased by 5 percent from the previous year. **The Global Fund was the major source of funding for prevention interventions, providing 61%.** UNICEF provided 5.4%, UNFPA provided 4.6% and DFID provided 3.9%. The greatest proportion of HIV prevention resources are spent on HIV Counselling and Testing (HCT) which accounts for 25%, followed by BCC/Mass Media/ IEC and condom promotion (each nearly 20%) and PMTCT (16%). The greatest effort in prevention is focused on delivery of HIV prevention services which benefit the general population, with **biomedical interventions accounting for 48% of the expenditure and 52% being spent on community and behavioural interventions.** These spending allocations were aligned to what was known but in the light of the findings of the Mode of Transmission (MOT), this will need to be reviewed because behavioural and community interventions are likely to have the greatest impact in preventing new HIV infections that is taking place in the population.

Linking the Epidemic to the Response (KYE-KYR) Synthesis

Whereas Sierra Leone has policies and guidelines for many prevention interventions, there is a mismatch between the epidemiology, policies and programs and resource allocation. Despite the evidence on the risk factors and drivers of the epidemic, there are no policies targeting MARPS, contextual factors, including funding of programmes on MSM and IDU. It is also crucial to note that there are no programs or funding that target commercial sex worker (CSW) and their networks and concurrent partnerships or marital and co-habiting partnerships especially discordant couples. Funding is not targeted to prevention with positives, PLWHAs require prevention programmes also

and not only ARVs. Such interventions require development and funding to curtail the continued spread of the epidemic from this sub population.

The KYE and KYR synthesis shows that the greatest need for HIV prevention exists among commercial sex work and people with multiple partners whether in casual or long-term martial or cohabiting relationships.

Programs such as VCCT, IEC/BCC, and condom use targeting the general population cannot be assumed to be sufficient for married or cohabiting couples. Furthermore, the delivery strategies for these interventions do not favor married or cohabiting couples. There is no funding for programs targeting married and cohabiting couples specifically. Secondly, HIV prevention programmes for MARPs (Commercial Sex Workers and their clients, Fishing Communities etc) are poorly funded.

Recommendations

Policy level Recommendations

i. Institutionalize the KYE-KYR MoT methodology in Sierra Leone for NAS and MoH S operations
ii. Develop a national policy for strengthening PMTCT roll-out and full implementation of PMTCT guidelines
iii. Strengthen policies and guidelines for VCCT, IEC/mass media, and behaviour change interventions targeting married/cohabiting couples, PLWHA and MARPs (CSWs, MSM, IDUs, Fisherfolks, traders, transport and mine workers)
iv. Increase the funding of care, especially for ART as an additional extension of prevention
v. Define and implement policies for environmental, societal and other contextual factors
vi. Review and reform legal frameworks to remove barriers to effective, evidence based HIV prevention, especially for addressing legal implications of involving (CSWs, MSM, and IDUs) among prevention target populations
vii. Ensure that sufficient investments are made for research and development of, and advocacy for, new prevention technologies.
viii. Strengthen mechanisms (NASA) for regular tracking and reporting of resource allocations, disbursements and spending for the national response

Programmatic Recommendations

i. Re-align prevention programmes and resources to target populations that are the sources of new infections
ii. Strengthen efforts to prevent HIV transmission from HIV-infected people to their partners.
iii. Scale up HIV couple counselling, testing and disclosure of test results
iv. Strengthen advocacy interventions for the reduction of number of sexual partners, HIV-discordance, **positive prevention** in people living with HIV/AIDS, **steady couples including married and cohabiting couples (low risk heterosexual) as priority population groups for implementation of programmes that focus on them, especially regarding MCP behaviours.**
v. **Develop strategy that promotes and advocates zero-grazing** to change harmful social norms such strategies that were used by Uganda and later Zambia, Kenya and Zimbabwe with campaign that should be driven by community leaders from all walks of life
vi. Government should invest more of its own resources into the national HIV/AIDS response

Recommendations for Strategic Information Needs

i. Strengthen M&E systems for provision of better quality programme data
ii. Conduct national surveys that provide information on the national HIV/AIDS response (eg. KAP, BSS, NASA, DHS) should be conducted regularly and in a coordinated manner for programmatic operations solutions
iii. All surveys, especially population-based and DHS surveys should include questions on children below 15 years of age, information which should be provided by their parents or guardians; surveys should also include the population of 50 – 70 years of age.
iv. KYE-KYR Modes of Transmission Study should be conducted every two years after the findings of a major population based survey that provides new information is conducted to help keep track of the changing HIV/AIDS epidemic in the country
v. Establish a Research and M&E Unit headed by a Prevention Advisor who will track the epidemic and constantly/regularly brief the Director NAS for action in the implementation of prevention strategies.

CHAPTER 1. INTRODUCTION, METHODOLOGY and HYPOTHESIS

1.1. The Analysis of HIV Prevention and Modes of Transmission (MoT) Study Concept

According to the 2009 Report on the global AIDS epidemic, an estimated 1.9 million people were newly infected with HIV in sub-Saharan Africa in 2007, bringing to 22 million the number of people living with HIV in this region (UNAIDS, 2009)[1]. These new infections happened despite 20 years of experience with prevention programmes. Success in accelerating access to treatment has not been matched by similar successes in prevention: for every two people who start anti-retroviral treatment (ART), five others get newly infected (UNAIDS 2008b)[2]. **Underpinning the shortcomings in the prevention response is the inadequate use of evidence to inform the response.** The result has been ineffective prevention interventions, non-optimal use of available resources and lost opportunities to address the specific factors driving infection in the populations, especially those Most-Vulnerable - Risk Groups (MVRGPs) within each country.

Most biological measures to assess the status of HIV epidemics revolve around collecting and analyzing HIV prevalence data. But **HIV prevalence is not ideal for understanding current transmission dynamics** (Garcia-Calleja *et al.*, 2006)[3], because:

a) Prevalence reflects the combined effect of new infections, earlier infections, treatment and AIDS deaths. So decreases in prevalence do not necessarily indicate a reduction in risk of infection (Hallett *ET al.*2006)[4].

b) Changes in prevalence lag behind real changes in risk, and comparisons of prevalence between countries can be confounded by differences in the stage of the epidemic in countries.

c) Surveillance systems primarily rely on HIV prevalence data collected from women attending selected antenatal clinics. The interpretation of ANC clients' data is complicated by natural epidemiological changes that arise from the long and variable incubation of HIV and AIDS-related mortality (UNAIDS, 1999)[5], by biases in the sample due to lowered fertility associated with bacterial STIs and HIV (Zaba & Gregson, 1998[6]), by the selection bias in surveying pregnant women (who had unprotected sex, a higher risk behavior) and by the disproportionate selection of surveillance sites in urban areas (Ghys *et al.*, 2006)[7].

[1] UNAIDS 2009
[2] UNAIDS 2008b
[3] Garcia-Calleja *et al.*, 2006
[4] Hallett *ET al.*2006
[5] UNAIDS, 1999
[6] Zaba & Gregson, 1998
[7] Ghys *et al.*, 2006

A better measure for monitoring the HIV epidemic is **incidence** (rate of new infections over a specific period of time). If incidence is known, changes in the epidemic over time can be better identified and characterized and linked to specific risk behaviours over the same period of time. True incidence data, however, can only be obtained through large-scale cohort studies (Rehle *et al.*, 2007)[8].

Such studies have many drawbacks, including cost, ethical considerations, participation and/or selection biases and the fact that those included in a cohort will inevitably have more exposure to HIV interventions. (Hallett *et al.*, 2008)[9] emphasize that their performance has not been assessed under rapidly-evolving epidemiological changes including ART coverage gains.

Three other methods have been used:

i. Indirect HIV incidence estimates have been made using prevalence data. For instance, this has been done using prevalence data from young people by single year of age and assuming that HIV prevalence differences between the age strata represent incident HIV infections (Ghys *et al.,* 2006; Zaba *et al.,*2000[10]);
ii. A laboratory-based method that can distinguish recent from established long-term infections (BED capture enzyme immunoassay) (Hargrove *et al.*, 2008[11]); and
iii. Mathematical modeling of HIV incidence – mathematical models has been developed to provide HIV incidence estimates from prevalence data. Some approaches are specifically designed for early epidemics, others for more stable conditions; some rely on long time-series or involve computationally intensive model-fitting procedures (Gregson *et al.,* 1998[12], Stover *et al.,* 2008[13], Williams *et al.* 2001[14]).

Wilson & Halperin (2008)[15] point out that mathematical modeling of incident infections is helpful, but that the models are still in their infancy and require better data than generally available (Hallett *et al 2007).*

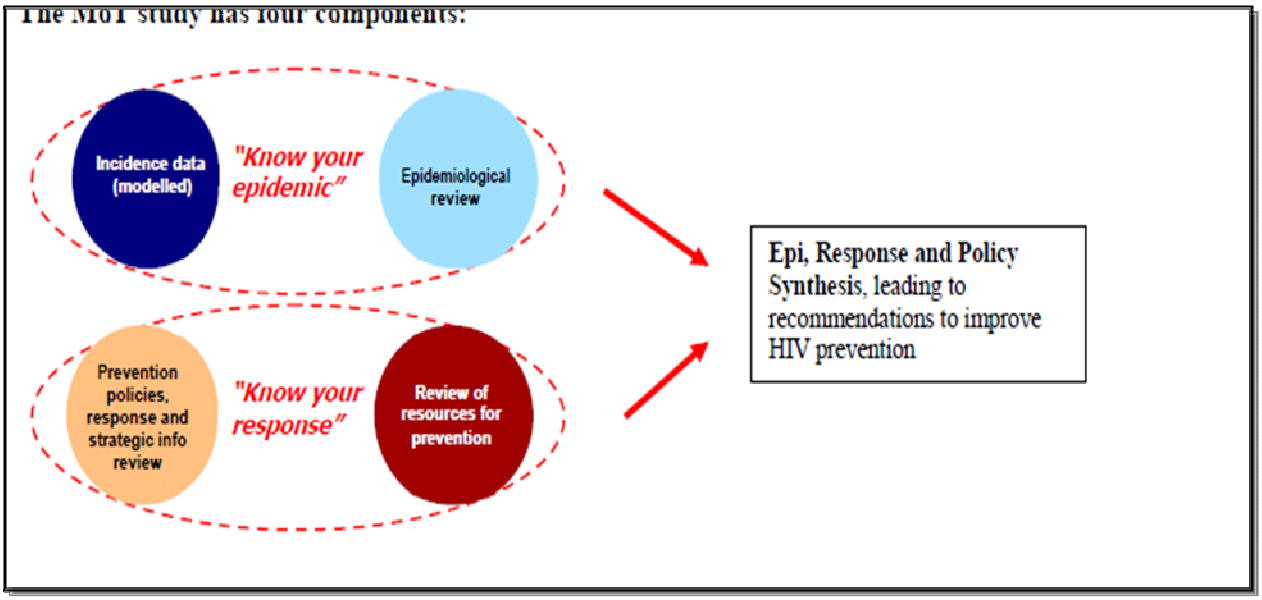
The Modes of Transmission study has been used by UNAIDS before in Kenya and Thailand[16] and by others in other countries[17]. This model is unique in that it estimates infections *by mode of exposure.* It estimates the incidence of HIV in various risk groups for the current year and therefore helps identify sub-populations with high transmission rates.

[8] Rehle *et al.*, 2007
[9] Hallett *et al.*, 2007
[10] Zaba *et al.,*2000
[11] Hargrove *et al.*, 2008
[12] Gregson *et al.,* 1998
[13] Stover *et al.,* 2008
[14] Williams *et al.* 2001
[15] Wilson & Halperin (2008)
[16] Gouws et. al. 2006
[17] Pisani et. al. 2003

The prevention effect of various interventions can be estimated by varying model parameters like condom use and STI prevalence, modeling the impact on incidence. Given the imperfections of models, it is advisable that model estimates be triangulated with other sources of data (Wilson & Halperin, 2008).

The current series of MOT studies were conceived in 2007 by the UNAIDS in partnership with the Regional Support Teams and the World Bank GAMET team, UNFPA and others, to support better HIV prevention efforts in sub Saharan Africa.

The MOT study has four components:



Source: GAMET, 2007

The HIV epidemiological data and incidence modeling estimates were combined to obtain an epidemiological synthesis ('KYE' synthesis), and the HIV prevention review data and prevention resources data were combined to obtain an HIV response synthesis ('KYR' synthesis). The 'KYE' and 'KYR' syntheses are then compared to understand the gaps in HIV prevention programming, and make recommendations on how the response can be improved (an HIV Epidemic, Response and Policy Synthesis, (World Bank, 2008a)[18].

1.1.1 Relevance of the MoT Study to the concept of universal access to HIV prevention:

The MoT study is designed to assist countries in focusing prevention better to those who need the services, and by doing so, progress toward universal access to prevention (UNAIDS, 2007c[19]).

[18] World Bank, 2008
[19] UNAIDS, 2007c

Unless the key populations at risk and their vulnerability factors are known, and the current prevention response understood, it is impossible to plan, target and deliver interventions that focus on the populations that need such services.

1.2. Modes of Transmission Study in Sierra Leone: Rationale, purpose, and objectives

Sierra Leone's hypo endemic HIV epidemic is maintained by underlying cultural and socio-economic factors such as power differentials in intimate relationships, sexual entitlements, cultural expectations of men and women, and income inequality. In this context, men and women continue to have long-term multiple concurrent sexual partnerships in which sexual acts are often unprotected.

The current HIV prevention strategies, focusing primarily on individual sexual behaviours, and to a lesser extent on addressing the underlying norms of society that make these behaviours acceptable, are inadequate to effectively reduce HIV transmission. Therefore, it was agreed that Sierra Leone would participate in the MOT process with the **purpose** of *"benefiting from the ongoing efforts to understand the epidemic and response and thus help the country improve the scope (doing the right kind of activities), relevance (with the right populations) and comprehensiveness (reaching all members of target populations) with HIV prevention efforts".*

Specific **objectives** of this study were to:

a) Describe and understand the epidemiological situation in Sierra Leone ('KYE' data) – the national epidemic phase and trends, the heterogeneity of epidemic and the modes of transmission at national level. This was achieved through an in-depth review and analysis of all available data on HIV incidence, HIV prevalence, risk factors and drivers of the epidemic, stratified by sub-population and geographic location, and the application of the UNAIDS incidence model to generate expected distributions of new infections in different risk populations.

b) Describe and understand the HIV prevention response in Sierra Leone ('KYR' data) – the range of planned and executed HIV prevention efforts in the country (the key messages, target audiences and geographic scope of prevention efforts), the stakeholders involved in HIV prevention, the funding for different types of prevention programmes, and the availability of strategic information to inform prevention. This was done through a review of the policy context of prevention, strategic information relating to prevention, and current prevention interventions and programmes by implementers in all sectors and an analysis of current resource allocation and use.

c) Synthesize the KYE data and KYR data to understand the scope, relevance and comprehensiveness of HIV prevention policies and programmes in Sierra Leone, the alignment of prevention programme resources, and gaps in strategic information about HIV prevention.

d) Recommend improvements in prevention policies, programmatic action, and resource allocation to ensure a stronger and more effective national prevention strategy.

The study examines the hypothesis that commercial sex networks and multiple, long-term heterosexual relationships, happening in a context of implicitly permissive social norms, gender inequality and economic need, are key contributors to HIV transmission in Sierra Leone.

1.2.1 Use of MOT Study results in Sierra Leone:

The MoT study came at an opportune time. The country needs new strategies to address the epidemic and require more epidemiological and programmatic evidence to do so. In addition, the national multisectoral HIV/AIDS strategic plan 2006-2010 is to be reviewed and a new National Strategic and M&E Framework developed.

1.2.2 Key Pillar Activities:

The purpose of the Know your Epidemic is to better characterize Sierra Leone's epidemic, to assess the extent to which existing responses address the real drivers and to recommend strategies to improve the effectiveness of Sierra Leone's response to HIV/AIDS. Therefore the KYE –KYR provides guidance to the development of a number of programme pillars including the following key pillars:

a) Final Joint Programme Review

The final Joint Programme Review is to undertake a comprehensive consultative Review in respect of the NSP 2006-2010. The Joint Programme Review and Know your Epidemic will provide recommendations that will guide the development of a new National Strategic Plan 2011-2015, the new National M&E Plan 2011-2015 and an Operational Plan.

b) National Strategic Plan on HIV/AIDS 2011-2015

The current (NSP 2006-2010) concludes its time frame this year, therefore a new National Strategic Plan on HIV/AIDS will be developed for 2011-2015 The new NSP should have clear and measurable goals, objectives and priorities that are going to guide the country's future programmes and operational plan that will benefit the response as follows.

c) National M&E Plan on HIV/AIDS 2011-2015

The current National M&E Plan concludes its time frame this year. The new M&E Plan will include a robust Monitoring and Evaluation Framework that will guide the collection, collation analysis and dissemination of strategic information on the HIV/AIDS epidemic and the responses to the epidemic in the country.

d) Two-Year costed Operational Plan 2011-2012

Based on the findings of the Know your Epidemic study, the outcome of the Joint Programme Review and NSP, a national costed Operational Plan will be developed for the period 2011-2012. The OP will serve as a road map that clearly defines the role and responsibilities of stakeholders in implementing the provisions of the NSP.

1.3. Modes of Transmission (MOT) Report Structure

Chapter 1 provides the background and context to the MoT study, discusses options to measure incidence and locates the study within the universal access strategy. It presents the study rationale, purpose and objectives, and how the study results will be used.

Chapter 2 describes how the study was carried out – the methodology followed. The methods for each of the study components and for the synthesis of all the data are introduced, and the study's limitations noted.

Chapter 3 provides the KYE synthesis results. These include the epidemic state and trends in HIV prevalence and incidence, transmission pathways, sources of new HIV infections, data on sexual behaviours and STIs. It also provides data on the socio-cultural and economic context of the epidemic.

Chapter 4 presents the KYR results, which include policy level issues relevant to prevention, strategic information aspects of prevention, and a description of preventive interventions currently provided by implementers in the different sectors.

Chapter 5 links the epidemic situation to the response, i.e. it provides an overall synthesis of the KYE and KYR data presented in chapters 3 and 4. The chapter tries to answer specific questions regarding the alignment of current HIV prevention policies and resource allocation with the epidemiological evidence and global best practice.

Chapter 6 gives the recommendations emanating from this study. It contains policy level recommendations and programmatic recommendations and presents specific recommendations for capacity building and research/monitoring & evaluation.

Chapter 7 presents the conclusions of the study. The Modes of Transmission model is a special tool which gives power to understand the status and characteristics of the HIV/AIDS epidemic in a country, for obtaining fairly accurate estimates of new cases of HIV, obtaining estimates of incidence for different modes and identifying risk behaviors for targeting and driving areas requiring special interventions. The model definitely provides a new phenomenon and power for planning and intervention to address the HIV/AIDS epidemic.

CHAPTER 2: MODES OF TRANSMISSION STUDY METHODOLOGY

The methodology of the study was largely based on the "Guidelines for modes of transmission review" (UNAIDS/World Bank, version 12) and on the "How to write an HIV epidemiological, response and policy synthesis: a practical guide" (World Bank. version 3.0).

2.1. Overall oversight and approval of MoT Study deliverables

The study was overseen by the MoT Core Team through a four- month fixed consultancy according to the terms of reference and regular presentations on progress to key stakeholders (see Annex 1 – list of groups and participants attending presentations, and the study's implementation calendar in Annex 2). Dissemination of the findings and their translation into policy and practice were the responsibility of the MoT Policy Team. Coordination, communication and technical leadership were ensured by UNAIDS, UNICEF and NAS.

The synthesis report was drafted and submitted to the Core Team for an initial internal peer review. The findings were disseminated internally in several forums and later submitted to stakeholders and programme implementers, including the ones we had initially collected data on strategic information check list (NAS, NACP, M&E, TWG, and other stakeholders) for review after which the report was presented in a validation workshop and finalized.

2.2. Methods for the KYE synthesis

2.2.1 Methodology – Epidemiological Review:

The epidemiological review was a desk study of existing published and unpublished documentation about Sierra Leone, and relevant studies from other countries in Sub-Saharan Africa (SSA). The review brought together available epidemiological data on HIV and STIs, and data about sexual behaviours, beliefs and attitudes, culture, gender and women's status, social norms, poverty, inequality, food security, economy, mobility, migration and other relevant topics. Where possible, data were triangulated. No new data were collected, but there was some simple re-analysis of data.

2.2.2 Literature search and cataloguing:

The study team used several approaches to identify as much published and unpublished data and literature relevant to this study as possible. Four strategies were used:

i. ***Searches on organizations' websites*** – National, regional and international organizations websites were searched.
ii. ***Searches of large online databases and through search engines*** - Searches were conducted using Journal storage, PubMed, Medline, Google Scholar, and Google. The searches looked for publications over the 12 years from 1997 to 2008, using Medical Subject Heading terms to identify relevant papers.
iii. ***Search based on citation lists in publications*** - The team searched the references of the identified publications to find further relevant documents and web sites.

iv. ***Solicitation of documents from contacts*** - The study contacted in-country colleagues, asking for specific documents which were not available in the public domain.

For the first and second strategies (searching partners' websites, online databases and search engines), the following search terms were used alone and in combination:
Sierra Leone, Ghana, Nigeria Guinea, Liberia, Ivory coast, Senegal, West Africa, East Africa, Swaziland, South Africa, Mozambique, Sub-Saharan Africa, HIV, AIDS, prevalence, incidence, modeling, systematic review, meta analysis, HIV prevention, HIV infection, mobility, migration, sexual behaviour, behaviour change, behaviour adaptation, sexual network, surveillance, DHS, reproductive health, STD/STI, violence, substance use/abuse, heroin, cannabis, alcohol, sex work, anal sex, MSM, homosexual, prison, iatrogenic, medical injection, blood transfusion, social capital, gender, fisher folks, bike riders and others.

v. **All documents** considered relevant to the study were found. All documents were first checked for duplicates and then listed in a matrix to create a document catalogue, containing the Document title, File name, Institution/author, Year, Source, website,

2.2.3 Types of data used:

Data included measured and projected/modeled data and looked at all transmission pathways (same-sex, heterosexual sex, medical injections, blood and blood products, mother-to-child transmission, and injecting drug use). In general, preference was given to recent data (last 2 years) and to measures indicating recent risk behaviours rather than lifetime exposures, since the MoT study is about the epidemiology of incident (new) HIV infections. However, older data were also considered, particularly when assessing trends over time. The analysis included other sexually transmitted infections (STIs) and in particular ulcerative STIs. It did not include tuberculosis or any other opportunistic infection (OI). Risk factors and socio-cultural drivers were adopted as found from national documents and the discussions ensuing after presentation of KYE-KYR rationale and purpose. The adult population was split into male and female, and into the age group 15-49.

2.2.4 Epidemiological Model for Analysis:

For the analysis of HIV epidemiological data, it was important to use a relevant epidemiological framework to analyze the risk factors and drivers of the epidemic. After reviewing different causal models for classifying risk factors for HIV transmission, it was decided to use a model that recognizes that individual risk factors for HIV infection are also influenced by factors at the couple level and community level, which are, in turn, affected by factors at the structural level (as described by Poundstone *et al.,* 2004)[20].

2.2.5 Methodology – Incidence Modeling:

The incidence modeling was confined by definition to the current year (12 months) and to adults aged 15-49 years. The UNAIDS Incidence Model was used (Model, accompanying CD and manual available from UNAIDS). The study team did an extensive data and literature review to find the best recent data to populate the model. If local estimates were not

[20] Poundstone *et al., (*2004)

available, 'global defaults' were used as recommended by UNAIDS. If a recommended default was in fact a range (min-max), an informed guess was made as to which value was best to be used in the model (Annex 3.

2.3. Methodology for the Know Your Response Synthesis

2.3.1 Sampling method

All prevention implementers assessed in the NASA that were still active were included in the sample. In total, about fifty (50) organizations working in HIV prevention were sampled. They included UN agencies; public sector, private sector; non-governmental organizations and organization of people living with HIV, faith-based organizations, and civil society organization (see Annex 3).

Regarding strategic information pertaining to prevention, key informants were drawn from the National AIDS Secretariat (NAS), the National AIDS Control Programme (NACP), and M&E coordinators and major NGOs including International NGOs (Annex 3).

For policy-level issues, NAS and NACP were the main contributors or key informants using Policy Response checklist (Annex 4a). Additional information on both topics was obtained in current reports and guiding documents not older than five years.

2.3.2 Classification of prevention activities

In the *prevention review component*, the assessment of service provision was based on the new classification system proposed by UNAIDS in 2008. This system defines prevention activities by the *specific activities, services or commodities* provided to the beneficiary (previously, there had been a mix of approaches, identifying interventions by setting [e.g. workplace intervention], target population [e.g. sex worker intervention], mode of delivery [e.g. peer education], outcome [e.g. abstinence intervention], etc.). The new system groups these interventions into broad categories, based largely on the interventions' intended purpose.

In the *prevention resources assessment*, the 6 standard NASA classifications were used for prevention interventions UNAIDS (2007d).[21] This system draws from the WHO Guide for producing national health accounts (2005) and the resulting NASA classification was approved by members of the UNAIDS Global Resource Tracking Consortium in September 2005. Many countries participated in finalizing the NASA classification system, and have started to use this standardized NASA resource tracking system as part of the national M&E system. Target population and age groups were also standardized within the NASA. (UNAIDS (2007d)

[21] UNAIDS (2007d)

2.3.3 Methodology – HIV prevention review

A brief literature review was carried out, and new data were collected in three topic areas. Data collection used the following three templates/tools designed for this purpose by UNAIDS and GAMET and evaluated, customized and approved in-country:

a) The HIV prevention response ***policy checklist (Annex 4a)***, which was used to guide the literature review and the interviews of key informants. The adaptations of this checklist recommended by stakeholders were: to add the scoring list as used in the UNGASS policy index, and to extend the question on resource mobilization to include both external and internal resources. Triangulation with information from national literature was also done.
b) The HIV prevention response ***strategic information checklist (Annex 4b)***, which was used to guide key informant interviews, as well as the study of documents. No country-specific modifications were suggested for this checklist by the consulted stakeholders. The 2008 M&E assessment and other relevant documents were also used to inform this area of the review.
c) The HIV ***prevention programme template (Annex 4c)*** for capturing information from individual prevention service providers. This template was designed to collect information about all major prevention activities, services or commodities, (UNAIDS (2007d) their delivery mode, key messages, target group, age, geographic location, when a programme started, its reach, outputs and methodology.

   For ease of data collection, the template was turned into an interview guide (**annex 4c**). A total of 50 template questionnaires were mailed to HIV prevention service providers who were sampled from over 300 that implement HIV and AIDS in the country. Those that were selected were sent a questionnaire to complete and these questionnaires were collected from their offices where more discussions were held about the issues in the template. Thus, the implementers were also interviewed during the collection of the completed template. Overall, 12 government structures, 13 international NGOs, 23 local NGOs and 3 CSOs were interviewed by the two lead local consultants. Interviews were recorded and transcribed by hand.

2.3.4 Methodology – HIV prevention resources review

The NASA, conducted independently of the MoT study, was a key data source. The detailed methodology is described in the NASA report (UNAIDS/ NAS, 2008). In brief, this tracking of actual expenditures for HIV/AIDS in Sierra Leone used the standard NASA methodology, and captured Sierra Leone government and external sources of funds. Priority was given to actual expenditure records obtained from the service providers, or recipients of the funds, rather than the budgetary allocations of government or the commitments or disbursements of donors. The sample included all main sources, all agents of funds in Sierra Leone and all main providers.

A total of 40 organizations were sampled for the Sierra Leone 2007 NASA, plus all seven hospitals, all four health centres and 18 other health care facilities using purposive sampling to obtain representation of urban and rural facilities, and public and private facilities.

2.4. Methods for the Know Your Epidemic-Know Your Response Synthesis

This step was largely based on the methodology described in "How to write an HIV epidemic, response and policy synthesis: a practical guide" (World Bank, version 6.0)[22]. The key areas of enquiry were:

- To understand the socio-cultural context in which HIV prevention policies are implemented
- To understand whether HIV prevention policies are based on the latest available evidence and global best practice
- To understand whether HIV prevention policies respond to the key drivers of Sierra Leone's HIV epidemic
- To understand whether HIV prevention programmes are in line with the country's HIV prevention policies. If programmes are not in line with policy, to understand whether the policies are outdated (i.e. whether evidence exists that the new, innovative prevention responses are working) or whether the HIV prevention responses need to be adjusted (re-planned, re-designed or re-programmed) to reflect the latest policy-level decisions
- To understand whether the funding allocated for HIV prevention is directed where it is most needed

For the joint analysis of the "know your epidemic" and "know your response" parts, data were synthesized at three levels: individual level, couple level, and community level.

a) ***Individual level analysis***: Included biological, demographic and behavioural factors that may influence a person's risk of HIV acquisition, such as education status, circumcision status, number of sexual partners;
b) ***Couple level analysis***: Included factors which help determine the HIV transmission risk between sexual partners, such as age disparity between the partners;
c) ***Community level analysis***: This analysis summarized determinants of HIV transmission that are outside the direct influence of individuals and couples. Conceptually, this includes the family, community and wider society - for example, social norms.

In order to locate risk factors at the different levels and understand the HIV epidemic context, the framework for the social epidemiology of HIV/AIDS described by Poundstone *et al.* (2004) was used. This framework includes "social factors" and "structural factors" beyond the individual level, allowing a wide and encompassing view of the epidemiology and context of HIV.

2.5. Modes of Transmission (MoT) Study Limitations

This study had several limitations. Some data on risk groups such as HIV and STI prevalence in IDUs, number of partners and sexual acts per partner per year for various risk population groups were not available. These were however, obtained from the literature reviews of neighbouring countries with similar epidemiological scenario. Furthermore, the model has some inherent

[22] World Bank (2008b).

limitations: it does not take into account the distribution of behaviours within risk groups, the influence of specific STIs, sexual mixing patterns, or concurrency of relationships.

The synthesis had to use some older data where recent data were not available and some out of the country data, which weakens the power of the study (most of the data used came from in-country – Sierra Leone). It was rarely possible to show long term trends of variables, due to different measurement methodologies. The SDHS 2008 data were only available in the form of bivariate analysis (relationships among pairs of variables), and any data interpretations had to be made with caution due to potential confounding effects by other variables (like age). The framework for classifying HIV interventions (Sweat 2008) requires a rich description of the intervention, which was not always attained, making classification as per the framework difficult.

Additionally, the lack of available data from prevention implementers on coverage, target population, evaluation reports of interventions, etc. limits the conclusiveness of the review (for instance, one programme with complete national coverage may be more important than several very small-scale programmes, but the intervention data available to this review do not sufficiently describe the programme's scope, reach and coverage).

In the data collection for the prevention review, there were competing demands on time of key personnel/key informants and people had difficulty honoring appointments because of other commitments. Some organizations were visited three times in order to conduct an interview. The template used for collecting prevention implementers' data uses a new classification (UNAIDS 2008) and stakeholders in prevention were not familiar with it and at times found it difficult to relate their interventions to it. For instance, condom interventions are split into condom promotion (category 1) and condom distribution (category 2), and some implementers were not used to separating these two activities conceptually.

CHAPTER 3: THE CURRENT STATUS OF THE EPIDEMIC

3.1 Introduction and Background

This chapter describes the epidemiology of HIV in Sierra Leone over time: trends in HIV prevalence and incidence, magnitude of the problem and current phase of the epidemic, the main transmission pathways for new infections; and the heterogeneity of the HIV epidemic (by age and gender, urban and rural; geographic location, educational and economic status; marital status and risk behaviours).

Sierra Leone has an estimated population of about 5.6 million people and its average annual growth rate is 2%. The female population accounts for 52% of the total population with an average total fertility rate of 5.1 children per woman (3.5 urban vs. 5.8 rural). The country's total surface area is about 72,000 Km2. Administratively the country is divided into 4 regions, namely, the Western Area, Northern Region, Southern Region and Eastern Region. These four regions are further sub divided into 19 Local Council areas: 14 district council areas and 6 towns (including the city of Freetown). The Districts are subdivided into Chiefdoms and chiefdoms are further sub divided into wards into sections. In all, there are 149 chiefdoms. The Western Area is divided into Western Rural and Western Urban which is the capital city, Freetown and the seat of Government. Approximately two thirds of the populations live in rural areas, most of which lack many modern social amenities.

Sierra Leone is potentially a rich country but the economic and health indices of the population have remained unsatisfactory since the end of 1990s. The country suffered from a 10-year long brutal and protracted civil-war that led to the displacement of about 60% of the population from their homes and destroyed most of the social service delivery infrastructure. The majority of population in Sierra Leone, especially in rural areas, lacks access to basic social services. The 2008 SLDHS reported that 51% of households had access to clean and safe drinking water (83% urban vs. 34% rural); 12% of households had access to electricity (33% urban vs. 1.4% rural). The adult literacy rate was estimated at 26% for women and 45% for men. About 71% of the population was described as poor. Sierra Leone's Infant Mortality Rate (IMR), Under five Mortality Rate (UMR) and Maternal Mortality Ratio (MMR) are still among the highest in the world, standing at 89, 140 and 857, respectively.

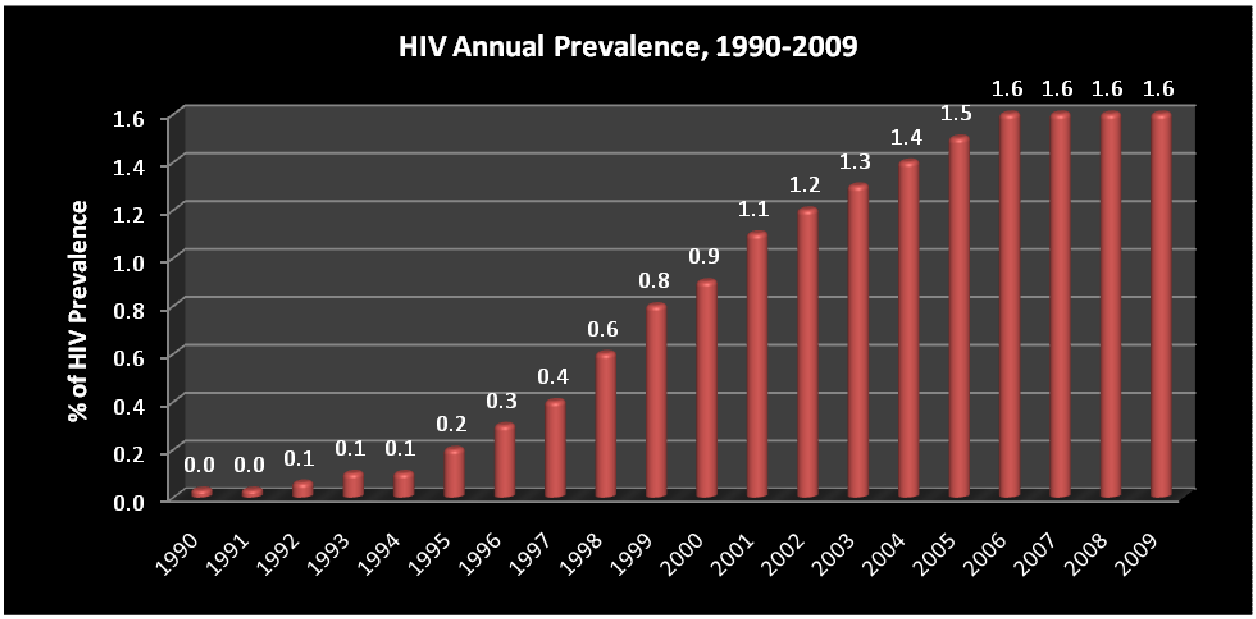
The Civil conflict that ended in 2002 may have increased the risk for human immunodeficiency virus (HIV) transmission through the sexual abuse of teenage girls and women, drug abuse, migration, and displacement of the population. In addition, the problem of the spread of HIV and AIDS was compounded by the low level of awareness and knowledge about HIV/AIDS, during and immediately after the cessation of war, particularly knowledge relating to its mode of transmission and methods of protection.

3.2 National Trends in HIV prevalence

The first case of HIV in Sierra Leone was reported in 1987[23] and soon thereafter the country was plunged into a protracted civil war lasting over ten years. In the interim, the epidemic grew from concentrated epidemic experienced by high-risk groups to the current low and mixed epidemic of both concentrated and generalized type.

Figure 1 below presents the HIV prevalence trends in the age group 15 - 49 from 1990 to 2008. The prevalence trend indicates that the epidemic may have just reached the peak and beginning to stabilize.

Figure 1- HIV Prevalence in Sierra Leone, 1990 to 2009



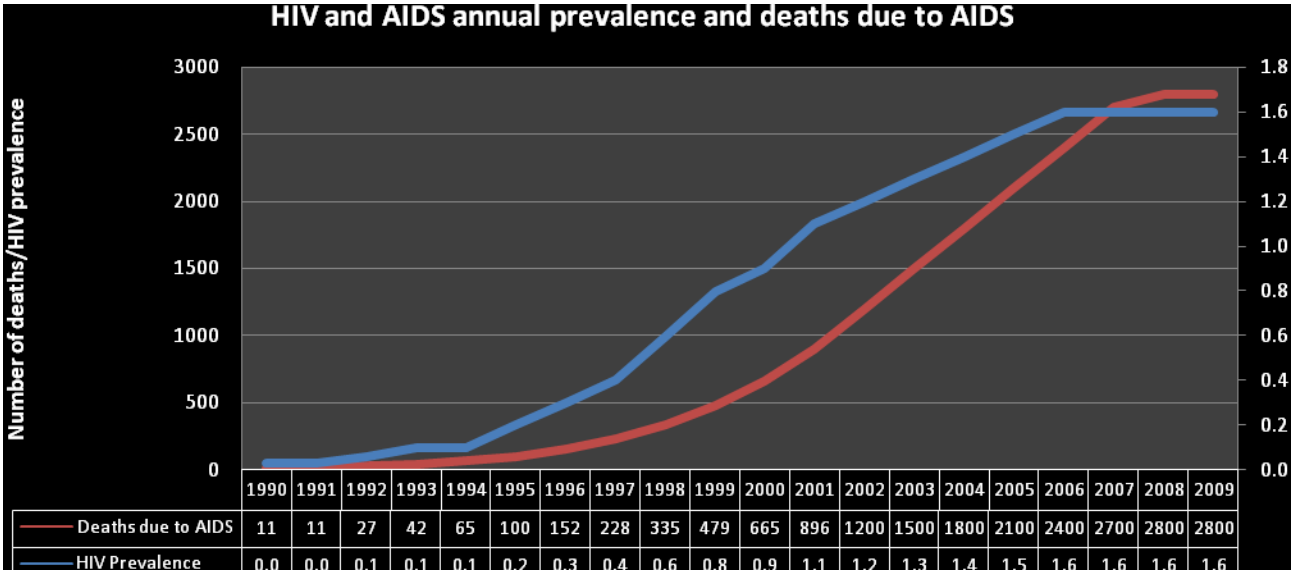
Source: Data from M&E of National HIV/AIDS Secretariat, 2010

HIV prevalence is at least 1.3 times higher (and usually at least two-fold higher) in urban than in rural areas in 9 of 11 countries where data are available. Cape Verde is the only country with a strong predominance of cases among men; Burkina Faso, Niger and Sierra Leone have a gender HIV ratio close to one, and there are significantly more women infected in Benin, Côte d'Ivoire, Ghana, Guinea, Liberia, Mali and Senegal, with female: male ratios of HIV prevalence between 1.5 and 2.25. This may be partly the effect of lower survey participation rates by men, but also suggests feminization as the epidemic has matured.[24]

Figure 2 presents comparison of HIV prevalence and mortality due to AIDS in the adult population of 15 – 49 years old. The figure shows that in 2008 mortality due to HIV and AIDS equaled and proceeded to surpass that of the prevalence, which further supports the hypothesis that the prevalence may be stabilizing and on the decline.

[23] National strategic plan (2006 2010)
[24] WB synthesis of west Africa 2008

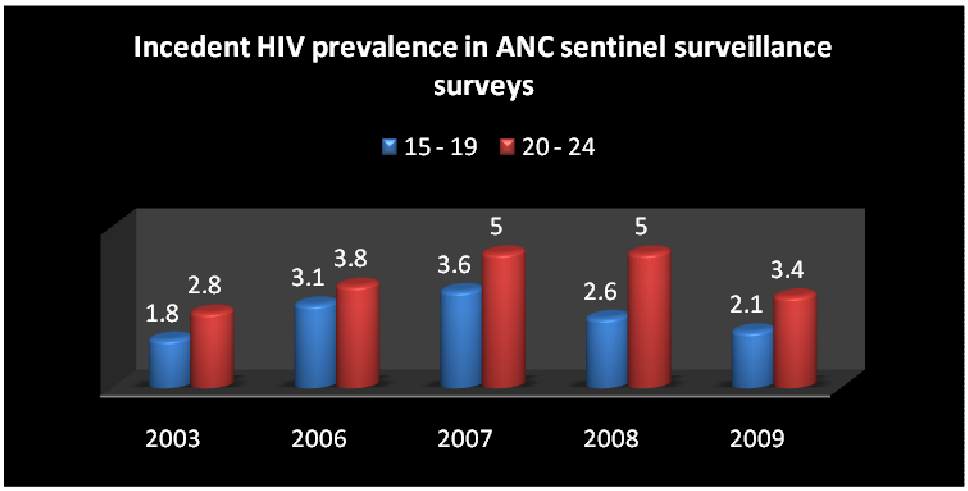
Figure 2: Annual HIV Prevalence and AIDS Deaths from 1990 – 2009



Source: Data from M&E of National HIV/AIDS Secretariat, 2010

Therefore, if the current transmission intensity and dynamics maintain the current direction, the HIV prevalence should continue to decline in Sierra Leone. The declining trends in the HIV prevalence are not only supported by the increasing mortality that depletes people living with HIV and AIDS from the population but also by the declining incident cases of HIV in the younger age groups, which cases are proxy incidence as exemplified in the 15-19 and 20-24 age groups (Figure 3) showing the commencement of the decline starting in 2007 among the 15-19 age group. However, prevalence decline due to deaths from AIDS would stop or progress slowly as soon as the ART programmes starts having impact.

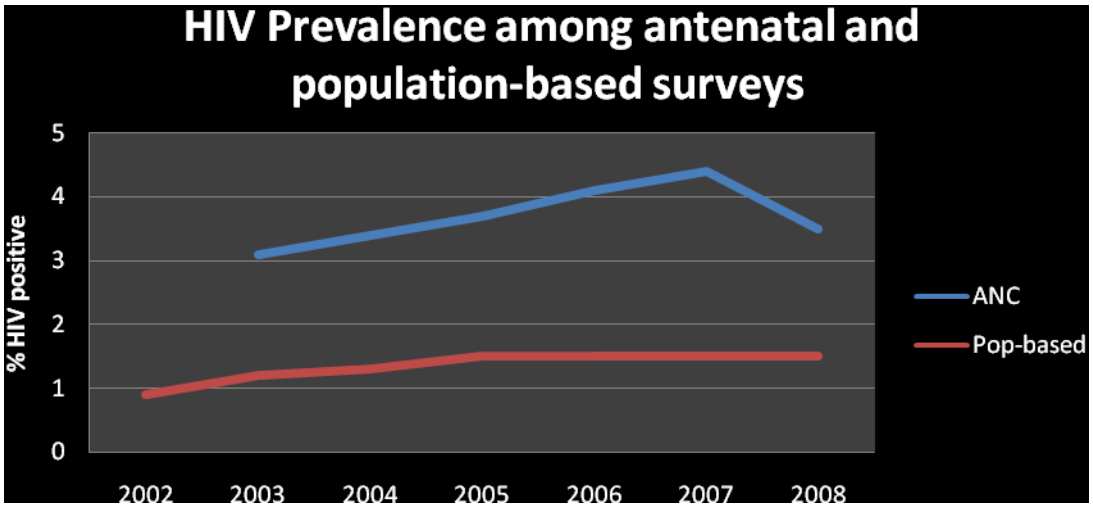
Figure 3: Prevalence of HIV among the younger pregnant women (15 -19 and 20 – 24 years) showing proxy incidence of HIV in the Sierra Leonean population for the years 2003, 2006 and 2007



Source: Data from the national HIV/AIDS secretariat sector response and MOH&S (Sentinel Surveillance reports (2003, 2006 and 2007)

With the cessation of internal conflicts around about the year 2000 the country conducted the first population-based sero-prevalence study in 2002 that established the national HIV prevalence of HIV-1 at 0.9 percent[25]. This was followed by the development and establishment of HIV Sentinel Surveillance in 2003[26]. Since then the country has undertaken regular sero-prevalence surveys amongst women attending antenatal clinics, from which the estimates of HIV prevalence and the direction of the HIV and AIDS epidemic has been monitored (Figure 4)[3,27,28,29,30].

Figure 4: HIV Prevalence among antenatal and population-based surveys



Source: Data from the national HIV/AIDS secretariat sector response and MOH&S (Sentinel Surveillance reports (2003, 2006 and 2007)

The HIV prevalence in pregnant women increased from 3.1% in 2003[3] to 4.1 in 2005[4] to 4.4% in 2006[5] to 4.9% in 2007[6] and thereafter declined to 3.5% in 20008[7]. This stabilization with inclination to decreasing rates is further supported by other epidemiological evidence including population-based sero-prevalence surveys [2,31,32].

However, the HIV prevalence reported for pregnant women from the surveys was higher than the 1.53% prevalence reported by the general population-based studies[2,8,9]. It has been generally known that the sero-prevalence rates estimated from the sentinel surveys are higher than the

[25] HIV/AIDS Sero – prevalence and behavioral risk factor survey April 2002
[26] MOH&S Sentinel Surveillance 2003
[27] MOH&S Sentinel Surveillance 2005
[28] MOH&S Sentinel Surveillance 2006
[29] MOH&S Sentinel Surveillance 2007
[30] MOH&S Sentinel Surveillance 2008
[31] Pop Sero-survey (2005)
[32] SSL (DHS 2008)

observed rates in the population and the difference has been estimated to be about 20 percent (20%) or 0.8%.[1,,33,34,35.]

Various reasons for differences in the calibration of prevalence estimates in population-based surveys have been given that confirm that national surveys are not much affected by non-response bias.[36] The bias due to non-response amounted to only 10% in the most severe case and in no case was the difference in observed versus adjusted HIV prevalence statistically significant, similar to the findings of Mishra *et al*.[12] Still, it should be noted that the analytical approach was limited because of the lack of specific risk information about people who were eligible for participation in the survey but who were absent or did not give an interview for another reason. There also exits the potential for bias in surveys in countries with concentrated epidemics, specifically related to the exclusion of populations that are at higher risk of HIV infection from the sampling frame of the survey. However, the bias is unlikely to result in large differences in national prevalence.

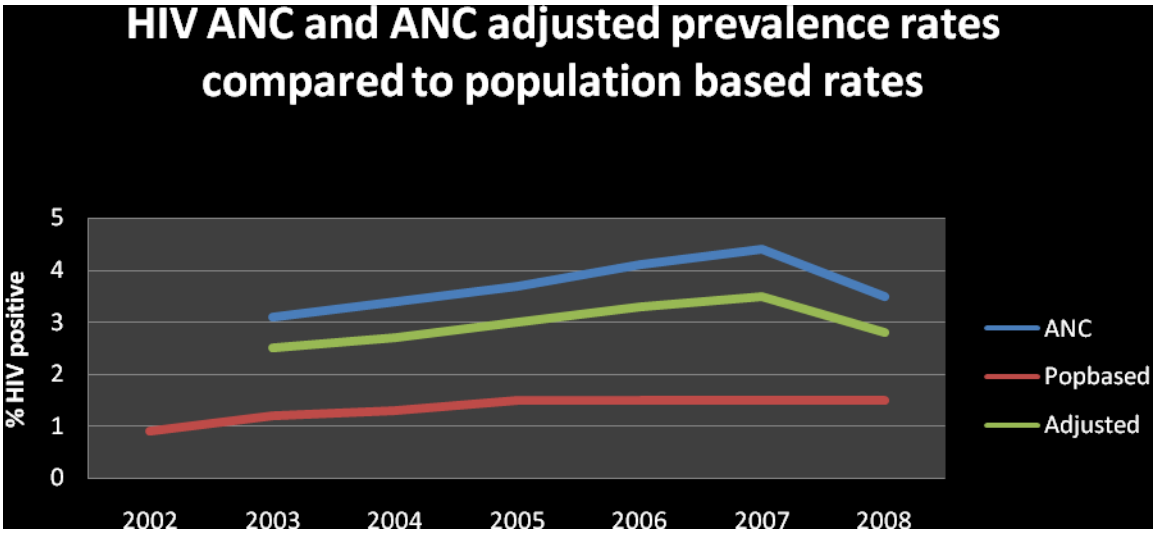
Figure 5-a: presents comparisons between estimated, adjusted and population-based HIV prevalence rates. Thus, it shows still a discrepancy between the population-based prevalence estimates and the adjusted prevalence rates from the sentinel surveys among pregnant women attending ANCs.

Investigation of this discrepancy has compared HIV prevalence estimates from ANC surveillance to population-based surveys for urban and rural areas for 26 countries, and concluded that adult prevalence in the surveys was approximately 0.8 of the ANC prevalence.[37] Also, the prevalence in ANC is similar to the prevalence found in the clusters of the surveys that were near ANC, both for adults and for women.[38] Together, these findings suggest that, besides differences in prevalence by gender, the major reason for the prevalence difference between surveys and ANC is because of the geographical non-representativeness of ANC sites included in countries' surveillance systems, with urban ANC sites disproportionately located in the larger cities and towns, and similarly rural ANC sites leaving out the remote areas of countries that are poorly covered by antenatal services. Therefore these evidence support and provide the rationale for the recalibration of ANC prevalence by a factor of approximately 0.8 when making estimates of national HIV prevalence in countries without specific, local data based on the consistency of findings, as implemented in EPP.[39] [40]

In this study, we have compared the same rates from population-based HIV prevalence rates, ANC HIV prevalence rates and PMTCT HIV positive rates (estimated and adjusted) – figure 5 b. It is clear that PMTCT which is only between 30 and 40 percent coverage in Sierra Leone produces much more robust results reflecting the population based true estimates as presented by the population based estimates (Figure 5-b). When PMTCT estimates are also adjusted by multiplying the estimates by 0.8 as recommended by the UNAIDS-WHO/TWG on population surveys, the outcomes are even below the population-based estimates. These results with similar outcomes and experiences from other comparisons in other countries suggest that a move should be made from using ANC sentinel surveillance surveys and instead use PMTCT results.

[33] Ghys, PD et. al. (2008)
[34] Mishra et. al. (2006)
[35] Robertson L, et al 2008 in Spectrum …
[36] Sewakambo NK, et. al. (2000)
[37] Isingo R, Zaba MM, et al. (2007)
[38] Laurent C, et al. (2005)
[39] Lutalo T, Gray R, Wawer, M et al. (2007)
[40] Van der Paal L, et. al. (2007)

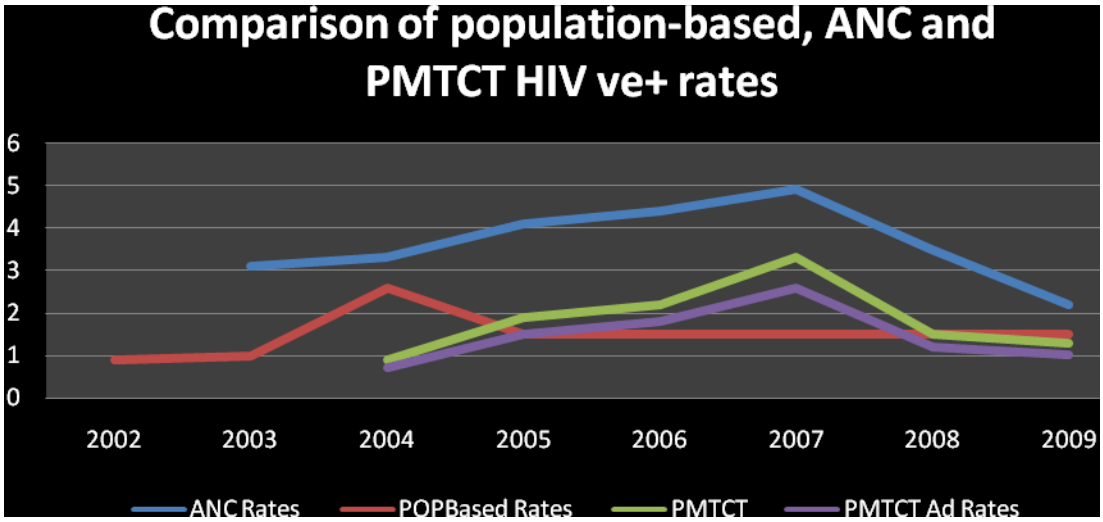
Figure 5 -a: Comparison of estimated, adjusted and population-based HIV prevalence rates in Sierra Leone, 2002 - 2008



Source:: Gov. of Sierra Leone, ANC sentinel surveillance data and population based survey 2008

According to recent population-based sero-prevalence surveys in Sierra Leone, the HIV prevalence increased from 0.9% in 2002[2] to 1.53% in 2005[8] and remained stable at the same level of 1.5% in the SLDHS 2008[9]. This stability is however contradicted by the analysis of data from the sentinel surveys among young pregnant women who signify the incident cases of HIV into the population and represent proxy incidence if HIV (figure 4). Figure 4 presents data showing that the incidence of HIV in the population is still rising and has not yet peaked to start stabilizing. The next two to three years from 2007 will be necessary to predict the direction of the HIV epidemic in the population.

Figure 5 b: Comparison of ANC, population-based and PMTCT HIV positive rates



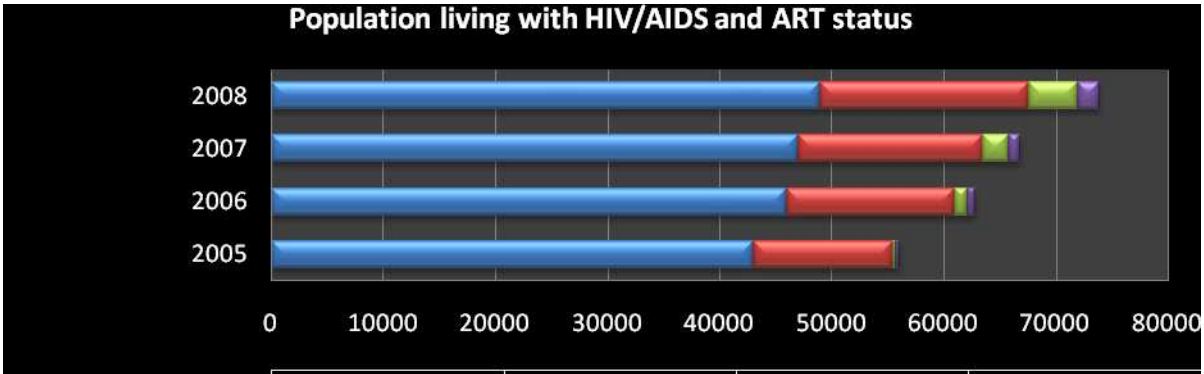
Source:: Gov. of Sierra Leone, ANC sentinel surveillance data and PMTCT data

Status of ART Coverage in Sierra Leone

According to the 2008 Report on the global AIDS epidemic, an estimated 1.9 million people were newly infected with HIV in sub-Saharan Africa in 2007, bringing to 22 million the number of people living with HIV in this region (UNAIDS, 2008b)[41]. These new infections happened despite 20 years of experience with prevention programmes. Success in accelerating access to treatment has not been matched by similar successes in prevention: for every two people who start anti-retroviral treatment (ART), five others get newly infected (UNAIDS 2008b).

Figure 6 presents further support for the declining HIV prevalence trends and the continued decline in prevalence will very much depend on the impact of ART programme in the country as the effective ART programme is likely to cause increase rather than decline in the prevalence. Already, improved access to treatment is having an impact. Antiretroviral therapy coverage rose from 7% in 2003 to 42% in 2008, with especially high coverage achieved in eastern and southern Africa (48%).[42] While the rapid expansion of access to antiretroviral therapy is helping to lower AIDS-related death rates in a number of countries and regions, it is also contributing to increases in HIV prevalence.

Figure 6: Population living with HIV/AIDS and the status of ART in Sierra Leone



	2005	2006	2007	2008
Number HIV+ Population	43000	46000	47000	49000
Number Needing ART	12500	15000	16500	18600
Number Ever Receiving ART	304	1123	2349	4419
Number Currenting on ART	295	703	992	1950

Source: Data from M&E of National HIV/AIDS Secretariat, 2010

Sierra Leone has been unique in the implementation and progress of ART. A sero prevalence survey conducted in 2005 estimated HIV prevalence at 1.53% with about 50,000 adults and children living with HIV/AIDS at the time. In that same year (2005), Sierra Leone joined the global movement to scale up access to HIV treatment, through an integrated package of interventions that included prevention, care and support activities. By 2007, with support from the Global fund anti retroviral

[41] UNAIDS, 2008b
[42] World Health Organization, United Nations Children's Fund, UNAIDS, 2009

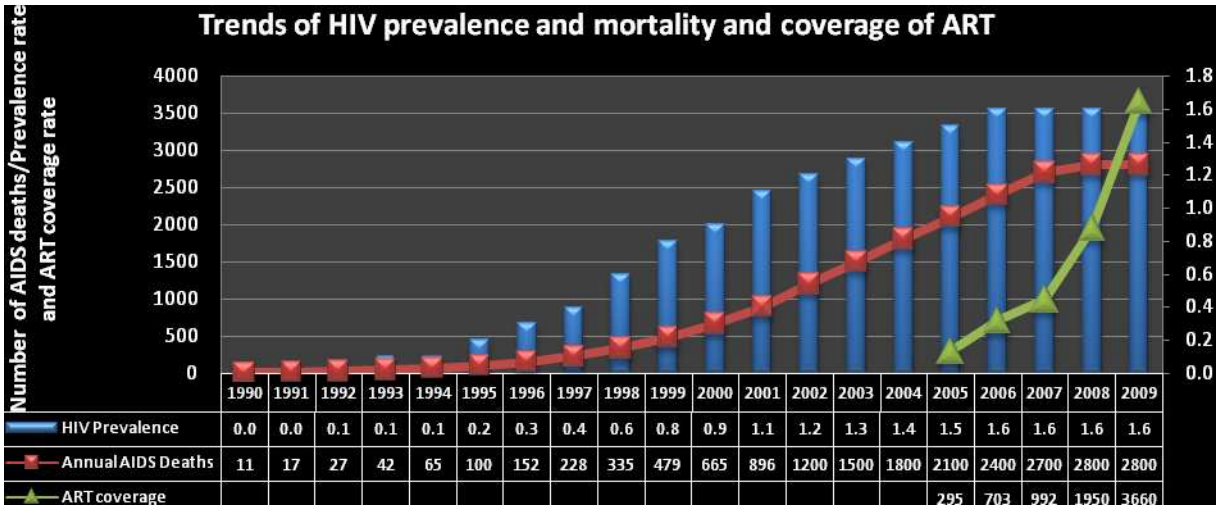
treatment and treatment of opportunistic infection was made available free of charge in a number of treatment centres nationwide.

Health providers working at treatment centres at all levels were equipped with appropriate skills to cater for palliative care, treatment and prophylaxis for opportunistic infections, antiretroviral services and lab services for monitoring treatment of CD4 Cell Counts. The National AIDS secretariat also put in place a monitoring and evaluation (M and E) framework and systems to provide reliable and comprehensive picture of the AIDS epidemic, and the dynamics of the prevalence as well as the impact of interventions including treatment programs. From available records, an estimated 49,000 people were living with HIV/AIDS at the end of 2008 (Figure 6). Of these, the number who needed ART according to WHO specification were 18,600[43] and at the time, (end of 2008), 4,419 people had ever received ART and number of people on ART at the same time was 1,950.

For a country falling within the category of an early epidemic, one expect about 10% (5,000) of persons infected with HIV to be eligible for ART[21]. Therefore, just over 65% of those who needed antiretroviral therapy were receiving it. To date, while reliable data exist regarding the survival of HIV positive adults on treatment, corresponding data for children under 15 years is patchy. As a result, NAS currently places emphasis on measuring progress in the increasing survival among infected adults in Sierra Leone by maintaining them on ART (Figure 7). The survival of people on ART is affected by a number of variables; among them are social characteristics, presence of opportunistic infection and CD4 count at first assessment.

It is currently hypothesized that the long term impact of effective ART program is expected to be not only longevity of life but also quality of life. Effective ART programme at the national level is also expected to cause prevention of about 90 percent of new infections[44]

Figure 7: The impact of ART coverage on mortality due to AIDS and HIV prevalence



Source: Data from M&E of National HIV/AIDS Secretariat, 2010

[43] WHO- 2003 -A Public Health Approach For Scaling Up ARV Treatment- A Toolkit for Program Managers

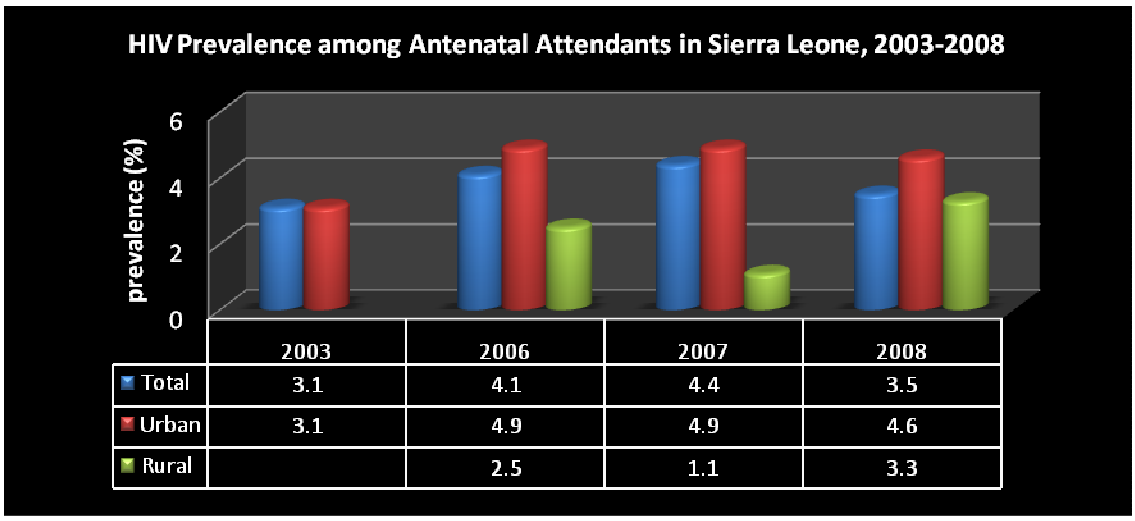
[44] PARIS (AFP) Published IN the Lancet, June 2010

3.2 Heterogeneity of HIV Prevalence

3.2.1 Urban – Rural heterogeneity

HIV prevalence levels have tended to be significantly higher in urban than in rural areas in both the population-based surveys[4] and ANC sentinel surveillance surveys (Figure 8)[5, 6].

Figure 8: HIV prevalence among Antenatal attendants in Sierra Leone, 2003 – 2008

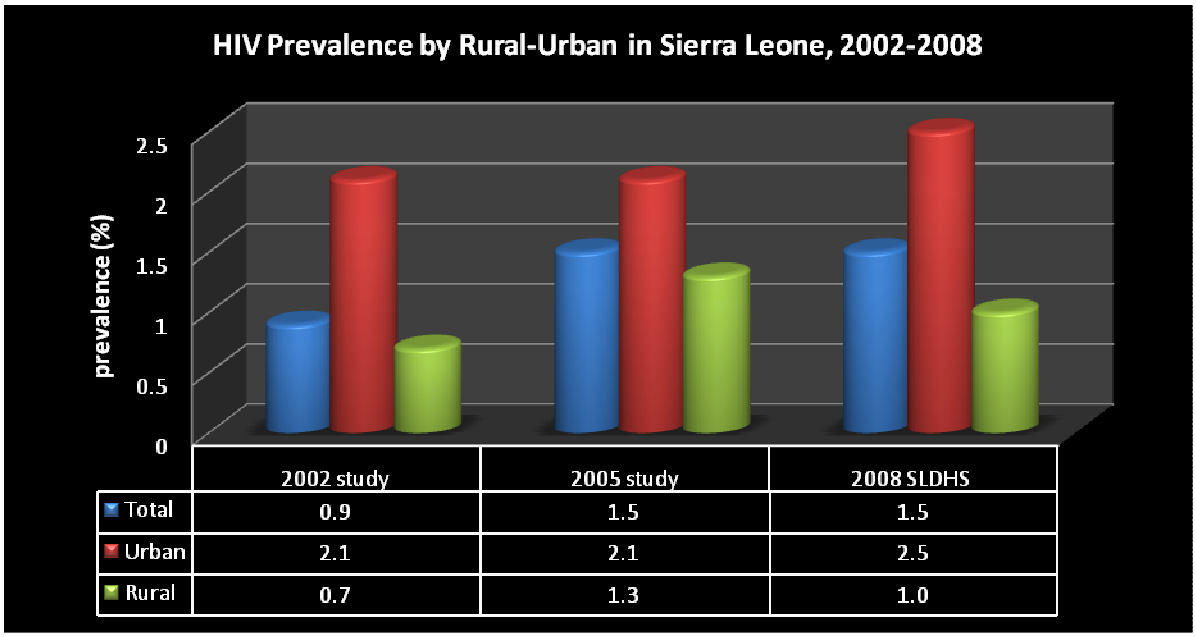


Source: Sentinel Surveys (2003-2008) and Population based surveys of the corresponding years

In the pregnant women attending antenatal sentinel surveillance there was an apparent 20% decline in the overall prevalence of HIV from 4.4% in 2007 to 3.5% in 2008. Urban specific HIV prevalence decreased slightly from 4.9% in 2007 to 4.6% in 2008 but with a considerable rise in the rural population from 1.1 in 2007 to 3.3%, a 67% increase in 2008. The same urban – rural differences in the HIV prevalence were also observed in population-based sero-prevalence survey studies.[2,8,9] Urban residents have a slightly higher risk of contracting HIV (2.5 percent) than rural residents (1 percent). Figure 8 shows the ANC sero-prevalence in pregnant women, where the mean HIV prevalence in urban areas was 4.6% and 3.3% for rural areas in 2008[7].
There was a decline of HIV prevalence in urban areas from 4.9% in 2006[45] to 4.6% in 2008 but an increase in the rural areas from 1.1% in 2007 to 3.3% in 2008 (Figure 9).

[45] ANC SS report 2006

Figure 9: HIV prevalence and urban-rural differentials by year of survey in Sierra Leone, 2002, 2005 and 2008



Source: Population based surveys of the corresponding years

There are very few studies describing the rural differential on HIV prevalence in Sierra Leone other than the SLDHS of 2008[10] and the 2005[4] population-based sero-prevalence reports of surveys conducted by the government of Sierra Leone. More needs to be learned about not only the prevalence or incidence of HIV, but also the dynamics of urban-rural HIV transmission and spread of the epidemic in regard to behaviours and attitudes around sexual practices, sexual networks, the existence of rural sex work, and other local or traditional practices that might fuel or inhibit the epidemic in these settings.

The low HIV prevalence rate documented in the rural area and the persistent urban-rural disparities together with regional differences could be the result of one or several of following hypotheses:

- The rural epidemic could be slow progressing and unevenly distributed – evidence shows that the epidemic did begin in urban areas. However, given the twenty-year duration of the epidemic and the movement of populations one might have expected that there would have been greater diffusion by this point in time;
- The epidemic may be concentrated in those rural areas closer to urban areas and the surveillance system could have been preferentially capturing those "periurban" rural populations who would have had a higher prevalence, whereas the vast majority of the rural population resides far off major urban areas and main roads;
- Access to communication, education facilities and varied community lifestyles and existing industries could have contributed to the slow spread of HIV into many rural areas while fuelling the epidemic in others. As the communication and transport infrastructure in the rural areas improves, along with greater access to education and travel, there is likely to be a further mixing of the urban and rural populations, with the possibility of further spread of HIV into the rural populations;

- If the size of the sub population of commercial sex workers in urban areas was higher than in rural areas, and assuming that their prevalence rates were higher than the general population, this would skew the urban results upwards. However, the dispersion and distribution of commercial sex workers in the country is not very well documented and hence the uncertainty of their differential contribution to HIV epidemic spread by residence;
- There is a great need for research to delve in to investigations concerning the transmission dynamics of HIV in Urban, rural and regional and districts in order to understand the transmission pathways of the infection for specific response.

3.2.2 Heterogeneity by Geographic residence.

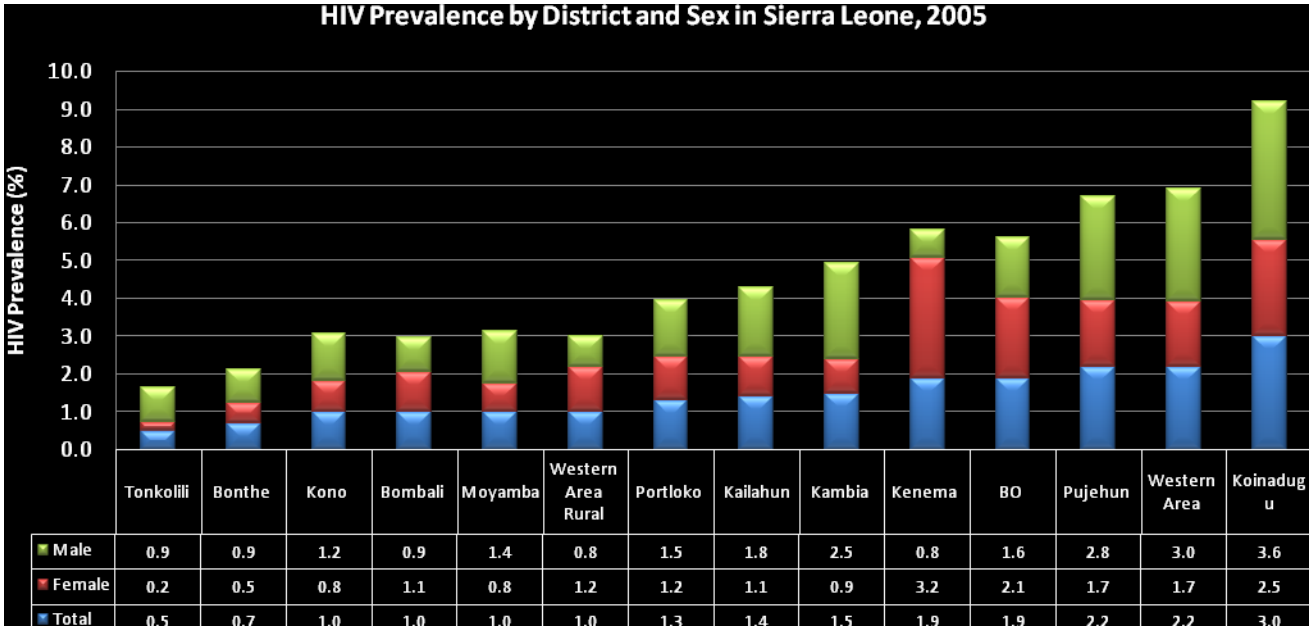
In Sierra Leone, differences among ethnic groups are small. For example, HIV prevalence among the Temne and Mende groups is about 1 percent, compared with 2.1 percent in other ethnic groups combined. Differences by religion and employment status are also small. The HIV epidemic exhibits some degree of regional heterogeneity, with the prevalence rate ranging from less than 1 percent in the Southern Region to 2.9 percent in the Western Region where the capital, Freetown, is located. A similar pattern is observed for both women and men.

Figure 10 presents data showing the HIV prevalence by districts in Sierra Leone and that the districts from the Western region generally had higher HIV prevalence ranging from 1.7% in females to 3.0% in males than was shown in the rest of the districts, especially Tonkolili a Northern region district where the prevalence ranged from 0.2% in the females to 0.9% in the males as compared to Koinadugu also from the Northern region showing a range from 2.5% in the females to 3.6% in the males. The male: female HIV distribution shows that the majority of districts had higher prevalence figures for males than females, unique for Sierra Leone as patterns elsewhere in Africa are different[46],[47],[48],[49],[50]

It was interesting to observe that only two districts, Bo in the Southern region and Kenema in the Eastern region had the familiar African pattern of HIV prevalence being higher in females than males whereas all the rest of the districts had the opposite, that is, men had higher HIV prevalence than females (figure 10). It was also observed that even two adjacent districts in the same region could exhibit very different HIV prevalence rates such as Bombali (1.0%) and Koinadudgu (3.0)[8] both in the Northern region, which leaves one wondering about the possible associated factors to this kind of heterogeneity (Figure 11).

[46] Bolton-Moore C et al. (2007)
[47] Sierra Leone DHS 2008
[48] Ghana DHS 2003
[49] Kenya DHS 2003
[50] Cote I'd Voire AIDS indicator survey, 2005

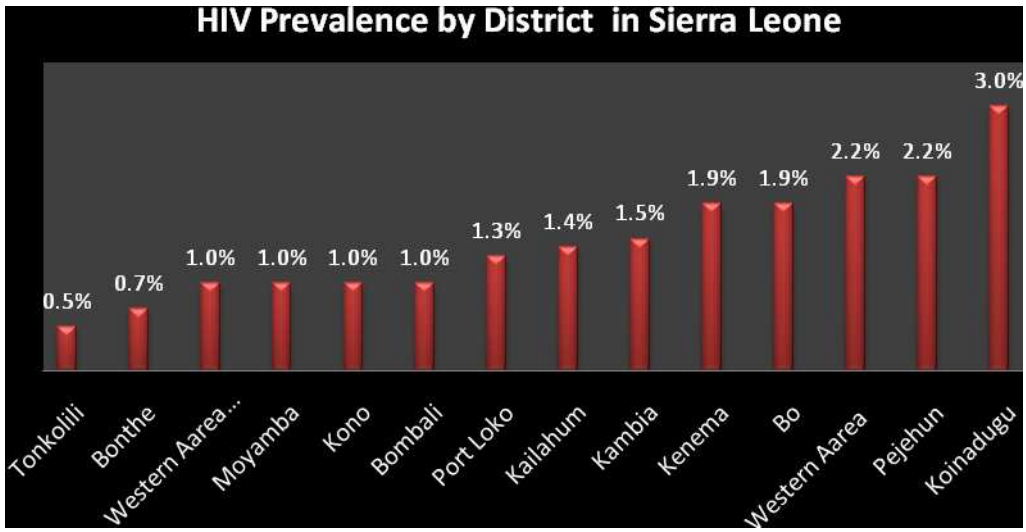
Figure 10: HIV prevalence by district and gender in Sierra Leone, 2005



	Tonkolili	Bonthe	Kono	Bombali	Moyamba	Western Area Rural	Portloko	Kailahun	Kambia	Kenema	BO	Pujehun	Western Area	Koinadugu
Male	0.9	0.9	1.2	0.9	1.4	0.8	1.5	1.8	2.5	0.8	1.6	2.8	3.0	3.6
Female	0.2	0.5	0.8	1.1	0.8	1.2	1.2	1.1	0.9	3.2	2.1	1.7	1.7	2.5
Total	0.5	0.7	1.0	1.0	1.0	1.0	1.3	1.4	1.5	1.9	1.9	2.2	2.2	3.0

Source: National population-based HIV prevalence survey of Sierra Leone 2005

Figure 11: Distribution of HIV Prevalence by District in Sierra Leone, 2005

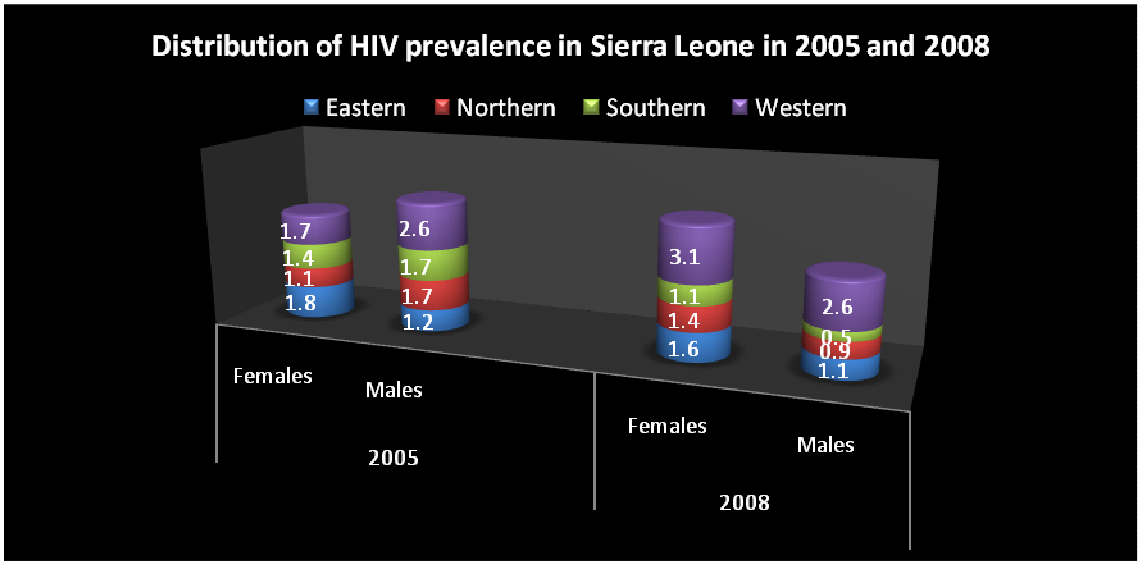


Source: National population-based HIV prevalence survey of Sierra Leone 2005

Figure 12 provides comparative decline or increase in HIV prevalence within a region and between regions in 2005 and 2008. In Eastern region the females' HIV prevalence declined from 1.8% to

1.6% between 2005 and 2008 respectively. The males from the same region had the prevalence remain almost the same, which was from 1.2% to 1.1% in 2005 to 2008. The Northern region provided the greatest change in prevalence for females in the same period from 1.1% in 2005 to 1.4% in 2008 while the male prevalence declined dramatically from 1.7% to 0.9% (almost two times change). The Southern region had similar dramatic change in prevalence of HIV during the same period with a female prevalence decrease from 1.4% to 1.1% and a male change from 1.7% to 0.5% (about 3.4 times change). The Western region had males' prevalence remaining the same at 2.6% and women's' prevalence increasing from 1.7% to 3.1% from 2005 to 2008.

Figure 12: Distribution of HIV prevalence by region in Sierra Leone, 2005 and 2008



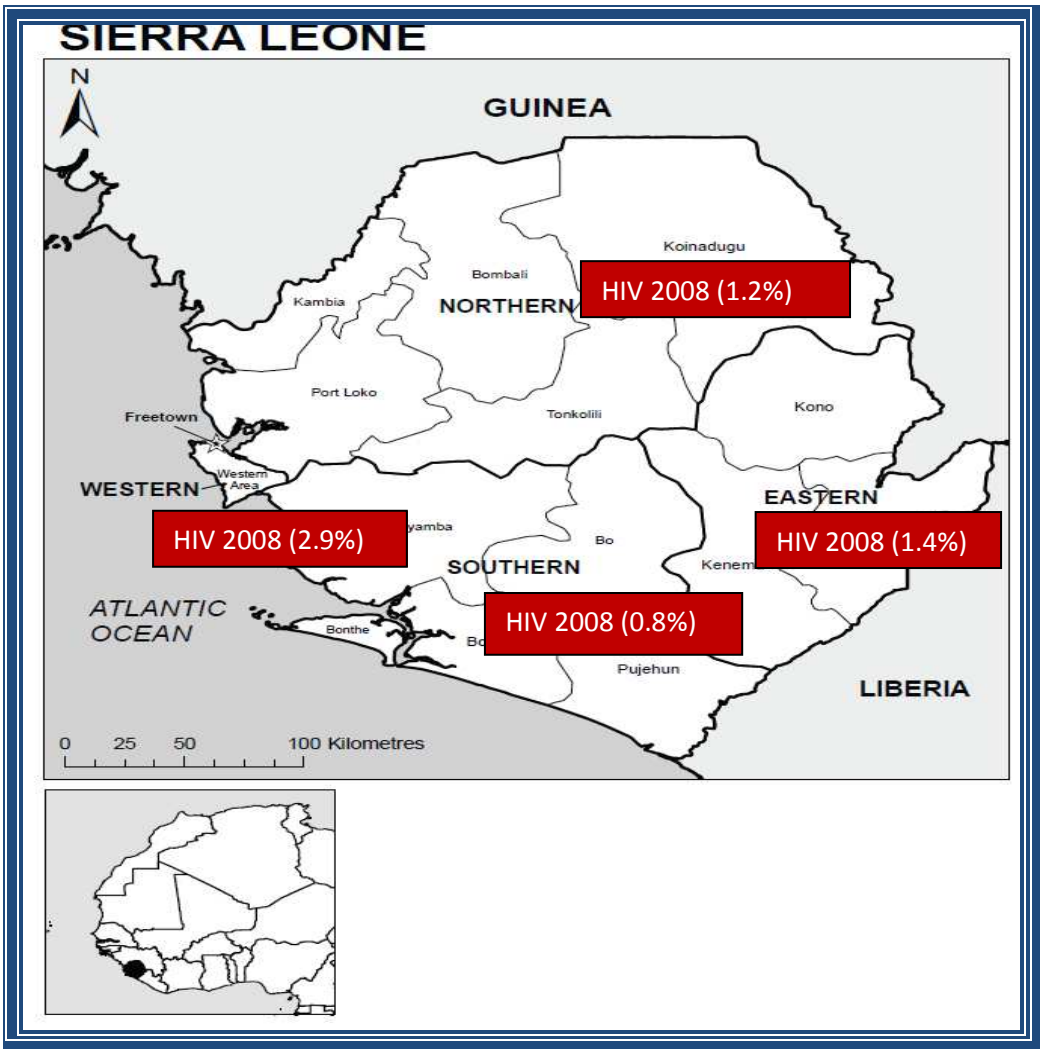
Source: Data from the national population-based survey of 2005 and SLDHS 2008

Within countries and sub regions, wide variations in HIV prevalence and epidemiological patterns are frequently apparent. For example, in Kenya there is a greater than 15-fold variation in HIV prevalence among provinces, ranging from 0.8% in North Eastern province to 14.9% in Nyanza province[51], while the difference between the highest prevalence and lowest-prevalence region in the United Republic of Tanzania is more than 16-fold.[52] Although the North and West provinces of Sierra Leone border each other, HIV prevalence is nearly four times higher in the latter (1.2% versus 2.9%).[53]

Figure 13 presents the map of Sierra Leone showing distribution of HIV prevalence by region in 2008. The western region was leading with the overall prevalence of 2.9 percent, followed by the Eastern region as a distant second with 1.4%, which was less than half of Western. The region with the lowest prevalence was Southern, with only 0.8 percent.

[51] Gelmon L, Kenya PR, et al. (2009)
[52] Tanzania Commission for AIDS et al., 2008
[53] Sierra Leone Ministry of Health & ORC Macro, 2008

Figure 13: Distribution of HIV Prevalence by Regions in Sierra Leone, 2008

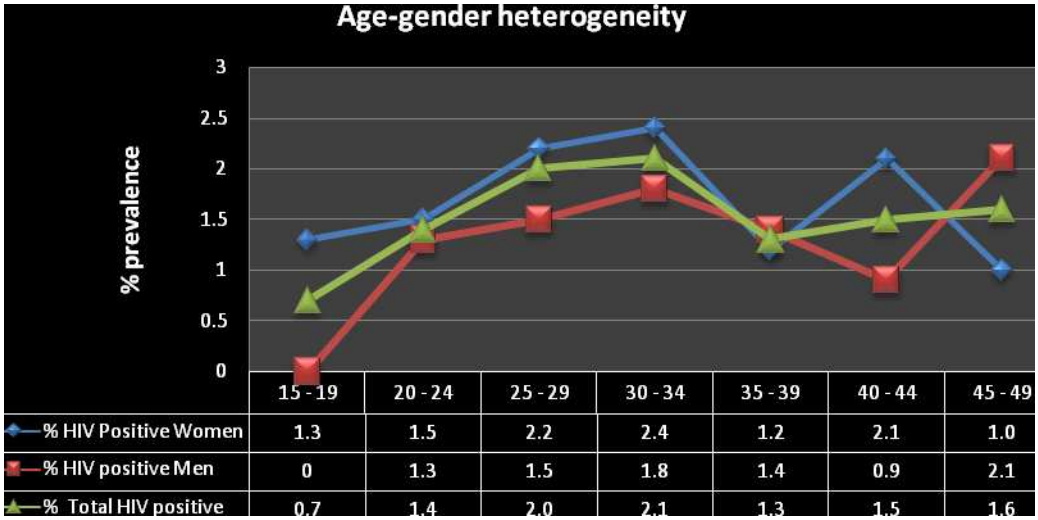


Source: Sierra Leone Demographic and Health Survey 2008

3.2.3 Age-Gender related heterogeneity

Results from the 2008 SLDHS showed that HIV prevalence in women aged 15 – 49 was 1.7 percent, while for men of the same age group it was 1.2 percent. Prevalence peaked among women and men in age group 30 – 34 (2.4% for women and 1.8% for men) figure 14. **HIV prevalence in females was slightly higher than in men at younger ages, and lower at older ages (45 – 49).** HIV prevalence in women aged 15-49 years was also slightly higher (1.7%) than in men (1.2%). The difference was most significant at age 40 - 44, where the female prevalence was one and half times more than in males (2.1% and 0.9% respectively). **HIV prevalence peaked at 25-29 years for women and at 35-39 years for men, and a considerable proportion of older adults were also HIV infected.** From age group 35-39 and older, prevalence among men exceeded prevalence among women except in the age group 45 – 49 where the prevalence was higher in men 2.1% against 1.0% in females. HIV prevalence showed a three-fold increase among rural pregnant women, rising from 1.1% in 2007 to 3.3% in 2008[9].

Figure 14: HIV Prevalence by age and gender



	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49
% HIV Positive Women	1.3	1.5	2.2	2.4	1.2	2.1	1.0
% HIV positive Men	0	1.3	1.5	1.8	1.4	0.9	2.1
% Total HIV positive	0.7	1.4	2.0	2.1	1.3	1.5	1.6

Source: Sierra Leone Demographic and Health Survey 2008

HIV prevalence was highest among the adult population 25 – 34 years for both men and women and for women 40 -45years old and significantly increased in men 45 – 49 years of age compared to young people less than 25 years (1.0%) Figure 14.

The HIV prevalence among women and men 15-24 years was 1.4% and 0.5%, respectively constituting a 2.8 times higher prevalence rate in women than men. There was broad peak of HIV prevalence between 25 and 39 years, before stabilizing in the 40-44 years age group, and sharply declining in the 45-49 age groups. The burden and impact of HIV was much more in the prime and productive age groups 20-39 years. HIV prevalence generally tends to peak at a younger age for women than for men.[54] According to household surveys in 28 countries—all but five in sub-Saharan Africa— peak HIV prevalence for women occurs between the ages of 30 and 34, while men

[54] Gouws et al., 2008.

experience the highest levels of HIV infection in their late 30s and early 40s.[55] The very young are often at extremely high risk of infection through mother-to-child transmission.

Women and girls continue to be affected disproportionately by HIV in sub-Saharan Africa. For example, in Côte d'Ivoire, in West Africa, HIV prevalence among females (6.4%), and women were more than twice more likely to be infected than their male counterparts, while 20–24-year-old women were 5.5 times more likely to be living with HIV than men in their age cohort[56] . Among people aged 15–24 in the United Republic of Tanzania, females are four times more likely than males to be living with HIV[57]. In the nine countries in southern Africa most affected by HIV, prevalence among young women aged 15–24 years was on average about three times higher than among men of the same age.[27]

3.3 Distribution of HIV Incidence in Population Groups

Trends in incidence, defined as new infections per population at risk in a specified period of time, is the most reliable measure for monitoring the HIV epidemic. Reductions in incidence may imply successful behaviour change efforts. However, in most developing countries like Sierra Leone there are slim possibilities of finding sources of data on HIV incidence at any level. Recently however, many HIV and AIDS Control Programmes (NACP) are employing mathematical modelling using the Spectrum modelling software to estimate the number of new infections occurring in each year. Using this technique, the NAS/M&E of Sierra Leone estimated about 5,000 new infections occurred in 2008 (NAS/M&E, 2008).

There is another method of estimating incidence by inferring incidence from trends in prevalence among the young age groups especially the 15 – 19 year olds. This is because young adults have recently initiated sex, so duration of infection is generally short and mortality is low in this age group. Prevalence in this age group therefore approximates incidence. Annual incidence estimates can be derived using HIV prevalence data among young people by single year of age and assuming that prevalence differences between the age strata represent incident HIV infections (Ghys et al. 2006,[58] Zaba et al. 2000[59]).

Incidence is best derived from longitudinal studies through incidence can be best be monitored because it is possible to follow the same individuals over many years testing them for HIV infection. Thus these cohort studies identify new infections when they occur in the population under surveillance. There are no such studies being conducted in Sierra Leone presently.

3.3.1 Sources of new (incident) infections using the Modes of Transmission model

Populations by risk group

The population in Sierra Leone aged 15 – 49 (2,365,122) years was assigned to risk groups (Table 1.). Approximately 30.8% (727,866) of the population aged 15 to 49 were mutually 'monogamous' heterosexuals; 21.7% (303,918) are in the multiple partnerships risk group and their partners were 8.4% of the population (199,262). The number of sex workers was estimated to be 82,779 (3.5%) and that of their clients was 23,060 (1.0%). It is estimated that there was a total of 2,365 men who

[55] Macro International, 2008
[56] Cote d Ívoire National AIDS Control Programme, 2009)
[57] Tanzania Commission for AIDS et al., 2008
[58] Ghys et al. 2006
[59] Zaba et al. 2000

have sex with men, based on self-reports by survey respondents (See **Annex 5:** HIV incidence model data in-put and **Annex 6a-e:** Sources of HIV incidence model data).

3.3.2 Overall incidence and distribution of new infections of HIV by mode of exposure

Overall, a total of 5,044 new infections were estimated to occur in Sierra Leone in 2008 among the 2.7 million 15–49 year old adult population. This figure is practically the same as the Spectrum estimate of new infections among adults of 5,000 excluding infections due to mother-to child transmission, which was calculated by the NAS/M&E section. HIV incidence data outputs are presented in **Annex 7.**

Table 3.1: Populations at Risk and Incidence by Mode of Transmission

Mode of Transmission	Total number with risk behaviour	as percent of total population	New infections, 2008b	% of total incidence	Incidence per 100,000
Injecting Drug Use (IDU)	1,183	0.05	72	1.43	6,085 **
Partners IDU	591	0.02	4	0.08	655
Sex workers	82,779	3.50	692	13.72	836
Clients	23,060	1.00	1,291	25.60	5,598 **
Partners of Clients	11,826	0.50	19	0.37	158
MSM	2,365	0.10	120	2.37	5,058 **
Female partners of MSM	1,183	0.05	17	0.34	1,456 **
Fisherfolks	96,970	4.10	543	10.77	560
Mine Workers	103,001	4.35	164	3.25	159
Traders	539,248	22.80	381	7.55	71
Transporters	42,454	1.79	178	3.53	420
Casual heterosexual sex	303,918	12.85	652	12.94	215
Partners CHS	199,262	8.42	112	2.21	56
Steady Partner heterosexual	727,866	30.77	790	15.65	108
No risk	229,417	9.70	0	0.00	0
Medical injections	2,365,122	100.00	4	0.09	0
Blood transfusions	11,826	0.50	5	0.10	42
TOTAL ADULT POPULATION	**2,365,122**	**100.00**	**5,044**	**100.0**	**213**

The modelled distribution of the new infections by mode of exposure is shown in table 1 and figure 15a -15d. The bars in figure 15a & c represent the percentage contribution of each risk group to the total number of new infections in Sierra Leone and illustrate the patterns of infection. Contributions reflect level of risk, and also the relative size of the group. The largest proportion (39.3%) of new infections occurs in the sex workers and their clients category. Individuals engaged in multiple partnerships (MP) contribute 15.1% of new infections but it should be noted that essentially the categories of individuals listed as Fisherfolks, Transporters. Traders and Miners are involved in multiple partnerships and in this regard, individuals reporting multiple partnerships account for 40.2%. Sex work (SW) account for 39.7% of new infections -- of which clients of sex workers contribute the most (25.6%), sex workers 13.7 of all new infections and partners of the clients account for the remaining a mere 0.37%.

Small numbers of infections occur as a result of medical injections, blood transfusions. There is, however a worrying new phenomena on the ground which must be nipped in the bud, and this is the apparent emergence of hitherto unrecognized modes of exposure in Sierra Leone i.e. injecting drugs use and men having sex with men. For quite a long time these have been suspected but not verified as exposed by the MOT assessment. The inroads of these modes of transmission are however still in infancy and a concerted effort needs to be put in place to deal with the problems before they explode. The incidence rate expressed per 100,000 populations per year was 71 for individuals with multiple partners (MP), 213 for their partners (PMP), 215 for those in mutually monogamous heterosexual partnerships (MM) and 836 for Sex Workers, but extremely high for IDUs with 6,085, clients of sex workers with 5,598, MSM with 5,058 and female partners of MSM with 1,456 per 100,000 population per year. These categories of drivers of the HIV epidemic could cause an explosion if left unchecked.

Figure 15-a: Percent distribution of new HIV infections by mode of exposure in the adult population, Sierra Leone, 2010

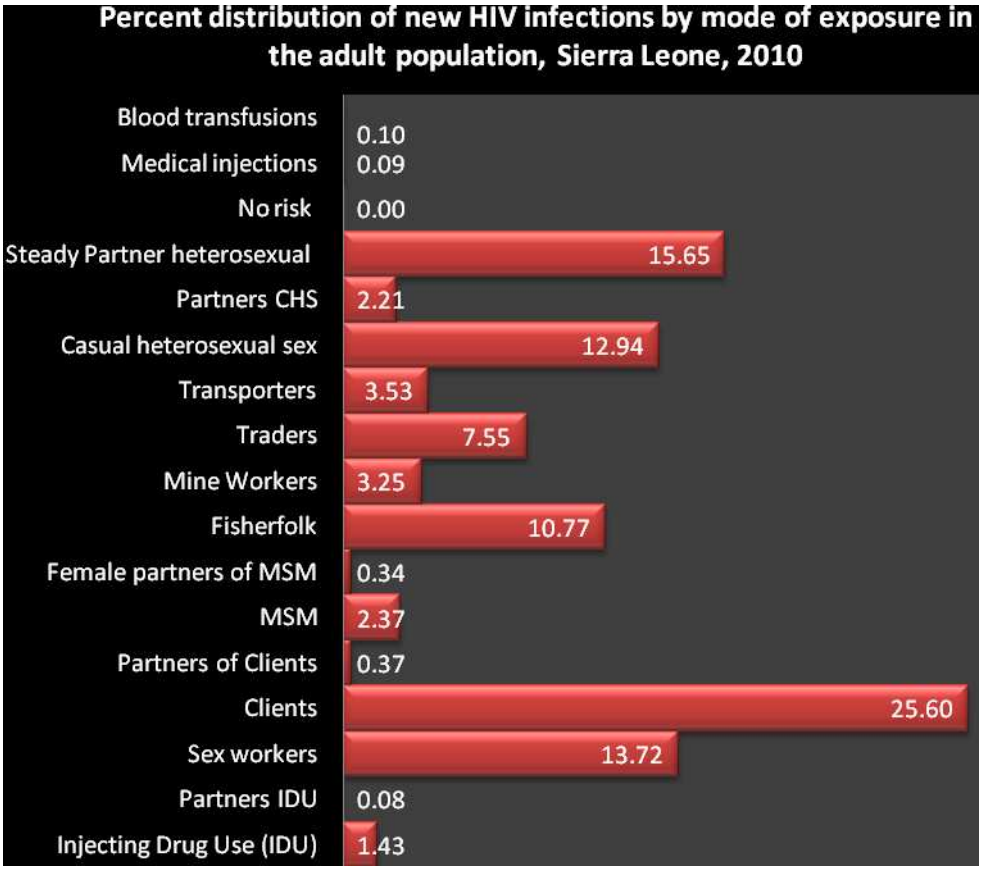
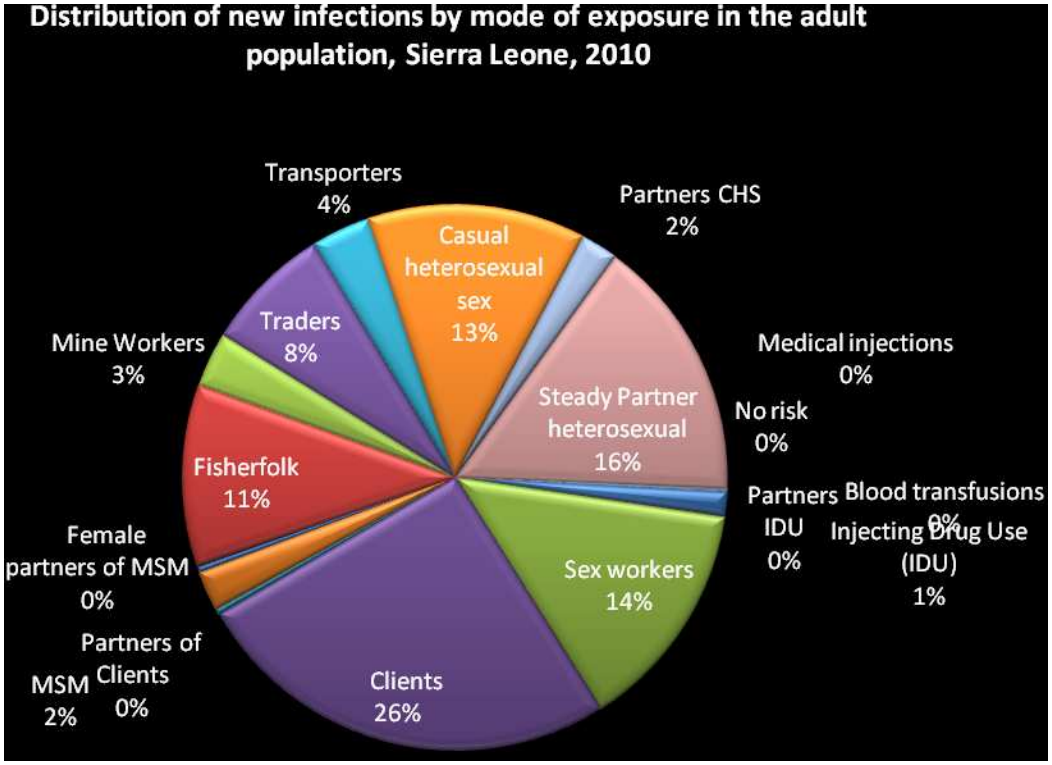


Figure 15-b: Percent distribution of new HIV infections by mode of exposure in the adult population, Sierra Leone, 2010



3.3.3 Percentage of new infections by modes of transmission including Mother to Child Transmission

The UNAIDS modes of transmission model only addresses adult incidence. To obtain a more holistic picture of transmission among adults and children, the total of 5,044 adult new infections estimated by the UNAIDS model was summed with the Spectrum estimate of 800 new infections in children. Using the total new infections in children and adult (5,844) as the denominator, percentage distribution of new infections by mode of transmission in 2008 are shown in table 2 and Figure 16a - b. 35.1% of all new HIV infections are attributable to commercial sex work including their clients and partners of the clients, whereas 34.2% is attributable to casual heterosexual sex (multiple sexual partnerships including infections of their regular partners). Mother-to Child Transmission comes in third, contributing 13.7% of infections which are wholly preventable if PMTCT programme would be strengthened by treating all HIV pregnant mothers and their infants. Couples in mutually monogamous partnerships account for 13.5% of new infections. Although not alarming, MSM and IDU are emerging with contributions of 2.1% and 1.2% of new infections in that order. These too could be nipped in the bud with appropriate environment and programmes being put in place.

Table 3.2: Estimated total incidence of adult and children due to (mother to child transmission) by mode of transmission

Groups	Adult	Adult & Paediatric
Sex workers and clients	39.7%	35.1%
Casual heterosexual sex	40.8%	34.2%
Mother to Child Transmission (MTCT)	--------	13.7%
Heterosexual sex within union/ regular partnership	15.6%	13.5%
MSM	2.4%	2.1%
Injecting Drug Use (IDU)	1.4%	1.2%
Health Facility Related	0.1%	0.2%
Number of New Infections	**5,044**	**5,844**

Figure 15-c: Percent distribution of new infections by mode of exposure in the adult population, Sierra Leone

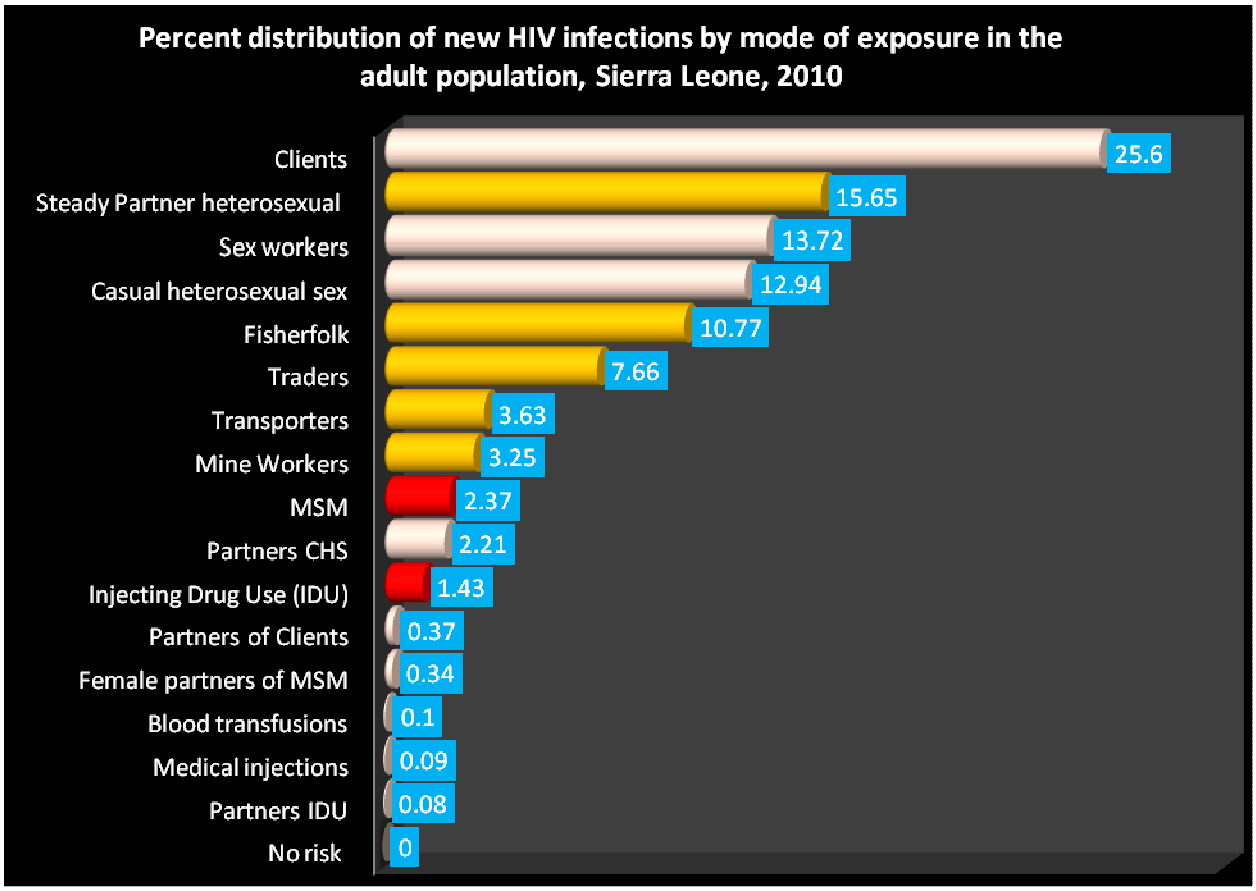


Figure 15d: Percent distribution of new HIV infections in the adult population

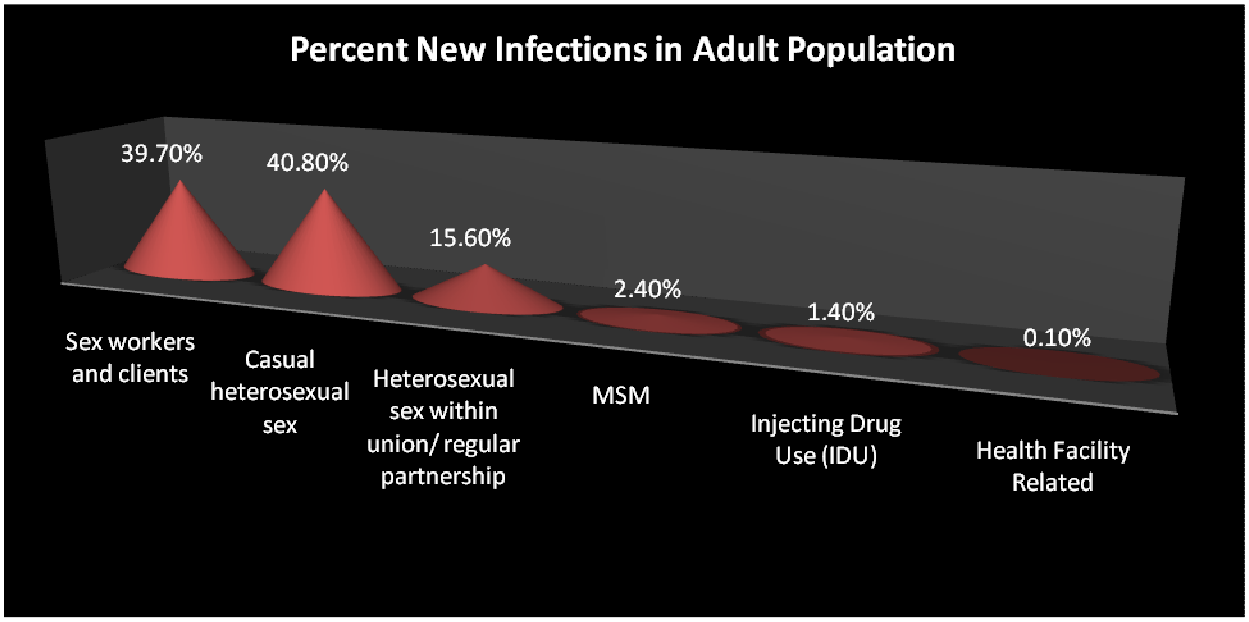


FIGURE 16-A **PERCENT DISTRIBUTION OF NEW HIV INFECTIONS BY MODE OF EXPOSURE IN THE ADULT AND PAEDIATRIC POPULATIONS, SIERRA LEONE, 2010**

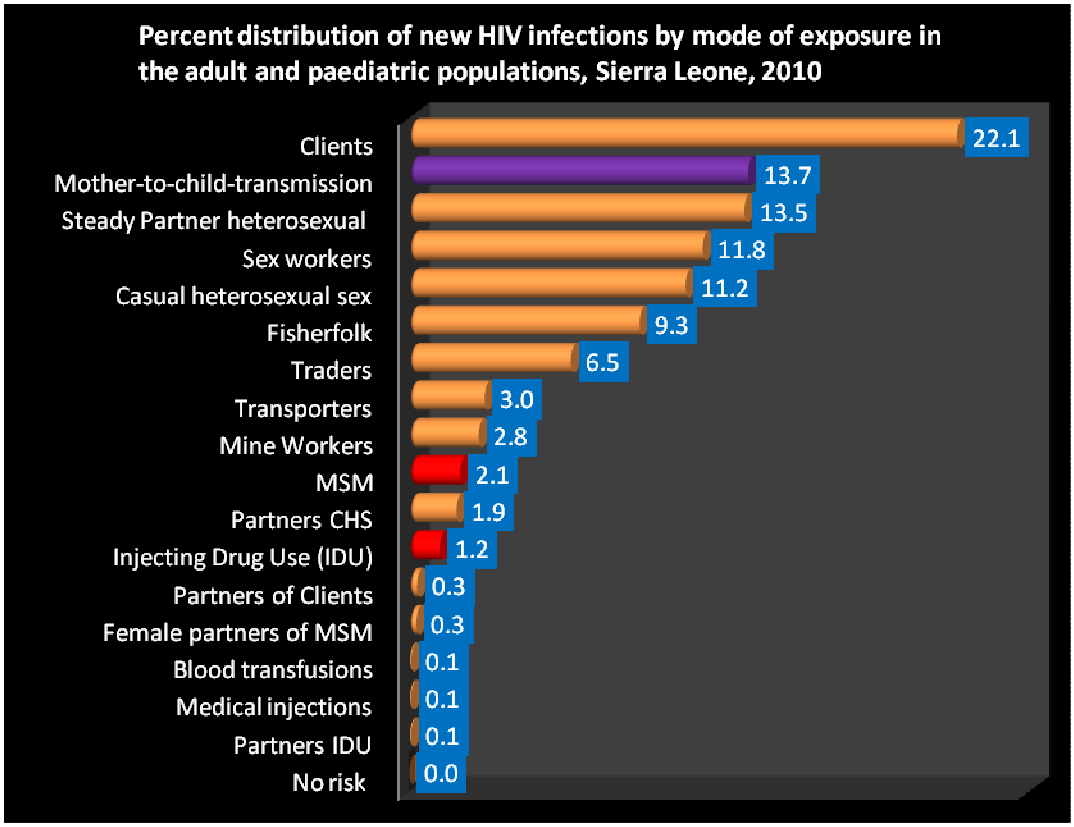
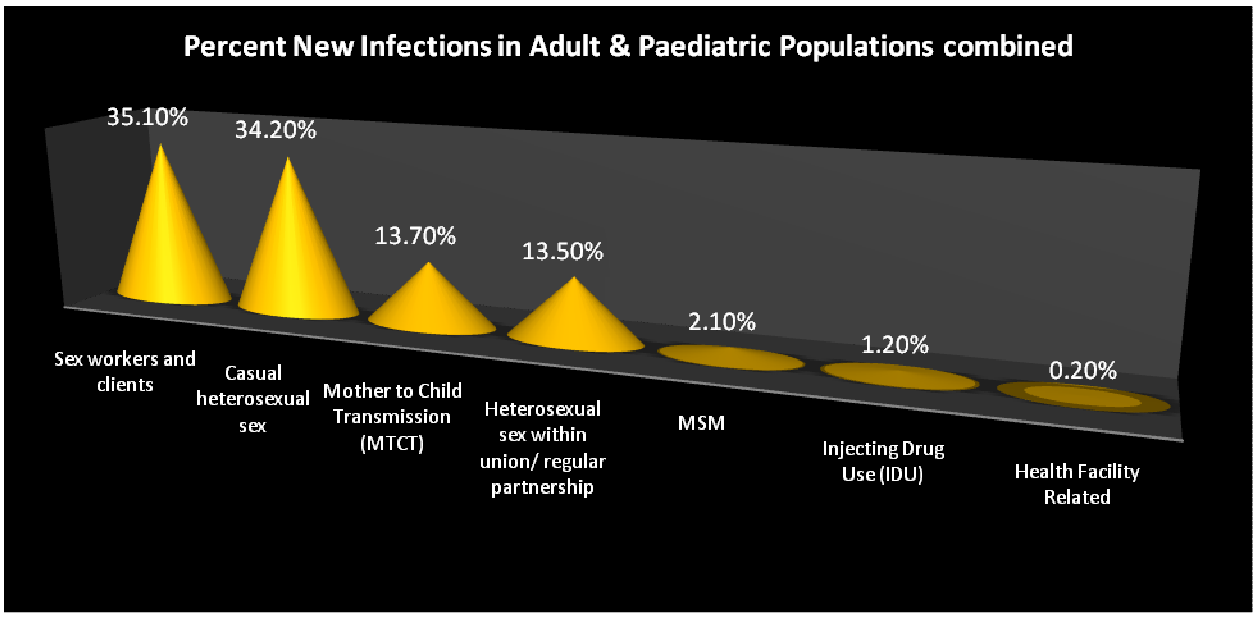


Figure 16b: Percent distribution of new HIV infections in the adult and paediatric populations



3.3.4 Limitations of modelling

There are three points to bear in mind in regard to modelling summarized here below:

a. Models are often based on incomplete data and assumptions, and will therefore never be perfect.[60] The results of any model are only as good as the data entered.
b. Uncertainty around model estimates also depends on the structure of the model, which is based on assumptions and understanding of the epidemic; the model parameters, some of which are uncertain; and on the data sets used in the modelling exercise which contain further uncertainties.
c. Mathematical models cannot and should not replace surveillance data, but as data accrue they can provide a framework to analyze and communicate results[61].

This modelling exercise has demonstrated a number of these limitations in the UNAIDS Model. The earlier results of Gouws et al. in Kenya and Thailand[62] found that more than 80% of infections arose from heterosexual transmission, and the attempt to disaggregate this population, especially the clients of sex workers, had resulted in a very large percentage of infections being attributed to "long-distance truck drivers" and "fishing communities". It was likely that while these groups were indeed at high risk of infection, the infections attributed to them may also include cases in other clients of sex workers.

Similarly, the data available on MSM and IDUs come from relatively few studies, and the amount of transmission attributed to these two groups may also be an overestimation.[63] But these caveats aside, it is clear that heterosexual transmission is the most prominent of all the modes of transmission in Sierra Leone, accounting over 95% of new infections.

[60] Kenya National HIV/AIDS Strategy Plan (KNASP) 2005/06-2009/10,
[61] Garnett GP; Bartley L; Grassly NC; Anderson RM. (Jul 2002).
[62] Gouws et al (see # 54)
[63] *Kenya AIDS indicator survey 2007*

The next section (3.4) summarizes the risk behaviours and related factors known about each population, as well as changes over time, in an attempt to
(a) provide reasons for changes in HIV prevalence and the reduction in new infections, and
(b) to point to specific risk behaviours, target populations, and geographic areas that should be subject to intensified HIV prevention efforts.

3.4 Factors that influence the rate of new infections

According to UNAIDS guidance document on definitions, a risk factor is an aspect of personal behaviour or life-style or an exposure which on the basis of epidemiological evidence is known to be associated with HIV transmission or acquisition; "drivers" refer to the environmental, structural and social contextual factors, such as poverty, gender inequality and human rights violations that are not easily measured which increase individuals' vulnerability to HIV infection.

3.4.1 Heterogeneity related to marital status

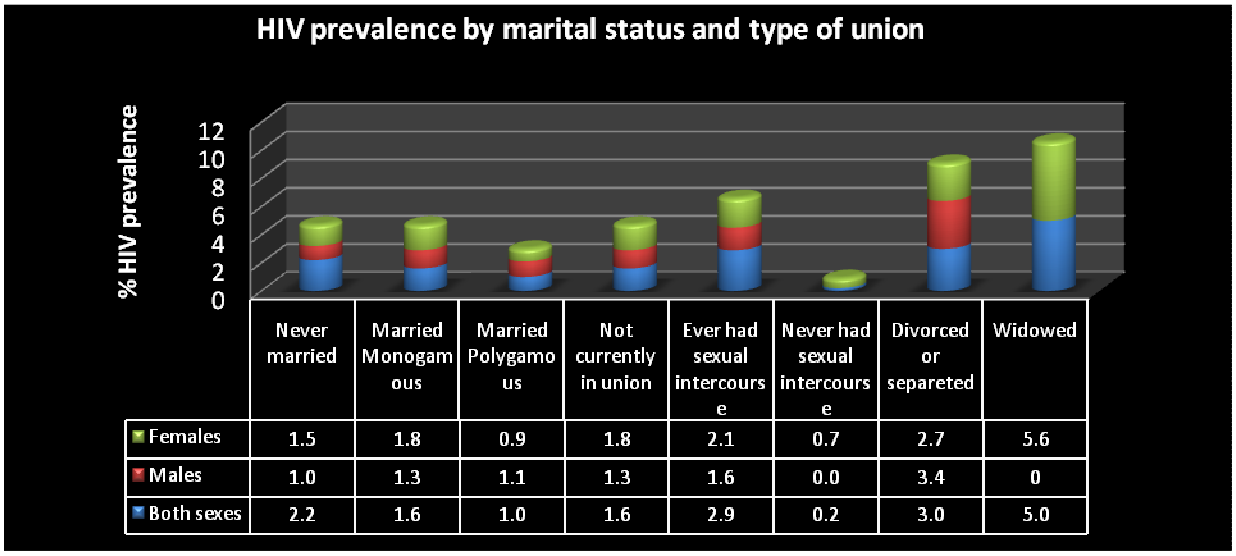
Marital status is related to HIV prevalence, and the pattern is similar for both women and men (Figure 17). As expected, never-married in Sierra Leone who had never had sex had the lowest prevalence of HIV at0.2 percent (SLDHS 0f 2008)[10]. The widowed had higher rates of HIV (5.0 percent) than those in other marital categories. A few women reporting to have never been in a union and had never had sex were HIV positive, suggesting either reporting errors on sexual behaviour or non-sexual transmission of HIV. Prevalence is slightly lower among polygynous union (1.0 percent), than those who are not currently in union (1.8 percent).

Often, divorce or widowhood stems directly from an individual's HIV status, since many women are often divorced because they are diagnosed with HIV and many individuals in the region have lost their spouses to AIDS-related illnesses. In Guinea, widowed women were nearly seven times more likely to be living with HIV than single women, while divorced or separated women were more than three times more likely to be infected than their single counterparts.[64] More than one in four (27%) of widowed Tanzanians are living with HIV, compared with 2% of those who had never been married and 6% of those who were married or cohabiting.[65] Widowed individuals in Sierra Leone are more than six times more likely to be infected than those who have never been married.

By type of union, HIV prevalence is slightly lower among individuals in a polygynous union (1.0 percent), than those not in unions (1.8 percent); however, the difference was not significant (0.8 percent). The relationship between marriage and risk of HIV infection is often complex and may vary among settings and population groups (Figure 17).

[64] Direction Nationale de la Statistique & ORC Macro et Guinee 2006.
[65] (See ref. # 65).

Figure17: HIV prevalence by marital status and type of union in Sierra Leone, 2008



	Never married	Married Monogamous	Married Polygamous	Not currently in union	Ever had sexual intercourse	Never had sexual intercourse	Divorced or separeted	Widowed
Females	1.5	1.8	0.9	1.8	2.1	0.7	2.7	5.6
Males	1.0	1.3	1.1	1.3	1.6	0.0	3.4	0
Both sexes	2.2	1.6	1.0	1.6	2.9	0.2	3.0	5.0

Source: Constructed from data of DHS 2008

A national study of uniformed personnel in Burundi found that married men had HIV prevalence 2.7 times higher than that reported for their never-married counterparts[66]. However, never having been married is not universally protective against HIV infection, especially among women. In Sierra Leone, 24.2% of never-married women who had had sex are living with HIV.[67]

Adult HIV prevalence in Côte d'Ivoire (3.7%) was more than twice as high as in Liberia (1.7%) and Guinea (1.6%) even though these West African countries share national borders.[68] Within the relatively small nation of Benin, a more than 12-fold variation in HIV prevalence among pregnant women (ranging from 0.4% to 3.8%) has been documented among the country's departments.[69]

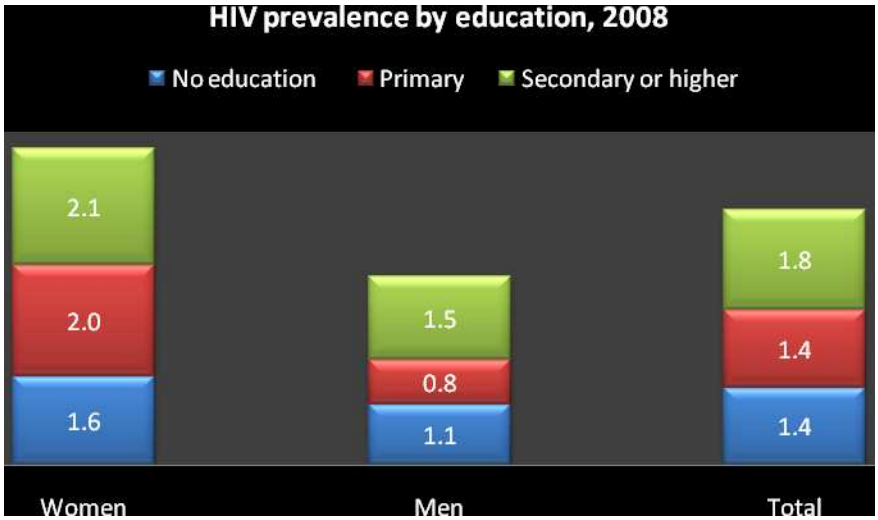
3.4.2 Heterogeneity related to educational status

In Sierra Leone the proportion of people who are HIV positive does not vary much by education, although it is slightly higher among those with secondary or higher education (Figure 18).

Regionally, there is no uniform pattern in the association between education and HIV across the countries. Whereas the most educated group of women had the lowest prevalence in Benin, Ghana, Mali and Senegal, HIV prevalence was lowest among women with no education in the other countries.[70] Among men, HIV prevalence was highest among the most educated in Burkina Faso, Côte d'Ivoire, Liberia and Mali, and lowest for the same educational level in Ghana and Senegal.[40] There was no clear pattern in the association between education level and HIV prevalence among men in the other countries.

[66] Ndayiragüe et al.2008a
[67] Khobotlo et al., 2009.
[68] UNAIDS, 2008.
[69] Bénin Ministère de la Santé, 2008
[70] West Africa synthesis ref # 24

Table 18: HIV prevalence in Sierra Leone by level of education attained, 2008



3.4.3 Heterogeneity related to income and employment status

In figure 19, HIV prevalence was lowest in the lowest (poorest) wealth quintile (less than 1percent) and highest among those in the highest (richest) wealth quintile (2.3 percent). This relationship was true for both women and men, but it appeared to be somewhat more pronounced for men. Similarly, figure 20 indicates that generally, and for women specifically, the unemployed may be more predisposed to HIV that the employed counterparts, showing rates of 1.7% and 1.8 for employed and unemployed respectively. There was no difference between employed and unemployed men.

In a study of six West African countries, there was a clear association between HIV and living in the wealthiest households among women of all countries studied except Benin[40]. This pattern was much less clear among men except for Mali. HIV prevalence was highest among the poorest men in Guinea, which results were completely a reversed trend in the association between HIV and wealth when comparing men and women.

Figure 19: HIV prevalence by wealth quintiles in Sierra Leone, 2008

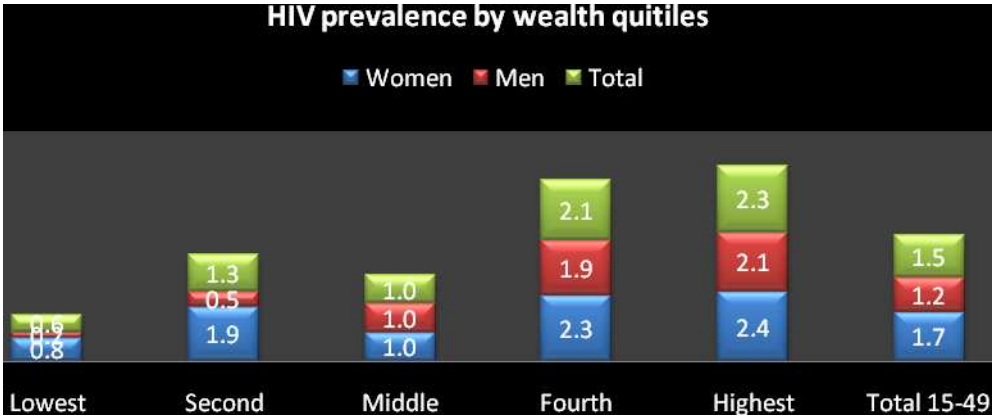
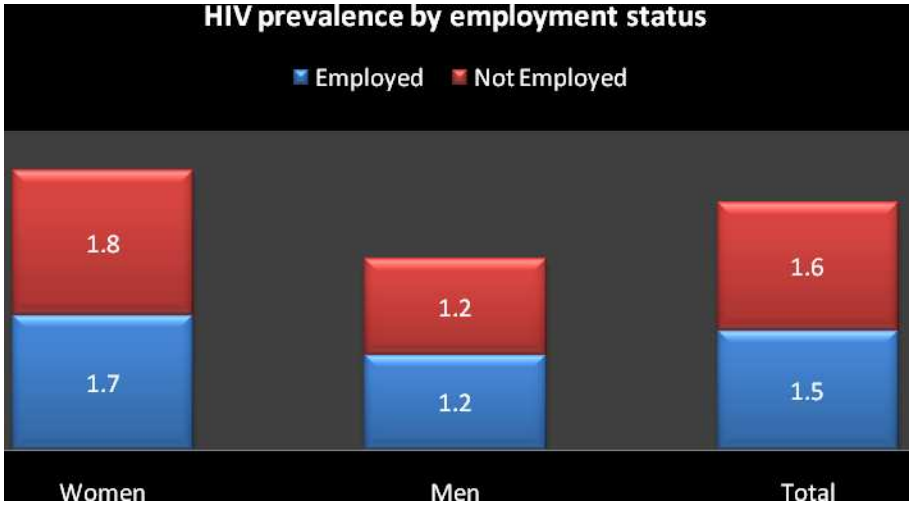


Figure 20: HIV prevalence and employment status in Sierra Leone, 2008



3.4.4 HIV prevalence heterogeneity across migration patterns

People who travel away from home and particularly if they stay away for long periods of time, are assumed to be at greater risk of contracting HIV, partly because they are also at risk of engaging in higher-risk sexual behaviour. However, no such pattern was observed in the data on women and men in Sierra Leone, DHS 2008 (Figure 21). For example, the data showed that those who slept away from home one or two times in the 12 months before the survey, or who never slept away from home (1.8 and 1.6 percent, respectively) had higher HIV prevalence than those who slept away from home three or four times during the same period of time (0.6 percent). Similarly, HIV prevalence did not vary in any meaningful way by duration of time that women and men spent away from home (Figure 22). The findings on these issues were mixed, possibly because of the overall low prevalence rates.

Figure 21: HIV prevalence by number of times away from home

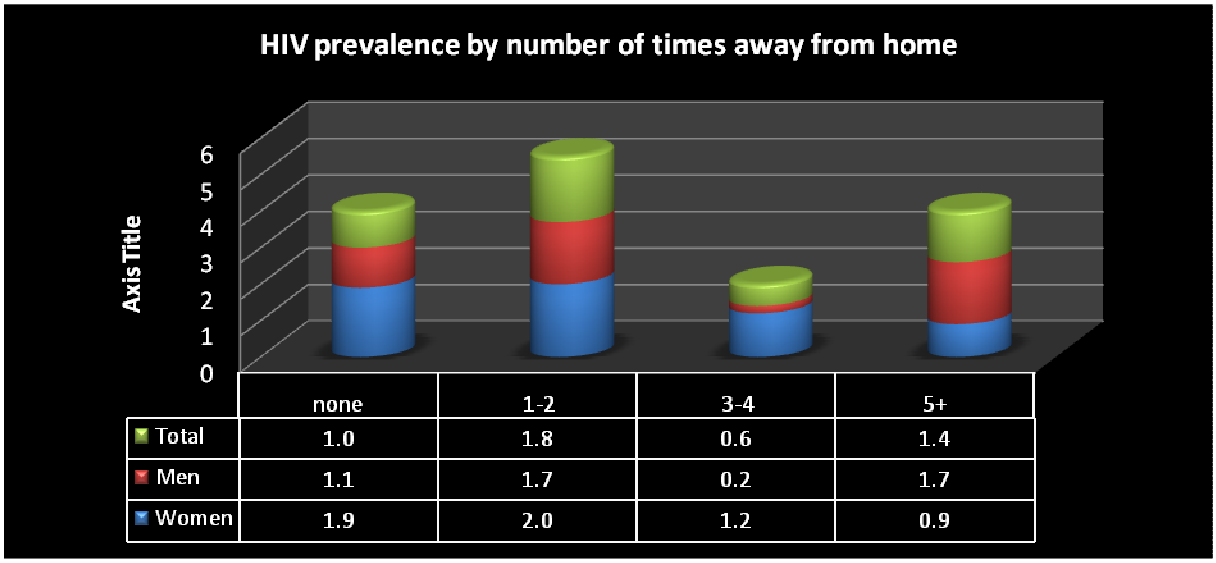
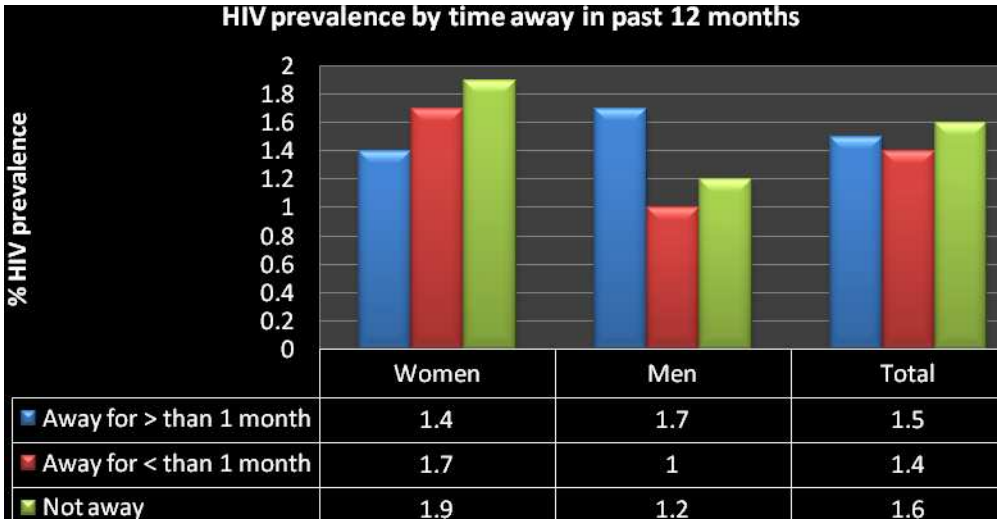


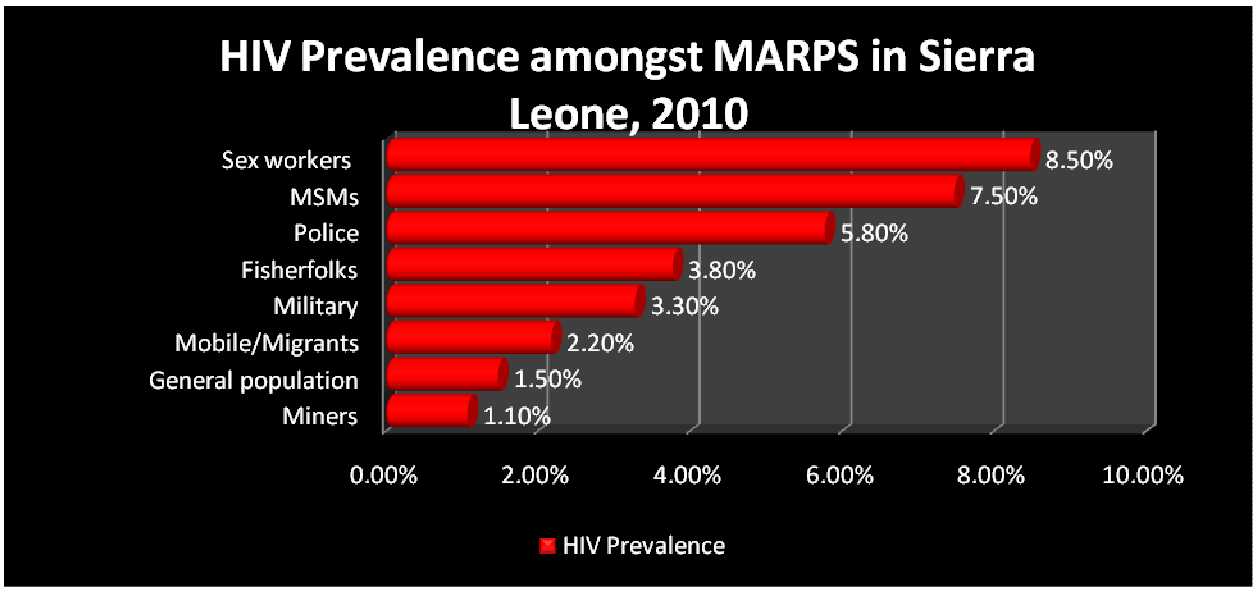
Figure 22: HIV prevalence by time away in the past 12 months



3.4.5 Heterogeneity of HIV prevalence in most-at-risk populations

Figure 23 presents the prevalence of HIV in some most-at-risk sub populations in Sierra Leone as estimated in a number of surveys conducted in the country.

Figure 23: HIV prevalence in most-at-risk sub populations in Sierra Leone



As indicated in figure 23, the HIV prevalence in some of the most-at-risk sub populations is quite high in the country, especially among the sex workers (8.5%) and the uniformed personnel (4.4%) – combination of military and police. HIV prevalence varies within groups of the population differently from country to another. The main concern is that these sub groups with high prevalence act as bridges that drive the epidemic into the general population thus increasing the national prevalence.

Groups of people with high prevalence are capable of increasing the national prevalence and these groups in Sierra Leone are comprised of the uniformed personnel[71] (the military and the police[72]), sex workers,[73] and especially FSWs, the floating population[74] which is a Hodge-pouch of many small but potent drivers of the epidemic who are actually the clients of FSWs and the group includes petty traders, motor bike drivers, taxi drivers Okada and Poda Podas, the homeless people and migrant population. The military for instance are perceived as a high risk group, based on the nature of their job which encourages soldiers to be away from their families for long periods exposing them to the temptation of involvement in sex and other casual sexual relationship. Secondly, military personnel are accustomed to risk taking during the execution of their duties and therefore casual sexual relationships are viewed as routine.

HIV prevalence in some of the main high risk populations (FSWs, their clients, MSM, truckers, prisoners, men in uniform, fishermen, miners and IDUs) in the 15 West African countries,[75],[76] ,[77, 78] ,

[71] Military KAP report, 2004
[72] Police Surveillance report
[73] Study of sex workers in sierra Leone, 2005
[74] HIV & AIDS in Sierra Leone (Survey Report), April 2002
[75] PSI. Deuxième mesure de surveillance de seconde génération du VIH chez les travailleuses du sexe et leurs clients au Bénin - Conduite fin 2004,
[76] Sobéla F, Pépin J, Kéré Banla A, Gbéléou S, Adom WK, Pitché V, et al. (2007)
[77] Schim van der Loeff MF, Awasana AA, Sarge-Njie R, van der Sande M, Jaye A, Sabally S, et al. (2006)
[78] Rapport de surveillance de l'infection à VIH et de la syphilis au Bénin - Année 2006

[79], [80-87] were compared with ANC and general prevalence. In 10 of the countries with recent data for FSWs (the exceptions being Côte d'Ivoire, Guinea Bissau and Sierra Leone), HIV prevalence in FSWs was at least eight times higher than the female general population. This ratio is over 20 in Mali, Niger and Senegal, and over 12 in Guinea, Benin and Ghana. In Côte d'Ivoire, in Abidjan HIV prevalence in FSWs attending "Clinique de Confiance" was 89% in 2006.

In Sierra Leone, the only recent prevalence study available on FSWs was carried out in Freetown in 2005 among bar/club-based FSWs recruited through community leaders and established HIV prevalence at 8.5 percent.[81] Older data, accessed in the 2006 UNAIDS fact sheet, showed a prevalence of 27% among FSWs from Freetown in 1995,[82] and a corresponding figure of 70% for FSWs outside major urban areas in 1997.

Emerging evidence suggests that the uniformed services are in many ways at the coalface of the HIV/AIDS epidemic, in the sense that they are vulnerable to both contracting HIV/AIDS and serving as agents for its transmission[83]. Reliable estimates of HIV/AIDS prevalence within the African military are hard to come by, although estimates published by the UNAIDS suggest that prevalence amongst military personnel may be between two and five times that of the general population[84]. Ten to sixty percent of military personnel in several Sub-Saharan African countries are estimated to be HIV positive, according to the U.S. National Intelligence Council and UN estimates[85].

At the 34 Military Hospitals in Freetown, a total of 1,259 requests had been made for HIV testing in 2001. Of these, 200 (15.9%) were found to be HIV positive. In 2002, out of a total of 1360 HIV tests requested, 240 (17.6%) were positive (unpublished data). In the first HIV and Syphilis prevalence survey conducted amongst the military personnel of the Republic of Sierra Leone Armed Forces, 2007, out of 700 persons selected from the three Brigade Headquarters and five battalions in the provinces, and from AFEC and JMU in Freetown, 23 (3.29%) were found to be HIV positive[41](Figure 23).

Previous HIV screening exercise done on 483 police recruits, reported a prevalence of 2.9 %.[86] In a study conducted among the police in 2007, the 35-39 age groups had the highest prevalence of 17.9% and the HIV prevalence rate among the 20-24 year age group was 5.3%.

The overall prevalence was 5.8 percent[87] (Figure 23). Men in uniform had a higher HIV prevalence than clients of FSWs in four of the six countries where it was studied (Burkina Faso[88], Guinea[89], Niger[90] and Togo[91]). This suggests that this sub-population is at higher risk and could possibly

[79] Rapport national sur les progrès de la déclaration d'engagement de l'UNGASS sur les IST/VIH/SIDA 2007/2008.
[80] Adjei AA, Armah HB, Gbagbo F, et al 2006
[81] = FSW in Sierra Leon in 2005
[82] WHO Epidemiological fact sheet year 2006
[83] HIV/AIDS Prevention among Uniformed Services Nicaragua, 2005
[84] Ditto
[85] Foreman M, (2002).
[86] NAS and LLP Report on the HIV/AIDS Surveillance among the Police, in Sierra Leone, 2004
[87] The police surveillance study of 2007
[88] Kintin F, Soto J, Maiga MA, Burkina Faso 2004
[89] Guinee - Rapport SSG, septembre 2006
[90] République du Niger, Ministère de la santé publique et de la lutte contre les endémies; 2002.
[91] Togo - Rapport d'étude, phase III; 2006

include men who are non-paying partners of FSWs. In Ghana, 9% of a sample of policemen reported sex with a FSW in the past year in 2002[92] (this figure is six times higher than that reported by men in the 2003 DHS.[93] The prevalence of HIV among men in uniform was moderately high in Nigeria[94] and Senegal[95].

In the context of workplace policies, specific population groups, (e.g. miners, truck drivers, taxi drivers, Okada and Poda Podas and other groups are lamped in the category of "floating" population and regarded more vulnerable groups to HIV infection for specific targeting with prevention programmes. Therefore, in 2008 studies were carried out in the mining industry and migrant population that established HIV prevalence for the miners at 1.1 percent, below the national average but with characteristics of possible explosion if unheeded.[96] The HIV prevalence in the other floating sub population of mobile immigrant was established at 2.2 percent (figure 23)[97]. Miners were found to be at high risk for HIV in Guinea[98] and moderately at risk in Niger[99], whereas HIV prevalence was lower in this population than the general population of men in Ghana[100].

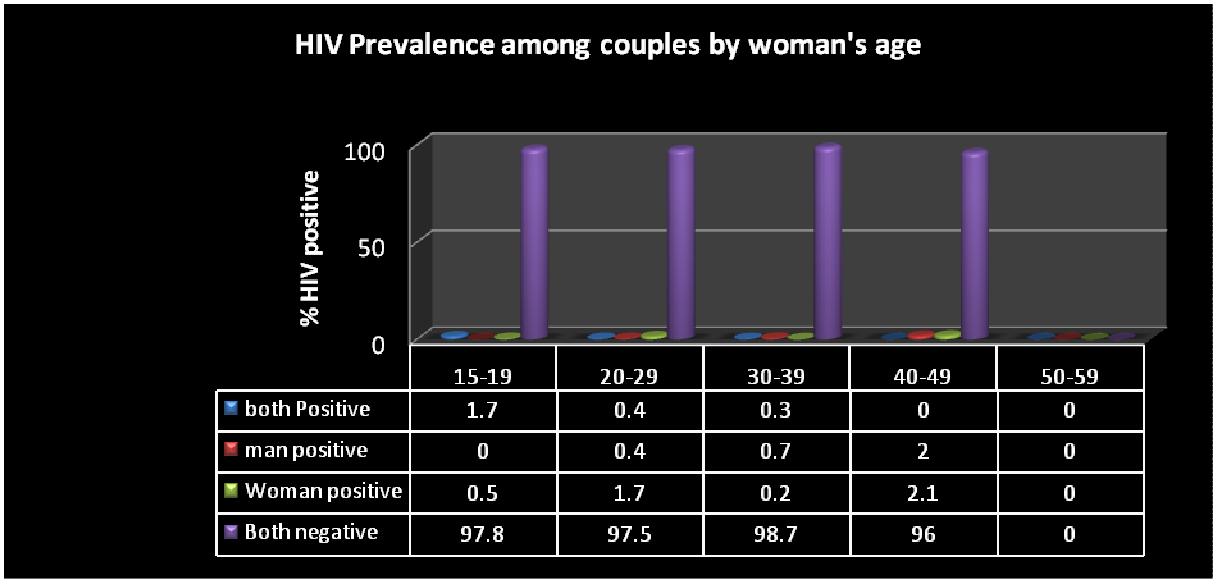
[92] Ghana in policemen in 2002,
[93] Ghana DHS 2008
[94] Demographic and Health Survey 2003 Nigeria
[95] Ndiaye S, Ayad M. Enquête démographique et de santé au Sénégal 2005
[96] SHARP Project Ghana (2008).
[97] UNFPA, MRU, WAHO,Mano River Countries 2009
[98] Poulsen AG, Aaby P, Gottschau A, et al 1993
[99] Miners in Niger 2004
[100] Anarfi JK, Ahiadeke C, Nzambi K, et al 2006

3.4.6 Heterogeneity in couples (discordant couples)

For 98 percent of cohabiting couples, both partners were HIV negative (SLDHS 2008). In only 0.4 percent of couples, both partners were HIV positive and 1.9 percent of couples one partner was HIV positive and another HIV negative (Figure 24 and Figure 25). These discordant couples are at high risk for HIV transmission, especially if they do not mutually know their HIV status or do not use condoms consistently. Cohabiting men were HIV positive and woman negative, while for 1.2 percent of couples, woman was HIV positive and man negative (Figure 24 and Figure 25). Differentials in couple patterns of HIV background characteristics were too insignificant for further analysis.

It would be expected that women are more often the person infected in HIV-discordant couples, given the higher HIV prevalence observed in women than men in most countries. This was the case in the Sierra Leone series in the DHS 2008 and was similar to that described in Côte d'Ivoire[101] and Mali[102].
Thus, the female: male ratio of HIV prevalence among couples is much lower than that observed in the general population. Whereas the female male ratio in the general population in Sierra Leone is nearer 1:1, the same ratio in couples is about 0.6. These observations hold even when looking at the female: male ratio only among discordant couples. This indicates that HIV-positive women are less often in couples than HIV-positive men, which is borne out by the higher prevalence seen among widowed / divorced / separated than married women.

Figure 24: HIV prevalence discordance among couples by woman's age, SLDHS, 2008

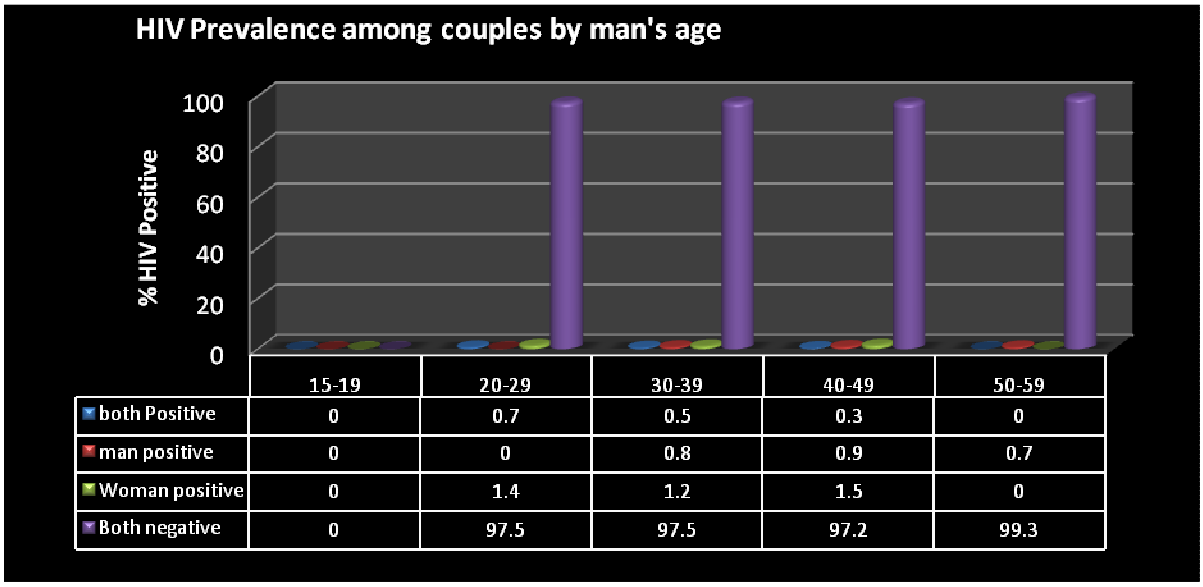


	15-19	20-29	30-39	40-49	50-59
both Positive	1.7	0.4	0.3	0	0
man positive	0	0.4	0.7	2	0
Woman positive	0.5	1.7	0.2	2.1	0
Both negative	97.8	97.5	98.7	96	0

Source: Constructed from data in DHS 2008

[101] Ditto
[102] Keita OA. (2005) in Mali

Figure 25: HIV prevalence discordance among couples by man's age, SLDHS, 2008



Source: Constructed from data in DHS 2008

The **low status of women and girls** increases their vulnerability to HIV infection. In most countries, especially in sub Saharan Africa HIV is highly feminized even though that is not the case in Sierra Leone. Cultural values and traditional gender roles increase the vulnerability of women to HIV infection. Traditionally, women are expected to be obedient to men, cannot question infidelity of their husbands nor can they deny them sex. Sex is obligatory for married women, and there is little communication between spouses about sex and no negotiation. Furthermore, gender relations and power dynamics in marriage favour the man over the woman as regards decision affecting economic needs, health care seeking and number and gender of children. In this situation domestic violence is common and may influence risk of HIV transmission (Koenig, 2003)[103].

3.4.7 Summary of Risk Factors and Contextual Factors Driving the HIV Epidemic in Sierra Leone

Table 3.3: Factors driving HIV epidemic in Sierra Leone

Risk Factors for HIV Transmission	Contextual Factors of the HIV/AIDS Epidemic
• Commercial sex networks • Multiple partnerships and casual sex • Discordance and non-disclosure • Lack of condom use • Presence of STIs • Transactional sex • Cross-generational sex	• Human rights, stigma & discrimination • Wealth and poverty • Low status of girls & women • Socio-cultural factors • Inequity and access to prevention • Care and treatment

[103] Koenig MA, Lutalo T, et al. 2003

CHAPTER 4: KNOW YOUR RESPONSE - (KYR) SYNTHESIS

In the following pages, the main areas of the HIV prevention response in Sierra Leone are summarized, and linked to the allocation of resources that were mobilized for their implementation in the country.

4.1. Enabling Environment for HIV Prevention

4.1.1 Laws and policies governing HIV and AIDS prevention

The prevention of HIV in the country enjoys an environment that is conducive and governed by laws and policies which were established for this particular purpose. There exists there several relevant national policies, Acts, laws, protocols, guidelines, and regulations and protocols positively impacting on the national response of HIV prevention (Table 4.1). Some of these instruments include the national constitution –1991, prevention and control of HIV and AIDS Act-2007, Domestic Violence ACT-2007 and Gender Act-2009 (which introduced a series of sexual offences and recognizes marital rape as a criminal offence given certain conditions. There are also Laws which include –registration of customary marriages and divorce -2007.

Policies that strengthen the mitigation of HIV/AIDS include the National HIV & AIDS Policy of 2002, workplace policy, 2006, policy for Education Sector of 2005, policy for Mining Sector in Sierra Leone 2007, Youth Policy, HIV Testing and Counselling (HTC) Policy, Blood Safety and transfusion, Orphans and Vulnerable Children (OVC).
In 2007 the Sierra Leone government approved laws and policies impacting on the prevention of HIV and AIDS.

Table 4.1: Laws and Policies Impacting on HIV Prevention

Status of policies impacting on Prevention	Year
a. National Constitution of 1991	**1991**
Revised Prevention and Control of HIV and AIDS Act (draft)	2007
Domestic Violence Act	2007
b. Laws	
The Registration of Customary and Divorce ACT	2007
c. Bills (statutes in draft before it becomes law)	
d. Policies	
National HIV and AIDS policy	2002
National HIV and AIDS Workplace policy	2006
HIV Policy for Education Sector	2005
HIV Policy and Procedures for Sierra Rutile Mines LTD	2007
HIV Policy for Mining Sector of Sierra Leone	2007
HIV and AIDS Policy for Sierra Leone Health Workers Union	2006
Blood Safety	
e. Guidelines	
Voluntary Confidential Counseling and Testing (VCCT) Guidelines	2003
National Guidelines for the Use of Rapid HIV Test	2003
National Guidelines for ART	2003

National Guidelines for PMTCT	2003
National Guidelines for Syndromic Management of STI	2003
Protocols	
Surveillance Among TB Patients in Sierra Leone	2003

Source: Sierra Leone UNGASS Report 2010 and NACP documentation

Sierra Leone's HIV and AIDS Bill was enacted to create a legislative framework for national response to HIV and AIDS within the context of the national constitution and stipulate the responsibility of the MOH&S for providing accessible prevention services. Furthermore, there are a number of approved guidelines relevant to prevention: National Guidelines for PMTCT of 2003, National guidelines for ART of 2003, National Guidelines for Syndromic Management of Sexually Transmitted Infections (STIs) of 2003 and, National Guidelines for the use of Rapid HIV Test 2003. There is also commitment in the country for leaders to speak out against behaviours that spread HIV and specifically advocating against related stigma and discrimination.

There are also protocols and manuals developed to guide providers of these services and some of these comprise strategic information on HIV prevention. In addition to the national HIV and AIDS Policy, there is a Strategic Plan (2006-2010) and a Monitoring and Evaluation Framework (2006-2010) in accordance with the Three Ones Principles. However, adherence to the Three Ones principle continues to be a problem as some implementers, particularly those not funded by NAS are either not aware of the principles or deliberately ignore it's stipulation. There is still need for the NAS/M&E to encourage and continue follow-ups of the stakeholders and all implementers to submit returns to NAS/M&E as required by the Three One principle so that the NAS will be able to comprehensively and effectively coordinate and track the epidemic.

With the institutionalization of the Revised HIV/AIDS Prevention and Control Act in 2007, Sierra Leone now has a policy prohibiting HIV screening for general employment purposes, and ensuring that AIDS research protocols involving human subjects are reviewed and approved by a national or local ethical review committee. There has been some improvement in the policies, laws and regulations in place to promote and protect human rights, however, despite civil society being in agreement, the HIV/AIDS Prevention and Control Act has not yet been finalized and gazetted. The country has anti-discrimination laws and regulations that specify protection for vulnerable subpopulations, which include children, women and young people. Promotion and protection of human rights is explicitly mentioned in some HIV policies and strategies and there are also policies and laws against child marriage, sexual abuse and gender-based violence.

Sierra Leone has a national policy for free health services including HIV-prevention services, ART and HIV-related care and support interventions. VCCT, PMTCT, ARVs and TB medication are given free of charge in government facilities. However, by and large, providing HIV services is donor driven and sustained (Section 4.4).

4.1.2 Leadership in the National HIV Response

Despite initial interruptions from focusing on the control of the HIV and AIDS epidemic by the protracted civil war from the late 1980s and the 1990s, Sierra Leone now has political commitment to reverse the spread of HIV and AIDS. The National HIV and AIDS Secretariat (NAS) was established in 2002 under the Office of the President to provide leadership and a stronger coordination mechanism for a new, multi-sectoral national response to HIV/AIDS. The President personally chairs the meetings of NAC and his direct presence, interest and concern over the national situation of the epidemic translates to the strongest ever government involvement and leadership so far shown in the sub Saharan continent.

A total of 19 District AIDS Committees (DACs) have been established around the country helping all districts to enhance the coordination of HIV/AIDS activities. The purpose of this arrangement is to transfer authority and power from national to district levels, aimed at making decision faster and more appropriate at that level. This move will facilitate capacity building in the area of public planning, management and accountability of HIV/AIDS activities.

In addition, other commitments to the response come from leaders of Civil Society Organizations, People Living With HIV(PLHIV), Line Ministries, Traditional Leaders, the Private Sector, Faith-based organizations, Parliamentarians.

4.1.3 Capacity building for a comprehensive and relevant HIV response

The prevention assessment team discovered that capacity building for a comprehensive and relevant HIV response dates back to 2002 when the Sierra Leone HIV/AIDS response Project (SHARP) was set up. The capacity building initiative targeted those who are directly responsible for development of policies which included parliamentarians, Ministers, leaders of the Civil Society Organizations, Faith-based Organizations and traditional leaders or paramount Chiefs. Capacity is also built through involvement of relevant stakeholders from umbrella bodies in policy development and this was confirmed by all informants from organizations of PLHIV.

Other capacity building efforts that have been conducted include the following:

- Procurement and installation of 2 new CD4 counts machines in Makeni in the northern province and Rokupa government hospitals in the Western Area
- Procurement and installation of PCR equipment at Lakka in the Western Area
- Conducted two studies (survival rate of children on ART and impact of PMTCT)
- A total .of 1,363 front line staff have been trained to provide to provide the required biological/biomedical prevention services. However, there is still need for more recruitment and training of personnel for the various thematic areas as the current number is not adequate.

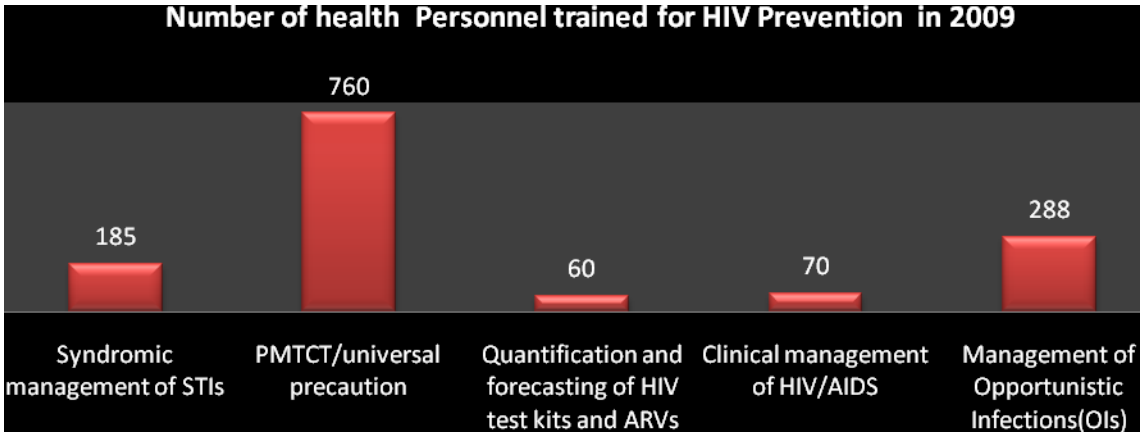
Table 4.2 and figure 4.1 present type of staff trained under different thematic areas for the purpose of strengthening service delivery and quality services.

Table 4.2: Number and type of staff trained under different thematic areas in 2009

Thematic Area	Type of staff trained	Number trained
Syndromic management of STIs	Mixture of PHU staff	185
PMTCT/universal precaution	MCH Aides, TBAs	760
Quantification and forecasting of HIV test kits and ARVs	HIV counsellors, store keepers	60
Clinical management of HIV/AIDS	CHOs, Medical Officers, SRNs	70
Anti Retroviral treatment (ART)	CHOs, SRNs, SECHNs Medical Officers	70
Management of opportunistic infections(OIs)	SECHN, CHOs, SRN, MCHAs	288
Total Staff Trained	**All categories**	**1,363**

Source: Data provided by NAS 2010

Figure 4.1: Number of health personnel trained for HIV prevention activities in 2009



Source: Data provided by NAS 2010

4.1.4 Resource mobilization for the National HIV Prevention Response

The NAS has a strategy and budgeted plan for effective HIV management, including HIV prevention, for the period 2006 – 2010 and coordinates all HIV and AIDS programmes, policies and interventions in the country, working and liaising with stakeholders from government, civil society, the private sector, external agencies and the corporate world (Annex 4.1).

4.1.5 Universal Access to HIV Prevention

The achievement of universal access to prevention, treatment, care and support still remain the fundamental priority for Sierra Leone. To achieve universal access, nine priority areas have been identified which will simultaneously enable advancement to the millennium goals: 1) Political high level advocacy 2) Prevention of Mother to Child Transmission (PMTCT) 3) Voluntary Confidential counseling and testing (VCCT), 4) Condom Social marketing and distribution, 5) Management of sexually transmitted infections, 6) Anti Retroviral Therapy (ART), 7) Care and support-PLHVs, 8) OVCs.

Since 2006, Sierra Leone has made significant strides towards the attainment of universal access[104]. The HIV prevention programmes have been scaled up through the support of the World Bank, Global Fund, UN family, International Organizations and the Government of Sierra Leone. Additionally, partnership and coordination have been strengthened both at the national and district levels, uptake of HIV/AIDS services increased and appropriate laws and policies enacted, creating a favorable environment for HIV prevention.

Moreover, Universal Access targets are set, ambitious though, and prevention services and commodities such as test kits, condoms, treatment of Sexually Transmitted Infections and Antiretroviral drugs and VCCT are provided free (Table 4.3). More importantly, the Government has recently introduced free medical service initiative for pregnant women, lactating mothers and children from the age of zero (0) to five (5) years.

[104] Sierra Leone Report on Universal Access, 2010

Table 4.3: Universal Access achievements in Sierra Leone, 2010

Description	2006 National Base line	2007	2008	2009	2010 national Target
Prevention					
General population 15-49					
Numerator (result)	103,259	157,775	408,829	676,418	
Denominator	2,493,673	255,4050	261,6347	268,0591	1,098,788
Coverage	***4%***	***6%***	***16%***	***25%***	***40%***
Vulnerable "at risk" females	-	-	-	-	65%
Young people 15-24					
Numerator (result)	51,715	112,366	140,905	175,308	776,393
Denominator	1,006,860	1,031,238	1,056,391	1,082,330	1,109,132
Coverage	5%	11%	13%	16%	70%
PMTCT					
Numerator (result)	354	471	579	637	2,846
Denominator	4,060	4,158	3,309	3,472	3,558
Coverage	***9%***	***11%***	***17%***	***18%***	***60%***
Treatment					
ART					
Numerator (result)	-	992	1,950	3,660	6,801
Denominator	-	8,054	8,190	8,350	8,501
Coverage	***-***	***12%***	***24%***	***44%***	***80%***
Care and support					
PLHIV					
Numerator (result)	174	204	341	678	875
Denominator	702	992	1,950	3,660	4,374
Coverage	25%	21%	17%	19%	20%
OVC					
Numerator (result)	-	211	803	836	1,934
Denominator	-	18,o35	18,995	19,804	20,296
Coverage	***-***	***1%***	***4%***	***4%***	***10%***

Source: Universal report doc 2010

4.1.6 Mainstreaming and multi-sectorality

Due to the multi-faceted nature of the HIV/AIDS epidemic, a national multi-sectoral response has been adopted since 2002 which includes partnerships between government and all relevant stakeholders-NGOs, Civil society organizations (CSO) Community-based Organizations (CBOs),the private sector and PLHIVs. The sectoral involvement in the national response defines the multisectoral strategy the country has adopted. The country has been sensitized to the reality that HIV/AIDS is more than an issue of the health sector alone but cuts across all matters of development. Distinct HIV/AIDS Committees (DACs) and Chiefdom HIV/AIDS Committees (CACs) have been established in 14 districts and 19 local councils in the country. However, there is a need to further strengthen the capacity of both the DACs and CACs, especially on their roles and responsibilities.[105] Altogether there are over 300 organizations, agencies, NGOs, CBOs and FBOs implementing various and varied activities related to one or the other of the prevention objectives and strategies (Annex 4.1). HIV/AIDS activities have also been mainstreamed into the core activities of Line Ministries and focal points have been appointed.

[105] Joint Programme Review Report, 2008

4.1.7. Sectors involved in providing HIV prevention services

Majority of the implementers surveyed as part of the assessment were NGOs and community based organizations under the guidance of **(NAS** Institutional Report 2009)[106]

There are six (6) main sectors involved in providing HIV prevention services:

- The public sector which include Government ministries and parastatal organizations, schools, Technical and Vocational Institutions, colleges and universities etc
- Private sector which include mining industries, commercial enterprises, banks, Communication industries etc.
- Nonprofit Organizations-NGOs, Faith-based Organizations, Civil Society organizations etc
- Informal Sector- Trade Unions, Petty traders, Market Women Associations
- Multilateral Organizations- African Development Bank, UN Organizations, World Bank, The Global Fund
- Bilateral Organizations-DFiD, Irish Aid, USAID etc

4.2 Implementation of HIV prevention programmes

Most of the HIV programmes implemented can be put under the following categories:

- Interventions affecting knowledge, attitude and practice (interpersonal Communications, mass media campaigns, community sensitizations, drama performances etc)
- Risk reduction (Condom distribution and provision of equipment for universal precautions etc)
- Biomedical interventions reducing HIV infections. (STI treatment and diagnosis, PMTCT, use of gloves and other protective equipment in hospitals etc)
- Mitigation of barriers to prevention and negative social outcomes (Psychosocial support for PLHIV and their families, financial and in-kind support for PLHIVs and families)
- Mitigations of biological outcomes (HIV-TB treatment services, HIV testing for people with TB)
- Hybrid interventions: HIV testing and counseling, Condom social marketing, comprehensive sex education and social mobilization

4.2.1 Category 1: Interventions affecting knowledge, attitudes and beliefs and influencing psychological and social correlates.

The intervention affecting knowledge, attitudes and beliefs and influencing psychological and social correlates seem to be the most popular strategy among the implementers according to the review team. A total of 27 HIV prevention programmes were identified and behavioural interventions accounted for 20 out of the 27 implementers who were implementing Mass media (radio Programmes) or other IEC/BCC interventions targeting both males and females of all ages (general population). A few programmes focused on specific population like 15-24 years while majority targeted populations of 15-49 year of age. The intervention strategies used for behaviour change communication which are well founded on research include: targeted interpersonal communication or 'lobbying', use of community communication channels such as community meetings, drama performances, peer education, life skill education designed to reach in and out-of school adolescents.

[106] **(NAS** Institutional Report 2009)

The messages are designed with the help of IEC/BCC unit at the National HIV/AIDS Secretariat and the Ministry of Health and Sanitation. For effective IEC/BCC intervention a Sierra Leone communication strategy had been developed (2004) and the programmes target seven key audiences: men, women, youths, children, refugees, uniformed personnel and commercial sex workers and the general population identified by the National Communication Strategy. Incidentally, there are no programmes targeting MSMs and IDUs even though reference is made to them in the National Strategic Plan (2006-2010).

There is a lack of evaluation studies with respect to interventions affecting knowledge, attitude and beliefs.

4.2.2 Category 2: Risk Reduction (lowering of risk behaviour without eliminating the behaviour)

Free male Condom distribution is the most common HIV prevention risk reduction activity done by the implementers. The team visited and interviewed 20 implementers who were promoting and distributing condoms.

In Sierra Leone, Condoms provisions are predominantly donor driven. USAID currently supplies Male condoms and UNFPA supports nationwide procurement of male and female condoms. The Global Fund to Fight AIDS, Tuberculosis & Malaria (GFATM) has also financed male Condoms. Many INGOs Complement public sector supplies with various commodities, for example, the International Planned Parenthood Federation (IPPF) provides some quantities of a range of products to Planned Parenthood Association of Sierra Leone (PPASL).

4.2.3 Category 3: Biological/biomedical interventions that reduce HIV infection and transmission risk

In this category, use of gloves and protective clothing in medical procedures in health care programmes are directly in the Ministry of Health and Sanitation and NAS plays very little role in their achievement. However, there is a very close relationship between the MOH&S and NAS such that the Ministry's Division for HIV and AIDS - the National HIV/AIDS Control Programme (NACP) is located in NAS. This is the unit that is responsible for STI diagnosis and treatment, VCCT, PMTCT (including breastfeeding substitutes), and post exposure prophylaxis.

4.2.4 Category 4: Mitigation of Barriers to Prevention and Negative Social outcomes of HIV

Counselling and psychological support for PLHIV and those affected, as well as training programmes to raise awareness on the rights of vulnerable groups is taking place in the country albeit the coverage of this remaining low. The most used mode of counselling delivery is the Voluntary Confidential Counselling and testing (VCCT). Also psychological support is offered to PLHIV and those affected: face-to-face, workshops, support groups, counselors, peer counselors and other mechanisms. Programmes focusing on gender equality or economic empowerment were less prevalent.

4.2.5 Category 5: Mitigation of biological outcomes of HIV Infections

HIV/TB treatment services and other opportunistic infections are undertaken with in collaboration with the MOH&S. Sierra Leone is attempting to increase the proportion of persons diagnosed with TB who are tested for HIV.

4.2.6 Category 6: Standardized hybrid interventions

In this category, activities carried out by implementers were testing and counselling, condom social marketing, comprehensive sex education and social mobilization is lacking and needs to be stepped up. Testing and counselling was the most common but the strategy is still clinic-based and obviously not very attractive to the population still highly stigmatized about HIV and AIDS. Training is provided in testing and counselling. Comprehensive sex education is offered by a number of implementers, through workshops, church classes, face to face interactions and media but not widely enough to have the impact that is expected. Those targeted are youth in-schools but very little being done for the youth out=of-school. Where these are done it is by various implementers through mechanisms such as concerts, walks, theatre and workshops.

4.3. Geographic Distribution of VCCT, PMTCT, ART and Safe Blood Services

4.3.1 Implementation and coverage of VCCT and PMTCT

Knowledge of their HIV status helps people who are HIV negative make decisions that will reduce risk and increase the use of safe sex practices to remain disease free. For those who are HIV positive, knowledge of their status allows them to take action to protect their sexual partners, to access *HIV/AIDS-related Knowledge, Attitudes, and Behaviour* treatment, and to plan for the future. In the 2008 SLDHS, respondents were asked if they had ever been tested, and if not, they were asked if they knew a place where they could go to be tested.

During the DHS survey of 2008 it was found that only 27 percent of women and 33 percent of men knew where to get an HIV test. Even fewer had ever been tested; 13 percent of women and 8 percent of men age 15-49 had ever had an HIV test in the past 12 months, only 4 percent of women and 3 percent of men had been tested and received their test results.

Knowledge about where to get an HIV test was much more common among women and men in urban areas than those in rural areas and it was highest among respondents living in the Western Region, which may have reflected the urban bias in the distribution of HIV testing services in Sierra Leone at the time.

Knowledge of the various sites for HIV testing services was also higher among educated women and men and among those in the higher wealth quintiles. Comparatively, over the past five years, there has been a significant increase in the number of facilities used for providing VCCT and PMTCT services in the country (Table 4.4). As a result of expansion of the sites for VCCT and PMTCT, which are currently in health clinics, the number of people receiving these services are on increase, albeit too slowly. In the DHS survey of 2008, many people indicated that they did not know where to go for VCCT services. This is an area that should be undertaken by the BCC/IEC unit of NAS to mobilize the implementers and give them this information so that some mechanism is put in place to inform the population not only on the importance of HCT but also where to obtain VCCT services in different regions and districts.

Figure 4.2 presents the utilization of VCCT services in different districts. The average uptake of VCCT services in the country is about 10 percent and the protrusion in Kenema must be an artifact due to data entry errors. However, much of this increase is of recent origin though services of VCCT were inaugurated in 2003 and actually picked up in 2004.

Table 4.4: Distribution of VCT, PMTCT, and ART sites by districts, Sierra Leone, 2010

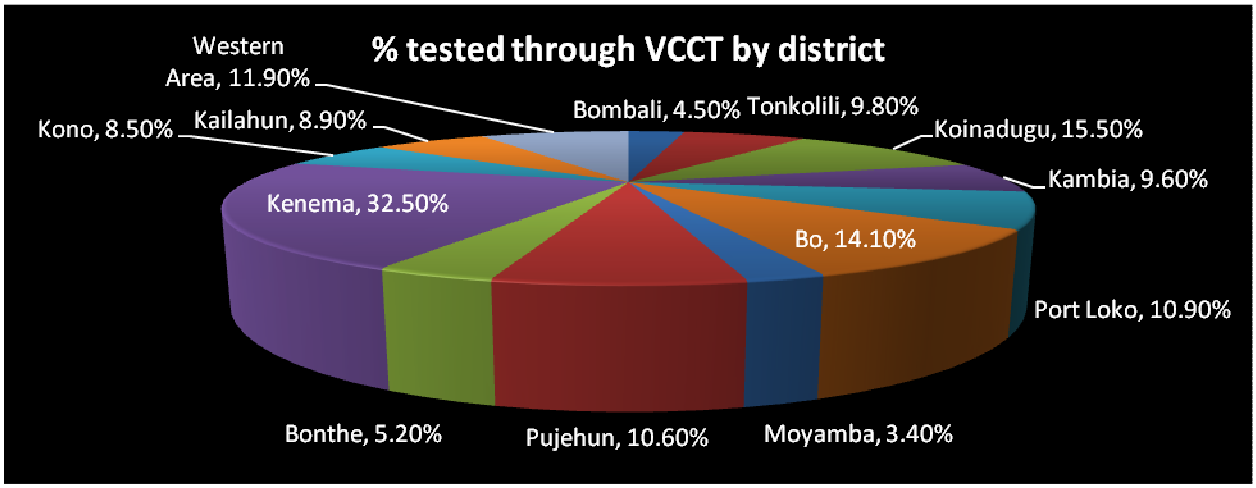
Districts	Number VCT	Number PMTCT	Number ART	Number STI	Number Blood
Bombali	44	43	11	24	4
Tonkolili	29	23	11	22	1
Koinadugu	22	19	7	19	1
Kambia	3	20	7	20	1
Port loko	32	20	12	25	1
Sub - total – Northern	***150***	***125***	***48***	***110***	***9***
Bo	31	26	7	25	3
Moyamba	19	22	6	20	1
Pujehun	20	21	4	19	1
Bonthe	21	23	5	21	2
Sub – total Southern	***91***	***92***	***22***	***65***	***7***
Kenema	44	38	9	25	2
Kono	30	26	10	25	1
Kailahun	27	23	9	24	2
Sub- total Eastern	***101***	***87***	***28***	***74***	***5***
Western Area	***62***	***51***	***21***	***40***	***4***
Total	**404**	**355**	**119**	**289**	**25**

Source: Data provided by NAS 2010

However, to date very few people have been counselled and tested. The number of people tested and the coverage, assuming a one-time testing for the period since the beginning of the programme by district is 281,218 as shown in Table 4.5. The population that will require the use the VCCT services by district is presented in Annex 4.2.

Mobile sites for remote rural areas are essential so as to be able to cater for the rural population in remote parts of the country. A mixed type of VCCTs should be seriously thought of to include such types as home-based testing, door-to-door and public events testing should be all introduced as well and uptake through these channels should be monitored and promoted so as to increase the national coverage of screened population of people knowing their HIV status.

Figure 4.2: VCCT coverage by district, in Sierra Leone, by 2009



Source: Data provided by NAS 2010

4.3.2 Implementation and coverage of PMTCT services

PMTCT services were introduced in Sierra Leone on a pilot basis in 2004, and in 2005 18 ANC and 15 PMTCT sites were offering HIV screening services and by end of June 2010 497 VCCT and 454 PMTC sites are operational (Table 4.5). It is planned that by 2014 all 1,040 health facilities will be offering PMTCT throughout the country.

Table 4.5: Distribution of people tested for HIV by year, Sierra Leone, 2003 –2009

	VCCT		PMTCT		TOTAL TESTED	
Year	**No. tested and received results**	**No. tested positive**	**No. tested and received results**	**No. tested positive**	**No. tested and received results**	**No. tested positive**
2002	-	-	-		-	-
2003	2,750	389	-		2,750	389
2004	8,352	631	15,998	141	24,350	772
2005	12,498	1,327	11,876	232	24,374	1,559
2006	18,860	2,048	21,127	493	39,987	2,541
2007	26,153	2,141	52,258	1,073	78,411	3,214
2008	54,193	3,492	91,212	1,362	145,405	4,854
2009	181,962	4,779	99,256	1,584	281,218	6,363

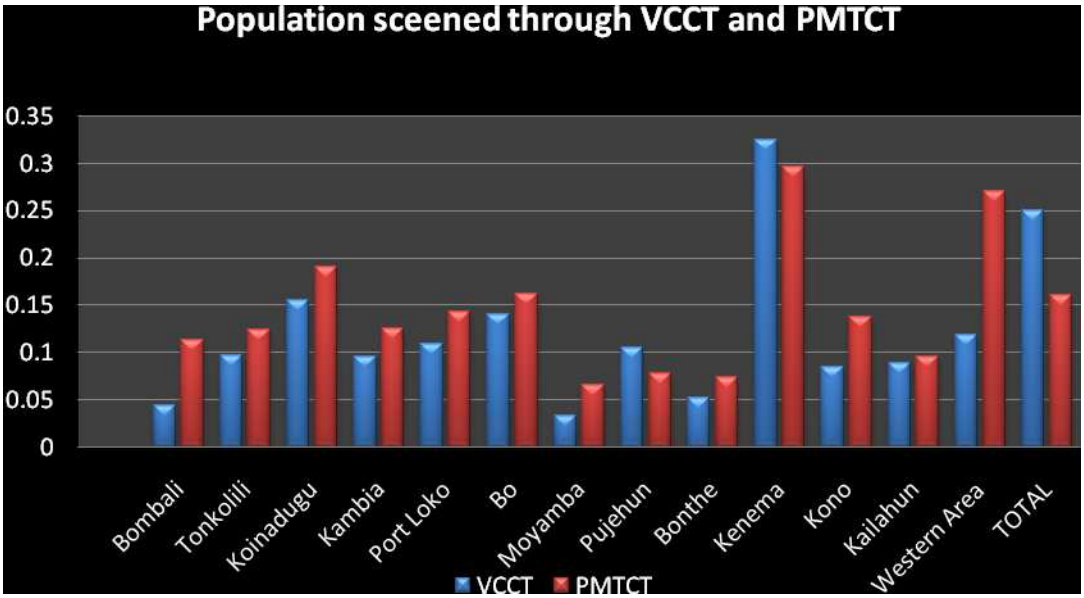
Source: Data provided by NAS 2010

*Annual numbers shown are cumulative

The establishment of PMTCT sites has very much followed in the footsteps of VCCT sites although the inauguration of PMTCT came a year later after VCCT launching (Table 4.4). Figure 4.3 presents the coverage of PMTCT alongside VCCT and as it is indicated in the figure, the coverage of the two

services though of different nature, are nonetheless similar. However, much more needs to be done so that at least 75 percent of the population will be aware of their HIV status by 2012. Knowing ones status and communicating the result to ones partner is not only essential but crucial in regard to stopping HIV and AIDS epidemic.
Mobile sites for remote rural areas are essential so as to be able to cater for the rural population in remote parts of the country. A mixed type of VCCTs should be seriously thought of to include such types as home-based testing, door-to-door and public events testing should be all introduced as well and uptake through these channels should be monitored and promoted so as to increase the national coverage of screened population of people knowing their HIV status.

Figure 4.3: The coverage of PMTCT compared to VCCT by districts, Sierra Leone, by 2009



Source: Data provided by ARG 2010

However, much more needs to be done so that at least 75 percent of the population will be aware of their HIV status by 2012. Knowing ones status and communicating the result to ones partner is not only essential but crucial in regard to stopping HIV and AIDS epidemic even though the need and effectiveness of VCTs has remained questionable in the prevention of HIV, VCT has a place in the prevention of HIV and AIDS[107,108,109,110,111,112,113] prevention with Positives Programmes that aims to

[107] WHO/GPA/TCO/HCS/95.15 (1995)
[108] Higgins, DL et. al. 1991
[109] Coyle S, et. al. 1991
[110] UNJP on AIDS and WHO (1997)
[111] UNAIDS (1999)
[112] WHO 1999
[113] Allen S, et al. 1992

support HIV-infected persons and limit HIV transmission through behavioural and medical interventions has not been implemented widely in Sierra Leone. Some research indicates that support to HIV positive persons to learn their own and their partners' status could increase access to care[114] and treatment[115] and reduce HIV transmission, although others studies have shown no consistent reduction in risk for those testing HIV-negative, and testing programmes have produced no evidence of HIV reduction in populations as a result of VCCT programmes.[116]

However, it remains true that people need to know their status for treatment purposes. Although there is no evidence that counselling and testing has an effect on prevention, it can also be appreciated that for a number of reasons, it is important that people know their status. The barriers to wider HIV counselling and testing may rest amongst the community norms and standards (including reasons for discrimination and stigma).

It was observed from the PMTCT data that not all women who test positive for HIV are treated with Zevudovine (ZDV+3TC). By the end of 2009 the uptake of Zevudovine by HIV positive pregnant women was nearly 18 percent.[117] However, pregnant mothers in labour are provided with Nevirapine. From the data, it does not appear that all positive pregnant women receive complete course of ARVs and therefore not clear if there is a shortage of ARVs in the country. This situation may require attention given the evidence that consistent treatment with ARVs also offers greater than 90 percent prevention[118].

It is assumed that an increased number of people being tested will address the secrecy and denial of HIV infection; disclosure and acceptance are discussed in counselling. Condom social marketing which also falls within this category is important since it should address low condom use, by familiarizing people with condoms and their use.

It is assumed that an increased number of people being tested through both VCCT and PMTCT will address the secrecy and denial of HIV infection; disclosure and acceptance are discussed in counselling. Condom social marketing which also falls within this category is important since it should address low condom use, by familiarizing people with condoms and their use.

The funding by the Global Fund has greatly enabled the Government of Sierra Leone to scale up some of these services although much more resources will need to be mobilized to meet not only preventive services but also to care for the HIV positive individuals by offering ARVs. Currently not all eligible population in the country is registered for ART. The children below age 15 years are the major culprits even though **according to the extended analysis of mode of HIV transmission in the country paediatric HIV and AIDS (vertical transmission) is ranked second source of incident cases of HIV in the country.**

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[114] Mermin J. et al 2005
[115] Weidle PJ et al; 2002
[116] Potts M et al, 2008
[117] Govt. of Sierra Leone. UNGASS report 2010
[118] See # 44.

Recent studies in Africa have demonstrated the efficacy for reducing infant HIV by providing anti-retroviral to mothers, not only at birth, but also for the first several months, during the period of exclusive or almost-exclusive breastfeeding,[119, 120] but these programmes are not available and widespread as only two paediatric centres exist in Sierra Leone and they are both located in Freetown.

Despite the volume of resources allocated to (Section 4.4), no assessments have been undertaken in Sierra Leone to ascertain the effectiveness of the counselling and testing programme. The effect of VCCT on behaviour change has not yet been established in studies of various populations and settings.

On the other hand, very few people are being tested for HIV in the country. The 2008 LSDHS estimated that only 3% of the population had ever been tested and the data from this analysis using data collected by the Ministry of Health and Sanitation with the collaboration of NAS has corroborated this conclusion although there appears to have been an increase to demonstrate the average of 10 percent coverage.

4.3.4 Treatment of sexually transmitted infections (STIs)

There has been sentinel surveillance of patients with sexually transmitted infections (STIs) since 2003. HIV prevalence among STI patients has been declining almost without interruption since 2004. There has been a drop in the prevalence of some STIs, which could be attributed to increased awareness of the link of STI to HIV and application of Syndromic management and also increased free treatment and subsequent increased service uptake.

4.3.5 Blood safety

With the support of the Global Fund the blood demands are usually met by the country and no major shortages have ever occurred. The National Blood Transfusion Service is still hospital-based although it is coordinated by the National Safe Blood Services. All blood units that test positive are discarded. A full 100% of blood units are screened for HIV, syphilis and hepatitis C. Indications are that blood safety is an area where the Sierra Leone response has been fully adequate and is being maintained. However, the only missing link here is the Quality Control component which is missing in the chain of activities prerequisite for optimal functionality. This requires urgent attention from the officers responsible before the system derails from required and expected standards.

4.3.6 Communication for sexual behaviour change (BCC)

One of SLNSP's core prevention principles is targeting interventions to the most vulnerable populations and including all Sierra Leoneans in a national response to the AIDS epidemic. But meaningful engagement with all at–risk populations has fallen short. No nationally-led preventive interventions programmes for MSM, and IDUs have been undertaken or are being rolled out anywhere in the country even though these were mentioned in the NSP. Some small scale projects and organizations are said to be working with SWs and especially FSWs in a few spots in the country. Although the presence of MSM and IDUs has been known to exist in the country no action has been taken to embrace them in the prevention umbrella. Not every MARP group has been included in the prevention umbrella because of the fear of the ramifications as their practice is regarded illegal by the law of the land.

[119] Kilewo C et al; 2007.
[120] Kilewo C et al; 2005

Sierra Leone NAS has a BCC/IEC programme that specifically deals with HIV and AIDS but relies mainly on its IEC activities. However, the need for a stronger BCC cannot be overemphasized given the urgent requirement for behaviour change among the general population for the reduction of HIV prevalence and incidence. The current main activities of the BCC/IEC programme in Sierra Leone is primarily overseeing the development of IEC material developed for different programmes, and especially programmes funded by NAS in the country and interventions targeted to changing behaviours, especially those behaviours that most increase the risk of being infected with HIV.

4.3.7 Abstinence and Being Faithful

The promotion of abstinence as a tenet of the HIV and AIDS control strategy has a major role to play as this strategy has been used by a number of countries in sub Saharan Africa, especially Sierra Leone in the mid 1990s to reduce the prevalence of HIV from above 15 percent to below 5 percent[121]. However, Sierra Leone later had to sustain this gain by increasing the use of condoms at the same time. The available data show that presently, young people are indulging in sexual activities less than in 2002 and 2005 (DHS 2008) but it was not possible to identify specific programmes that this decline could be attributed to in Sierra Leone. For the purpose of scaling up ABC programmes it is advised to track development partners and organizations working in this general area and encourage them to expand their activities for wider national coverage.

4.3.8 Injection Safety and Post-Exposure Prophylaxis (PEP)

Currently, PEP services are restricted to a few specialized health facilities in the country where ART is also provided. The SLNSP strategy aims to integrate PEP into ART services and provide PEP at all ART sites. This will require the training of the police to handle rape and sexual violence survivors and the need to refer survivors to health facilities offering PEP within an appropriate period of time.

4.3.9 Targeting by age groups

Very few programmes focus on targeting specific age groups such as adults older than 25 and children below 15 years. In some countries in the region HIV AIDS has began affecting the population above 49 years of age and there has to be a paradigm shift even in the design and implementation of interventions. Most of the HIV prevention programmes focus either on youths or on the general population. Only a few programmes focus on adults of 25 years or older as a specific target audience. Moreover, most of the programmes focus on both men and women as a combined audience. Regarding geographical coverage, most of the prevention programmes seem to have a national reach and a few focuses on districts only. The key messages that are explicitly promoted include being sexually abstinent, delaying sexual debut, being faithful, using condom consistently, engaging in safer sex and involving people with HIV.

4.3.10 Targeting most-at-risk populations

Vulnerable populations groups to HIV in Sierra Leone include Sex workers (SWs), uniformed services, Miners, *Injecting Drug Users (IDUs), Men who have sex with men (MSM),* People Living with HIV/AIDS (PLWHA), Fisherfolks, transport workers and traders among others.

It should be noted that while most of these vulnerable groups are NSP, **most programmes directed at these groups are being carried out by CBOs and not by government and indeed**

[121] There is evidence from Uganda that the "zero grazing" policy was highly effective in changing behaviour and reducing incidence, but whether it was the abstinence and partner reduction messages or other coincidental events that led to the behaviour change is an issue.

some groups are not at all catered for due to the existing legal environment on the ground. These activities do not need to be carried out by government, but they do need to be deliberately targeted by the Government or NAS strategies in order to "validate" the work being undertaken by civil society organizations. **Based on what the KYE- KYR modelling has shown, the most important high-risk groups that are NOT being covered include MSM, IDUs, transport workers, fishing communities, young women and girls and prisoners. It should be noted that Sierra Leone has a mixed epidemic of concentrated and generalized type. The HIV epidemic in the country is driven mainly by sex work, clients of sex workers leading the pack. Stead marital unions are now major contributors to the spread, making the epidemic generalized as well.**

There are no specific efforts to target young women and girls below the age of 15 years, besides those for the overall group of "youth". Besides the obvious point that issues of young men and young women regarding HIV and AIDS are different, it should be noted that "youth", as defined by NAS (and most international agencies), extends up to the age of 24. The vulnerability and issues facing girls below the age of 15 are light years different from those of a sexually active 23 year old, but the SLNSP did not include this important group below 15 years who apparently are left in the dark by the NSP. The Ministry of Education should be running some programmes on this population sub group and somehow their counterparts who may be out-of-school should be reached as well.

Another gender issue that is not being addressed is the higher risk of HIV among widows, separated and divorced women, a phenomenon which seems to cut across all ethnic groups. There is a need for more research to understand the causality – whether women are widowed, separated or divorced as a result of HIV (in themselves and/or their husbands) or whether they become infected after losing or separating from their husbands. There may be many reasons for this, ranging from traditional values (e.g. widow inheritance) to economic hardships and survival sex as a result of discriminatory inheritance practices.

4.3.11 Condom Promotion and Coverage

Procurement of male condoms is done by mainly National HIV and AIDS Secretariat (NAS), and UNFPA for the Reproductive Health and Family Planning Programme of the MOHS. Social marketing of male and female condoms nationwide is carried out by CARE, Sierra Leone. Presently, there is no centralized condom database for both procurement and reporting.

NAS gets condoms from UNFPA, Global Fund Supported, and a few amounts are received from partners such as AIDS Health Foundation, World AIDS Day and UNHCR for distribution to refugees.

Table 4.6a presents the determined actual national annual condom requirements for Sierra Leone. The SLNSP 2006–2010 target of about 47 million condoms to be distributed in the country annually by 2010 may not be realized if the tracking of the funding, procurement and distribution to the districts and the end users are not aligned and followed. There is need for condoms to be distributed to districts and Chiefdoms and tracked to ensure that they reach end users. In addition, condoms dispensers should be placed in public areas such as chiefs' camps/offices and health facilities where they can be taken unassisted and without questions, which discourages uptake by youth and at-risk groups. Not much is known about the subsidized condom sales through social marketing, donor funded projects, and sales in the private sector.

Table 4.6-a: Assumptions for Condom Needs in Sierra Leone

Calculations for Male Condom Supplies					
	Yr. 1	**Yr.2**	**Yr.3**	**Yr.4**	**Yr.5**
sexually active Male Pop 15-49	**1,304,524**	**1,337,048**	**1,370,549**	**1,405,194**	**1,441,075**
Assuming 20% of this group will use condoms	260,905	267,410	274,110	281,039	288,215
Assuming 12 condoms are needed per month/person	3,130,857	3,208,916	3,289,317	3,372,465	3,458,581
12 months Quota for this group	37,570,280	38,506,987	39,471,806	40,469,575	41,502,973
Assuming 20% wastage	7,514,056	7,701,397	7,894,361	8,093,915	8,300,595
Total condoms required (Sierra Leone)	**45,084,336**	**46,208,384**	**47,366,167**	**48,563,489**	**49,803,568**
	6%	7%	7%	8%	8%
GF Round 9 to provide approx. 7%	**2,705,060**	**3,234,587**	**3,315,632**	**3,885,079**	**3,984,285**
Round 6 will add (pcs.) from 2010-2012 only	3,000,000	3,000,000	1,500,000		
Year	**2010**	**2011**	**2012**	**2013**	**2014**
Total Global Fund targeted for distribution in next 5 years	**5,705,060**	**6,234,587**	**4,815,632**	**3,885,079**	**3,984,285**
Condom Distribution for past 5 Yrs (NAS & Partners)	**2005**	**2006**	**2007**	**2008**	**2009**
Male condoms	802,800	1,968,646	2,256,918	2,676,141	2,185,920
Female Condoms*(distribution started in 2008)*				4,452	16,200

Source: Data provided by NAS 2010

The IEC/BCC Unit was responsible to supply condoms to both Sub-Recipients (SRs) and none-SRs. SRs were supplied based on authorization from the M&E Unit. SRs send in returns to M&E for verification before clearance to supply them is given to IEC/BCC.

None-SRs were supplied on request basis, mainly through letters to the director who in turn minutes the same to IEC/BCC approving action. Most of the non-SRs do not give returns and their activities are mostly one off, for instance, a youth football gala or disco session. The IEC/BCC Unit however keeps record of all these requests and supplies.

Other partners get condoms from either NAS or RH/FP and distribute through their community structures. It is important to note that all returns for condoms are sent directly to M&E Unit.

The condom distribution is also determined for districts as indicated in table 4.6-b but whether these requirements and determinations are achieved is another issue that has not been very well elucidated in this presentation.

Table 4.6-b: ASSUMPTION FOR CONDOMS NEEDS IN SIERRA LEONE - DISTRIBUTION PER DISTRICT

	A	B	C	D	E	F	G
DISTRICT	**2004 Population**	**15-49yrs. Population**	**20% of 15-49 Population**	**Cx12cndms/Pax/month x 12 months**	**20% Wastage on yearly requirement**	**Total condoms + 20% wastage**	**Total + 20% wastage/ by 4 Quarters**
Formula	**A**	**B**	**20% 0F B**	**C*12*12**	**20% 0F D**	**D+E**	**F/4**
Kailahun	358,190	93,845.78	18,769.16	2,702,758.46	540,551.69	**3,243,310.16**	810,827.54
Kenema	497,948	130,462.38	26,092.48	3,757,316.43	751,463.29	**4,508,779.71**	1,127,194.93
Kono	335,401	87,875.06	17,575.01	2,530,801.79	506,160.36	**3,036,962.14**	759,240.54
Bombali	408,390	106,998.18	21,399.64	3,081,547.58	616,309.52	**3,697,857.10**	924,464.28
Kambia	270,462	70,861.04	14,172.21	2,040,798.07	408,159.61	**2,448,957.68**	612,239.42
Koinadugu	265,758	69,628.60	13,925.72	2,005,303.56	401,060.71	**2,406,364.28**	601,591.07
Port Loko	453,746	118,881.45	23,776.29	3,423,785.82	684,757.16	**4,108,542.98**	1,027,135.75
Tonkolili	347,197	90,965.61	18,193.12	2,619,809.68	523,961.94	**3,143,771.62**	785,942.90
Bo	463,668	121,481.02	24,296.20	3,498,653.26	699,730.65	**4,198,383.91**	1,049,595.98
Bonthe	129,947	34,046.11	6,809.22	980,528.08	196,105.62	**1,176,633.70**	294,158.42
Sherbro	9,740	2,551.88	510.38	73,494.14	14,698.83	**88,192.97**	22,048.24
Moyamba	260,910	68,358.42	13,671.68	1,968,722.50	393,744.50	**2,362,467.00**	590,616.75
Pujehun	228,392	59,838.70	11,967.74	1,723,354.68	344,670.94	**2,068,025.61**	517,006.40
W/Area Rural	174,249	45,653.24	9,130.65	1,314,813.25	262,962.65	**1,577,775.91**	394,443.98
WArea Urban	772,873	202,492.73	40,498.55	5,831,790.51	1,166,358.10	**6,998,148.61**	1,749,537.15
National Total Requirement per year	**4,976,871**	**1,303,940.20**	**260,788.04**	**37,553,477.82**	**2,628,743.45**	**45,064,173.38**	**11,266,043.35**

It has been observed for quite some time now that the population is not using condom; for instance national condom use had reached about 20 percent in 2005 but the SLDHS 2008 found that level to have declined to incredibly to low levels of less than 10 percent in all population categories. It has been suggested that some of the reasons for this occurrence are that low condom use may have sprang from a strong socio-cultural rejections of the manner condoms are issued to the public by implementing partners.

There is a strong social stigma attached to condoms in Sierra Leone. It is generally believe that condoms are used by people that are promiscuous and having extra marital sex. Quite a number of people who may need to use condoms will be ashamed to request condoms from a formal hospital setting because they may not want to be tagged as unfaithful.

Another version for the perceived low use of condoms is that condoms are actually used at higher levels than suggested from surveys but the respondents to questions on this topic in the questionnaire that circulated around during surveys do not answer to the true state of affairs to questions during the administration of the questionnaire.

Discussing condoms and sex are still regarded as a taboo by the society in the country and some religious denominations discourages the use and promotion of condoms. The main places where condoms are readily available are mainly the traditional sites – VCCT centres, ANC centres, out-patient clinics, etc. In these places In-charges are asked to tally all the condoms given out. This is good for recording purposes but it does inhibit people that are shy from taking them from these points. Besides, these outlets are closed when condoms may be actually required by users.

Nonetheless, the possibility that some Implementing partners may also not have been very aggressive enough in their condoms promotion drive exists. IEC/BCC have observed that SRs have not been coming for condoms in 2010 as they used to in 2009 and previous years.

At national level, the National Comprehensive Condom Programming Committee (NCPC) is responsible to provide coordination of condoms programmes in Sierra Leone and it is headed by NAS. It's membership is made up of key partners dealing on condoms such as PPASL RH/FP UNFPA, CARE MSSL and the Pharmacy Board of Sierra Leone. This body was formed about a year and a half ago. With funds provided by UNFPA, a Situation Analysis was done and a Condom Strategic Plan developed. The first Year of the Strategic Plan was approved and supported by UNFPA and activities are being implemented.

A training of Master Trainers on Condom Programming was done in June and future trainings to help set up structures at district level are to be done in due course.

Free male Condom distribution is the most common HIV prevention risk reduction activity done by the implementers. The team visited and interviewed 20 implementers in the field, who were promoting and distributing condoms in the country.

Despite all the positive points related to the distribution of condoms, there still prevail some weaknesses that may have resulted in the declining trends in condom use SLDHS 2008. If this negative trend is not corrected soon, the apparent gains in the declining of HIV incidence[122] may be unsustainable and lost. Evaluation of the strategy should start by looking at how the condoms

[122] National AIDS Secretariat: Study of Mode of Transmission (MOT) in Sierra Leone undertaken in 2010

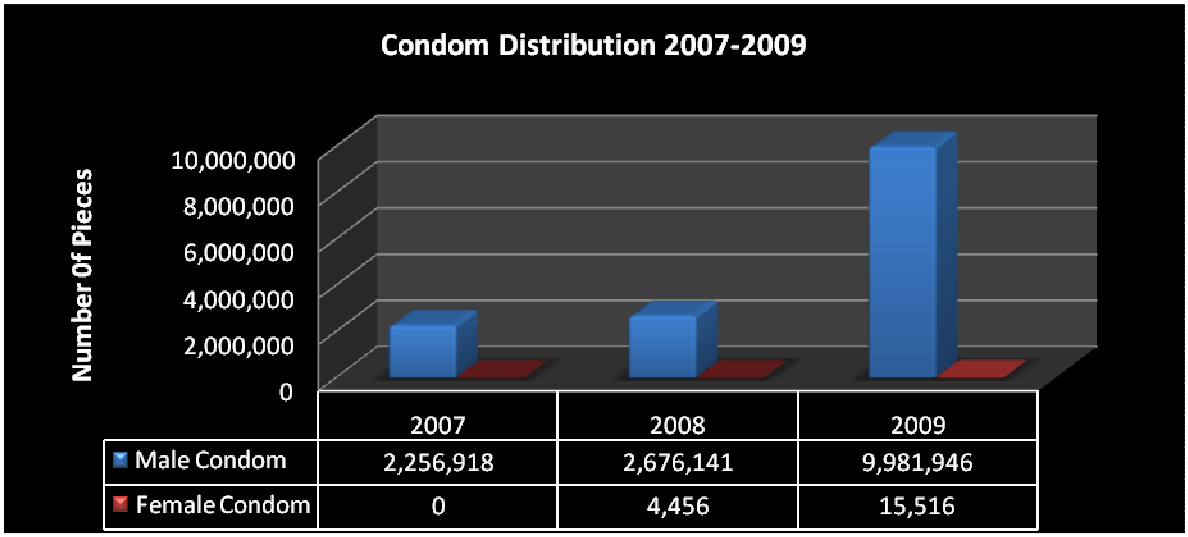
requirements as stated in requirement assumptions (Table 4.7) are met and if not met where and how does the population supplement their need? There is great disparity of the condoms stated as required and those actually distributed. Other information on the condom procurement, distribution and use at the district level are fond in annexes (4.3.1, 4.32, 4.3.3, and 4.3.4).

Table 4. 7: Condon distribution and uptake by district, Sierra Leone, 2008 and 2009

DISTRICT	**No. DIST.**		**No. USED**	
	2008	**2009**	**2008**	**2009**
BOMBALI	50400	14400	120720	99096
TONKOLILI	36000	7200	44760	48528
KOINADUGU	50400	14400	13992	15996
KAMBIA	36000	50400	19116	19164
PORT LOKO	36000	7200	24324	28332
BO	72000	36000	53196	51744
MOYAMBA	36000	7200	11652	12648
PUJEHUN	36000	7200	22608	24276
BONTHE	36000	7200	51204	50748
KENEMA	57600	36000	44028	41460
KONO	36000	14400	96288	94872
KAILAHUN	72000	14400	221964	222384
WESTERN AREA	72000	36000	110160	99828
TOTAL	**626400**	**252000**	**834012**	**809076**

Source: Data provided by NAS, 2010

Figure 4.4: Distribution of condoms in Sierra Leone, 2007 – 2009



Source-UNGASS report; NAS Annual report 2009; KAP Survey among Military-2005; Situational Analysis of Condom in Sierra Leone 2008

4.4. Resource Allocations for HIV prevention

The HIV prevention response in Sierra Leone is highly dependent on international funds. In 2006 and 2007, up to 98% of the funds came from international sources: The World Bank, African Development Bank (ADB), Global Fund to fight HIV and AIDS, TB and Malaria (GFATM), Irish Aid, Department for International Development (DfID), Department of Defense, American Embassy-Sierra Leone, German Embassy, the UN Family namely: UNAIDS, UNICEF, WHO, UNFPA, WFP, UNDP, UNHCR, ILO, FAO, IOM, IMF, World Bank and ADB

In general, the mechanism of their respective support to the national response is either directly to the NAS or through partner international and national nongovernmental organizations; notable organizations in this group are: NETHIPS, CARE International, Christian AID, GOAL, Concern Worldwide, International Rescue Committee, CRS, Oxfam-GB, CARITAS etc. Their overall support during the financial year of 2006/07 has resulted into the scaling up of HIV prevention, treatment, and care and support services in the country.

Key informants from the civil society and implementers felt that more needed to be done regarding resource mobilization at both national and international levels.

4.4.1 Resource mobilization for HIV prevention programmes

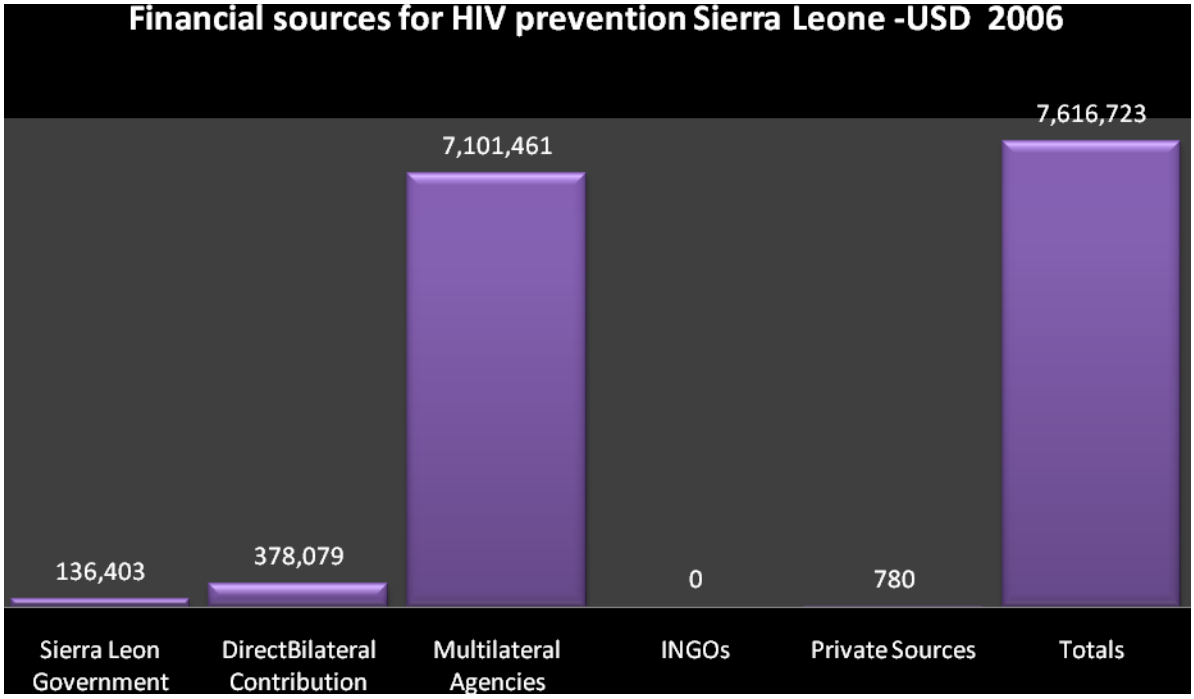
The analysis of total resources allocated to the HIV/AIDS response in Sierra Leone by major donors and government sources during the 2006 and 2007 financial years is presented in Table 8 and Figure 4.5. During the financial year 2006, the government of Sierra Leone provided about 2 percent during both period and the rest mobilized from international sources.

Table 4.8: Financial sources for HIV prevention Sierra Leone -2006 and 2007

DESCRIPTION	2006	2007
Major donors	**USD**	**USD**
Sierra Leone Government	136,403 (1.8%)	200,598 (2.2%)
DirectBilateral Contribution	378,079 (5.0%)	1,379,562 (15.0%)
Multilateral Agencies	7,101,461(93.2%)	7,286,051(79.4%)
INGOs	NA	306,456 (3.4%)
Private Sources	780 (0.0%	NA
Totals	**7,616,723 (100.0%)**	**9,172,666 (100.0%)**

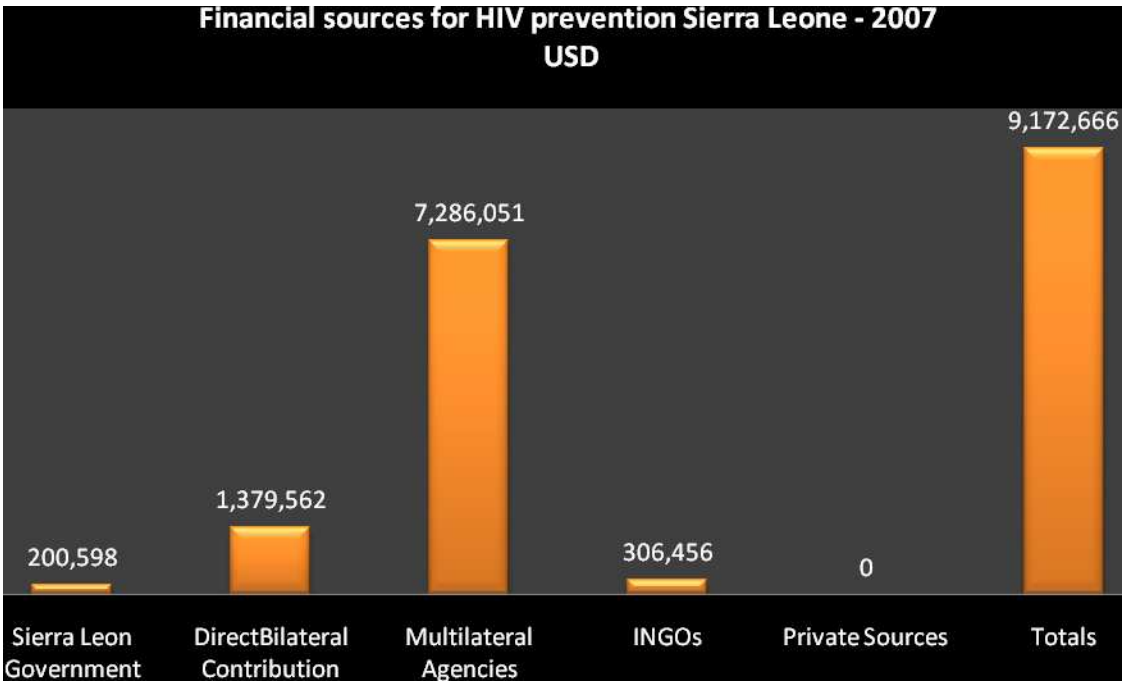
Source: 2006-2007 National AIDS Spending Assessment (NASA)

Figure 4.5: Financial sources for HIV prevention Sierra Leone, 2006



Source: 2006-2007 National AIDS Spending Assessment (NASA)

Figure 4.6: Financial sources for HIV prevention Sierra Leone, 2007



Source: 2006-2007 National AIDS Spending Assessment (NASA)

Among the multilateral agencies, the Global Fund contributed 25% (USD 2,259,712) followed by the World Bank contributing 22% (USD 2008,030) of the total expenditure in 2007. The total financial expenditure on HIV and AIDS from local and international sources rose from $7,616,723 in 2006 to 9,172,666 in 2007. The overall increase of the international spending was mainly due to bilateral donors whose contribution increased by 5 percent from the previous year.

4.4.2 Expenditure to HIV prevention programmes

Prevention took a sizable chunk of resources 48.6 percent in 2006 and 60.6 percent the following year. Obviously in Sierra Leone prevention has been taken vary seriously and expenditure in Table 4.8 indicate this positive trend. Treatment and Care increased the also increased from 4.3 percent in 2006 to 11.4 percent in 2007. All this was at the loss of social participation programmes.

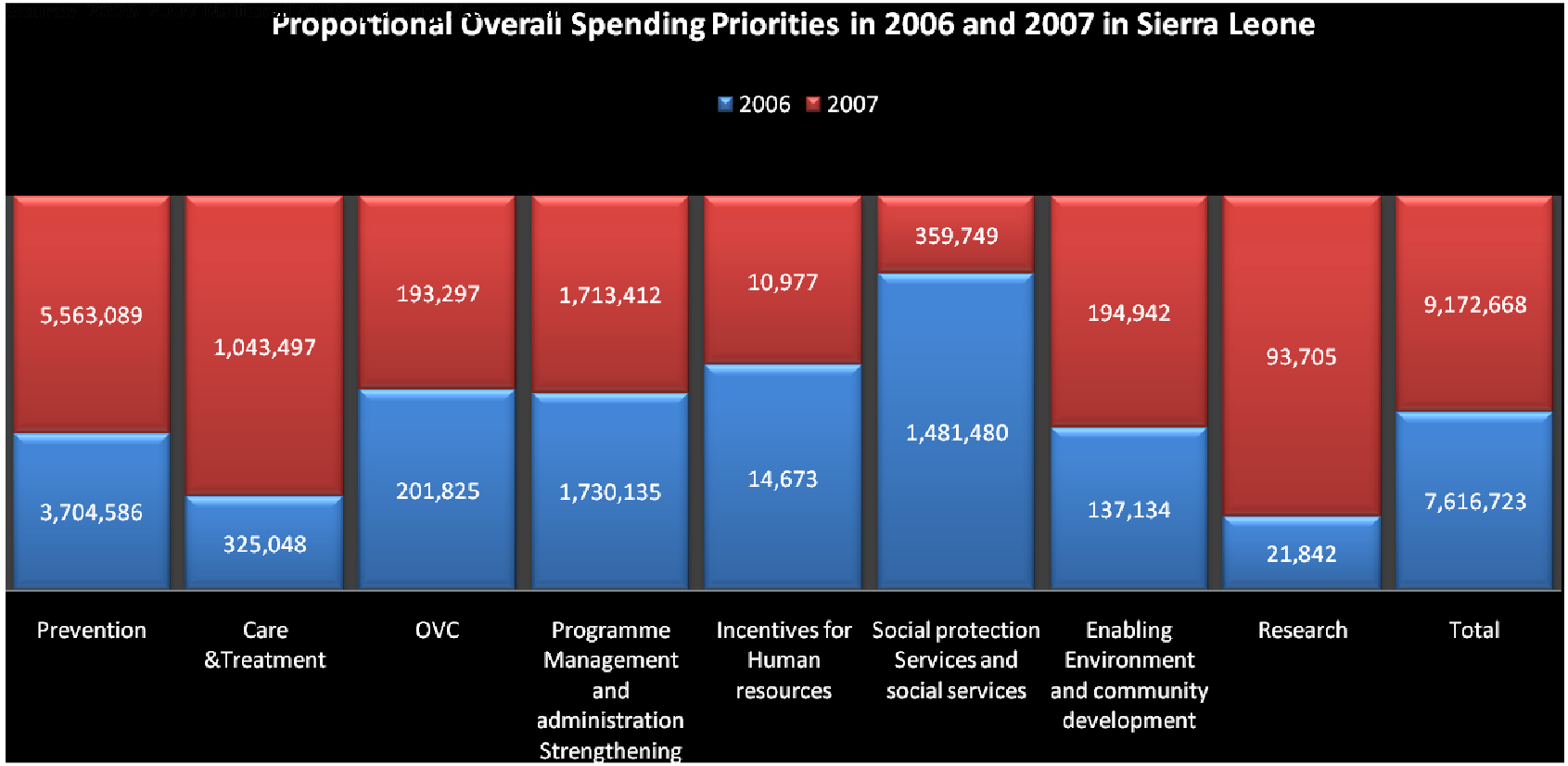
Table 4.9: Proportional Overall Spending Priorities in 2006 and 2007 in Sierra Leone

DESCRIPTION	2006	2007
Prevention	3,704,586 **(48.6%)**	5,563,089 **(60.6)**
Care &Treatment	325,048 **(4.3%)**	1,043,497**(11.4%)**
OVC	201,825 **(2.6%)**	193,297 **(2.1%)**
Programme Management and administration Strengthening	1,730,135 **(22.7%)**	1,713,412 **(18.7%)**
Incentives for Human resources	14,673 **(0.20%)**	10,977**(0.10%)**
Social protection Services and social services	1,481,480 **(19.4%)**	359,749 **(3.90%)**
Enabling Environment and community development	137,134 **(1.8%)**	194,942 **(2.1%)**
Research	21,842 **(0.30%)**	93,705 **(1.0%)**

Total	**7,616,723 (99.7%)**	**9,172,668 (99.9%)**

Source: 2006-2007 National AIDS Spending Assessment

Figure 4.7: Proportional Overall Spending Priorities in 2006 and 2007 in Sierra Leone

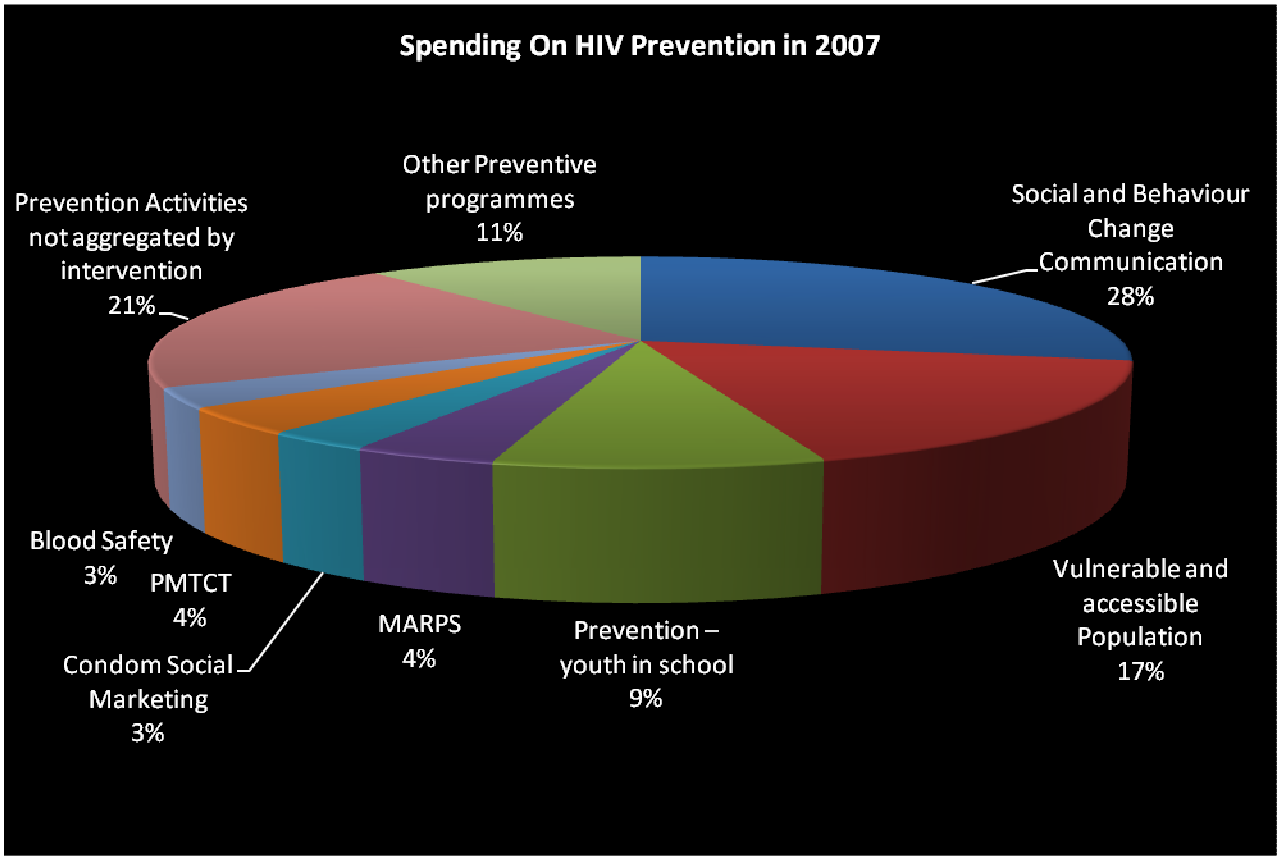


4.4.3 Expenditure by type of HIV Activity

Prevention programme AIDS Spending

The preventive intervention area that received more funds was social and behavioral change communication, activity that represented almost a third (28%) of total HIV preventive interventions (Figure 4.5). Programmatic interventions for vulnerable and accessible populations which included among other interventions targeting migrants and uniformed personnel represented 17% of the total preventive programmes. Prevention for in-school youth captured 9% of the spending.

Figure 4.8: Spending on HIV prevention in 2007

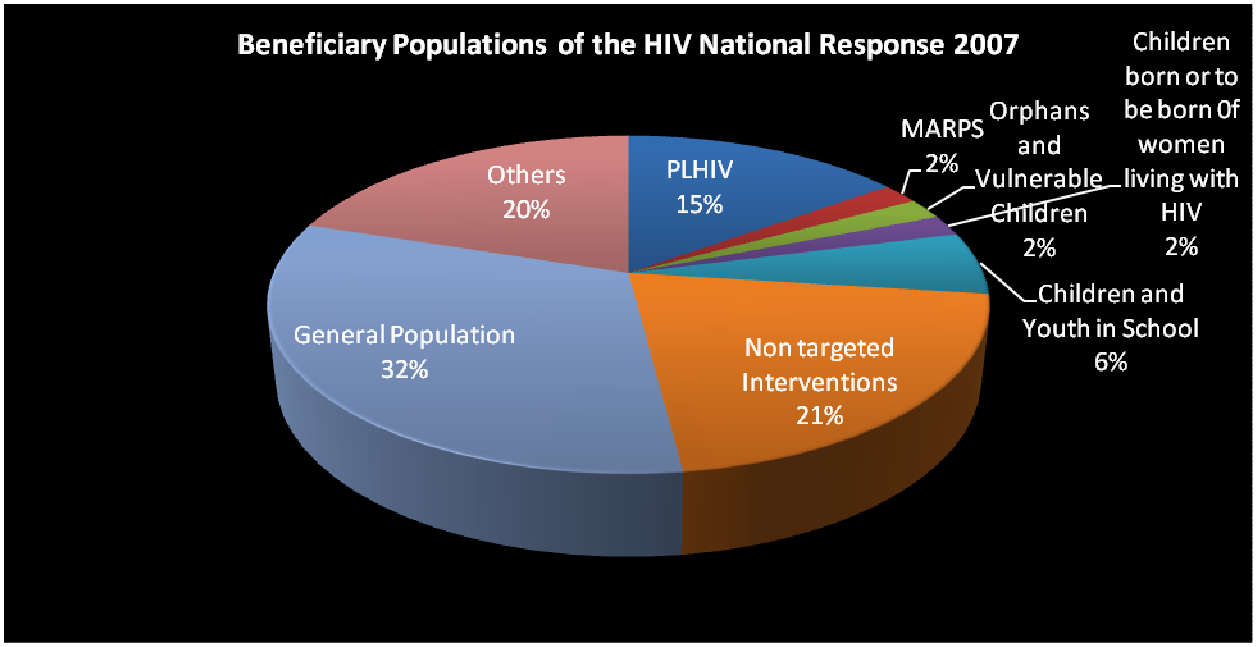


Source: 2006-2007 National AIDS Spending Assessment

4.4.4 Spending on community development activities and to Specific Beneficiaries

Figure 4.6 presents the expenditures to its intended beneficiaries in 2007, it is observed that one third of the spending ($2.8 million) was addressed to the general population, 21% to other none targeted interventions (management, M&E, training) and 15% of the spending was addressed to people living with HIV ($ 1.4 million).

Figure 4.9 Beneficiary populations of HIV/AIDS prevention response



Source: 2006-2007 National AIDS Spending Assessment

Analysis of the NASA revealed that HIV spending increased significantly from USD 7.6 million in 2006 to USD 9.2 million in 2007.Similarly, spending on the programmatic area of prevention also showed an increase from 49% in 2006 to about 61% in 2007 of the total HIV spending during the two financial years. The general population was the main beneficiary of the funds. The general population, mainly of steady married or cohabiting couples will even require more funds given the fact that MOT found that this is the segment of the population that was responsible for greater proportion of incidence of new HIV infections into the population followed by paediatric HIV.

4.5 Monitoring and Evaluation of NSP

The NAS conducts regular national annual reviews to monitor and evaluate the progress in implementing the national strategic plan, including whether current practices promote risk behaviour or hamper access to HIV prevention services. Sierra Leone is also working to realize the "Three Ones" principles for a comprehensive HIV response, namely:

- *One national strategy* – The Sierra Leone National AIDS Strategic Plan 2006-2010, developed through a consultative process involving a large number of stakeholders.
- *One coordinating authority* - NAS's role as national coordinator must be recognized and observed.
- *One national monitoring and evaluation (M&E) system* - NAS is the national coordinating authority for Sierra Leone's HIV and AIDS M&E framework.

Monitoring of HIV prevalence is done through a sentinel surveillance system of antenatal clinics (ANCs) under the National AIDS Control Programme (NACP), situated in the Ministry of Health and Sanitation. Sierra Leone has a policy or strategy that promotes information, education and communication on HIV to the general population. The key messages that are explicitly promoted include being sexually abstinent, delaying sexual debut, being faithful, using condoms consistently,

engaging in safer sex and involving people with HIV to a greater extent in the national response. The government promotes increased knowledge of HIV status by vigorously promoting confidential counselling and testing (VCCT).[123] Other policies it promotes include blood safety, personal hygiene and sanitation and improved methods of waste disposal. It should be noted that other important prevention strategies that have proven to be of value, namely partner reduction and reducing stigma against most-at-risk populations are explicitly mentioned as strategies in the current SLNSP. Although the value of VCCT has always been debated and many have called for their relegation, arguing that there implementation does not add value to the reduction of HIV infections, these VCCT are nonetheless very important especially in Africa as an entry point to services related to HIV and STIs[124,125,126, 127, 128, 129]

The country has a policy or strategy that promotes HIV-related reproductive and sexual health education for young people and HIV education is part of the curriculum in primary schools and secondary schools. The country also has a policy or strategy to promote IEC and other preventive health information for vulnerable subpopulations such as women and youth (but does not target certain high risk populations[130,131].

[123] VCCT guidelines 2003
[124] Kamenga M, et al 1991
[125] Allen S, et al 1992
[126] De Zoysa I, 1995
[127] Campbell CH, Jr. et al. 1997
[128] The Voluntary HIV Counselling and Testing Efficacy Study Group (2000)
[129] Bassett M.T. (2002)
[130] Recent surveys besides the annual surveillance include the Behavioural Surveillance Survey (BSS) in 2004 and the population based Demographic and Health Survey (SLDHS) in 2008. The SLDHS included HIV testing in the households and the results provided useful information on the status of the sentinel surveillance system. The country's HIV prevalence and behavioural antecedents are regularly updated by the general population-based surveys.
[131] Counselling and testing has not been proven as a successful prevention policy, but it is essential as a way to access care and treatment – particularly for discordant couples

CHAPTER 5: LINKING THE RESPONSE TO THE EPIDEMIC

5.1. Are HIV prevention policies based on the latest available evidence and global best practice?

5.1.1 Are all the necessary components of the response present to enable to contain the epidemic?

The national response as packaged by the National HIV and AIDS Secretariat (NAS) is comprehensive and the necessary components are in place save a few areas that are not addressed among which some most vulnerable population groups such as MSM, IDUs, Fisherfolks, and others including research. There is a great need for a research arm to undertake research that provides solutions to operational bottlenecks for strengthening the implementation of the national prevention response.

5.5.2 Is the structure of the national strategic frame-work organized in such a way as to ensure efficient implementation of priority interventions?

The national response against HIV/AIDS requires a multisectoral approach due to the very nature of the epidemic. It involves the government, NGOs, Communities, Faith-based Organizations and International partners working together to curtail the spread of HIV/AIDS epidemic. In this regard, the national strategic framework (2006-2010) has been organized in such a way as to ensure effective and efficient implementation of the priority interventions, and the main structures needed to guide the implementation of the interventions have been put in place at all levels of implementation and are functional.

At the national level, the national Aids Secretariat (NAS), the coordinating division of the national AIDS Council (NAC) and in collaboration with international partners, coordinates, monitors and evaluates the implementation of the activities.

At the district level, the District AIDS Committees (DAC), in collaboration with local representatives of international and local partners provide coordination, monitoring, evaluation and supervisory services of all implementing organizations. At the community level, the Chiefdom AIDS Committee (CAC) represents the point of reference for all HIV interventions.

However, there is need to strengthen the structures, especially at the district and community levels, in terms of capacity building to perform more effectively and efficiently since availability of human resources, both in terms of numbers and quality, and an enabling environment is most essential for the successful implementation of the HIV/AIDS strategic plan. There is need to recruit, train and deploy additional staff at all levels of implementation of the national strategic framework.

The priority areas in the SLNSP for HIV and AIDS and prevention strategies analyzed and reviewed to for ascertainment of whether the policies therein were addressing the prevention priority areas of global best practice as identified in Table 5:1.

The review of the prevention programmes concluded that the Sierra Leone national strategic plan (2006 – 2010) and the national operational plan of 2009 to 2010 adequately address and reflect globally agreed upon and implemented best practices in accordance with international standards (Table 5:1).

Table 5.1: Selected prevention areas, global best evidence included in the Sierra Leone HIV and AIDS, NSP 2006 – 2010

Programme Area	Global evidence		HIV prevention policies that address the intervention
	Impact at population level	Impact at individual level	
1. Abstinence	Temporary impact on young people through delayed debut. Most HIV infections occur in adults, when abstinence has less relevance. More rapid HIV acquisition in young adults observed ("catch up")	When observed, 100% effective	• National HIV & AIDS Policy • Health Policy (Health education & SRH sections) • Youth Policy
2. Be faithful /Partner reduction	Appears to have been key to reduced incidence and prevalence in Sierra Leone, Kenya, Zimbabwe, urban areas of Ethiopia and Malawi	100% effective IF fully maintained by two HIV negative people (or in a polygamous union)	National HIV & AIDS Policy • Health Policy (Health education & SRH sections) • Marriage Act Multiple concurrent partnerships & sexual network issues not sufficiently addressed
3. Condoms, male	Have contributed to HIV decline in some generalized epidemics, but no evidence of primary role (consistent use has not reached sufficient level, despite years of promotion)	80-90% protective if consistently & correctly used. When most transmission occurs in "steady" couples, consistent use is exceedingly difficult	Health Policy (Health education section, SRH section) • Youth Policy • HTC Guideline • Condom distribution strategy (zero draft
4. Condoms, female	Contribute to number of protected sex acts where available	Highly protective against HIV, STIs and pregnancy	National HIV & AIDS Policy • Condom distribution strategy (zero draft)
5. STI treatment	Five of six trials showed no impact of STI treatment on HIV incidence (only targeted bacterial STIs, and missed asymptomatic infections)	STI treatment provides benefits to the individual and remains important for public health (but not as HIV prevention measure)	• Health Policy • STI Guideline
6. HSV-2 Recent infection with HSV	Recent evidence (two RCTs) on preventing HIV acquisition by treating HSV-2 is discouraging	Recent infection with HSV-2 doubles the risk of HIV transmission. Recent infection with HSV-2 is	NOT COVERED Potentially an important contribution to HIV prevention, relies on further

		more risky than chronic infection.	research into HSV-2 suppression to assess HIV impact
7. Male circumcision	Strong observational & biological data on protective impact at population level; three RCTs stopped early due to high efficacy of MC. Over time, may protect more women (indirectly) than any other intervention. Potentially an effect of "herd immunity" if enough men circumcised.	50-75% protective for men, possibly some direct protection for women; many other health benefits for males (reduces penile cancer, phimosis, some STIs,) & females (reduced risk of cervical cancer). One-time procedure that confers lifelong partial protection.	• MC Policy (not necessary draft); **(Current circumcision rates 96% +)**
8. Counselling & testing	Little population-level impact shown, although essential as an entry point to care and treatment, and for PMTCT	Some behaviour change shown in discordant couples and in HIV positive clients	National HIV & AIDS Policy • Health Policy • VCCT Guideline • PMTCT Guideline
9. Behaviour change Interventions for young people	Strongest evidence for behavioural impacts of: Radio and other media, TV/radio and other media; certain designs of curriculum-based sex- & HIV education effective for youth in school when adult led	Increased individual access to youth- (and gender-) friendly health services shown to be important for general SRH.	• Youth Policy
10. Preventing Intergeneration al sex	Rates of HIV in young women correlate with wider age disparity in relationships; data not available at population level on effectiveness of strategies	Young women more susceptible to infection, un-empowered to insist on condom use or to protect self from sexual abuse	Girls and Women's Protection Act (if age<15 years, but not otherwise) • Marriage Act (indirectly as adultery is a criminal offence in civil rites marriage) • Youth Policy (delaying sexual debut
11. Preventing sexual violence	Likely contribution of sexual violence to HIV transmission, though population level impact not known	Forced sex likely to confer higher HIV risk due to tearing, etc; Violence often sparked by accusations of infidelity - partner reduction therefore an indirect prevention measure	Sexual Offences Bill (draft) • Gender Policy (draft)
12. ARV chemoprophylaxis	No RCT undertaken of impact of ART on HIV transmission, but viral load is very low and this correlates with low infectivity. One observational study found 50% reduction of HIV transmission in discordant couples on AZT alone	Risk if individuals stop NOT COVERED ART of rapid viral load increase that could mean high infectivity	Need "proof of concept" and feasibility of intervention study (underway). Several challenges to address in using ART for HIV prevention: cost, need for VCT, health infrastructure; may increase behavioural risks; and, if adherence is suboptimal, could increase drug resistance as

			well as reduce impact on prevention as viral load rises

Sierra Leone's prevention strategies regarding promotion of abstinence in adolescents, condom provision, and treatment of STIs, promotion of counselling and testing, PMTCT and blood safety are covered by national policies and reflect international best practice. Delivery of services under these initiatives may not be optimal, but in principle, these areas are being addressed according to the latest international standards.

*The coordination of national strategies and prevention policies for the prevention of HIV and AIDS need strengthening and continuous tracking to ensure that these strategies fit with the epidemiological evidence in the sexual behaviours that are targeted and the messages to promote changes in behaviours and social norms***:**

- The evidence indicates that **commercial sex networks**, which includes FSWs and their clients and partners is the most important source of new HIV infections. This mode of transmission is closely followed by **casual heterosexual sex** (individuals with more than one sex partner). The third mode of HIV transmission among adult population is among **steady partner heterosexual union/low risk heterosexual**, that is, among those with one reported sexual partner **(married/living together/cohabiting).** This involves a wide swath of married or cohabiting individuals – most over the age of 25, who frequently do not know the HIV status of their partner. There may also be secondary longer-term partners involved with whom condoms generally are not used **(cohabiters).** There do not seem to be many programmes aimed at these couples. Key messages addressing the subject of **"partner reduction",** is lacking and any other message on this subject is drowned in the many other messages if they do exist. Multiple Concurrent Partnerships (MCPs) and sexual networks are not explicitly addressed in policies.

- Age-disparate relationships (including intergenerational relationships that have been blamed for the much of the widespread HIV epidemic in sub Saharan Africa is still a problem on the ground. This phenomenon is not properly addressed by policies and programmes going beyond behaviour change in order to impact social norms which are currently potential in a state of high unemployment and poverty.

- Casual heterosexual partnerships and the sexual behaviour of Fisherfolks, transport, mine workers and traders are clearly more likely to have increased multiple concurrent partnerships unless addressed by new policies.

5.2. Do HIV prevention policies and programmes respond to the key drivers of the epidemic?

The analysis presents evidence from Sierra Leone and pertinent evidence in the West African region to define important risk factors and drivers of the hyperendemic situation in the country and discuss the appropriate policy and programmatic responses.

5.2.1 Is the response of NAS in the strategic plan appropriate to the prevailing epidemic conditions and the key epidemic drivers?

The HIV/AIDS strategic plan's response to the prevailing epidemic is healthy given the existing evidence at the time of its development. Programmes and planed activities cover all the prevention responses through multi-sectoral approach. However, the observation is that some key epidemic drivers like the multiple concurrent partnership (MCP) in combination with low and inconsistent condom use, are the main behavioural factors that may hamper the apparent gains from abstinence and "being faithful" to ones partner". The MCPs behaviour is common among all age groups and there are no specific messages tailored towards the reduction related to the risk of multiple partners.

Some of the key epidemic drivers in Sierra Leone are the 'most at risk populations' (MARPs) among who are the MSMs, CSW, IDUs, Miners, Fisher Folks traders, miners and transport workers including long distance truck drivers and bike riders. This population groups have a concentration of risk behaviours that promote HIV transmission and contribute to the majority of new infections. Although the overall response is strong, there are almost no activities targeting some of them and married couples and people in long-term steady relationships practicing the risk behaviour of unprotected extramarital sexual affairs.

There are no specific prevention services focused on IDUs, MSMs, and migrant mobile population that constitute the 'floating population'. Although the PLHIVs are sensitized to protect themselves and live positively, they are not sensitized enough to promote positive prevention by informing their partners of their status. There is also insufficient awareness among implementers that some older people are experiencing higher levels of infections and need to be specifically targeted with preventive interventions.

Prevention programmes are centred on IEC and less on BCC targeted to bring about Bahaviour change. Condom promotion and distribution, IEC/BCC messages and VCCT are the only programmes tailored and targeted at the MARPs group. Eighty percent of the current programme coverage is nation-wide and only twenty percent have specific district targeted coverage. The HIV-discordant and concordant positive couple who are a critical target for prevention, given the epidemiological evidence in the study also need to be specifically targeted.

Although male and female population are at risk of the infection there are no specific programmes targeting the males. Equally the available female specific programmes/interventions are limited in scope and number.

5.2.2 High levels of sexually transmitted infections

The policy context for STI treatment, as well as STI prevention and control, has recently been strengthened with the 2008 Health Policy. Roll-out of provision of STI services has reached all public health facilities, and health workers are being trained in syndromic management based on the National STI Guideline.

Although STI treatment remains critical for broader public health programs, the population-level evidence for impact on HIV transmission, especially in generalized epidemics, appears minimal (Table 5.1 points 5&6). Treatment of genital herpes (HSV-2) has not shown an impact on HIV acquisition in recent trials. The management of STIs including HSV-2 must remain a priority for the health sector as important in its own right, but there is no evidence that it will reduce HIV incidence at the population level.

5.2.3 Multiple partnerships and sexual networks among heterosexual men and women

The policy environment has not responded specifically to this key determinant of the epidemic. Although the "being faithful" part of the ABC strategy has been integrated into several policies and strategies, there is no adequate coverage of MCP behaviours. There has been no national MCP campaign in Sierra Leone even though caution will be necessary given sensitivity around this issue in regard to possible stigma. This emphasizes the need to create awareness and understanding among stakeholders and populations that MCP behaviours are a key factor in the epidemic and needs to be addressed publicly and candidly.

Thus, current policies do not provide evidence-informed guidance on priority populations for prevention. In turn, programmes are not targeting the sub-populations where most new infections happen. Sierra Leone's most at risk populations (MARPs), i.e. populations in which there is a concentration of risk behaviours that promote efficient HIV transmission that then drive the majority of new infections have not been comprehensively defined[132].59 More often than MARPs, relevant documents deal with "vulnerable populations" (youth, OVCs, the bereaved & vulnerable elderly, PLHIV - e.g. 2010 UNGASS report).

Most importantly, almost no activities are targeted explicitly towards **adults, married couples and people in long-term steady relationships (especially those with MCP behaviours, or whose partners have an MCP)**, despite the growing understanding that risk behaviour is highly prevalent in these groups.

"…we know too little about how to effectively promote partner reduction. But this is no excuse not to immediately increase our commitment to well-evaluated programmes aimed at reducing multiple and concurrent sexual partnerships…. Lessons learned from the successes in reducing population-level HIV prevalence in countries such as Sierra Leone may prove useful.." (Wilson and Halperin 2008)[133].

Furthermore, there is little sex-specific targeting, despite the epidemiological evidence. The NSP states that all activities should be sensitive to gender, age and disability. However, implementers – possibly based on the notion that this is a generalized epidemic and everybody is at risk - target males and females equally, and mostly all ages combined. There is insufficient awareness among implementers that relatively older people are experiencing higher levels of new infections and need to be specifically targeted with preventive interventions.

The SLDHS 2008 findings estimate considerably higher incidence rates in wealthy females, and socio-cultural evidence suggests that verification of a man's wealth, standing and manhood is closely tied to his ability to secure women. Programming which is both gender-sensitive and culturally informed should include prevention activities which specifically

[132] UNAIDS (2007). Behaviours that put people at greater risk of HIV infection include high rates of unprotected sexual partnerships – especially concurrent multiple partnerships, unprotected anal sex, and injecting drugs with shared equipment and drug preparations (globally, MARPs are people with concurrent multiple sexual partners, including sex workers, clients of sex workers, and MSM, and injecting drug users, and also sexual partners of IDUs, female partners of MSM, and partners of sex workers, since their partners engage in risky behaviour).

[133] (Wilson and Halperin 2008).

target men only or women only.[134] Behaviours that put people at greater risk of HIV infection include high rates of unprotected sexual partnerships – especially concurrent multiple partnerships, unprotected anal sex, and injecting drugs with shared equipment and drug preparations (globally, MARPs are people with concurrent multiple sexual partners, including sex workers, clients of sex workers, and MSM, and injecting drug users, and also sexual partners of IDUs, female partners of MSM, and partners of sex workers, since their partners engage in risky behaviour).

Without a doubt, the **approximately 500,000 HIV-positive individuals in Sierra Leone** must be prioritized as a target population, those knowing their status as well as those who have not yet accessed HCT. The pre- ART and ART enrolment process provides important opportunities to address prevention interventions to HIV-positive individuals and couples.

With this study, the body of evidence on the comparatively higher HIV risk of **women** has been corroborated with model estimates on incident infections in females. This does not mean that women need to be targeted increasingly – rather that some specific programmes require targeting to men, and some to women. In targeting **youth**, the evidence shows that uneducated, unskilled and out-of-school males should be a priority population for prevention. Several co-factors are clustered in these males, including early sexual debut, comparatively lower condom use, and alcohol consumption.

5.2.5 Male circumcision (96% of men are circumcised)

The NSP does not mention male circumcision (MC) and on purpose; on the average, 96 percent of Sierra Leoneans are circumcised and in some regions this rate is as high as 98 percent and therefore there is urgent need for the policy as the current levels offer sufficient herd immunity to the population of Sierra Leone and all that is required is to maintain the male circumcision tradition.

5.3. Is funding for HIV prevention allocated to where it is most needed?

According to the NASA report of 2007, prevention programmes attracted most of the spending, with 49% and 61% of total NSP for HIV spending in 2006 and 2007 respectively. The budgetary allocation for treatment and Care programmes increased from 4% in 2006 to 11% of the total share in 2007. Social protection and social services had a significant decrease in 2007.The spending fell from 19% of total spending in 2006 to 4% in 2007.

The total spending on Orphans and Vulnerable Children (OVC), enabling environment and incentives for human resources had remained stable from 2006 to 2007 at 3 %. Need for increased financial attention towards OVCs intervention is indicated as prevention interventions are necessary in this vulnerable group. It has been shown elsewhere that there is a great need to integrate OVC care and support programmes with effective prevention. The children are viewed as the "window of hope" but if adequate programmes are not put in place to slow down the incidence, we could see an explosion in the epidemic among the most productive stratum of the population.

In 2007, the preventive intervention area that received more funds was social and behavioural change communication, activity that represented almost a third (28%) of total

[134] UNAIDS 2007

HIV preventive interventions. This increased funding to this specific area could be attributed to the behaviour change that resulted in increased abstinence and "being faithful" components of the ABC strategy. Programmatic interventions for vulnerable and accessible populations which include among other interventions targeting migrants and uniformed personnel represented 17% of the total preventive programmes.

One very important area that had little or no funding was the area of research. There is need for substantial increase in funding to this area to support pertinent operational research that is directed at providing solutions to programme effectiveness and efficiency. However, the budgetary allocation does not seem to reflect the epidemic situation and the key drivers in the epidemic as revealed by the MOT study.

Given the evidence known at the time the NSP was developed, the budget lines were well thought of and allocated appropriate budgetary weights. However, with the new evidence from the just completed MOT study, there will be need to seriously consider the realignment required in allocation of funds to various emerging prevention priority areas, not forgetting the other promising new evidence that treatment of PLWHAs also offers above 90 percent prevention effectiveness.[135,136,137] It is important to note the observation coming from elsewhere that ART patients display considerable risk behaviours and that there is not enough emphasis on positive prevention in the ART and pre-ART cohorts.

MARPs was allocated 4% from the budget for prevention which should have been much higher taking into consideration the number of drivers in this group. More money was spent in programmes that help to promote behavioural change but still this was not enough provided with the current evidence of the importance of this strategy. MARPs also had a meager 2% allocated under the beneficiary population, which was very inadequate.

The PMTCT intervention received far less funding in the NASA given the evidence from this review that paediatric HIV is the second ranking in terms of annual incidence in the Sierra Leone. This distribution should t requires review and improvements regarding resource availability, service access, utilization, treatment effectiveness and communication strategy (see recommendations). Also, it is important to note that the only way of completely preventing the transmission of HIV post delivery is replacement feeding (which must be made available and affordable for the infants of as many HIV-positive mothers as possible).

More funding is needed for strategic information: There is great awareness of the value of strategic information and increasingly, there is a culture of reporting, data analysis, dissemination of information, indicator harmonization and results- based management. An M&E system for the national response is well established within the NAS and decentralization of this system to the regions and districts should be considered and implemented.

Quarterly service coverage reports on the health sector response and the multisectoral HIV/AIDS response need to be produced regularly. While the SLDHS provides important epidemiological and behavioural information about the general population, there is a lack of such information from less accessible populations like sex workers and MSM. Expenditure

[135] Montaner JS, et. al. 2006
[136] Granich RM, et al 2009
[137] William B, et al 2010

for surveillance and prevention-related research has been comparatively small, and important research areas have been neglected.

In order to maintain the low level of new infections arising through **blood transfusions and medical injections**, the funding for the respective services including quality assurance needs should be included in the budgeting and maintained according to the NASA, expenditure for blood safety increased in 2007 compared to the previous year, expenditure for universal precautions was not assessed separately.

CHAPTER 6: RECOMMENDATIONS

These recommendations focus on what Sierra Leone should do differently (more of or less) in relation to its current HIV prevention strategies and prioritization of allocation of resources.

6.1 Policy Level Recommendations

6.1.1 Essential Policy Actions for HIV Prevention

i) Ensure that human rights are promoted, protected and respected and that measures are taken to eliminate discrimination and combat stigma.

ii) Involve people living with HIV, in the design, implementation and evaluation of prevention strategies, addressing the distinct prevention needs.

iii) Promote gender equality and address gender norms and relations to reduce the vulnerability of women and girls, involving men and boys in this effort.

iv) Promote widespread knowledge and awareness of how HIV is transmitted and how infection can be averted.

v) Promote the links between HIV prevention and sexual and reproductive health.

vi) Promote programmes targeted at HIV prevention needs of key affected groups and populations.

vii) Review and reform legal frameworks to remove barriers to effective, evidence based HIV prevention, combat stigma and discrimination and protect the rights of people living with HIV or vulnerable or at risk to HIV.

viii) Ensure that sufficient investments are made in the research and development of, and advocacy for, new prevention technologies.

6.1.2 Evidence-based planning and decision making

i) The study found that MSM, fishing communities, floating population, IDUs and clients of sex workers are more significant contributors to HIV incidence in Sierra Leone than had previously been suspected. Therefore, a review of the NSP to focus prevention strategies towards most at-risk populations is an urgent priority.

ii) The Know Your Epidemic (KYE) - Know Your Response (KYR) Modes of Transmission methodology should be institutionalized by the National HIV and AIDS Secretariat (NAS). This should facilitate regular monitoring of changes in the transmission dynamics of HIV and generate information that can be used to align prevention efforts to areas of greatest need.

iii) Because of considerable geographic heterogeneity of the epidemic in the country, KYE-KYR modes of transmission should be undertaken for each Province/Region separately, in addition to the national process to delineate specific targets for prevention by geographic location.

iv) The capacity to use the KYE-KYR Modes of Transmission methodology should be developed and strengthened at the national level structures in the HIV response.

v) Surveys for Most-At-Risk Populations with both serological and behavioural components should be institutionalized and conducted regularly (at least every 2 years) to improve data availability and data quality for application of the MOT model.

6.1.3 Development of new prevention policies and guidelines

i) Policies and guidelines for HIV counselling and testing, IEC/mass media, and behaviour change interventions should be reviewed and strengthened with a view to targeting the following population sub-groups:

a. Persons in long-term marital or co-habiting partnerships
b. Discordant couples
c. Persons living with HIV and AIDS
d. Most at risk populations (MARPs) including commercial sex workers, uniformed services, fishing communities, floating population, MSM, prisoners and IDUs.

ii) Legal impediments to the inclusion of most-at-risk populations (MARPs) including commercial sex workers, MSMs and IDUs in the HIV/AIDS national response should be reviewed.

iii) Specific guidelines and targets for programmes addressing gender inequality and harmful gender norms should be developed, disseminated and programmes rolled out.

iv) Make policies work. National HIV responses must have a multi-faceted vision that truly addresses women's needs. Government/NAS must mandate, coordinate, fund and be accountable for strategic plans that ensure women's right to full, healthy lives.

iv) Guidelines and mechanisms for the regular tracking and reporting of resource allocation, disbursement and spending for the national response should be developed and institutionalized at every level of the national response.

6.2 Programmatic Recommendations

6.2.1 Prevention programming

i) Prevention programmes and efforts should be re-aligned and improved to target populations where the new infections are occurring. HIV prevention programmes should increasingly focus on population groups with disproportionately higher prevalence and incidence of HIV infections, but that currently don't constitute the focus of HIV prevention programmes. These population groups include urban residents, older individuals, married working, wealthy men and women, residents of Western Region of Sierra Leone and MARPs.

ii) Priority interventions should include reduction of number of sexual partners, HIV-discordance, **positive prevention** in people living with HIV/AIDS, **steady couples including married and cohabiting couples (low risk heterosexual) as a priority population for implementation of programmes that focus on them, especially regarding MCP behaviours.** This may include the development and marketing of a "healthy couple" service package which includes family planning, STI counselling, diagnosis and treatment, HTC, pre-ART for HIV-infected partners, relationship

counselling, education on sexual risk and specific issues pertaining to migrant couples, partner reduction, condom use and deferred sexual inception.

iii) The so-called "Low risk heterosexual" or steady monogamous unions rank high as one of the leading contributors to HIV incidence. It is recommended that couple-based HIV prevention programs be intensified by expanding and enhancing the quality of couple-based voluntary counselling and testing. Programmes for married couples need to be designed and implemented nationally, even in provinces where there is a low prevalence of most-at-risk populations.

iv) Need for other types of programmes to change harmful social norms are also required – such as the zero grazing campaign of the mid 1990s in Sierra Leone, which was driven by community leaders from all walks of life *(this type of intervention will require a research component in order to generate evidence on "what works")* [138,139, 140]

iv) HIV prevention among HIV-infected people (positive prevention) should be strengthened taking advantage of the expanded opportunities for HIV/AIDS care and treatment to integrate HIV prevention into all HIV/AIDS treatment, care and support programmes.

vi) HIV counselling and testing should be scaled-up to include the opt-out strategy and extended to communities beyond the health clinics with improved coordination of partners and increased emphasis on couple counselling and disclosure of HIV test results.

vii) Need to promote and galvanize the population on the use of condoms cannot be over emphasized; condom requirements, procurement and distribution to the end user are important issues requiring special attention by the Government/NAS.

viii) Although PMTCT has been rolled out, there are still limitations to universal access. There is need to widen coverage and increase availability, to provide a scaled-up and improved quality of service that includes an integrated package of family planning, sexual and reproductive health, maternal and child health services.

6.3 Resource Allocation and Alignment

i) HIV prevention resources should be aligned to those population groups in which new HIV infections are occurring. This does not mean that there should be re-allocation of available prevention funding, but rather it highlights the need to mobilize additional resources and expand the focus and attention to include those individuals/groups that may not have been targeted before, such as prisoners, MSM, IDUs and Floating population.

ii) Government should invest more of its own resources into the national HIV/AIDS response generally but into HIV prevention interventions specifically. The meager 1% invested by government is not advisable.

iii) In general, financial data collection in Sierra Leone needs to improve to enable assessment of programme implementation relative to allocation of funds and expenditure at the geographic level and for specific target audiences.

[138] Hellen Epstein: God and the Fight Against AIDS
[139] Ruth Bessinger, et. al, (2003)
[140] Yamamori, T et. al. (2003). The Hope Factor

6.4 Recommendations for Strategic Information Needs

i) There should be a Research and M&E Unit headed by a Prevention Advisor who will track the epidemic and constantly/regularly brief the Director NAS. Needs for operations research for tracking the epidemic is enormous and new information could help refocus the prevention strategy. As an example: Why are people not using condoms and what could be done about it to reverse the trend? How come only few people know where to go for counseling and testing and where to pick condoms?

ii) Some areas where more research is needed:

a. sexual behaviour in specific communities, e.g. fishing communities
b. behavioural research around multiple concurrent partnerships
c. formative research to understand size, location, behavioural and demographic features of the MSM and IDU communities
d. factors explaining the high prevalence among widows/separated/divorced women
e. utilization of services by geography and client population
f. social anthropological research into cultural issues requiring behaviour change.
g. the study also found that the epidemic is heterogeneous, with great variations across regions and across risk groups within these regions. Therefore, well-designed and coordinated research to both understand and monitor these variations is required.
h. there are few data on the size, extent and behavioural characteristics of the Sierra Leonean IDU population. There is a need for national mapping surveys of this and other groups, e.g. MSM, SWs, floating population, etc. Given the emerging high incidence in some of these populations, programmes should be urgently implemented, that should include counselling and testing and positive prevention for people with HIV, health care, rehabilitation and access to safe needles.

iv) M&E systems should be strengthened to provide more comprehensive coverage data, better reporting, and more information on the quality of services. Regular aggregation of M&E data and dissemination to all stakeholders should be supported to promote utilization of these data, but more importantly the principle of 'Three Ones' must be enforced and respected for effective tracking of the epidemic and coordination.

v) All surveys, especially population-based and DHS surveys should include questions on children below 15 years of age, information which should be provided by their parents or guardians; surveys should also include the population of 50 – 70 years of age.

vi) National Surveys that provide monitoring information on the national HIV/AIDS response should be conducted regularly and in a coordinated manner. These include

a. The KAPs/IBBS for MARPs) – every year
b. National AIDS Spending Assessment (NASA) – every 3 years
c. Population-based sero-surveys – possibly every 2 years
d. Expand sentinel surveillance to include sufficient rural sites (populations) for national representativeness and have it conducted every year; alternatively consider using PMTCT centres for sentinel surveillance;
d. Demographic and Health Survey (DHS) – every 5 years

vii) A KYE-KYR Modes of Transmission Study should be conducted regularly every 2 years at national and Provincial/Regional levels for better monitoring and tracking of the epidemic.

6.5. Recommended target sub populations to focus on:

a. Persons with specific higher risk behaviour – CSWs, IDUs, MSM and men in prisons
b. Programmes for rural males and females – of all ages – in high prevalence districts
c. Married and co-habiting couples
d. People involved in multiple partnership relations
e. PMTCT for pregnant women to reduce paediatric incidence
f. Programmes for older adults, especially men in urban areas
g. Programmes for youth – delayed onset and behaviour
h. Specific programmes for girls and young women – negotiating skills, empowerment
i. Specific occupational groups – fishermen, sex workers, traders, transport and mine workers

6.6. Geographic areas for coverage to focus on:

a. Western region
b. Eastern region
c. Urban areas
d. Northern region
e. Eastern region

CHAPTER 7: CONCLUSION

The Modes of Transmission model is a special tool which gives power to understand the status and characteristics of the HIV/AIDS epidemic in a country or region, for obtaining fairly accurate estimates of new cases of HIV, obtaining estimates of incidence for different modes and identifying risk behaviors for targeting and regions requiring special intervention. The model definitely provides a new phenomenon and power for planning and intervention to address the HIV/AIDS epidemic.

The MOT modeling is a valuable tool for modeling the national and regional epidemic; however the greatest challenge is availability or lack of required data. Collection of data routinely during the national SLDHS would provide data for the model conveniently. In Sierra Leone, in addition to having the National DHS, it would be appropriate to also conduct regional DHS's to feed into the National SLDHS, this would then provide reliable data for the MOT model and thereby provide a strong grasp of the characteristics and distribution of the epidemic in the country. SLDHS areas for data collection should include IDU's and MSM's and all other modes pertinent to the MOT.

The information from the MOT modeling is useful and valuable for planning and targeting of intervention and prevention efforts. The MOT tool provides a powerful and useful tool to analyze and understand the epidemic national and regionally and should be used to inform the areas for prioritization of intervention and allocation of funding for prevention efforts on the basis of evidence.

The estimates from the MOT model would provide useful information for monitoring and evaluation of intervention and prevention efforts. Periodic estimates from the MOT model would provide strong evidence to evaluate progress in intervention efforts and a clear indicator of success and effect of intervention in different MOT areas.

In Sierra Leone the following areas will need development of new interventions:

- Strengthen the campaign towards people who are involved in high risk sex with multiple sexual partners to reduce the number of partners and be insistent and consistent in safe sexual practice
- Encourage sex workers and their clients (Fisherfolks, traders, transporters and mine workers and other clients) to adopt consistent safe sexual practices

- 13.5% of new cases occur among couples and people in regular relationships. As a preventive measure couples and regular partners should be encouraged to know their HIV status and counseling be provided to those who are discordant.
- Fishing communities throughout the country need special intervention as these is a high risk group.
- Anal sex as practiced between men and heterosexually with female partners and sex workers is emerging and could create serious problems as the spread of HIV through this mode is much rapid than the heterosexual mode and further more it is not militated by

circumcision as the heterosexual mode is. Anal sex is more risky than heterosexual sex. Society needs to be educated on the risks of anal sex and of the safer practice on this mode transmission.

- It is clear that MSMs exist and they are in hiding within marriages and heterosexual partnerships. There is need to provide MSM friendly health care services and adapt HIV/STI services and train staffs to better respond to the health and confidentiality concerns of MSM.
- MSMs need to be informed about the dangers of risky sex and be educated on safer sexual practices and use of condoms and water based lubricants in their sexual activities.
- Create more awareness among Prison populations on the sources of infection and dangers of risky sexual behavior such as homosexuality and multiple sexual partners. Condoms should also be provided freely to prison inmates.
- IDU's represent a group at extremely high risk and in need of urgent intervention due to the possibility of generating high rate of incidence among them. Contacts need to be made with IDU's as that existing with FSWs and MSM so that friendly dialogue could start and interventions formulated with their participation. They need to be educated about safer injecting practice and access to syringes, safer sexual practice and access to counseling and detoxification services.

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ANNEXES

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Annex 6: Incidence model data in-put

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Annex 8: Listing of types of messages in HIV prevention programmes

Annex 1: List of presentations on KYE-KYR made by the Lead Consultant and participants

1: Expanded Technical Working Group (ETWG) Meeting - Venue: Conference Room, NAS, Date: 9th June, 2010

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25	Melrose Cotay	INCLUDE	076-606606	include2004@yahoo.com
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2: Joint UN Team on HIV/AIDS Meeting - Venue: UNAIDS Conference Room - Date: 16th June, 2010

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14	Dr.Ochola Dorothy	UNICEF	Chief of HIV/AIDS	076-638987	dochola@unicef.org

3: Technical Working Group Meeting - Venue: Global Fund Conference Room: Date: 24th June, 2010

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9	Victor Kamara	NAS	033366991	Victorkamara56@yahoo.com
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4: Briefing Meeting with UNICEF - Venue: Conference Hall, UNICEF - Date: 27th July, 2010.

No.	Name	Organization	Title
1	Vidhya Ganesh	UNICEF	Deputy Representative
2	Lianne Kuppens	UNICEF	Chief CSD
3	Paul Sengeh	UNICEF	M&E Specialist
4	Glenis Taylor	UNICEF	M&E Specialist
5	Edmund Makiu	UNICEF	HIV/AIDS Specialist
6	Dorothy Ochola-Odongo	UNICEF	Manager, HIV/AIDS Unit
7	Nuhu Maksha	UNICEF	Immunization Specialist
8	Augustine Kabana	UNICEF	Manager, Child and Maternal Health
9	John Baimba	UNICEF	M&E Officer, CSD
10	Margaret James	UNICEF	Health Specialist, maternal and Child Health
11	Melrose Tucker	UNICEF	Nutrition Specialist
12	Dr. Momodu Sesay	UNICEF	Manager, NACP, MOHS
13	Salieu Jalloh	UNICEF	Ast. Programme Comm. Officer
14	Patrick Kenya	NAS	International Consultant
15	Joseph Kobba	NAS	Consultant
16	Dilys Thompson	NAS	Consultant
17	Dr. Prince Roberts	NAS	Consultant
18	Dr. Noah Conteh	NAS	Consultant

Annex 2: Study implementation calendar

IMPLEMENTATION OF THE MODES OF TRANSMISSION STUDY												
	ACTIVITIES	**TIME FRAME OF THE ACTIVITIY IMPLEMENTATION IN 2010**										
		17 – 28 May	31 M – 11 June	14 -25 June	28 Jun 2 July	5 – 9 July	12 –16 July	19-23 July	26-30 July	2-13 Aug	16-27 Aug	30Aug – 13 Sept
1.	Desk Reviews	Xxx	xxxx	Xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxx	
2.	Review of the Literature of published and unpublished reports on HIV/AIDS in SL and supporting publications	Xxx	xxx	Xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	Xxx
3.	Train country technical team	Xxx	Xxx									
4.	Develop consultancy protocols	Xxxx	xxxx	Xxxx	xxxx							
5.	Identify resource people for modelling and prevention data	Xxxx	xxxx	Xxxx	Xxxx							
6.	Collect modelling data for incidence derivation	Xxx	Xxx	Xxx	xxx	xxx	Xxx	Xxx	xxx			
7.	Develop draft inception report	Xxxx	Xxx	Xxx	xxx	xxx	Xxx	Xxx				
8.	Identify, contact and brief key thematic groups	Xxxx	xxxx	Xxxx								
9.	Identify and contact stakeholders for collection of prevention data	Xxxx	xxxx	Xxxxx								
10.	Collect data from key Informants and FGD at national level		xxxx	Xxxx	xxxx							
11.	Field visits to Western, Southern, Eastern and Northern regions for collection of HIV prevention data			Xxxx	xxx	xxx	xxxx					
12.	Compile, consolidate analyze data for KYE and KYR						xxxx	xxxx	xxxx	xxx		
13.	Develop epidemiological and HIV prevention review reports			Xxx	xxx	xxx	xxx	xxx	Xxx	xxxx		
14.	- Submit draft reports on KYE and KYR to the supervisory committee for comments; - Receive comments for input								xxx xxx			
15.	Develop draft MoT synthesis MoT report									xxxx	xxxx	
16.	- Distribute the draft MoT synthesized report to workshop invitees - Finalize workshop arrangements										xxxx	
17.	- Present the MoT study findings in workshop; - Receive workshop comments and incorporate comments in the Final MoT report											xxxx xxxx
18.	Submit final MoT report											xxxx

Annex 3: Prevention Implementers randomly selected for participation in study

No.	Name of Organization
	UN Agencies
1	UNAIDS
2	UNFPA
3	UNICEF
	Public Sector
4	Ministry of Internal Affairs and Local Government
5	Ministry of Agriculture and Forestry
6	Ministry of Education Youth and Sport
7	National HIV/AIDS Secretariat
8	Ministry of Health and Sanitation
9	Ministry of Employment, Labour and Social Security
10	Statistics Sierra Leone
11	Military Hospital
12	Parliamentary Committee on HIV/AIDS
13	National AIDS Control Programme (NACP)
14	Bo District Council
15	Bo City Council
16	Kenema City Council
17	Kenema District Council
18	Bombali District Council
	NGOs, CBOs, FBOs
19	Youth Welfare Development Association (YWDO)
20	Dignity Association
21	Planned Parenthood Association of Sierra Leone (PPASL)
22	Society for Women and AIDS in Africa , Sierra Leone (SWAASL)
23	Marie Stopes Sierra Leone (MSSSL)
24	Child Fund S/L
25	SLANGO
26	Shepherd Hospice
27	Christian Health Association Sierra Leone (CHASL)
28	Council of Churches sierra Leone (CCSL)
29	Scripture Union Sierra Leone
30	Mabata Rural Development (MRDP)
31	Timap for Peace and Development
32	Bo East police Wives Association
33	Bo Bike Riders Union
34	Kakua Hospice
35	Theatre of AIDS Prevention and Education (TAPE)
36	Every Youth Empowerment Forum (EYE)
37	Women in Crisis Movement
38	Sierra Red Cross Movement
39	Plan Sierra Leone
40	Business Coalition
41	Rufuntha Development Association (RODA)
42	Kenema District Bike Riders Union
43	Bombali District Bike Riders Association
44	Community Animation and Development Organization (CADO
45	Sierra Leone Youth Empowerment Organization (SLEO)

46	Safe Blood Services
47	Methodist Church Sierra Leone (MCSL)
48	United Methodist Church (UMC)
49	Scripture Union of Sierra Leone
50	Bo Methodist Youth Resource Centre
51	Shephard Hospice (TSH)
52	Rehabilitation and development Agency (RADA)
53	Pampana Communications
54	Nova Scotia Sierra Leone
55	Concern Worldwide
56	Sierra Leone Youth Network on HIV/AIDS
57	Catholic Relief Services
58	Hope Sierra Leone
59	Moyamba District Dev Association
60	Sierra Leone Professional Drivers' Association
61	**PLHIV**
62	Network of HIV Positives (NETHIPS)
63	HIV/AIDS Support Association (HACSA)

Annex 4a: Policy response checklist

Recommended policy Action	In place in the country? (y)/(n)	Observation
1.Provides a clear mandate for leadership, resource mobilization ,coordination and reporting to the NAS and define a coasted plan for effective HIV prevention in the contest of the "Three Ones"	yes	Sierra Leone has a costed National Strategic Plan (NSP) for HIV prevention and an M&E framework which are functional Key challenges:
2.Mobilizesand commits sufficient resources to HIV prevention to meet the needs of the essential HIV prevention plan, track and analyze expenditures to improve future planning circle	Yes	The country mobilizes and commits resources to HIV prevention Key challenges: There is a need to put in place a mechanism that will track HIV and AIDS spending from source to provider in Sierra Leone, insufficient available resources to meet the needs of the HIV prevention plan Recommendation: Institutionalize NASA in the context of M&E framework of NAS
3. Conducts a high profile, national review of every sector to evaluate whether current practices promote risk behavior or hamper access to HIV prevention services	No	No national review of every sector to evaluate whether current practices promote or hamper access to HIV prevention services are done Key Challenge: There is a need to undertake regular national review of every sector to evaluate whether current practices promote risk behaviour or hamper access to HIV prevention
4. Builds public awareness and demand to amend legislation and policies that create barriers to HIV prevention, such as laws that discriminate against women and girls	yes	The country is doing fairly well in building public awareness and demanding amendment of legislations and policies that create barriers to HIV prevention Key challenge: lukewarm commitment to enforcing laws and implementing policies regardless of the high demand
5.Reviews, amends and enacts appropriate laws and policies and enforce antidiscrimination legislation	yes	The country reviews, amends and enacts laws and policies to address issues of discrimination
6.Promotes full enforcement of laws against child marriage, sexual abuse and gender based violence	yes	There are laws in place but enforcement is a bit weak Key challenge: inadequate resources to fully enforce laws in the country
7. Advocates and promotes removal of user fees or taxes that reduce accesss and use of key commodities, such as HIV test kits, male and female condoms, treatments for sexually	yes	There are no user fees or taxes on HIV prevention commodities especially on donated male condoms, test kits and treatments for STIs. ARVs are provided for free. Branded male and

transmitted infections and antiretroviral drugs		females condoms are not taxed but are paid for under the condom social marketing programme by CARE international
8.Trains and support leaders (political leaders and leaders from within networks of people living with HIV, vulnerable communities, the private sector, faith based organizations, and traditional healers) to speak out against HIV-related stigma and discrimination and demonstrate solidarity and support for universal access to HIV prevention, treatment , care and support	yes	Sierra Leone has provided trainings and support for the political leaders and leaders of Non-Governmental Organizations, Civil society organizations, faith Based Organizations, traditional leaders on speaking out against stigma and discrimination issues and practices that promote HIV infection
9.Promotes and energizes multi-sectoral linkages with government ministries that are or should be involved in the AIDS response (e.g local government, Social welfare, Health, Agriculture, Education, youth and sports,	yes	Sierra Leone does promote multi-sectoral linkages with other government line ministries, civil society organizations, faith based organizations etc that play a vital role in the AIDs response
10 promotes male circumcision as an additional, important strategy for the prevention of heterosexually acquired HIV infection in men as part of a comprehensive HIV prevention package which includes: delay in the onset of sexual relations, abstinence from penetrative sex, and reduction in the number of sexual partners, providing and promoting correct and consistent use of condoms, providing HIV testing services, and treating sexually transmitted infections.	No	Population is circumcised. Male circumcision is a norm in Sierra Leone. Nearly 97% of the male. No strategy in place in place for prevention of heterosexually acquired HIV infection in men. However, delay in the onset of sexual debut, faithfulness, correct and consistent use of condoms, provision of HIV testing services and treatment of sexually transmitted infections are part of the comprehensive prevention packages.

ANNEX 4b: HIV *Prevention response strategic information checklist*

RECOMMEND STRATEGIC INFORMATION ACTION	In place in the Country? (y / n)	Comments and Observations
1. Developed a national HIV M&E system that collects data on:	yes	Assessment of the strategic information revealed that a national M&E system had been developed that collected data on the under mentioned:
1.1 Sentinel HIV surveillance among pregnant women, urban and rural	yes	This is survey is conducted periodically among pregnant women, rural and urban
1.2 Cross-sectional surveys of behaviour in sub-populations	yes	This is conducted on a regular basis
1.3 Surveillance of sexually transmitted infections and other biological markers of risk	yes	This is conducted on a regular basis
1.4 HIV case reporting	yes	Systems are in place for case reporting
1.5 Tracking of HIV in donated blood	yes	This is always done as a matter of policy
1.6 Cross-sectional surveys of attitudes and behaviour and HIV infection in the general population	yes	This type of survey is periodically undertaken such as BSS
1.7 Cross-sectional surveys of attitudes behaviour among young people	Yes	Cross-sectional surveys of attitudes and behaviour among young people are often conducted
1.8 HIV surveillance in subpopulations	Yes	This is done periodically in the sub-population
1.9 Behavioural surveillance in sub-populations with high-risk behaviour;	yes	System in place for behavioural surveillance in sub-populations with high risk behaviour. However, it needs to be extended to cover MSMs and IDUs
1.10 Data on morbidity and mortality	yes	There is a system in place to gather data on morbidity and mortality
1.11 Programme and financial monitoring data	yes	There are systems in place for financial and programme monitoring and data are available

2. Gathers and analyses strategic information to define most-at-risk populations and risk settings and on the HIV response, response capacity and resource needs in the public and private sector. Provide the data and analyses to the National AIDS Authority and other stakeholders on a regular basis.	no	This is one of the major deficiencies in the strategic information system
3. Gathers information on the HIV response and response capacity in the public and private sector, beginning in high-risk settings.	Yes	There is no system in place to gather information on the HIV response and response capacity in both the public and private sector
4. Monitors HIV programme coverage, disaggregated by population subgroup, sex, age, marital status and geographic area; analyse information with stakeholders; identify implementation gaps; and coordinate partners and adjust programmes to meet demand and improve programme performance.	yes	This is generally done as and when necessary
5. Conduct additional research on sexual networking patterns to better understand the potential HIV transmission flow from most-at-risk populations to the general populations	no	This has not been done and there is need for it to be undertaken
6. Conducts periodic, participatory national assessments of the HIV response and response capacity and resource needs in the public and private sector and from the central government to the community levels. Provide this information to the National AIDS Authority and other stakeholders using, high profile processes and events on a regular basis to motivate participation and coordination across the many partners	no	This is yet to be done
7. Gathers and uses strategic information to understand the contexts and drivers of predominant risk behaviours and to guide investment and action towards achieving objectives such as human capacity development and system strengthening and universal support for human rights including gender equality.	no	There is no system in place to define the context and drivers of predominant risk behaviours
8. Gathers and analyses data from additional sources to estimate HIV incidence in key audiences, in order to refresh HIV prevention planning and keep it aligned with the epidemic	no	This is lacking.
9. Conducts additional behavioural and ethnographic studies (e.g. young people, girls, married men) to map and define sexual networks, communication networks and opportunities to promote social change.	no	There is need to undertake this type study as it has not been conducted
10. Develops universal access indicators	Yes	There are Universal access indicators are in place with set targets to assess performance of the prevention progrrammes
11. Sets universal access targets for prevention	Yes	Universal access target for prevention are available

ANNEX 4c: HIV prevention programmatic response checklist

RECOMMENDED PROGRAMMATIC ACTION	In place in the Country? (y / n)	Comments and Observations
1. Build the capacity of the most-at-risk populations to organize, advocate and deliver peer prevention; secure the active participation of these populations in designing, delivering and evaluating prevention services	yes	Capacity of the most –at-risk have been built to organize, advocate and deliver peer education, for instance, Commercial sex workers. However, MSMs and IDUs are conspicuously excluded or neglected
2. Integrate HIV prevention issues, including the adverse effects of stigma and discrimination, sexual violence, gender inequality, homophobia and human rights violations in broader public health and development campaigns	yes	Integration of HIV prevention issues, including adverse effect of stigma and discrimination is very weak and therefore need to be strengthened
3. Promote programmes aimed at promoting livelihood alternatives to transactional sex.	yes	There are programmes in place that provide skills and vocational training for commercial sex workers as alternative means of livelihood
4. Ensure adherence to blood safety standards (all blood and blood products tested for HIV before transfusion; all health care settings observe universal precautions).	yes	As a matter of policy, all blood and blood products are screened for HIV, Syphilis and hepatitis B and C before transfusions. Universal precautions are observed in all health care settings/facilities.
5. Promote and provide quality HIV prevention, treatment, care and support for most-at-risk populations, bridge' populations such as mobile populations, uniformed forces, clients of sex workers and most at-risk young people, and people living with HIV.	yes	HIV prevention, treatment, care and support are provided for sex workers, vulnerable Children and People Living with HIV. Clients of sex workers, MSMs and IDUs are not considered.
6. Build capacity for HIV prevention planning and implementation in government, non-governmental organizations and civil society, including the capacity of most-at-risk populations and people living with HIV to organize and advocate; to deliver peer prevention and to lead "positive prevention programmes." Secure the active participation of communities in designing, delivering and evaluating prevention services.	yes	The capacity of government, non governmental organizations and People living with HIV (PLHIV) Civil Society Organizations had been built for HIV prevention, planning and implementation of programmes.

7. Plan and implement a long-term (for example, 5 years) national HIV communication programme to mobilize society and to create an enabling environment for prevention, treatment, care and support. Relevant themes include: • support for HIV counselling and testing and disclosure, delay of sexual debut, partner limitation, couples counselling and testing and safer sex and normalising condom use; • expectations of bold and radical leadership by politicians and other opinion leaders; • promotion of principles and local action for human rights, gender equality and zero tolerance for gender-based violence; and promotion of solidarity and support for affected families and young people, including children affected by HIV.	No	There is no National HIV communication programme to mobilize society and to create an enabling environment for prevention, treatment, care and support
8. Ensure universal access to HIV counselling and testing, including provider-initiated voluntary HIV counselling and testing according to national guidelines, beginning in areas of high concentration of	yes	Universal accesses to HIV counselling and testing are assured and are conducted according to the national guidelines.
9. Ensure universal and uninterrupted condom availability and integrate condom promotion into reproductive and primary health-care services in the public and private sector.	No	This is not visible
10. Prioritize programmes for women and men that address risk behaviours and gender related vulnerability.	No	There are no such programmes in place
11. Promote and provide full range of prevention of mother-to-child transmission services, beginning in urban areas and other areas with high concentration of HIV.	yes	PMTCT services are provided nationwide but very thin especially in the rural communities as compared to the urban areas.
12. Promote joint HIV/TB services and positive prevention services available at all hospitals.	yes	Joint HIV/TB services and positive prevention services all District Hospitals
13. Partner with Ministry of Labour, employer associations and trade unions to promote the availability of HIV prevention and treatment services or referrals at the workplace.	yes	The national response to multisectoral in approach and a number of line ministries including Labour do promote HIV prevention and treatment services
14. Ensure health-care, law enforcement and social services employees are trained on HIV issues, including gender and human rights.	No	This is yet to be implemented
15. Ensure well informed, active and visible participation of leaders in HIV prevention and AIDS response	yes	There is a visible leadership commitment and participation in the national HIV/AIDs response
16. Develop and implement diversified programmes for young people, reaching both boys and girls that include gender equality and respect, access to comprehensive sexual and reproductive health services including access to treatment, ensuring access to information, sexuality education, life skills	yes	There are programmes in place that targets youths, both in and out-of school
17. Ensure special programmes for orphans, street children and others at high risk, balancing needs	yes	There are special programmes for

for risk, vulnerability and impact reduction		Orphans and vulnerable Children in the form of nutritional and educational support. However, street children are not included in this category for the support
18. Promote and ensure male involvement in sexual and reproductive health programmes including HIV prevention, STI treatment, HIV counselling and testing, prevention of mother-to-child transmission services,	No	There is little or no male involvement in the sexual and reproductive health programmes.
19. Ensure health care and other social services employees are trained on HIV issues, including stigma, human rights and gender issues.	yes	Health care and other social services employees have been trained on HIV issues
20. Identify priority geographic settings where male circumcision is likely to have the greatest impact on the HIV epidemic and progressively expand access to safe male circumcision services within the context of ensuring universal access to comprehensive HIV prevention, treatment, care and support.	No	Male circumcision is a national norm
21. Provide sexuality and reproductive health education through the school curriculum.	No	There is no provision for reproductive health education in the school curriculum
22. Ensure inclusion of sexuality education in teacher training curriculum.	No	Not yet in place
23. Provide sexuality and reproductive health education to out-of-school youth in high risk and high prevalence areas through peer education.	No	Not yet in place

INCIDENCE MDEL – SOURCES OF DATA:

Annex 5a: Prevalence of HIV in Risk Groups

Risk Group	HIV Prevalence	Remarks and sources
Injecting Drug Use (IDU)	4.0%	Bosu et al 2009 (Ghana MOT)
Partners of IUD	1.4	
Sex workers	8.5%	Sere-prevalence study CDC 2002 A study to determine the prevalence rate of HIV/AIDS and Syphilis among commercial sex workers (CSWs) in Freetown by the American Refugee Committee International, May/September 2005
Client of sex workers	1.5	Sierra Leone DHS 2008 Prevalence of HIV and other STIs in RSLAF 2007 Police Report Updated 2010
Partners of clients of sex workers	1.4%	SLDHS 2008
MSM	7.5%	NAS rapid study 2010
Partners of MSM	1.2%	SLDHS 2008
Fisher folks	3.8%	NAS rapid survey study 2010
Mine workers	1.1%	HIV/AIDS, BSS Survey SSL,NAS 2007
Traders	1.7%	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April 2002
Transporters	1.7%	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April 2002
Casual heterosexual sex	1.7%	SLDHS 2008
Partners of casual heterosexual	1.2%	SLDHS 2008
Steady monogamous/cohabiting	1.2%	SLDHS 2008
No Risk	0%	SLDHS 2008
Medical	0.7%	SLDHS 2008
Blood Transfusion	0.5%	SLDHS 2008

Annex 5b: Prevalence of Sexually Transmitted Infection by Group

Risk Behaviour	Male	Source
Injecting Drug Use (IDU)	30.8%	% is for males and females from the Survey report on KAP on HIV/AIDS 2002
Sex workers	NA	SL general population HIV/AIDS and BSS survey 2005
Client of sex workers	52.9%	SL population-based HIV Sero-prevalence survey 2005
Partners of clients	NA	
MSM	41.5%	NAS prevalence study among MSM 2010
Female partners of MSM	NA	
Fisher folk	2.6%	HIV/AIDS, BSS Survey SSL,NAS 2007
Mine workers	3.8%	HIV/AIDS, BSS Survey SSL,NAS 2007
Traders	27.0%	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April 2002
Transporters	31.4%	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April 2002
Casual heterosexual sex	4.0%	SLDHS 2008
Partners of CHS	NA	
Steady monogamous	7.6%	SLDHS 2008
No risk	0%	
Medical injections	NA	
Blood Transfusions	NA	

Annex 5c: Number of partners per year

Adult Risk Behaviour	Number of partners per year	Source/Remarks
Injecting Drug Use (IDU)	6	Nigeria MOT
Partners of IUD	1	Nigeria MOT
Sex workers	120	HIV/AIDS Prevalence study ARC International, Freetown 2005
Client of sex workers	100	Post intervention survey, AIDS prevention Port Loko ARC Sierra Leone
Partners of clients of sex workers	1	SLDHS 2008
MSM	6	NAS study of MSM 2010
Female partners of MSM	1	Same as for partners of CHS and clients of SW
Fisher folk	3	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April, 2002
Mine workers	3	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April, 2002
Traders	3	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April, 2002
Transporters	3	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April, 2002
Casual heterosexual sex	4	
Partners of Casual heterosexual sex	1	SLDHS 2008
Steady partner heterosexual	1	SLDHS 2008
No risk	1	SLDHS 2008
Medical Injections	1	SLDHS 2008
Blood Transfusions	2	SLDHS 2008
Total Adult Population		

Annex 5d: Number of sex acts per partner/per year of exposure

Adult Risk Behaviour	Number of acts of exposure per partner per year	Sources/Comments
Injecting Drug Use (IDU)	50	Ghana /MOT
Partners of IUD	100	Ghana/MOT
Sex workers	5	HIV/AIDS Prevalence study ARC International, Freetown 2005; Nigeria MOT
Client of sex workers	10	Post intervention survey, AIDS prevention Port Loko ARC Sierra Leone ; Nigeria MOT
Partners of clients of sex workers	100	SLDHS 2008; Nigeria MOT
MSM	15	NAS study of MSM 2010
Female partners of MSM	100	Same as for partners of CHS and clients of SW; Nigeria
Fisher folk	50	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April, 2002; Kenya MOT
Mine workers	50	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April, 2002
Traders	20	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April, 2002
Transporters	50	Adolescent HIV/AIDS KAP survey report CSO, UNICEF April, 2002
Casual heterosexual sex	70	
Partners of Casual heterosexual sex	50	SLDHS 2008
Steady partners heterosexual	100	SLDHS 2008
No risk	0	SLDHS 2008
Medical Injections	1	SLDHS 2008
Blood Transfusions	1	SLDHS 2008
Total Adult Population		

Annex 5e: Percent of sexual acts protected

Risk Behaviour	Percentage of acts protected	Source
Injecting Drug Use (IDU)	37%	
Partners of IUD	10%	Assumed to be the same as casual heterosexual
Sex workers	17%	SLDHS 2008
Client of sex workers	10%	SLDHS 2008
Partners of clients of sex workers	7.2%	SLDHS 2008
MSM	60%	NAS study on MSM 2010
Female partners of MSM	7.2%	SLDHS 2008
Fisher folk	11%	National HIV/AIDS, BSS survey SSL,NAS 2007
Traders	18%	National HIV/AIDS, BSS survey SSL,NAS 2007
Transporters	10%	National HIV/AIDS, BSS survey SSL,NAS 2007
Casual heterosexual sex	10%	SLDHS 2008
Partners of CHS	7.2%	SLDHS 2008
Steady partner heterosexual	7.2%	SLDHS 2008
No risk	7%	SLDHS 2008
Medical injections	96%	SLDHS 2008
Blood transfusion	98%	SLDHS 2008
Total Adult population		

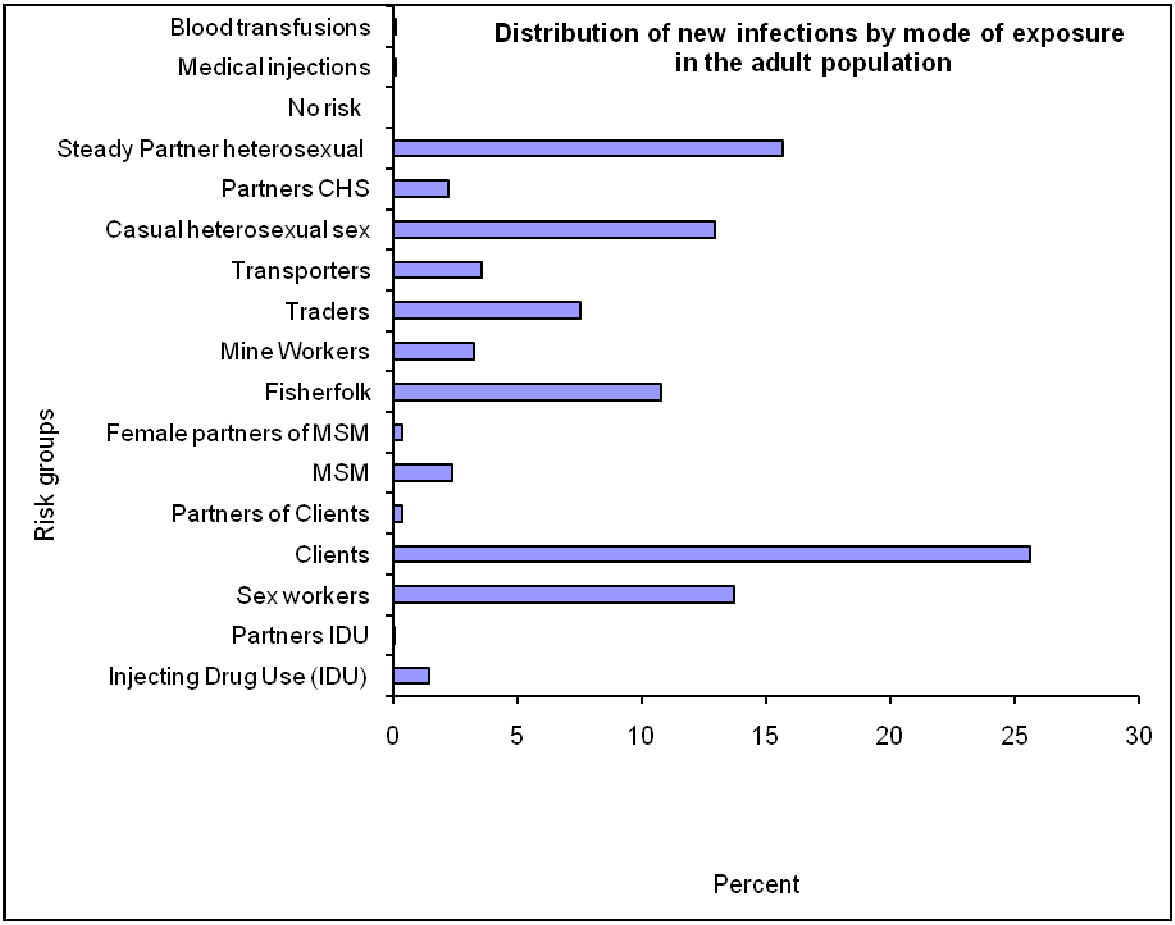
Annex 6: Incidence model data in-put

Adult Risk Behaviour	*Male*	*Female*	*Prevalence of HIV (%)*	*Prevalence of STI (%)*	*Number of partners per year*	*Number of acts of exposure per partner per year*	*Percentage of acts protected (%)*	*with STI*	*No STI*
Injecting Drug Use (IDU)	0.10%		4.0%	30.8%	6	50	37%	NA	0.01
Partners IDU		0.05%	1.4%	NA	1	100	10%	0.0044	0.0011
Sex workers		7.00%	8.5%	52.9%	120	5	17%	0.0044	0.0011
Clients	1.95%		1.5%	4.0%	100	10	10%	0.0012	0.0003
Partners of Clients		1.00%	1.4%	NA	1	100	7%	0.0044	0.0011
MSM	0.20%		7.5%	41.5%	6	15	60%	0.0400	0.0100
Female partners of MSM		0.10%	1.2%	NA	1	100	7%	0.0044	0.0011
Fisherfolks	4.20%	4.00%	3.8%	2.6%	3	50	11%	0.0044	0.0011
Mine Workers	6.10%	2.61%	1.1%	3.8%	3	50	18%	0.0044	0.0011
Traders	23.30%	22.30%	1.7%	27.0%	3	20	10%	0.0044	0.0011
Transporters	2.29%	1.30%	1.7%	31.4%	3	50	10%	0.0044	0.0011
Casual heterosexual sex	20.80%	4.90%	1.7%	4.0%	4	70	7%	0.0018	0.0004
Partners CHS	9.36%	7.49%	1.2%	NA	1	50	7%	0.0026	0.0007
Steady Partner heterosexual	18.70%	42.85%	1.2%	7.6%	1	100	7%	0.0034	0.0009
No risk	13.00%	6.40%	0.0%	1.2%	1	0	7%		
Medical injections	0.00%	0.00%	0.7%	NA	1	1	96%	NA	0.004
Blood transfusions	0.50%	0.50%	0.5%	NA	2	1	98%	NA	0.9
TOTAL ADULT POPULATION	100.00	100.00	1.53						

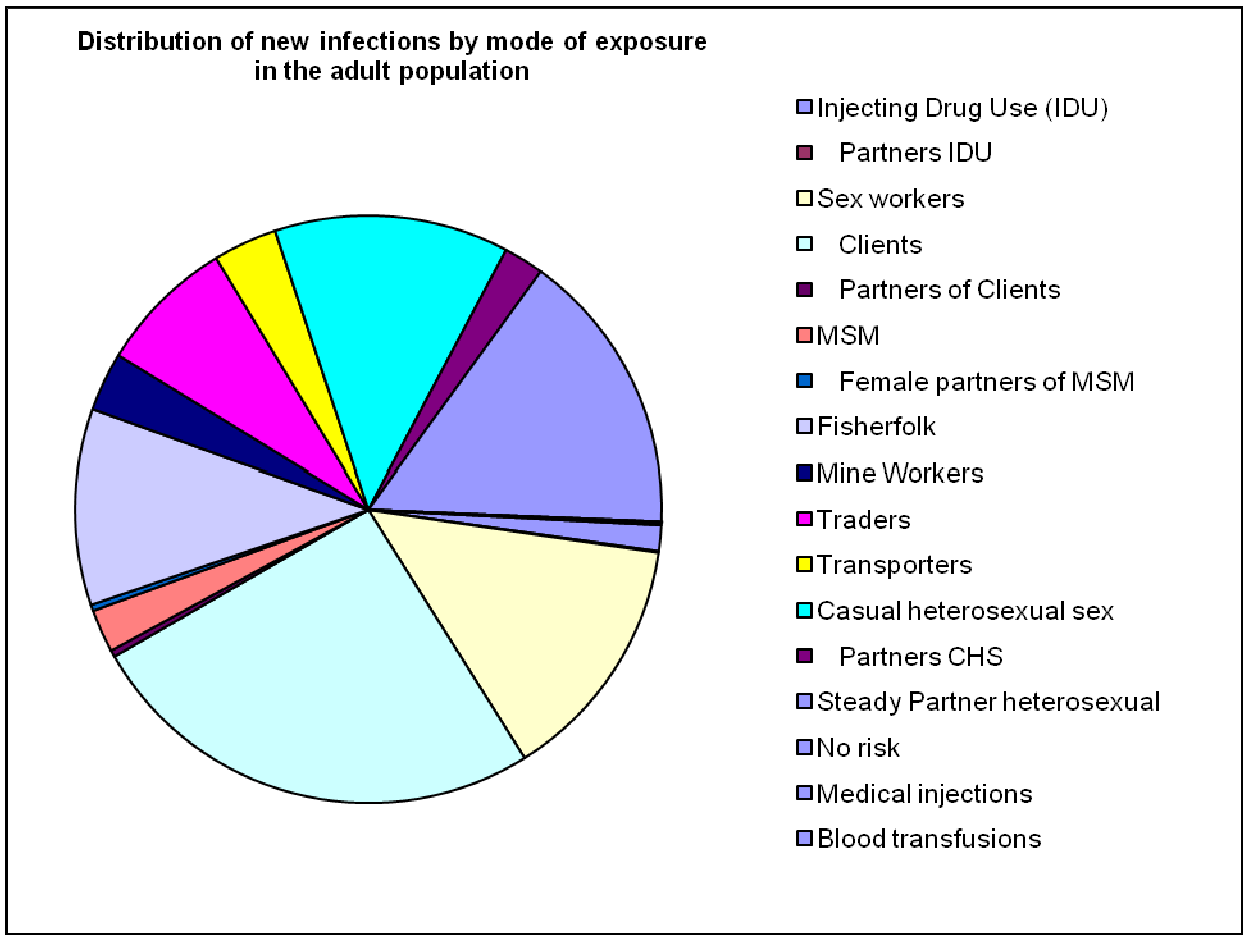
Annex 7a: Sierra Leone HIV incidence model out-puts

Adult Risk Behaviour	*Total number with risk behaviour*	*Number HIV+*	Incidence	*% of incidence*	*Incidence per 100,000*
Injecting Drug Use (IDU)	1,183	47	72	1.43	6,085
Partners IDU	591	8	4	0.08	655
Sex workers	82,779	7,036	692	13.72	836
Clients	23,060	346	1,291	25.60	5,598
Partners of Clients	11,826	166	19	0.37	158
MSM	2,365	177	120	2.37	5,058
Female partners of MSM	1,183	14	17	0.34	1,456
Fisherfolk	96,970	3,685	543	10.77	560
Mine Workers	103,001	1,133	164	3.25	159
Traders	539,248	9,167	381	7.55	71
Transporters	42,454	722	178	3.53	420
Casual heterosexual sex	303,918	5,167	652	12.94	215
Partners CHS	199,262	2,391	112	2.21	56
Steady Partner heterosexual	727,866	8,734	790	15.65	108
No risk	229,417	-	0	0.00	0
Medical injections	2,365,122	16,556	4	0.09	0
Blood transfusions	11,826	59	5	0.10	42
TOTAL ADULT POPULATION	**2,365,122**	**55,409**	5,044		213
Total incidence in partners of high-risk individuals		1.64	151	3.001	71

Annex 7b: Sierra Leone HIV incidence model out-puts



Annex 7c: Sierra Leone HIV incidence model out-puts



Annex 8: Listing of types of messages in HIV prevention programmes

Category	Messages from implemented interventions
ABC	• Abstain , be faithful to a single partner and use condoms • I am Mr. Condom, Get Me Use Me. I will Protect You from HIV and STD's • Practice Safer sex • Consistent & correct condom use • Use a condom every time you have sex • Use a condom to protect yourself
Positive prevention	• I am living Positively with HIV
Delaying sexual Debut	• Children Say No to Sex
Universal Precautions	• Use protective Clothing • Use cloves anytime you have contact with body fluid
VCCT	• Take the lead to Stop AIDS, Get Tested for HIV • Know Your HIV Status and Prolong your life • Get Tested for HIV
Stigma and Discrimination	• Show love and Compassion to People living with HIV • You will not get AIDS by Touching Somebody who has HIV/AIDS • Protect the Rights of People Living with HIV • A Friend with HIV/AIDS is Still my Friend
PMTCT	• Help Protect Your Baby, Get Tested for HIV • Get tested during pregnancy and have a healthy baby
Gender Abuse	• Rape is an Offence Punishable by law
General	• Only You Can Stop AIDS, Keep the Promise • HIV Today AIDS Tomorrow • HIV/AIDS is a Killer Disease • HIV is Preventable, know the facts, Protect Yourself and those You Love • Do not Share Needles, Syringes and Blades
Intergenerational sex	Children, Avoid Teenage Sex