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LIST OF ACRONYMS

AAN: ActionAid Nigeria
ACASI: Audio Computer-Assisted Self-Interview
ACT: Artemisinin-based Combination Therapy
ANC: Antenatal Care
APR: Adjusted Prevalence Ratio
ARV: Antiretroviral
ART: Antiretroviral Therapy
ASLS: Anti-stigma Laws
AYP: Adolescents and Young People
BCC: Behaviour Change Communications
CBO: Community-based Organisation
CBP: Capacity-Building Plans
CDK: Clean Delivery Kit
CRS: Cross River State
CsPro: Census and Survey Processing System
DfID: Department for International Development
DPRS: Department of Planning Research and Statistics
ENR: Enhancing Nigeria's Response to HIV and AIDS
FBO: Faith-based organisation
FCT: Federal Capital Territory
FDU: Female Drug User
FGD: Focus Group Discussion
FOCAT: Faith-based Organisation Capacity Assessment Tool
FOSY: Female Out of School Youth
FP: Family Planning
FSW: Female Sex Worker
FTF: Face to Face [Interview]
GDP: Gross Domestic Product
GFATM: Global Fund to Fight AIDS, Tuberculosis and Malaria
GNP: Gross National Product
GRIPP: Getting Research into Policy and Practice
HAF: [World Bank] HIV and AIDS Funds
HAPSAT HIV Programme Sustainability Tool
HBV: Hepatitis B
HCT: HIV Counselling and Testing
HCV: Hepatitis C
IBBSS: Integrated Biological and Behavioural Surveillance Survey
ICER: Incremental Cost Effective Ratio
IDI: In-depth Interviews
IDU: Intravenous Drug User
IEC: Information and Education Communications
IPC: Interpersonal Communications
KOL: Key Opinion Leader
KTP: Key Target Population
LGA: Local Government Areas
LSACA: Lagos State AIDS Control Agency
ODK: Open Data Kit
OST: Opioid Substitution Therapy
PE: Peer Educator
PEER: Peer Ethnographic Evaluation and Research
PEP: Peer Education Plus Model
PLHIV: Persons Living with HIV
PLWHA: People Living with HIV/AIDS
PM: Programme Management
PM&E: Participatory Monitoring & Evaluation
PMTCT: Prevention of Mother to Child Transmission
PNC: Postnatal Care
PPP: Purchasing Power Parity
PPS: Probability Proportionate to Size
PrEP: Pre-Exposure Prophylaxis
PSI: Population Services International
PWID: People Who Inject Drugs
RDS: Respondent Driven Sampling
RDSAT: Respondent Driven Sampling Analysis Tool
RTS: Resource Tracking Software
SFH: Society for Family Health
SHARHS: State HIV/AIDS and Reproductive Health Survey
SHR: Sexual Health and Rights
SPARCS: State-specific HIV/AIDS Reproductive Health and Child Health Survey
SSA: Sub-Saharan Africa
STAR: Society Taking Actions for Rights methodology

STI: Sexually Transmitted Infection

SWS: Safe Water Systems

TBA: Traditional Birth Attendant

UAC: United Africa Company

UIAI: Unprotected Anal Intercourse

UNGASS: United Nations General Assembly Special Session on the World Drug Problem

USAID: United States Agency for International Development

VAW: Violence Against Women
INTRODUCTION

Enhancing Nigeria’s Response to HIV and AIDS (ENR) was a six-year (January 2009 to December 2014) integrated HIV prevention and institutional strengthening programme to support the Government of Nigeria. The programme was funded by UK aid from the UK government. It was designed to contribute to Nigeria’s achievement of Millennium Development Goal (MDG) 6 by reducing the spread of HIV and mitigating the impact of AIDS on the lives of the most vulnerable groups in Nigeria.

The programme was led by a consortium constituted of the Society for Family Health (SFH) as the Managing Agent, and the Government of Nigeria and seven partner organisations to deliver programme outputs. These partners were: Action Aid Nigeria (AAN); Population Services International (PSI); Options Consultancy Services Ltd; Population Council; Benguela Health Pty; BBC World Service Trust; and Crown Agents.

This publication compiles abstracts developed by ENR consortium partners and collaborators, as well as staff of various government ministries, departments, and agencies supported by the programme. The abstracts were presented at several regional and international HIV and AIDS-related conferences and were also published in various national and international journals. They provide information on effective HIV and AIDS prevention, treatment, and care, as well as support information and services reaching the most vulnerable populations through strengthened stewardship and coordinated federal and state government efforts for a multi-sectoral and evidence-based HIV and AIDS response. The work presented in the abstracts includes best practices, lessons learnt, and recommendations in improving and increasing institutional and resource capacity of civil society organisations engaged in HIV and AIDS; how to improve behaviours conducive to safer sexual practices and improve access (availability and affordability) to condoms and services among poor and vulnerable groups.

Not all of the abstracts are based on ENR programme data, but ENR did provide technical, institutional, and individual support to develop and present the abstracts at regional and international conferences and for publication in various HIV and AIDS related journals.
This book of abstracts recognizes the important contributions of the programme staff, partners, and collaborators who worked toward achieving the vision of an AIDS-free Nigeria.
Reducing Women’s Vulnerabilities through Removal of Structural Barriers: Intervention to Empower Women by Enhancing Nigeria’s Response (ENR) to HIV and AIDS Programme in Cross River State (CRS)—Nigeria

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Introduction: Gender inequality and poverty are some of the major driving forces behind the AIDS epidemic. In addition to fuelling the spread of HIV among girls/women and boys/men, societal constructs of masculinity and femininity impact the ability of different sub-groups to access prevention, care, treatment and support services. Women, however, bear the greater burden and impact of HIV and AIDS.

Background: The CRS HIV prevalence rate is 7.1% (ANC 2010), which is significantly higher than Nigeria’s national 4.1% prevalence rate. This dire situation was further emphasized by the results of the state’s baseline survey (SHARHS 2011), which revealed low level of knowledge on HIV transmission, poor understanding of gender issues as they related to the HIV epidemic and other sexual reproductive issues among women/girls in our intervening communities. Women and girls who have been denied access to farmland in their communities do not earn income and thus find it challenging meeting their daily needs, often resorting to prostitution. In turn, they are not empowered to
take responsibility for their sexuality. Young girls whose basic needs could not be provided for, often drop out of schools and become teenage mothers, as teenage pregnancy was rampant. Meanwhile, many married women of reproductive age, who are financially dependent on their husbands, become ‘baby-making machines’—losing their sexual rights, and unable to negotiate condom use. Also, other gender issues like rape, widowhood disinheritance, surrogate marriage, wife/husband beating and other domestic violence were some predisposing factors to women’s and girls’ sexual and reproductive health vulnerability in our working communities.

**Method:** The ENR 5-year strategic intervention was geared towards contributing to reducing HIV prevalence. Its behaviour change programme deployed a mixture of Minimum Prevention Package Intervention (MPPI) with the Society Taking Actions For Rights (STAR) methodology, focusing on initiating community dialogue on sex, HIV, gender, policy/law interpretations and rights issues for increased knowledge of reproductive sexual rights, gender, HIV, human rights and agency for women/ girls in working communities for greater women empowerment. Communities’ monthly STAR circle and quarterly community dialogue meetings addressed gender issues and the HIV/AIDS response, and followed up on community action plans. Women also have caucus STAR circles to discuss their intimate needs. Among other things that STAR provides for is the community sensitization on the Cross River State Laws on Land; HIV and AIDS Stigma & Discrimination; and the enforcement of such laws which brought liberty to girls; and women’s inheritance, and access to land in most of these communities.

**Results:** One of the positive changes that was brought about by the use of STAR methodology was that Igodor community women were made more aware of Sexual Health and Rights (SHRs) and subsequently mobilized to take action for their rights, as they thronged the paramount chiefs and cabinet members, who in July 2012 granted twenty-four (24) women rights to own and use farmland. The women formed cooperatives and happily, they are now managing their agencies. Their improved collective income has moved from ($3,745) 95% to ($10,000) 98% between 2012–2013, and has reduced their total financial dependence on men in the community, leading to SHRs’ improvement. For example, many of these women have gained self-dignity and the respect of their
husbands as they contribute greatly to the needs of their families, they now feel capable of negotiating condom use during sex without beating, and share household chores with their spouses. Additionally, reduced teenage motherhood and prostitution was noted, because girls’ needs are now well catered for.

Again, in August 2012, the Ishiaya community demonstrated the strength of timely empowerment and community development against issues of rape around young girls, as well as issues around school dropouts and teenage motherhood as they collectively contributed, built and equipped a school within their community. Other gender issues of violence against women (VAW) like widowhood disinherittance, surrogate marriage, rape were presided by gender-sensitive council of chiefs, making standing laws for defaulters.

**Conclusions:** Sustained community engagements, deploying MPPI with STAR methodology, although slow in process, leads to positive changes. Moreover, for more women/girls to be empowered on gender inequality and poverty issues driving the HIV epidemic and SHRs, there is need to continue with the active community engagements, modelling best practices.

**Bridging the Gap of Access to HIV Counselling and Testing: “Know your HIV Status Drive”**

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**Background:** Cross River State has a mixed HIV epidemic, with an HIV prevalence rate of 7.1%. Predisposing factors to the HIV epidemic in the state include low condom use in cohabiting relationships, multiple partnering and uptake of HIV counselling and testing (HCT) stands at 32% and 26% for males and females (SHARHS 2011). To improve access and uptake of HIV counselling and testing, Enhancing Nigeria’s Response to HIV and AIDS programme (ENR) embarked on Mobile HCT with demand creation activities via interpersonal communications conductors.
**Objectives:** To improve access of populations most vulnerable to infection to effective HIV and AIDS prevention, treatment, care and support information and services.

**Method:** Working through the State Ministry of Health and health facilities with community mobilisers, who also conducted HIV education sessions with emphasis on benefits of knowing one’s status and outreach for HCT. The Preventing mother to child HIV transmission (PMTCT) module included in the interpersonal communications (IPC) picture code was also used to encourage communities to provide support for pregnant mothers to use antenatal care (ANC) services, as well as access to testing and counselling.

**Results:** 117,545 persons (60,648 male / 56,897 female) of reproductive age—were educated on HIV&AIDS. 4,694 persons (2,265 male / 2,429 female) were counselled and tested during the outreach sessions in a quarter and 437 pregnant women were also made aware of their HIV status; those with positive results were referred to support groups and health facilities.

**Conclusions:** While barriers of access to services exist, the need to upscale and integrate all health related services will further improve health seeking behaviour.
A 10-Year Follow-up of Sexual Risk Behaviour, HIV Knowledge and Risk Perception among Adolescents and Young People in Nigeria

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Background: HIV burden among adolescents and young people in Nigeria remains complex and understudied. We evaluated trends of sexual risk behaviour, HIV comprehensive knowledge and risk perception among young people in Nigeria.

Method: Data from four nationally representative surveys on HIV in Nigeria (2003, 2005, 2007 and 2012) were evaluated in a cross-sectional analysis. Each survey used the same methodology and captured sexual risk behaviours, risk perception and comprehensive HIV knowledge. Logistical regressions were used to identify factors associated with risk behaviours.

Results: A total of 4,081, 17,204, 4,633 and 10,091 adolescents and young people (AYP) were surveyed in 2003, 2005, 2007 and 2012, respectively, with the proportion of females being 55% in 2003 and 2012 and 49% in 2005 and 2007. Reports of consistent condom use with boyfriends and girlfriends in the three months previous to the survey being conducted were 38%, 46%, 39% and 43% (p=0.001), respectively. With casual partners, these results were 65%, 69%, 32% and 59% (p=0.002) in 2003, 2005, 2007 and 2012, respectively. Comprehensive knowledge of HIV increased from 23% to 30% between 2003 and 2012 (p<0.0001), while HIV risk perception decreased from 2.1% to 1.8% between 2003 and 2012 (p<0.0001). The proportion of those who ever tested for HIV was 6%, 8%, 11% and 21% (p<0.0001), while willingness to test was 45%, 46%, 74% and 81% (p<0.0001) in 2003, 2005, 2007 and 2012, respectively. Among males, HIV prevalence increased from 1.9% to 2.5% (p=0.155), and among females from 2.9% to 3.1% (p=0.618), between 2007
and 2012. Factors associated with consistent condom use with boyfriends and girlfriends include increasing education; (secondary [AOR: 2.2; 95%CI: 1.38–3.62], tertiary [AOR: 3.85; 95%CI: 2.16–6.86] vs. primary), gender (female [AOR: 0.64; 95%CI: 0.49–0.85] vs. male) and lack of comprehensive HIV knowledge (AOR: 0.75; 95%CI: 0.58–0.98). Those who had never been tested for HIV were less likely to use a condom consistently with casual sex partners (AOR: 0.18; 95%CI: 0.04–0.85).

**Conclusions:** Low condom use with boyfriends and girlfriends and casual sex partners, as well as low HIV risk perception, will continue to propagate HIV transmission among AYPs. The unmet need of HIV counselling and testing (HCT) requires an urgent response, while evidence-based interventions must be implemented to increase comprehensive HIV knowledge and risk perception in order to affect sustained behaviour change.

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**Prevalence and Risk Factors for Hepatitis B (HBV), Hepatitis C (HCV) and HIV Co-infections among MSM in Lagos, Ibadan and Abuja, Nigeria**

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**Background:** It is universally reported that men who have sex with men (MSM) are at increased risk of hepatitis B (HBV), hepatitis C (HCV), HIV and HIV co-infections. However, despite the mounting evidence of increasing HIV and sexually transmitted infection (STI) risks among MSM in Nigeria, no study has reported prevalence of blood-borne viral infections in this sub-population.

**Method:** A cross-sectional study was conducted using respondent-driven-sampling to recruit 712 MSM in Lagos, Ibadan and Abuja between August and
September 2010. Eligible participants were self-identified MSM aged greater than 18 years who consented to providing behavioural information and screening for HIV, HB-surface-antigen and HC-antibody. Prevalence and 95% confidence intervals were estimated using Respondent Driven Sampling Analysis Tool (RDSAT) software. Logistical regressions of the pooled data were conducted to assess associations between infection status and risk factors.

Results: Most of the participants (65%) were 18–24 years, 80% had at least secondary education and 72% were in paid employment. More than half self-identified as bisexual in Ibadan (58%) and Lagos (64%), compared to 44% in Abuja. One-tenth were married and 7.5% reported intravenous drug use. Prevalence of HBV, HCV, HIV, HIV/HBV and HIV/HCV were HBV 21.9 (CI: 14.6–31.3), HCV 4.1 (CI: 0.6–9.8), HIV 35.0 (CI: 25.4–46.3), HIV/HBV 7.6 (CI: 3.7–12.8) and HIV/HCV 1.0 (CI: 0.4–2.5) in Abuja; HBV 21.2 (CI: 15.2–27.1), HCV 2.9 (CI: 0.6–5.2), HIV 10.8 (CI: 4.9–17.2), HIV/HBV 2.8 (CI: 0.8–6.0) and HIV/HCV 0.5 (CI: 0.5–1.4) in Ibadan; and HBV 6.5 (CI: 3.3–10.3), HCV 3.3 (CI: 0.9–6.4), HIV 15.4 (CI: 9.8–21.6), HIV/HBV 1.4 (CI: 0.1–3.2) and HIV/HCV 1.0 (CI: 0–2.8) in Lagos. Risk factors for HBV infection included being resident in Ibadan (AOR 3.2 CI 1.8–5.8) and Abuja (AOR 3.9 CI 2.1–7.1); and unprotected anal intercourse with multiple male partners (AOR 4.6; CI 1.04–20.3). Factors associated with HIV co-infections were residence in Abuja (AOR 3.5; CI 1.4–8.6), and frequency of unprotected anal intercourse with a man in the past two months (AOR 3.2; CI 1.1–10.5). No risk factors were significantly associated with HCV infection in the multivariable analysis.

Conclusions: This analysis demonstrates high prevalence rates of HBV, HCV, HIV and HIV co-infections among MSM, particularly in Abuja and Ibadan. To prevent the propagation and worsening of HIV infections and morbidity/mortality from liver cirrhosis and carcinoma among MSM, comprehensive combination prevention interventions including screening and treatment of HIV, HBV and HCV are urgently needed.
Factors Associated with HIV Infections among Adolescents Aged 15–19 Years in Nigeria

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Background: HIV prevalence among adolescents aged 15–19 years has been used as a proxy for new infections. We evaluated change in new HIV infections and factors associated with HIV among adolescents aged 15–19 years.

Method: In 2007 and 2012, HIV prevalence and risk behaviours among the general population were evaluated in 36 states and the Federal Capital Territory in a cross-sectional analysis. Behavioural data were obtained using a structured pre-coded questionnaire. Rapid tests using blood samples obtained from a finger prick were used to conduct HIV tests using parallel algorithms. Logistical regressions were used to identify correlations between HIV infection among adolescents.

Results: Overall, 2,470 and 5,243 adolescents were surveyed in 2007 and 2012, respectively with females constituting 48% and 53% of the data pool in 2007 and 2012, respectively. Among males, those who had completed secondary level education increased from 77% to 84% (p<0.0001), while for females it increased from 78% to 83% (p=0.001) between 2007 and 2012. Median age of sexual debut was 15 years for both males and females in 2007, while in 2012, it was 16 and 15 years for males and females, respectively. HIV risk perception decreased between 2007 and 2012 for both males (2.1% vs. 1.6%; p=0.001) and females (2.2% vs. 1.2%; p<0.001). Overall, HIV prevalence increased from 1.7% to 2.8% (p=0.011) in this same time period. By gender, it increased from 1.9% to 2.7% (p=0.165) for males and 1.7% to 2.8% (p=0.024) among females. Multivariate analyses showed that for every year delayed in sexual debut, respondents were less likely to be HIV positive (AOR0.68; 95% CI: 0.48–0.95). Those who used a condom consistently during casual sex to as opposed to those who never use condoms were more likely to be HIV positive (AOR: 39.2; 95% CI: 1.93–799.23). Sex, education, comprehensive HIV knowledge and HIV risk perception were not associated with HIV.
Conclusions: HIV prevalence among female adolescents has more than doubled (65%) over five years and strongly suggests that HIV prevention interventions among adolescents are either lacking or ineffective. Evidence-based HIV prevention interventions are urgently needed to reverse this trend among adolescents. The lack of association of common predictors of HIV calls for rigorous research among adolescents to identify the reasons for the increasing prevalence.

Ensuring Efficient and Effective HIV National Response with Value for Money Focus in Sierra Leone

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Background: Sierra Leone’s HIV national response is heavily dependent on international funds. Significant gains in the fight against HIV have been attained, as evident in the stabilization of the 1.5% prevalence rate. However, this progress could only be sustained and improved if the available financial resources are being spent in alignment with the National Strategic Plan (NSP), with focus on value-for-money. To that end, the objective of this study was to determine the proportion of the HIV expenditure spent on programme management (PM), which is administrative-level expenditure outside the point of healthcare delivery, as a measure of the efficiency and effectiveness of the HIV national response.

Method: Mapping of all institutions involved in the HIV and AIDS response in Sierra Leone was conducted. Data collection using a standard National AIDS Spending Assessment (NASA) questionnaire was carried out in all identified institutions. A double entry matrix to represent the origin and destination of resources was employed. Double counting was avoided by reconstructing the resource flows for every transaction from funding source to beneficiary population. The processing was performed using Excel® data processing files,
checked and balanced, and then transferred to the NASA Resource Tracking Software (RTS) to facilitate the data analysis and triangulation.

**Results:** PM expenditure accounted for 3/4 of the total expenditures in 2011. The multilateral agencies were the main sources of funding for PM, especially the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). The bulk of PM expenditures was found in the areas of planning, coordination and programme management which are mainly salaries, fringes, dissemination of strategic-information on best practices, closely followed by monitoring and evaluation activities.

**Conclusions:** The NASA report showed that the HIV and AIDS spending was primarily (75%) PM, contrary to the NSP, which had projected only 10% funding for it. The high dependence on international funds, mostly from GFATM, for staff operational costs continued to contribute to the observed low level of spending on prevention and treatment interventions with grave consequences on the epidemic. The national government should fund PM, while the international funds should be shifted towards scaling-up of prevention, treatment, and care as part of the commitment to attaining zero new infections by 2015.

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**Effect of Anti-stigma Legislation on the Level of Stigma Directed Towards Persons Living with HIV in Nigeria**

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**Background:** Studies have shown that HIV-related stigma negatively impacts persons living with HIV (PLHIV). It contributes to poor treatment utilisation and uptake of HIV testing. In Nigeria the enactment of laws against stigma at state level is a strategy adopted to reduce stigma directed at PLHIVs. This study examines the effectiveness of such laws in reducing stigma directed at PLHIVs.

**Method:** Four states in Nigeria that have anti-stigma laws (ASLS) passed were compared with contiguous states that had no laws (non-ASLS). Data from the National HIV/AIDS Survey (NARHS) 2007 and 2012 was used. These cross-
sectional surveys were conducted using a multi-stage, stratified sampling approach. Stigma was determined using a composite index. Chi-square and relative risk were used to evaluate differences between the groups, while logistical regressions were used to assess the effect of the developing legislation on attitudes towards PLHIV.

**Results:** The numbers of respondents from the states were 2,564 (46.7% female) and 6,943 (48.3% female) in 2007 and 2012, respectively. In 2007, there was no significant difference in the level of stigmatising attitude between those from ASLS states and the non-ASLS states (72.9% vs. 71.1% p=0.324). In 2012, there was a significant difference in the levels of accepting attitudes between ASLS and the non-ASLS (67.6% vs. 44.4% p<0.001).

The change in stigmatising attitudes towards PLHIV between 2007 and 2012 was 72.9% vs. 67.6% (p<0.0.05) and 71.1% vs. 44.4% (p<0.001) in the ASLS and non-ASLS states, respectively. In 2012, persons from ASLS states were 2.6 times more likely to have an accepting attitude towards PLHIV than persons from non-ASLS states (95%CI: 2.3–2.8). Logistical regressions of the data for the 2012 NARHS showed that the respondents were more likely to have a stigmatising attitude if the persons were from ASLS sates (AOR): 0.385; 95%CI:0.347–0.487; or persons were of a higher educational status (AOR): 0.501; 95%CI:0.448–0.560). Stigma was not associated with location, sex or age.

**Conclusions:** Stigmatising attitudes decreased in both groups between 2007 and 2012. Respondents in ASLS states were more likely to have a reduced level of stigma than respondents from non-ASLS states. Stigma is reducing in Nigeria, which is more pronounced in states with anti-stigma laws. The passage of such laws should be promoted.

**Prevalence and Correlates of Stigma and Discrimination in Nigeria**

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**Background:** HIV stigma and discrimination have been identified as major obstacles to efforts aimed at effectively addressing the HIV epidemic in Nigeria. The ways in which HIV and AIDS stigma is overtly or covertly expressed are shaped by a range of social, cultural, political and economic factors. Fear of stigma has been reported as an important reason for nondisclosure of HIV status between partners. Factors associated with stigma include being older, male, less educated and less knowledgeable about HIV. Despite several attempts to improve accepting attitudes towards People Living with HIV/AIDS (PLWHAs) across the country, stigma and discrimination remain high.

**Method:** Data from three rounds of the National AIDS and Reproductive Health Surveys in Nigeria (2003, 2007 and 2012) were evaluated in a cross-sectional analysis. Stigma and discrimination was defined as a composite variable which measured willingness to care for a HIV+ family member; willingness to buy fresh vegetables from HIV+ shopkeeper and willingness to allow a HIV+ female teacher who is not sick to continue teaching. Chi-square tests of comparison for differences between categorical variables over time were conducted. Logistical regression was used to identify factors associated with stigma and discrimination towards PLWHAs.

**Results:** A total of 10,090, 11,521 and 31,235 respondents were interviewed in 2003, 2007 and 2012 respectively. There was an increase in proportion of respondents who had completed at least secondary level education between 2003 (51%) and 2012 (57%; p<0.0001). Overall, accepting attitudes towards PLWHA increased from 8% in 2003, 25% in 2007 and 29% 2012 (p<0.0001). Accepting attitudes increased among males (10% vs. 32%; p< 0.0001) and females (6% vs 26%; p<0.0001) between 2003 and 2012. By location it increased in both urban (11% vs 33%; p< 0.0001) and rural regions (7% vs. 27%; p<0.0001). Multivariate analyses showed that those with secondary [Adjusted Odds Ratio (AOR): 1.44; 95% CI: 1.34–1.54] and tertiary level education [AOR: 2.1; 95% CI: 1.96–2.32] were more likely to have accepting attitudes to PLWHA compared to those who had only primary level education. Those aged 20–24 years [(AOR): 1.21; 95% CI: 1.12–1.31], 25–35 years [AOR: 1.24; 95% CI: 1.15–1.33] and >35 years [AOR: 1.29; 95% CI: 1.20–1.40] were more likely to have accepting attitudes compared to those aged 15–19 years. Compared to respondents sampled in 2003, those sampled in 2007
were more likely to have accepting attitudes to PLWHA. By gender, females were less likely to have accepting attitudes than males.

**Conclusions:** Nigeria has made significant but slow progress in reducing stigma towards PLWHA. Increased educational attainment was associated with accepting attitudes. This may be as a result of the scale up of Family Life and Health Education, which incorporates HIV and AIDS into routine subjects at the secondary school level. Those who have never been tested for HIV were less likely to have accepting attitudes. This calls for scale-up of HIV counselling and testing to both increase the proportion of Nigerians who know their status as well as reduce stigma towards PLWHA. While all segments of the society need enlightenment on HIV and AIDS to reduce stigma, considerable efforts must be made to engage adolescents and females, as they show increased likelihood of having stigma to PLWHA. Further research is needed to understand why stigma is still pervasive despite large scale enlightenment and advocacy campaigns.

**Could the Definition of Comprehensive Knowledge of HIV Prevention be a Possible Barrier to the Achievement of Zero New Infection?: Evidence from Nigeria**

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**Background:** Most behaviour change theories are based on the assumption that knowledge, though not a sufficient condition by itself, is necessary for behaviour change. As a result of this, most HIV interventions target improving HIV prevention knowledge as a key output, assuming this will lead to positive behaviour change. The UNAIDS HIV prevention indicator is computed using the following: knowledge that use of condoms can prevent HIV infection, knowledge that being faithful to an uninfected partner can prevent one from HIV infection, knowledge that a healthy-looking person can be HIV positive and rejection of the two most popular misconceptions of HIV transmission. To what extent does the knowledge as defined here contribute to behaviour change? Is this composite indicator reliable?
**Method:** Data for this study was obtained from three waves of the Nigerian National HIV&AIDS Reproductive Health Survey (2003, 2005 and 2007). The survey is a population-based study among females (15–49 years) and males (15–64 years) living in households in rural and urban areas in Nigeria. A multi-stage cluster sampling technique was used in the selection of respondents drawn from the updated master sample frame of rural and urban localities developed and maintained by the Nigerian National Population Commission. Data was entered and cleaned using Census and Survey Processing System (CsPro) software. Bivariate and logistical analysis and reliability tests were performed using SPSS version 18. The independent variable in the analysis was condom use in last non-marital sex, while the dependent variable was accurate knowledge of HIV infection as defined by UNAIDS.

**Results:** Between 2003 and 2007, accurate knowledge increased from 19.4% to 24.9% (males) and 13.1%–16.7% (females); condom use in non-marital sex increased from 50.2%–54.2% (males) and 32.4%–35.3% (females). Bivariate analysis shows that accurate knowledge of HIV prevention was not significant in determining the use of condoms in last non-marital sex for both sexes, with a 5% level of confidence. Tests of reliability of the comprehensive knowledge indicator shows that the index is not reliable (Cronbach’s alpha of less than 0.2 for both sexes).

**Conclusions:** A common prevention indicator among HIV prevention programmes is increase in accurate knowledge of HIV prevention. For some contexts like Nigeria, this composite indicator is not reliable. There is a need for a more reliable indicator to measure accurate knowledge of HIV prevention. Leaving the prevention indicator the way it is may result in projects committing resources to changing a variable that is not consistent, thus having little or no effect on desired behaviours. If the zero new infection rate must be achieved, the right messages and indicators must be communicated and measured. Projects must set results that can directly and significantly affect desired behaviours.
Socio-demographic Factors Associated with Uptake of HIV Counselling and Testing (HCT) among Nigerian Youth

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Background: HIV counselling and testing (HCT) is an important gateway for HIV prevention interventions, as it educates sero-negative individuals on HIV preventive behaviours and enables seropositive individuals to gain access to treatment, care and support services.

Method: We evaluated the socio-demographic factors associated with HCT uptake among Nigerian youth aged 15–24. Secondary data analysis was conducted on the 2012 National HIV/AIDS and Reproductive Health Survey data. Multivariable log binomial regression analysis was used to estimate the adjusted prevalence ratio (APR) with a 95% confidence interval for factors associated with HCT uptake.

Results: Of the 10,091 youth, half were aged 15–19; 66.9% were never married, 65.7% were rural dwellers, 20.7% had no education, 53.7% had secondary education, 46% were students and 31.1% were employed. In the last 12 months, 8.1% had had multiple concurrent sexual partners and 3.2% had had transactional sex; 10.5% had ever been tested for HIV and the HIV prevalence rate among the group was 3.5%. Multivariable analysis revealed that those aged 20–24 [APR=1.67 (1.41–1.96)] were more likely to have had HCT than were those aged 15–19. With reference to having no education, the likelihood of HCT uptake increased with educational level [primary—APR=2.29 (1.59–3.32); secondary—APR=3.48 (2.54–4.77); higher—APR=6.68 (4.66–9.58)]. The non-Catholic [APR=1.60 (1.36–1.89)] and the
Catholic [APR=1.85 (1.51–2.26)] Christians were more likely to have had HCT than were Muslims. Those having comprehensive knowledge of HIV [APR=2.09 (1.83–2.39)] were twice as likely to have had HCT. Students [APR=0.80 (0.67–0.94)] were less likely to have had HCT than were the employed. Additionally, those from poor households [APR=0.63 (0.51–0.77)] were less likely to have had HCT than those from households of average income.

**Conclusions:** This study reveals that HCT uptake among young Nigerians is low, despite the increased availability of free HCT services in the country. The fact that being employed, having higher educational level and household wealth are associated with HCT uptake suggests that socio-economic barriers to HCT uptake persist among young people. The association with age may be due to age of consent barriers faced by adolescents. More youth-friendly interventions aimed at increasing HCT uptake among young Nigerians are urgently needed.
Introduction: Management of health commodities logistics has always been a challenge in developing economies, including Nigeria. Existence of poorly developed distribution channels for essential health commodities from the port of entry through the median channels to the target users has always been quite challenging. In the past, there have been cases of expiration of large quantities of antiretrovirals (ARVs), family planning commodities, artemisinin-based combination therapy (ACTs), etc. in depots in Nigeria. Many target users are denied access to health commodities because their location is hard to reach. In some cases, high cost of the commodities incurred as a result of the cost of transportation to some localities, also make the products inaccessible. Not only are resources wasted, but avoidable diseases conditions continue to claim lives.

Background: Social marketing leveraging the private sector has been a strategy adopted by the Society for Family Health (SFH), Nigeria. The SFH partnership with the robust network of Manufacturers’ Delivery Services (MDS), a private supply chain management outfit of United Africa Company (UAC) in Nigeria, in addition to the linkage with the network of private wholesalers and their retail clients, combined with social marketing activities is the key to SFH’s success in nationwide condom coverage. The product subsidy, in addition to behaviour change communications (BCC) activities aimed at increasing health-seeking behaviours among targets, make up the components of the social marketing. Evidence from Measuring Access and Performance (MAP) studies conducted annually by SFH, with donor support, shows presence of
Gold Circle condoms in six out of every ten outlets. Also, the same studies show that in every 15-minute walk in the most rural settlements, one is likely to see a condom.

**Lessons Learnt:** Social marketing, when properly monitored, can be used to improve access to health services in Nigeria. It is also a cost-effective approach when leveraging existing structures. Involvement of the private sector guarantees sustainability of the approach, but a robust monitoring and evaluation system which ensures that commodities are sold within recommended prices, that proper storage conditions are maintained etc. will be required to ensure effectiveness. Zero tolerance of stock-outs is also essential to ensure commodity security at all times.

**Recommendation:** Health programs in developing countries can explore the benefits inherent in social marketing to enhance cost-effective coverage of essential health commodities, including ARVs, vaccines, FP commodities and even home-based safe water systems (SWS), which will also increase accessibility.
Cost-Effectiveness of Three HIV Counselling and Testing Strategies among Male Most-at-Risk-Populations in Nigeria

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**Background:** HIV counselling and testing (HCT) remains the cornerstone of HIV programming and, given the reduced donor funds for HIV services, it is imperative to use the most cost-effective methods. We evaluated the cost-effectiveness of three HCT strategies for male most-at-risk-populations (M-MARPS) in Nigeria.

**Method:** Three HCT strategies were implemented between July 2009 and July 2012 among men who have sex with men (MSM) and intravenous drug users (IDUs). The first strategy (S1) was facility-based, with community mobilisation components using key opinion leaders (KOLs). The second strategy (S2) involved KOLs referring M-MARPS to nearby mobile HCT teams, while the third strategy (S3) involved mobile M-MARPS peers conducting HCT. Cost and output data for HCT services were retrospectively collected from financial and program records. Financial costs of providing HCT were estimated from a health provider perspective and classified as capital or recurrent costs. Variation in duration of each strategy was controlled by using the last six months of each strategy. Effectiveness was measured as the number of HIV-positive clients per strategy, while the Incremental Cost Effective Ratio (ICER) was calculated using S1 as the base model. The strategy with the lowest ICER was considered most cost-effective.

**Results:** A total of 1,988, 14,726 and 14,895 male MARPs received HCT through the S1, S2 and S3 methods, respectively, with the proportion of first-time testers being 88%, 84% and 90%. HIV prevalence (effectiveness) was 9%,
3%, and 13%, respectively. The average cost for delivering HCT per client after controlling for variation in duration was $4.70 for S1, $8.58 for S2 and $5.90 for S3. ICER for S2 and S3 were 150 and 4, respectively.

**Conclusions:** Peer-led HCT (S3) was the most cost-effective method in providing HCT to M-MARPS, as well as in reaching first-time testers and identifying HIV-positive clients. Our study highlights the feasibility of training MARPS in providing HCT services on a large scale. Engaging members of a target community is essential in optimising the cost and effectiveness of HCT to M-MARPs in Nigeria.

### Factors Associated With HIV Risk Perception among Men Who Have Sex with Men in Nigeria

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**Background:** Some studies have shown that greater perceived vulnerability to HIV is associated with less involvement in risk taking. We evaluated prevalence and correlates of HIV risk perception among men who have sex with men (MSM) in Nigeria.

**Method:** A cross-sectional study using respondent driven sampling (RDS) was conducted in six Nigerian states in 2010. MSM underwent interviewer-administered surveys. HIV risk perception was assessed as a binary outcome with "0/1" assigned to those whose response was "no risk"/"yes, feel at risk" respectively. Weighted HIV risk perception and sexual risk behaviours were calculated using an RDS analytic tool. Logistical regression was used to determine correlates of HIV risk perception, stratified by state.

**Results:** The total number of MSM ranged from 217 in Abuja to 314 in Cross River State. Median age ranged from 22 years in Cross River State to 26 years in Kano. Less than 2/5 had comprehensive knowledge of HIV. Median age of sexual debut was <18 years, except for Kano and Oyo States. HIV risk perception ranged from 10% in Cross River State to 58% in Kaduna State, and was 38%, 44%, 19% and 20% in Kano, Lagos, Abuja and Oyo States, respectively. HIV risk perception was significantly higher among those who had
ever had an HIV test, compared to those that had never had an HIV test in Cross River (14% vs. 4.1%; p=0.002), FCT (28% vs. 14%; p=0.023), Kano (63% vs. 11%; p<0.001), Lagos (58% vs. 28%; p≤0.001) and Oyo States (36% vs. 13%; p ≤ 0.001). Factors associated with HIV risk perception include purchasing sex (AOR:3.1, 95% CI:1.00–9.38) and no exposure to peer educators (AOR:0.2, 95% CI:0.04–0.61) in Cross River; no comprehensive knowledge of HIV (AOR:0.22, 95% CI:0.1–0.7) and receptive anal partners (AOR:8.9, 95% CI:2.1–37.8) in Abuja; attaining at least secondary level education in Kano (AOR:4.5, 95% CI:1.8–11.5); no comprehensive HIV knowledge (AOR:2.6, 95% CI:1.0–6.7) in Lagos and selling sex (AOR:4.7, 95% CI:1.4–16.2) in Oyo State.

Conclusions: This study shows that HIV risk perception and comprehensive HIV knowledge are very low among MSM in Nigeria. Heterogeneity in associated factors suggests that targeted interventions are needed to increase HIV risk perception in the different states. The role of HCT in increasing risk perception needs further evaluation.

Evaluating the Effects of Three HIV Counselling and Testing Strategies on Male Most-at-Risk-Population

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Background: Alternative HIV counselling and testing (HCT) delivery models, such as mobile HCT have been shown to increase access to and uptake of HCT. We evaluated the effects of three strategies in increasing uptake of HCT among male most-at-risk-populations (M-MARPS).

Method: Three HCT strategies implemented between July 2009 and July 2012 among men who have sex with men (MSM) and intravenous drug users (IDUs) in three states in Nigeria were evaluated in a longitudinal analysis. The first strategy (S1) involved the use of key opinion leaders (KOLs) who referred M-MARPS to health facilities for HCT. The second strategy (S2) involved KOLs referring M-MARPS to nearby mobile HCT teams while the third (S3) involved mobile M-MARPS peers conducting the HCT. Segmented linear regression was
used to assess the effect of different strategies on uptake of HCT among M-MARPS.

**Results:** A total of 1,988, 14,726 and 14,895 M-MARPs received HCT through S1, S2 and S3 methods, respectively. The majority of clients were aged 19–25 years for S1 and S3, while those aged > 35 years were the majority for S2. A majority of the clients were single for both S1 (72%) and S3 (59%), while it was the same (50%) for S2. Overall, S3 (13%) identified the highest proportion of HIV positive M-MARPS compared to S1 (9%) and S2 (3%), \( p \leq 0.001 \). S3 also identified the highest proportion of new HIV diagnosis (13%) compared to S1 (8%) and S2 (3%), respectively, \( p \leq 0.001 \). For total number of M-MARPS reached by strategy, there was no immediate (271; \( p = 0.539 \)) or long-term change (53; \( p = 0.334 \)) in the total number of clients reached by S2 compared to S1. Compared to S2, S3 showed a significant immediate decrease (3068; \( p = 0.029 \)), but a sustained long-term increase (822; \( p = 0.007 \)) in total number of M-MARPS reached with HCT.

**Conclusions:** Peer-mediated HCT (S3) had the highest impact on the total number of M-MARPS reached, identifying HIV-positive M-MARPS and new testers. Since HCT is a key intervention strategy for effective HIV/AIDS control, training M-MARPS peers to provide HCT is a high impact approach in delivering HCT to M-MARPS.

**The Effect of Knowledge on HIV Transmission from Mother to Child on PMTCT Uptake in Ogun State, Nigeria**

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**Background:** Ogun State depended on national surveys for relevant data on sexual and reproductive health of men and women of reproductive age. However, most of these studies were last conducted in 2007 (NARHS) and 2008 (NDHS). The lack of availability of up-to-date sexual and reproductive health data became apparent to make meaningful policies and interventions. This gap informed the conduct of a State-specific HIV/AIDS Reproductive Health and Child Health Survey (SPARCS) by the Enhancing Nigeria’s Response to HIV/AIDS (ENR) project, with support from United States Agency for...
International Development (USAID) and the Department for International Development (DFID) in 2011. The survey provided state-level data on knowledge, attitudes and behaviours regarding HIV/AIDS and other reproductive health issues.

**Method:** Respondents were drawn from females aged 15 and 49 years and males aged 15 and 64 years in rural and urban areas in the state. The sampling procedure used a two-stage cluster sampling aimed at selecting eligible persons with known probability. In all, 30 clusters with each cluster size of 28 (14 Males and 14 Females) were used, totalling 840 eligible respondents.

**Results:** Findings on knowledge from 797 respondents concerning whether HIV can be transmitted from a mother to her child revealed that approximately 1/3 of respondents did not know that HIV can be transmitted from mother to child during pregnancy (28.2%), delivery (31.7%), and breastfeeding (29.6%). This gap can influence the access and utilisation of prevention of mother to child transmission (PMTCT) services by positive pregnant mothers. A positive pregnant mother whose spouse, friends and family are not fully aware of the benefit of PMTCT services might not support her with her choice of infant feeding and treatment options.

**Conclusions:** This result demands for information dissemination on PMTCT during couples counselling, antenatal care (ANC), postnatal care (PNC) and through the media to the general populace for increase in PMTCT uptake. This uptake is crucial for the elimination of HIV among exposed babies as available data in the state showed low PMTCT uptake. The State is presently conducting mobile HIV counselling and testing (HCT) outreach in communities and maternity homes, while building the capacity of owners of the homes that are highly patronised by pregnant women, particularly in rural areas, on HIV prevention and referral for PMTCT to increase service uptake.
Alcohol Use and Sexual Risk Behaviours Among Female Sex Workers in Nigeria

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Background: Alcohol has been associated with risky sexual behaviour. Comprehensive data on the impact of alcohol on risky behaviours among female sex workers in Nigeria is lacking. We estimated frequency of alcohol use and risk behaviours among female sex workers in Nigeria.

Method: Data on female sex workers were collected from Integrated Biological and Behavioural Surveillance Survey (IBBSS) in 9 cities in Nigeria in 2010 and evaluated in a cross-sectional analysis. Chi-square tests of comparison for differences between categorical variables and logistical regression analyses were conducted.

Results: Of a total of 4,394 female sex workers (FSWs) surveyed, 49% were less than 25 years, 8% were currently married and 42% had at least primary level education. Prevalence of alcohol use was 77% with daily use of alcohol at 27%. HIV prevalence was 25% and alcohol use was higher among HIV-negative FSWs (27% vs. 24%; p≤0.01). Daily use of alcohol was highest (35%) among those who never used a condom with their boyfriends, compared to those who used condoms only occasionally (28%) and those who used every time (25%), p≤0.001. However, for consistent condom use with clients, daily use of alcohol was highest among those who used a condom every time (29%) compared to occasional condom use (25%) and those who never use a condom (14%; p≤0.01). Daily alcohol consumption was significantly associated with consistent condom use with clients (AOR:1.5, 95%CI:1.15–1.90;p=0.002) and inconsistent condom use with boyfriends.
Conclusions: Daily alcohol use among FSWs is moderate, however its association with inconsistent condom use with boyfriends suggests an urgent need for HIV prevention programs addressing alcohol use both to mitigate the transmission of HIV among FSWs and the general population, as well as the medical complications of heavy alcohol use. Further research is needed to evaluate drug use and risk behaviours in Nigeria.

HIV Prevalence and Risk Behaviours Among Young Injecting Drug Users in Nigeria

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Background: Intravenous drug use is now recognised as a significant risk factor for HIV in sub-Saharan Africa. We evaluated prevalence and correlates of HIV among young (18–24 years) intravenous drug users (IDUs) in Nigeria.

Method: A cross-sectional study using respondent driven sampling (RDS) was conducted in five Nigerian states in 2010. Current IDUs underwent interviewer-administered surveys and HIV tests. Logistical regression was used to determine correlates of HIV infection, stratified by state.

Results: Total numbers of IDUs ranged from 43 in Oyo to 84 in Cross River State (CRS). Median duration of intravenous drug use ranged from 2 months in Federal Capital Territory (FCT) to 24 months in Kano. HIV prevalence was highest in Kano (4.8%) and was 2.4% Kaduna, Oyo 4.7%, FCT 2.5% and CRS 3.6%. Prevalence of all injecting risk behaviours was highest in FCT, ranging from 22% to 79% for use of prefilled syringes and sharing of needles, respectively. Over 80% of respondents were sexually active but consistent condom use was less than 50% with girlfriends and less than 70% during casual sex. Injecting risk behaviours were not associated with HIV in all states surveyed.

Conclusions: Median duration of intravenous drug use was 24 months, suggesting that majority of the respondents were relatively new injectors. HIV prevalence, though low, was higher than national estimates (4.1%) in Kano and Kaduna. Efforts must be geared towards preventing the initiation of drug use
and managing new initiators. Additionally, HIV prevention intervention must focus on both injecting and sexual risk behaviours among youth. Further research is needed to understand the HIV transmission dynamics among young IDUs.
People Who Inject Drugs and Injecting Risk Practices: A Need for Needle and Syringe Programs in Nigeria

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Background: Research studies have demonstrated that needle and syringe programmes (NSP) can play an important role in reducing HIV and viral hepatitis infections among intravenous drug users (IDUs).

Method: A cross-sectional study using respondent driven sampling (RDS) was conducted between August and September 2011 in Lagos State. Current people who inject drugs (PWID) underwent interviewer-administered survey interviews. Descriptive statistics, including 95% confidence intervals and Chi-square tests of comparison for differences between categorical variables, were used to analyse the data.

Results: A total of 328 male IDUs were surveyed, with a median age of 28.5 years. Heroine (86%; 95%CI:82.5–90.0) and cocaine (78%; 95% CI:73.8–82.8 ) were the most common drugs injected. 74% reported having injected drugs in the past one month and injected at least once a week, while almost 1/5 re-used their own needles. Only 57% cleaned a used syringe before re-use. HIV (2.9% vs. 0.6%; p=0.15) and hepatitis C (HCV) (7.3% vs. 3.6%; p=0.23) prevalence were higher among those who engaged in receptive needle sharing relative to non–needle sharing PWID.

Conclusions: Though needle sharing was low, risk of infection through the use of unclean needles remain major health concerns in this environment. Awareness and programming around other components of needle and syringe use, such as injecting safety; safe disposal of needles and syringes; and effective
ways of cleaning needles, syringes and drug apparatuses remain necessary in order to provide comprehensive harm reduction interventions among people who inject drugs in Nigeria.

Female Drug Users, Sex Work and Associated HIV Risk Factors in Nigeria

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Background: Few research studies in Africa show that female drug users (FDUs) have a tendency to sell sex in exchange for their drug use habit. This study examines sex work and types of drug use in relation to HIV infection among FDUs in Nigeria.

Method: A cross-sectional analysis on services provided to FDUs in selected rehabilitation centres and psychiatric hospitals was conducted across four cities of Lagos, Kano, Kaduna and Ogun States in Nigeria between January and March 2010. Bivariate analysis was conducted to determine factors associated with HIV infection among the group. Odds ratio (95% confidence interval) was used to estimate the coefficient of association.

Results: A total of 156 FDUs participated in the study. Their median age was 28 years (IQR 24–34 years). About 55% of the FDUs engaged in sex work; 41%, 49%, 43%, 52% and 17% reported using cocaine, heroin, cannabis, alcohol and cigarettes, respectively. The HIV infection prevalence among the FDUs was 20%, while among those engaged in sex work it was 29%. The Chi-square test shows that the risk of HIV infection was significantly associated with sex work (p=0.007), use of cocaine (p=0.021) and use of heroin (p=0.005).

Conclusions: The study shows that HIV prevalence is high, sex work and particular drug use pattern seems to be a risk factor for HIV infection among female drug users in Nigeria. Further studies are required to understand women who engage in drug use, gender specific harm reduction programs addressing HIV prevention and treatment are needed to address high risk behaviours among female drug users in Nigeria.
Patterns of Transactional Sex and HIV Infection among MSM in Nigeria

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Background: Worldwide, men who have sex with men (MSM) continue to be at considerably higher risk for HIV infection than the general population. Studies have shown that sex in exchange for money or other benefits is common among MSM and transactional sex is associated with HIV. The aim of this study was to estimate the risk of HIV infection associated with patterns of transactional sex among MSM.

Method: Secondary data analyses were conducted on the 2010 Nigeria Integrated Behavioural and Biological Surveillance Survey (IBBSS). Multivariate logistical regression analysis was conducted to estimate the risk of HIV infection associated with type of transactional sex partners.

Results: Of 1545 MSM studied, 60.6% were of ages 15–24 and 70.5% had secondary school education. Only 2.7% (95%CI= 1.7–4.0) had transactional sex with females alone; 29.4% (95%CI= 25.9–32.7) with males only; 5.5% (95% CI= 4.0–7.1) with both sexes and 62.3% (58.8–66.1) did not report having had transactional sex in the past 12 months. One-fourth of the men reported having had sex without condoms in the last 12 months. In the last 6 months, 45.9% (95%CI=41.4–50.0) had had insertive anal sex, 28.6% (95%CI=25.0–32.7) had had receptive anal sex and 25.4% (95%CI=22.2–29.0) had had both. Among MSM studied, 58.0% (95%CI= 53.7–62.9) personally felt they were not at risk of HIV, and 33.9% (95%CI=30.3–38.6) had comprehensive knowledge of HIV. Overall, 9.7% (95% CI=7.7–12.1) tested positive for HIV. In the multivariable analyses, the odds of HIV infection
were similar for those who had transactional sex with women only (Adjusted OR=0.32, 95%CI=0.05–2.20) and those with men only (Adjusted OR=1.42, 95% CI=0.94–2.14) relative to those who had no transactional sex, while those who reported engaging in transactional sex with both men and women were significantly more likely (Adjusted OR=2.74, 95%CI=1.46–5.13) to have HIV than those who had no transactional sex.

**Conclusions:** Findings from this study show that one in three MSM in Nigeria engage in transactional sex and the risk of HIV infection might be higher among those engaging in transactional sex with both sexes. The implication of these findings is that though very few MSM might be engaging in transactional sex with both sexes, they may have higher potential for sustaining the HIV epidemic in the general population because they interact with female sex workers.


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**Background:** HIV/AIDS continues to be a major public health problem in Nigeria, where it is believed that 2.98 million Nigerians are now living with HIV/AIDS (Nigeria Federal Ministry of Health 2010). In 2009, an estimated 3,300,000 people were infected with HIV and 220,000 people died from AIDS (UNAIDS 2010). HIV prevalence increased from 1.8% in 1991 to 3.6% in 2007. Misconceptions concerning how HIV is transmitted continue to drive the spread of the disease among the general population. In 2007, a survey was carried out among the general population to test levels of misconceptions.

**Method:** The National HIV/AIDS and Reproductive Health survey is a population-based study among females aged 15–49 years and males aged 15–64 years living in households in rural and urban areas in Nigeria. Multi-stage cluster sampling technique was used in the selection of respondents drawn from the updated master sample frame of rural and urban localities and developed and maintained by the National Population Commission. Structured and semi-
structured questionnaires were used to collect data among survey participants. Census and Surveys Processing Software (CSPro) was used for data entry, validation, and cleaning. Data was subsequently imported into SPSS (version 19) for analysis.

**Results:** The proportion of persons who believe that HIV can be transmitted through kissing decreased from 26.7% to 24.6% to 22.4%, while those that believe that HIV can be transmitted through mosquito bites or bed bugs decreased from 32.1% to 29.5% to 22.0% in 2007. Belief that HIV can be transmitted via toilet-sharing decreased from 23.2% to 22.0% to 18.9%, while belief that HIV can be transmitted via sharing eating utensils reduced from 20.9% to 20.1% and to 16.9% in 2007. Belief that witchcraft is a means of HIV transmission decreased from 15.2% to 13.4% to 12.1%, and belief that hugging is a means of HIV transmission reduced from 9.9% to 6.3% and to 6.9% in 2007. Interestingly, kissing (22.4%) as a means of HIV transmission remained the highest misconception by the general population, followed by mosquito bites or bed bugs (22%), while hugging remained the least at 6.9%.

**Conclusions:** Although misconceptions about how HIV is transmitted has decreased over the years, there is still room to further reduce these by increasing education about these misconceptions, and also motivating people to adopt preventive behaviours. This may be done via through interpersonal communications, peer education, information and education communication (IEC) materials, and mass media campaigns using television, radio, posters, and billboards, among others.

**Strengthening Local Governments’ HIV Response through Effective Data Demand and Use at Sub-National Level**

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**Introduction:** The HIV prevalence in Nasarawa State of North Central Nigeria (7.5%) is higher than the national average of 4.1%. General challenges in getting hold of a comprehensive picture of how and where resources are
being expended in the fight against HIV still exist in the country. The budgetary allocation that a state makes in fighting HIV speaks volumes of its response. However, some states that have made progress in budget reforms appear to have more accessible records on budget allocation and actual expenditure on HIV. One such state is Nasarawa State. While the Nasarawa State government’s level of commitment to HIV prevention has recently improved with the state’s government release of $65,000 counterpart funds for World Bank-funded HIV and AIDS Funds (HAF2) for HIV intervention the same kind of commitment cannot be said to exist at the local government areas (LGA) levels who are closer to the people at the grassroots level. This was largely because the required information for planning was scanty, as most studies are nationally driven which often excludes community-specific issues. Dissemination of these studies is also performed at the national level. In the few cases where sub-national disseminations are done, information flow ends at the state level, thus further making it challenging for LGAs to use HIV data to improve local HIV programming, as they do not have the needed data for decision-making.

**Background:** The Enhancing Nigeria’s Response to HIV and AIDS (ENR) is a Department for International Development (DfID)-funded HIV prevention and institutional development programme providing technical assistance to Nigeria’s HIV/AIDS response. To galvanise LGAs to partake in HIV prevention efforts, monitoring and evaluation (M&E) officers from LGAs were trained and empowered with skills on basic data analysis and presentation of research and service data. Monthly Rotational M&E meetings bringing LGA M&E officers together was held. The forum provided an opportunity for the host LGA M&E officer to analyse and present his/her HIV&AIDS data collected from service delivery points. The rotational meeting gave opportunities for the media, civil society organisations, duty bearers at community levels and key local government representatives—particularly the Council Chairman and Director of Personnel and Management—to host LGA to participate in the discussion, obtain first-hand information on HIV/AIDS from their M&E focal persons, learn about best practices that had produced positive changes in other LGAs to enable them take informed decisions that would improve the HIV response at the local government level.
Lessons learnt: Two LGAs (Obi and Nasarawa Eggon) have approved monthly allocations equivalent to $200 as transport allowance for the local M&E officers to scale up data collection, analysis and reporting in the areas. In three LGAs (Nasarawa, Doma, and Toto), the LGA chairmen openly acknowledged the reality of HIV in the domain, though they had thought otherwise previously because they were not aware that HIV prevalence could be so high in their communities. Information obtained in these meetings is now being used to make commitments and plan HIV interventions in most LGAs. All the 13 LGAs have used information derived from these meetings to prioritise, strategize and develop operational plans that guide their efforts to strengthen prevention, treatment and other support services.

Recommendations: Efforts should be focused on assessing and strengthening local government capacity to manage the HIV response for results at LGA levels. Ensure that funds required to implement operational plans are adequately resourced from the local government annual budgets, thereby increasing government resource contribution to HIV, leading to sustainable and comprehensive response at LGA levels.

Elimination of Mother to Child Transmission Using the Grassroots Approach in Lagos State

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Introduction: Eliminating mother to child transmission is an ongoing challenge in Nigeria and, considering the population of Lagos State, which contributes approximately 12.5% to the Nigerian population, it is a battle. Women still use traditional birth attendants (TBAs) for antenatal care and delivery. In Lagos State, according to the Lagos State Ministry of Health (LSMoH) Department of Planning Research and Statistics (DPRS), 33% of deliveries were performed in public health facilities, while private facilities and TBAs share 67% (these deliveries are usually not traceable) of the deliveries.

Background: To reduce new HIV infections and deaths among pregnant women, the Lagos State AIDS Control Agency (LSACA) and Enhancing
Nigeria's Response to HIV (ENR) with the World Bank HIV and AIDS Funds (HAF), conducted a one-week training for 750 TBAs registered in the state, on referral linkages and universal safety precautions. To further strengthen the structure, the LSACA and ENR provided mobile HIV testing and counselling (HTC) testers presently attached to these TBAs to provide HTC services two to three days per week. Presently, the TBAs, in line with the training, ensure that all women under their care are tested and referred to other services without the fear of losing clientele. In addressing referrals, the LSACA provided contact persons for every locality to speed up referral process and service delivery.

**Lessons Learnt:** Between the last quarter of 2012 and the first quarter of 2013, a total of 3,650 women who accessed antenatal care (ANC) were tested and 35% referred for further services ranging from sexually transmitted infections (STIs), family planning and HIV issues. The public facilities between the same period, have recorded a 15% growth in uptake of antenatal services. The training also improved skills of TBAs in ensuring safety measures, especially in taking delivery of pregnant HIV-positive mothers. Training TBAs as interpersonal communications (IPC) conductors increased knowledge at no extended cost to either government or donor agencies. The TBAs are driving HIV prevention via sensitisation at grassroots levels as part of IPC conductors trained by ENR. Based on their roles in the lives of 75% community women, the TBAs have mobilized over 18 communities to benefit from mobile HTC services for the general population. Training the TBAs has also helped in bridging the gap in access to professional care, as they are able to refer women for other services. It has improved relationships between TBAs and professional care providers at the primary health care level.

**Recommendations:** Scaling-up of more TBA trainings across other local government areas to increase knowledge, referral linkages and ensure qualitative service. Improve TBA knowledge by training them as Interpersonal conductors.
Factors Militating Against Treatment Adherence amongst Female Sex Workers

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Introduction: Adherence to treatment has been an ongoing challenge amongst most at risk populations (MARPs), due to many factors amongst female sex workers (FSWs). According to research, the majority of the FSWs seek medical care in private hospitals or clinics (62.0%), as compared to public hospitals or health centres (29.4%), home-based care or informal sector (8.3%), or non-governmental organisations (0.3%). The services they seek at the various health facilities are HIV counselling and testing (HCT) (93.1%), sexually transmitted infections (STI) treatment (62.6%), family planning (12.9%), prevention of mother to child transmission (PMTCT) (2.9%) and others, such as malaria and typhoid treatments (26.6%).

Background: Increasing knowledge of HCT and promotion of treatment adherence amongst FSWs was one of the objectives of the Enhancing Nigeria's Response to HIV (ENR) MARPs prevention intervention. A population-based cross-sectional survey among a proportionately selected sample of 350 FSWs from 350 hotspots across the 20 local government areas (LGAs) was conducted by the USAID-funded MARPs project through Society for Family Health (SFH). Qualitative data was also obtained from six focus group discussions and 16 in-depth interviews. Data collected was analysed to increase prevention intervention so as to boost referral to treatment services. Also, the survey helped identify factors that affect adherence amongst FSWs, which further improved prevention programming for the MARPS.

Lessons Learnt: 65.0% of the FSWs agreed that using antiretrovirals (ARVs) is difficult because of the distance to treatment centres, finances, time spent at the health facility to access drugs, and most importantly, the attitude of health care providers. 57% of the FSWs agreed that private-owned health facilities should be upgraded to address the issues of access and adherence. 25.6% of the FSWs agreed that the health providers only stress adherence to ARV therapy without explaining the potential complications involved, hence the FSWs stop the therapy once these complications surface. They all agreed that seeking medical
help from private-owned facilities is expensive but efficient and if the treatment centres owned by the government could improve timing, attitude of providers and create more centres, they would access them for reasons of cost-effectiveness.

**Recommendations:** Based on these research results, upgrade some highly assessable private health facilities to become treatment centres is imperative, so as to increase adherence amongst FSWs. Creating more treatment centres to reduce time and finances spent on getting ARVs would also be important. Finally, raising awareness of possible drug side effects will help prepare individuals and increase adherence to ARVs.

**Distribution of Cost and Determinants of Effectiveness in Provision of HIV Testing and Counselling for Male MARPs in Nigeria**

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**Background:** HIV counselling and testing (HCT) remains the gateway to HIV prevention interventions and as countries scale-up towards universal access, priority, backed with resource allocation, should be given to aspects of HCT programmes that ensure value for money, especially in resource poor settings. We evaluated the distribution of cost and determinants of effectiveness in the provision of HCT for male most-at-risk-population (M-MARPs), men who have sex with men (MSM) and men who inject drugs (MWID) in Nigeria.

**Method:** MSM and MWID were provided with HCT through the Men’s Health Network, Nigeria (MHNN), an HIV prevention intervention between July 2009 and July 2012. Financial costs of providing HCT were estimated from a health provider perspective and classified as capital (rent, furniture, equipment) or recurrent (personnel, stationery, supplies, meetings, monitoring, etc.) costs. Effectiveness was measured as the number of clients who tested positive for HIV. Exploratory analyses were conducted to test for the assumption of normal distribution. Variables with skewed distribution were logarithmised to the base of 10. Multiple linear regression analysis was
conducted to determine the best linear combination of cost components for reaching HIV-positive M-MARPs. The dependent variable was the number of M-MARPs that tested positive for HIV during the period, while the independent variables were the following cost components: (1) Personnel; (2) Workshops and Meetings; (3) Utilities; (4) Advocacy; (5) Supplies; (6) Promotional materials and incentives; (7) Training; and Monitoring & Evaluation (M&E).

**Results:** A total of $295,126.23 was spent in providing HCT for 31,609 M-MARPs among whom 2,510 tested positive for HIV. More than half of this amount (54.1%) was spent on personnel; 14% on workshops and meetings, 11.4% on utilities and 9.2% on M&E. The multiple linear regression analysis generated a model that significantly predicted the number of HIV-positive M-MARPs reached ($F (2, 24) =7.60$, $p< 0.01$), and explained about 34% of the variance in the number of HIV-positive M-MARPs reached. The model retained the cost (Log10) of promotional materials and the cost (Log10) of M&E, but only the cost (Log10) of M&E significantly contributed to the prediction ($\beta=0.49$, $p=0.016$). Thus, for every unit increase in the cost (Log10) of M&E, there was a significant 2.4 times increase in the number (Log10) of male MARPs who tested positive to HIV during the period.

**Conclusions:** Although personnel cost is over half of the total average cost of the program, it was not significant in increasing the number of M-MARPS who tested positive for HIV, contrary to M&E, which as a component, is rather small. Our study therefore shows that marginal increase in spending on M&E can significantly contribute to program effectiveness, especially among M-MARPS, who in our context are a hidden population. Designing interventions targeting M-MARPS with this in mind could be useful in informing efficient resource allocation to program components that will reduce waste and ensure achievement of desired results, especially in similar resource poor settings. Further research is required to determine how M&E directly affects program effectiveness.
Utilisation of Evidence for Informed HIV Programming: The Enhancing Nigeria's Response (ENR) to HIV and AIDS Programme Approach in Cross River State, Nigeria

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Background: The Cross River State HIV Mode of Transmission (MoT) study was commissioned and led by the State Agency for the Control of HIV/AIDS. The objective of the study was to carry out an evidence-based data-driven review to understand the epidemic and HIV prevention initiatives in terms of the scope, relevance, and comprehensiveness, to enable focus so that interventions better achieve optimal results in reducing HIV transmission.

Method: The UNAIDS MoT model was used. The methodology was based on calculations of expected short-term incidence of HIV infections among the adult population by modes of transmission, current prevalence of HIV infection, the number of individuals in particular risk groups, and the risk of exposure to infection within each group. Inputs for the modelling were sourced from: the 2008 antenatal care (ANC) serological surveillance survey; the Nigerian Demographic and Health Survey (NDHS) 2008; Integrated Biological Behavioural Surveillance Survey (IBBSS) 2010; and the State-specific HIV/AIDS Reproductive Health and Child Health Survey (SPARCS) (2011). Where state-representative data did not exist, reliable zonal research findings were used.

Results: The results show that 23.31% of new infections are likely to occur among casual heterosexual groups, which include people who are clients of both high- and low-risk groups. 42.08% of new infections will come from low-risk heterosexuals made up of people in a marital or cohabiting relationship. Condom use among both groups is low (less than 25%). About 25.73% of infections will occur amongst female sex works (FSWs), and people who are sexual partners of these high-risk groups (sex partners of men who have sex with men [MSM], intravenous drug users [IDUs], and partners of clients of FSWs and persons who have high risk sex). It is worth noting that the sex trade contributes about 15.45% of the new infections. Although the majority of
infections occur amongst the general population, 24.8% of infections will occur among high-risk groups and their partners, including FSWs, clients of FSWs, MSM, IDUs, and their partners. About 4.97% of infections will occur among the high-risk groups of MSMs, IDUs, and their partners.

Conclusions: The results of the model application illustrate the dynamics of the new HIV infections in a generalised epidemic that has existed for quite a while, occurring amongst persons within the general population. Considering the large population of young people aged 15–29 years who have a low perception of personal sexual risk, but exhibit high-risk behaviour, intervention for this group within the general population is imperative. Women also constitute an important segment of the general population, and several indicators classify them to be highly vulnerable to HIV/AIDS. Therefore, any successful interventions must also focus on women. Sex work is still a major mode of infection, which directly or indirectly accounts for more than 15% of possible new infections in the state. Since the target population in this group is small and accounts for less than 3% of the adult population in the state, directing efforts at them will be quite cost-effective. MSM and IDUs together contribute about 4.6% of possible new infections in the state. Stigma associated with MSM in the country and the lack of knowledge of their existence, risky practices may continue unhindered and HIV spread amongst them go unnoticed. Targeting of these high-risk groups should not be ignored, especially as they are not readily open or easily visible in the state.

Could the Definition of Comprehensive Knowledge of HIV Prevention Be A Possible Barrier to the Achievement of Zero New Infections? Evidence from Nigeria

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Background: Most behaviour change theories are based on the assumption that knowledge, though not a sufficient condition, is necessary for behaviour change. As a result of this, most HIV interventions target improving HIV
prevention knowledge as a key outcome, assuming this will lead to positive behaviour change (consistent and correct use of condom and faithfulness to uninfected partner). What, then, do we define as knowledge with respect to HIV prevention? Several attempts have been made to identify what constitutes knowledge of HIV prevention. The popular one used by most HIV interventions is the UNAIDS HIV prevention indicator, which is computed using the following: knowledge that use of condom can prevent HIV infection, knowledge that being faithful to an uninfected partner can prevent HIV infection, knowledge that a healthy-looking person can be HIV-positive and rejection of the two most popular misconceptions of HIV transmission. Does this adequately measure the knowledge required to practice healthy sexual behaviours?

**Method:** Data for this study was obtained from three waves of the Nigerian National HIV/AIDS, Reproductive Health Survey (2003, 2005 and 2007). The survey is a population-based study among females (15–49 years) and males (15–64 years) living in households in rural and urban areas in Nigeria. Multi-stage cluster sampling technique is used in the selection of respondents drawn from the updated master sample frame of rural and urban localities, and developed and maintained by the Nigerian National Population Commission. Each wave of the study has over 11,000 respondents. Data was entered and cleaned using Census and Survey Processing System (CsPro) software. Bivariate and logistical analysis and reliability tests were performed using SPSS version 18. Condom use in last non-marital sex was used as the dependent variable, while demographic, HIV/AIDS basic information, UNAIDS accurate knowledge of HIV prevention, social support, behavioural skills and motivation factors were used as independent variables.

**Results:** Between 2003 and 2007, accurate knowledge increased by 5.9% (19.4% to 24.9%) for males, and 3.6% (13.1%–16.7%) for females. Condom use in non-marital sex increased by 4% (50.2%–54.2%) for males and 2.9% for females (32.4%–35.3%). Multivariate analysis shows that accurate knowledge of HIV prevention was not significant in determining the use of condom in last non-marital sex for both males and females, with a 5% level of confidence. Tests of reliability of the comprehensive knowledge indicator shows that the index is not reliable (Cronbach's alpha of less than 0.2 for both males and females).
Conclusions: Could it be that the variable being targeted as accurate knowledge of HIV prevention is not necessarily the right one? Why is there no significant difference in condom use in last non-marital sex among those with accurate knowledge and those without? Can a more reliable indicator be used to measure accurate knowledge of HIV prevention? It is important that these questions are addressed. If the zero new infection rate must be achieved, the right messages must be communicated and measured. Projects must set results that can directly and significant affect desire behaviours.

If I Say No, He Will Leave Me…: Barriers to Condom Use in Boyfriend Relationships Among Sex Workers In Nigeria

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Background: HIV prevalence among female sex workers (FSWs) in Nigeria is as high as 27.1% and 17.7% for brothel-based and non brothel-based FSWs, respectively. Reported condom use varies with type of client, with paying partners as high as 96% and non-paying partners as low as 35%. Approximately 52% of FSWs reported having a boyfriend. FSW clients remain the link between the concentrated epidemic among FSWs and the general population. Consistent condom use with all partners remains one of the ways to reduce transmission of the various STIs. Spread of HIV, once in the general population, may likely spread very fast. Why is condom use still so low among FSWs with non-paying clients (boyfriends)? What can be done to improve condom use with boyfriend relationships?

Method: Data for the study were obtained through Focus Group Discussions (FGDs) and In-depth Interviews (IDIs). Data were collected in four Nigerian States: Lagos, Kano, Rivers and Federal Capital Territory. In all, 84 IDIs were conducted while 60 FGDs were held.

Results: The average age of IDI and FGD session participants was 27 years. Most participants have at least a secondary school education. Most respondents responded strongly that they can never use a condom with their boyfriend.
When prompted whether it is because of health reasons, most say no emphatically. The main reason for non-use of condom with a boyfriend, according to most FSWs, is the fear that if they insist on condom use, their boyfriend will leave them for someone else. Other reasons include a desire to get pregnant for their boyfriend (with the hope that this will allow them to hold on to their “man”); they want someone they can express natural affection to with such comments as “how can I use a condom with my man.” As to what can be done to improve condom use, most say it is up to their boyfriend to make that decision; programming should target the boyfriends. Others suggested programmes that could bring FSWs and their boyfriends together for a talk on condom use.

Conclusions: FSWs in Nigeria work in a very insecure and illegal context. These situations provide opportunities for harassment and exploitation from both security agents and “area boys.” There have been observed cases where “area boys” harass sex workers by collecting money from them or demanding sex. Boyfriends play a very important role in the lives of sex workers, as they help to bail them out when they are arrested, protect them from assault from “area boys,” and are a source of help in times of need. In appreciation and a desire to keep them, most FSWs are willing to have unprotected sex with them. Improving condom use with a boyfriend amongst FSWs goes beyond promoting health benefits. A structural approach must be promoted that will ensure a secured and supportive environment.
HIV and Sexual Risk Behaviours Among Female Sex Workers in Nigeria

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Background: Female sex workers (FSWs) constitute less than 1% of the Nigerian population, yet nationally account for about 20% of new HIV infections. We estimated the change in HIV prevalence and sexual risk behaviours between two consecutive rounds of integrated biological and behavioural surveillance surveys (IBBSS), and determined correlates of HIV transmission among FSWs.

Method: In 2007 and 2010, HIV prevalence and risk behaviour data on brothel-based (BB) and non-brothel-based (NBB) FSWs from IBBSS were evaluated in 6 Nigerian states. Logistical regression was used to identify correlates of HIV infection.

Results: 2897 and 2963 FSWs were surveyed in 2007 and 2010, respectively. Overall HIV prevalence decreased in 2010 compared to 2007 [20% vs 33%; p<0.001], and also among BB-FSW [23% vs 37%; p<0.0001] and NBB-FSW [16% vs 28%; p<0.0001]. The median number of clients in the previous week of sex work was higher in 2010 compared to 2007, both in BB-FSW [25 vs 14; p<0.001] and NBB-FSW [6 vs 8; p<0.01]. Consistent condom use with boyfriends in the last 12 months was lower in 2010 compared to 2007 overall [23% vs 25%; p=0.02] and among BB-FSWs [17% vs 23%; p<0.01], while...
NBB-FSWs showed a marginal increase [30% vs 27%; p=0.08]. FSWs residing in the Federal Capital Territory [AOR:1.74 (1.34–2.27)] and Kano State [AOR:2.07 (1.59–2.70)] were more likely to be HIV-positive, while FSWs recruited in 2010 [AOR:0.81 (0.77–0.85)] and those who had completed secondary education [AOR:0.70 (0.60–0.80)] were less likely to be HIV-positive.

Conclusions: Results suggest significant progress in reducing the burden of HIV among FSWs in Nigeria, although low condom use with boyfriends will continue to be a bridge between FSWs and the general population. Venue-based prevention programmes are needed to improve safer sex practice among BB-FSWs.

A Profile on HIV and Intravenous Drug Users in Nigeria: Should We Be Alarmed?

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Background: Injecting drug use is now recognized as a significant risk factor for HIV in sub-Saharan Africa. We evaluated prevalence and correlates of HIV among intravenous drug users (IDUs) in Nigeria.

Method: A cross-sectional study using respondent-driven sampling (RDS) was conducted in six Nigerian states in 2010. Current IDUs underwent interviewer-administered surveys and HIV tests. Weighted HIV prevalence and injecting risk behaviours were calculated using an RDS analytic tool. Logistical regression was used to determine correlates of HIV infection, stratified by state.

Results: Total numbers of IDUs ranged from 191 in Lagos to 273 in Kano. Median age ranged from 26 years in Cross River State (CRS) to 41 years in Lagos. HIV prevalence (table 1) was highest in Federal Capital Territory (FCT) at 9.3%, Kaduna 5.8%, Oyo 5.1%, Kano 4.9%, CRS 3.3% and Lagos 3.0%. Although >90% of participants were male, females had a higher HIV prevalence
in all states surveyed except FCT (range: 7.4% in CR to 37.7% in Kano). Median duration of intravenous drug use ranged from two years in FCT to seven years in Lagos. Prevalence of all injecting risk behaviours was highest in FCT, ranging from 22% to 68% for use of prefilled syringes and receptive sharing, respectively. Logistical regression showed that females were significantly more likely to be HIV-positive in Kano [AOR: 62.4, 95% CI: 8.8–444.7], Oyo [AOR: 19.0, 95% CI: 4.4–82.8] and Kaduna States [AOR: 12.3, 95% CI: 1.4–106.7], but no other risk factors were identified.

Conclusions: Considerable heterogeneity in the HIV prevalence and associated risk behaviours exists among IDUs across Nigeria. Females had a higher HIV burden among IDUs in most Nigerian states, suggesting a need for tailored outreach to this hidden subgroup. Further research is needed to understand the transmission dynamics of IDUs, especially among female IDUs.

Predictors of HCT Uptake Amongst MSM in Nigeria: Findings from the Integrated Biological and Behavioural Surveillance Survey (IBBSS)

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Background: Three decades into the epidemic in Nigeria, HIV infection rates have continued to increase from 13.5% in 2007 to 17.2% in 2010 and 1/10 of all new infections occur among men who have sex with men (MSM). Yet little is known of the factors that predict uptake of HIV counselling and testing (HCT) among MSM in Nigeria. We sought to ascertain the level and predictors of HCT uptake among this sub-population.

Method: Data obtained between April–May 2010 from MSM recruited during the second round of the IBBSS in Lagos, Kano, Kaduna, Cross River, FCT and Oyo were analysed. Weighted HIV prevalence and risk behaviour data were examined using logistical regression to identify predictors of HCT uptake.

Results: Of 1545 MSM recruited, 53.4% were 15–24 years of age with a mean of 25.4+/-6.02 years, 87.6% had never married and 89.8% had at least secondary education. Only 1/3 had comprehensive knowledge of HIV, 21% felt
at risk of HIV and 21.7% used condoms consistently. One-half had ever been
tested, with only 34.5% having been counselled and tested in the previous year.
About half HIV prevalence was 17.2% with 37.6% in the FCT, 16.2% in
Kaduna, 15.8% in Lagos, 8.3% in Kano, 3.3% in Oyo and 2.4% in Cross River.
Predictors of HCT uptake included being 25 years and above [AOR=2.82;
95%CI: 2.02–3.95]; having at least secondary school education [AOR = 1.44;
95%CI: 0.95–2.20], having no risk perception of HIV[AOR=1.57;
95%CI:1.11–2.23]; inconsistent condom use with casual partners [AOR=1.06;
95%CI: 0.8–1.54]; inconsistent condom use with transactional partners
[AOR=2.1; 95%CI: 1.32–3.32]; and inconsistent condom use with paid sex
partners [AOR=1.5; 95%CI: 0.8–2.75].

Conclusions: HCT uptake amongst MSM is still very low. Strategies to
increase uptake in this hard-to-reach high-risk sub-population in Nigeria should
focus on new factors that increase access and uptake to HCT.

Barriers to Getting Research into Policy and Practice (GRIPP)
in Nigeria: A Rising Tide Lifts All

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Background: The need for evidence-based practice in the Nigerian national
response to HIV/AIDS has been widely acknowledged at the national policy
level; however, this has not translated into greater use of existing data or
financing of a comprehensive research agenda.

Method: This study reviewed the literature, then conducted primary data
collection using individual and group interviews to assess the production,
consumption and utilisation of knowledge for stakeholders working in HIV
policy and implementation at the national and sub-national level. We identified
barriers and constraints to data use and offered recommendations for the design
and prioritisation of strategic approaches, to remediate gaps.
Results: The majority of data used in the national response is generated through routine monitoring and evaluation (M&E) data or periodic surveillance. Individual dissatisfaction with the quality, timeliness and relevance of research is high. While the evidence of effective utilisation is limited, we identified numerous instances where research has influenced policy and practice. Importantly, the perception of the research-to-use gap represents the poor state of research promotion in Nigeria, whereby researchers receive little financial support and work in relative isolation, thus inhibiting policy relevance. Policy-makers rely on personal networks for policy-informing data, if available.

Conclusions: A systems approach to getting research into policy and practice (GRIPP) must connect knowledge generation and utilisation at the institutional level without trying to pick winners. An increase in the overall generation of knowledge through improved research quality will contribute to the establishment and maintenance of policy relevance. Knowledge sharing through specialised publications and spaces for policy debate will contribute to knowledge utilization. Finally, to facilitate a systems approach to research utilisation, there is a need to map out the knowledge production and consumption systems in the HIV/AIDS sector at the federal and state levels.

HIV Risk amongst Female Injecting Drug Users (IDU) in Nigeria


Background: Injecting drug use in Nigeria is a stigmatised, illegal practice. Treatment is highly medicalised and confined predominantly to psychiatric hospitals. Opioid substitution therapy (OST) or medication-assisted therapy (MAT) are not available. At the community-level, faith-based, civil society organisations provide rehabilitation using discontinuation therapy and psycho-
social support. Disposable needles are readily available and cheap in the private and informal sectors. Of the little information available on intravenous drug users (IDUs) in Nigeria, none describes in detail the HIV risk of female users.

**Method:** We used multiple rounds of ethnographic observation and structured interviews with key informants at the community and facility level in four cities in Nigeria. Facilities were selected purposively to cover the major drug treatment centres in Nigeria. Communities were mapped by trained peer educators who visited hot-spots where women and men access and use drugs. A retrospective review of service statistics from treatment centres at four major psychiatric hospitals was conducted.

**Results:** Male IDUs tend to be more visible and congregate openly in 'bunkers' or drug dens. Fewer female IDUs were observed at the community-level. HIV prevalence among male users mirrors that of the general population, at about 3%. Female drug users exhibited a higher HIV prevalence (21%), though few were found (6%, N=81) (IBBSS 2010). Facility-based data from four treatment facilities identified 150 female IDUs currently in rehabilitation, of whom 19% were HIV positive.

**Conclusions:** Female IDUs risk HIV infection through unsafe injecting practices and sexual exposure through selling sex for drugs or money, inability to negotiate safe sex, and partner violence. They differ from male users by background, reasons for using drugs, and health and psychosocial needs. However, most HIV/AIDS prevention and care programs do not reach this vulnerable group. The challenges facing drug-involved women mandate a call to action for this hidden and neglected population.

**HIV Prevalence and Risk Behaviours among Bisexuals in Three Nigerian States**

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**Background:** Most men who have sex with men (MSM) cover up their sexual preference for men by engaging in sexual practices with women, due to stigma
and criminalisation of MSM in Nigeria. Limited data on bisexuality limits the development of appropriate HIV intervention programs. We estimated the prevalence and correlates of HIV among bisexual men in Nigeria.

**Method:** Between August and December 2011, Population Council’s Men’s Health Network, Nigeria (MHNN) HIV counselling and testing (HCT) monitoring data in Lagos, Oyo and Abuja were evaluated in a cross-sectional analysis. Logistical regression was used to determine the correlates of HIV prevalence.

**Results:** Of a total 1212 clients reached, 239 (26%) and 527 (58%) identified as homosexuals and bisexuals, respectively. Approximately 2/3 were employed, while 37% were students. Median age was 27 years (IQR 23–34 years). HIV prevalence was highest in Oyo state (29%), while it was 7% and 9% in Lagos and Abuja, respectively. Eighty-five percent and 73% of homosexuals and bisexuals, respectively, had multiple sex partners (p<0.001). Over 85% of homosexuals and 64% of bisexuals (p<0.001) engaged in unprotected anal intercourse (UAI), while 3% and 79% (p<0.001) of homosexuals and bisexuals, respectively, engaged in unprotected vaginal sex. Overall HIV prevalence was higher among homosexuals compared to bisexuals (18% vs 10%; p=0.006), however in Oyo (18% vs 33%, p=0.316) and Abuja (6% vs 16%,p=0.015), HIV prevalence was higher among bisexuals. Correlates of HIV include multiple sex partners [AOR 2.0, 95%CI:1.1–3.8] and bisexual identifying men [AOR 0.4, 95%CI:0.18–0.89], referent: homosexuals.

**Conclusions:** Overall HIV prevalence was higher among homosexual men, and having multiple sex partners was associated with being HIV positive. Our findings are similar to those in other studies and highlight the higher risk of transmission from anal sex. Unprotected anal sex combined with multiple sex partnership if uncontrolled, will continue to drive the HIV epidemic in this setting.
HIV Prevalence and Risk Behaviours amongst Female Injecting Drug Users in Nigeria: An Emerging Mega Epidemic

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Background: Comprehensive data on female intravenous drug users (IDUs) in Nigeria is lacking. We estimated HIV prevalence and injecting risk behaviours among female IDUs in Nigeria.

Method: Data on female IDUs were collected from the Integrated Biological and Behavioural Surveillance Survey (IBBSS) in six cities in Nigeria between 2007 and 2010, and evaluated in a cross-sectional analysis. Descriptive statistics, including 95% confidence intervals (CI) and Chi-square tests of comparison for differences between categorical variables were conducted.

Results: Of a total of 122 female IDUs that were surveyed, 50% had completed secondary education and 38% were currently married. HIV prevalence was 62.2% (95%CI:53.0–71.3). Mean age was 29 years and about 1/3 had engaged in transactional sex. Only 35% (95%CI:26.1–43.3) had comprehensive knowledge of HIV. Median duration of injecting drugs was four years (IQR:2–7years) while median age at first injection was 24 years (IQR:20–29years). Prevalence of injecting risk behaviour in the last one month prior to the survey was 13.5% (95%CI:7.2–19.7) for use of pre-filled syringe, 14.0% (95%CI: 6.4–21.2) receptive sharing, 20.1% (95%CI:13.2–28.6) for those who shared cooker/vial/container, 12.3% (95%CI:6.1–18.4) frontloading/backloading/splitting, and 21.5% (95%CI:13.6–29.4) for drawing from a common container. Injecting risk behaviour was significantly higher among those who had engaged in transactional sex (48% vs 28%; p<0.05). HIV prevalence was significantly higher among those who engaged in receptive sharing (75% vs 54%; p=0.024) but was similar in other risk behaviour; use of pre-filled syringe (p=0.506), frontloading/backloading/splitting (p=0.516), shared cooker/vial/container (p=0.620) and drawing from a common container (p=0.852).
Conclusions: Female IDUs bear a very high burden of HIV and may present a bridge to the general population. Except for receptive sharing, injecting risk behaviour was not associated with HIV suggesting that injecting risk behaviour may not be a significant route of HIV transmission among female IDU. Further research is urgently needed to understand factors driving the epidemic within this group.

Should Measurement of HIV-Related Stigma and Discrimination Be Re-Defined?

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Background: The UNAIDS indicator for the HIV/AIDS stigma is estimated using a composite index, including: willingness to care for an HIV+ family member; willingness to buy fresh vegetables from an HIV+ shopkeeper; willingness to allow an HIV+ female teacher who is not sick to continue teaching; and willingness not to keep secret that a family member has HIV. Does this truly define stigma within the Nigerian context?

Method: Data were obtained from the State Specific HIV/AIDS, Reproductive and Child Health survey, a population-based study among females (15–49 years) and males (15–64 years) living in households in rural/urban areas in Nigeria. Multi-stage cluster sampling technique was used in the selection of respondents drawn from the updated master sample frame of rural/urban localities and developed and maintained by the National Population Commission.

Results:

<table>
<thead>
<tr>
<th></th>
<th>All (%)</th>
<th>Males (%)</th>
<th>Females (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care for a male HIV+ relative</td>
<td>67.9</td>
<td>70</td>
<td>65.6</td>
</tr>
<tr>
<td>Care for a female HIV+ relative</td>
<td>67</td>
<td>68.2</td>
<td>65.7</td>
</tr>
<tr>
<td>Allow a healthy HIV+ teacher to teach</td>
<td>62.8</td>
<td>64.2</td>
<td>61.4</td>
</tr>
<tr>
<td>Buy food from people living with HIV/AIDS (PLWH)</td>
<td>39.9</td>
<td>41.5</td>
<td>38.2</td>
</tr>
</tbody>
</table>
Table 1 presents findings on the HIV-related stigma and discrimination for individual questions and the UNAIDS indicator, as well as information on the question of keeping secret the condition of a family member who is HIV positive. Findings show a substantial difference when this question was included in the composite index compared to when it was removed. This is due to the fact that the question has a different direction compared with the other four questions.

**Conclusions:** In most Nigerian communities, illnesses are kept secret. Even pregnancies are kept secret in their early stages. The results above show that taking away “keeping HIV+ family secret” from the index gives a different picture of accepting attitudes towards PLWHA. Using this current definition for calculating the UNAIDS index for HIV-related stigma might underestimate the actual index for assessing accepting attitudes towards PLHIV in Nigeria. A critical look at this is highly recommended.
An Assessment of Research Utilisation by Policy Makers and Programme Managers in Nigeria

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Background: With growing health needs in Nigeria, the government and partners have responded with multiple policy formulations and programming initiatives. The role of research remains marginal in shaping health financing, decision-making and practices in Nigeria. With growing expectations for cost-effective quality services, it has become imperative for policy-makers and managers to translate research outputs into practical and impactful decisions and actions.

Method: Extensive literature review, as well as extensive stakeholder consultation workshops at national and sub-national levels, was performed. During the workshop, participatory tools (stakeholder identification, organisational data flow and information use mapping, and templates for barrier identification, data analysis and interpretation and action planning) were used.

Results: The national health strategic framework and most donors’ calls for proposals are evidence-based. However, most of the data used to form the bases for the plans and strategies are not current. The National HIV/AIDS Survey (NARHS) was last conducted in 2007. While government appreciates the use of evidence in developing strategic plans, this has not translated into release of funds for research. Day-to-day implementations do not necessarily reflect areas of priority. Interest prioritises quick fixes that promote political interests. A long time gap between when data are collected and reported exists. Operations research is rarely conducted. Most intervention models are based on the
experiences of other countries which, in most cases, do not fit into the Nigerian context.

**Recommendations:** Government needs to commit its resources, not just for generation of data, but also for their daily use. A periodic work-plan review system should be institutionalised that reviews activities implemented *vis a vis* planned actions for the period. Improved communication between data generators and users should be promoted. Research activities should be conducted in a timely manner and reported in user-friendly manners. Programme managers’ skills and ability to manipulate and analyse data should be strengthened.


*Onoriode Ezire¹, Omokhudu Idogho¹, Solomon Adebayo¹ Bright Ekweremadu¹*

*Society for Family Health*

**Background:** For most interventions, working on strengthening health systems, especially in developing countries, focus lies on capacity-building. Often, these interventions are not based on reality and the actual needs of the institution. In some cases where these plans are based on results of prior assessments of the health system, limited efforts are placed on periodic monitoring of the results of the capacity-building efforts. These contribute to limited successes of those interventions.

**Method:** The Enhancing Nigeria’s Response to HIV and AIDS (ENR) programme is an HIV prevention and system-strengthening programme implemented in seven Nigerian states and supported by UK aid. In 2009, when the programme started, it used an organisational capacity assessment tool developed under the DfID-funded Strengthening Nigeria’s Response to HIV (SNR) to assess the capacity of seven states, State Agency for the Control of HIV/AIDS (SACA) and line ministries. The results formed the baseline data for
measuring improvement over time. It was also used to develop capacity building plans (CBPs).

**Lessons learnt:** The fact that the reports are shared with heads of the institutions does not necessarily translate into sharing the report of the assessment with the various institutions. While focus should be on the periodic review of the developed plan, contextual assessment is very important in responding adequately to the needs of the institutions. Although some capacity-building beneficiaries prefer workshops- possibly because of the financial benefits they receive- real and sustained capacity-building efforts must explore the use of other capacity-building methods. The political economy aspect of health system-strengthening should not be overlooked, especially in developing countries.

**Conclusions:** It is highly recommended that health system-strengthening efforts be based on local evidences. Intervening models should be contextual. Periodic monitoring of the CBP is very important. Other forms of capacity-building efforts outside of workshops, including mentoring and coaching, should be promoted.

**Improving Maternal and Neonatal Service Delivery in North Eastern Nigeria: The Role of Traditional Birth Attendants (TBAs)**

*Onoriode Ezire¹, Allen Otunomeruke¹ Jennifer Anyanti¹ Samson Adebayo¹*

¹*Society For Family Health*

**Background:** The health system in Nigeria has witnessed little improvement over the past few years, resulting in an enduring burden of disease and poor health. Nigeria’s infant and maternal mortality rates are still among the highest in the world. A major challenge is the shortage of health human resources. The ratio of doctor, nurses and midwives to 100,000 persons is 30, 100 and 68, respectively. This is lower in North Eastern Nigeria, which also has some of the worst health indices in the country. PSI/SFH, in collaboration with Transaid UK implemented a Maternal and Neonatal Health Care (MNHC) Learning-Project,
in Gombe State. The goal of the two-year project was to demonstrate effective and scalable approaches to improving critical MNHC practices in the home.

**Method:** Quasi-experimental design testing of 4 models that had the potential to deliver critical maternal and neonatal health (MNH) messages and interventions at the household level was used. Gombe State’s 11 Local Government Areas (LGAs) were purposively divided into the four model types: TBAs, community volunteers, combined, the control LGAs. Quantitative and qualitative pre- and post-evaluation studies were conducted.

**Results:**
1. TBAs’ referrals of pregnant women and new-borns with danger signs increased by over 4,500.
2. Improvement in TBAs’ use of clean delivery kits, as more than 10,000 delivery kits were purchased and used.
3. TBAs improved record-keeping using local and non-formal methods.
4. TBAs now see their work as complementary to and not competitive with skilled health workers.
5. The home visits before birth improved birth preparedness.

**Conclusions:** In human resource-constrained health systems, appropriate engagement of TBAs could improve healthcare delivery. Engagement of TBAs is most successful if they are attached to a health facility and/or a skilled health care provider. Continuous monitoring and supervision improves TBAs’ services. TBAs could be used to expand distribution of clean delivery kits (CDKs) to pregnant women.

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**The Use of Call Centres in Promoting Access to Health Services amongst Rural Dwellers: Experiences from a Maternal and Neonatal Health Care (MNHC) Learning Project in Gombe State, Nigeria**

Onoriode Ezire\(^1\), Allen Otunomeruke\(^1\), Chioma Ofoegbu\(^1\), Mohammed F\(^1\), Jennifer Anyanti\(^1\)

\(^1\)Society for Family Health
**Background:** Access to accurate health information has been a major challenge, especially in rural communities where health indices are lowest. Evidence suggests a positive relationship between accurate knowledge and the state of health. In Nigeria, more than 88 million phone lines are in use. Could the use of mobile phones improve access to health services?

Population Services International (PSI) and Society for Family Health (SFH), in collaboration with Transaid UK, implemented the Maternal and Neonatal Health Care (MNHC) Learning Project. The goal of the two-year project was to demonstrate effective, scalable approaches to improving critical Maternal and Neonatal Health (MNH) practices in the home. One of the objectives was setting up of a functional call centre and MNH hotline was to help health providers and families manage MNH issues in the home and provide referrals.

**Method:** Working with the state government, a call centre was built within the Gombe General Hospital premises. The choice of the location was informed by the need to create state ownership and sustainability. Qualified personnel were recruited and trained. Nine telephone lines from three mobile telephone service providers in Nigeria were engaged. MIS data were developed to track incoming calls. Using radio, billboards, print and interpersonal communications, awareness of the centre was created.

**Results:** Within four months of setting up the centre, 24,989 calls had been received. Of these, 11,709 were related to MNH. Received calls were highest during the months when radio jingles promoting the centre were broadcast. 3,123 women were referred to health facilities, of which 400 called back to express their appreciation. Over 50% of the callers were first-time mothers.

**Conclusions:** The use of call centres can promote access to accurate information, especially when well managed. Developing a frequently asked questions directory improves service provision. Creation of awareness is key to the success of call centres. Unnecessarily calls should be expected especially during the initial month of setting up the centre.
Reaching General Population through Faith Based Organization Intervention in Lagos State

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**Background:** The Mode of Transmission (MoT) Study conducted in Lagos State, showed that 38% of new HIV infections will occur among the general population, and over time, most HIV interventions were focussed on high risk groups like sex workers and others. The modelling of the distribution of HIV incidence shows high incidence among low risk heterosexual group. The Enhancing Nigeria's Response to HIV (ENR) Programme funded by the UK Department for International Development (DfID), implemented by eight partners that include the Society for Family Health (SFH) and ActionAid Nigeria, developed a strategy to strengthen faith-based responses to HIV, which targets the general population. The organised faith-based groups had the potential to reach above 80% of the population. The purpose of the study was to increase the capacity of faith-based organisations (FBOs) to provide improved HIV prevention, care and support services to the general population.

**Method:** The assessment made use of the Faith-Based Organisation Capacity Assessment Tool (FOCAT), focus group discussions and key informant interviews with 30 FBOs.

**Results:** Fifteen FBOs are committed to include prevention messages in sermons and meetings. 200 members acquired basic knowledge on HIV and are reaching other members with HIV prevention messages. There was reactivation
of HIV units among the FBOs, and improved and structured referral systems established. The FBOs are also exploring wider funding opportunities beyond individual and mission funding, for HIV prevention, care and support services.

Conclusions: There is a need to refocus from concentration on prevention messages of most at risk populations (MARPs). The FBOs were able to reach the low-risk heterosexual population, where there is higher incidence of HIV infection. The process enhanced FBO HIV interventions. The re-establishment of functional interfaith fora to coordinate faith-based responses was also imperative to ensure intensive interventions.

Geo-mapping Female Drug Users in Nigeria, an Exploratory Study of Injecting and Non-injecting Users across Four Cities

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Background: Female drug users risk HIV infection through unsafe injecting practices and sexual exposure due to selling sex for drugs or money, the inability to negotiate safe sex, and partner violence. They differ from male users by background, reasons for using drugs, and health and psychosocial needs. However, most HIV/AIDS prevention and care programmes cannot reach this vulnerable group. The challenges facing drug-involved women mandate a call to action for this often hidden and neglected population.

Method: Using Open Data Kit (ODK) on Android mobile phones, we mapped hot-spots where women access and use drugs in four cities in Nigeria. Hotspots include locations where drug users purchase drugs (“score”), inject (“shoot-up”), hang-out, find sex partners, or socialise. Data were shared with key informants using interactive maps to annotate characteristics of specific points and surrounding community. Crowd-sourcing technologies were used to validate observations from the community regarding safety, access, numbers of female users, time-use access to services, and community resources.
Results: Data collected included geo-coded data points of key sites such as drug users’ “bunkers” (dens), pharmacies, police posts, “area boys” (neighbourhood gang) hangouts, “okada” (motorcycle taxi) points etc. Additional community resources were observed and their coordinates mapped, including pharmacies where needles are sold, HIV testing centres, NGO outreach hubs, HIV educational resources, condom outlets, health centres, police posts, etc. Major geographic characteristics were captured, including boundaries, impediments, or enhancers to physical access within and across zones. Mappers noted areas of inaccessibility as well as time between points as a proxy for accessibility.

Conclusions: Mobile technologies using such social media methods as crowdsourcing and interactive maps can facilitate the collection and validation of data on high risk groups. Hidden, hard-to-reach populations of female drug users become visible to policy-makers and service providers without threatening the safety of the beneficiary or provider.

Audio Computer-Assisted Self-Interview (ACASI) Versus Face-to-face Interview Methods in Reporting HIV Risk Behaviours among Men who have Sex with Men (MSM) in Nigeria

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Background: Little is known about effective modes of interviewing highly stigmatised groups such as men who have sex with men (MSM) in settings such as Nigeria.

Method: We compared self-reported risk behaviours between audio computer-assisted self-interview (ACASI) and face-to-face (FTF) interview methods among 712 MSM aged ≥18 years in Abuja (n=194), Lagos (n=308) and Ibadan (n=210). Participants were randomised into 2groups: one completing an FTF interview administered by trained peer interviewers; the other completing a 40–45 minute self-administered survey via ACASI on netbook computers with headphones. The survey elicited information about
HIV risk, health-seeking, and sexual identity. Multiple logistical regression was used to ascertain differences in reporting of sensitive information across the 2 interview modes.

**Results:** Statistically significant differences were found by interview mode, with ACASI yielding higher reporting of sensitive, socially stigmatised behaviours compared to FTF interviews. After controlling for age, education, marital status and study locations, ACASI participants were more likely to report multiple male anal sex partners [AOR=1.5 (1.1–2.2)]; unprotected anal sex with men [AOR=1.5 (1.02–2.2)]; unprotected anal sex with women [AOR=1.9 (1.1–3.4)]; sexually transmitted infection (STI) symptoms in the previous year [AOR=3.0 (2.0–4.5)]; drug use in the past year [AOR=24.4 (5.5–108.6)]; and homosexual identity (versus bisexual identity) [AOR=5.2 (2.1–4.7)]. Reporting of selling sex was lower among ACASI participants [AOR=0.7(0.5–1.0)]. Nearly all felt comfortable using the system, with 82% rating the experience as very good or better on a Likert scale. The most commonly cited reasons for liking ACASI were privacy (46.8%) and usability (30.9%). The majority of ACASI participants said they would like to use ACASI again for surveys.

**Conclusions:** The ACASI method consistently elicited a higher frequency of reporting of risk behaviours compared to FTF interviews among MSM in Nigeria. Behavioural surveillance surveys involving Nigerian MSM should consider adopting ACASI more broadly. Additionally, these findings cast doubt on the validity of behavioural data collected via FTF interviews amongst this population.

Factors Associated with Bisexual Behaviour among Men who have Sex with Men (MSM) in 3 Nigerian Cities: Abuja, Lagos, and Ibadan

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\(^1\)Population Council, NY; \(^2\)Population Council, Washington, DC; \(^3\)Population Council, Abuja Nigeria; \(^4\)Society For Family Health, Abuja

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Background: Men who have sex with men (MSM) in Nigeria are at higher risk for HIV infection compared to the general population. However, little information exists on the sexual behaviours and characteristics of men who have sex with both men and women (MSMW).

Method: A total of 712 MSM aged ≥18 years were recruited between August and September 2010 in Abuja, Ibadan, and Lagos, Nigeria. Participants were interviewed about their sexual behaviours with both men and women.

Results: The majority of MSM (76%) reported having sex with women at least once in their lifetime. Of 554 MSM who had had anal sex with men in the last 2 months, half (47%) also reported having had sex with women during the same time period [34% Abuja; 49% Ibadan; 54% Lagos]. Fifty-six percent of last female sex partners were casual and 44% were regular. After controlling for study site, age, education, and religion, bisexual behaviour in the last two months was associated with being married to or living with a woman [AOR=2.0 (1.3–3.1)], being away from home for greater than one month in the last year [AOR=1.5 (1.1–2.2)], self-identifying as straight or bisexual [AOR=2.5 (1.7–3.7)], and having insertive anal intercourse with men [AOR=2.9 (1.8–4.6)]. Thirty-eight percent of last sex acts with women were unprotected. Over half of MSMW (54%) reported having had anal sex with women in the last two months; 70% of the last anal sex acts with women were unprotected. Thirty-seven percent of MSMW also did not use a condom with their last male anal sex partner.

Conclusions: A large proportion of MSM in Nigeria engage in risky bisexual behaviour with both regular and casual female sex partners. These findings indicate an urgent need for programs working with MSM to promote safer sex practices for this risky subpopulation of MSMW.

HIV Testing and Health Seeking Behaviours among Men who have Sex with Men in Three Nigerian Cities: Abuja, Lagos and Ibadan

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Background: Men who have sex with men (MSM) in Nigeria are 4 to 10 times more likely to be HIV positive, as compared to the general population. Understanding MSMs’ health-seeking behaviours can inform and improve MSM interventions.

Method: A total of 712 MSM aged ≥18 years living in Abuja (n=194), Lagos (n=308) and Ibadan (n=210) were recruited through respondent-driven sampling (RDS) between August and September, 2010. The survey elicited information about HIV risks and health-seeking behaviours. Participants were also tested for HIV. Population-based estimates were obtained using RDSAT software. Multiple logistical regressions were used to ascertain factors associated with HIV infection.

Results: The median age of participants was 23 [range=18–55]. A high proportion of MSM (45%) had never tested for HIV. Of those tested, most had their recent test at an MHNN clinic [clinics that provide male-friendly services in the 3 cities] (40%), followed by government and private clinics (31% and 25%, respectively). Not testing for HIV was associated with younger age [Adjusted Odds Ratio (AOR)=1.7(1.1–2.5)]; less education [AOR=2.5 (1.7–3.9)]; unemployment [AOR=2.0 (1.2–3.3)]; unprotected anal sex [AOR=2.0 (1.4–2.8)]; having sex with only men (versus sex with men and women) [AOR=3.1(1.4–7.0)]; and having multiple female sex partners [AOR=2.8(1.2–6.2)]. A large proportion of MSM (31%) reported having had sexually transmitted infection (STI) symptoms in the last 12 months and only 41.4% of them sought treatment. Of those who sought treatment, only 41.1% disclosed their sexual identity to their providers. Most MSM sought treatment at private clinics (35%), pharmacies (33%), gay clinics (24%), public clinics (15%), and traditional healers (6%).

Conclusions: These findings indicate an unmet need for HIV testing. MSM experience a high burden of STIs and many do not seek treatment for their symptoms. To improve service uptake, targeting men who have sex exclusively with men, have multiple female sex partners, engage in unprotected anal sex, and who are uncomfortable with their sexual identity is important.
Prevalence of and Factors Associated with HIV Infection among Men who have Sex with Men in Three Nigerian Cities: Abuja, Lagos and Ibadan

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Background: There is limited data on HIV prevalence and factors associated with HIV infection among men who have sex with men (MSM) in Nigeria.

Method: A total of 712 MSM aged ≥ 18 years living in Abuja (n=194), Lagos (n=308) and Ibadan (n=210) were recruited through respondent-driven sampling (RDS) between August and September, 2010. The survey elicited information about HIV risks and participants were tested for HIV. Population-based estimates were obtained using RDSAT software. Multiple logistic regressions were used to ascertain factors associated with HIV infection.

Results: The median age of participants was 23 [range=18–55 years]. About 60% considered themselves bisexual, 45% had had sex with both men and women, and 30% had had multiple female sex partners [past two months]. MSM reported high levels of unprotected anal sex (38%) and multiple male sex partners (62%). One-third reported their last sex partner was commercial sex, 50% reported being paid for sex in the last six months, and 1/3 had sexually transmitted infection (STI) symptoms in the previous year. HIV prevalence among Abuja MSM was 34.9% and was significantly associated with older age [Adjusted Odds Ratio=3.9(1.7–9.0)]; homosexual identity [AOR=2.4(1.1–5.2)]; unprotected sex [AOR=3.3(1.4–7.7)]; selling sex [2.4(1.1–5.5)], and having STI symptoms in the previous year [AOR=2.9(1.1–7.3)]. HIV prevalence among Lagos MSM was 15.2%, and was significantly associated with older age [AOR=2.9(1.4–5.9)]; being single [AOR=2.4(1.2–5.1)]; and being Christian (versus Muslim) [AOR=2.4(1.1–5.5)]. HIV prevalence among Ibadan MSM was 11.3% and was significantly associated with unprotected sex [AOR=4.8(1.4–16.5)] and bisexual identity [AOR=4.8(1.01–22.6)].

Conclusion: HIV prevalence among MSM in the three cities was four to ten times higher than the general population prevalence and was associated with unprotected sex. MSM are at high risk of being infected with and transmitting HIV.
HIV to others because a high proportion reported multiple sex partners and unprotected sex with both men and women. More resources and targeted interventions are needed for this population.


1Population Council, DC; 2Population Council, Nigeria; 3Population Council, NY; 4Society for Family Health, Abuja; 5NYAP

Background: There is an enormous gap in our understanding of the growing intravenous drug user (IDU) population in many African countries, including Nigeria.

Method: A total of 328 men who injected illicit drugs in the past 12 months, aged ≥18 years, and living in greater Lagos, Nigeria were recruited through respondent-driven sampling (RDS), August–September 2011. Participants were randomised to complete a survey via face-to-face (FTF) interview or audio-computer assisted self-interview (ACASI) on HIV and injection risk behaviours. Participants tested for HIV, Hepatitis B (HBV) and C (HCV), and Chlamydia, gonorrhoea, and syphilis.

Results: Approximately ¾ of IDUs (74%) reported having injected drugs in the past one month, among which 52% injected once a week or less and 11% injected once daily or more. 46% had started injecting drugs in the previous one to five years; 20% had been injecting for over 10 years. Most IDUs had not shared needle/syringes in the past month (92%), and never injected with pre-filled syringes (96%). 41% of IDUs reported having had sex in the past 6 months, of which 42% reported having had unprotected sex. Casual (21%), commercial (20%), and steady (59%) partners were reported as last sex partners. The estimated prevalence of HIV, HBV and HCV were 0.9% (95% CI, 0.2–2.0), 7.8% (95% CI, 4.3–11.7), and 7.7% (95% CI, 3.5–12.7), respectively. Co-infection was rare: HBV/HCV (n=1), HIV/HBV (n=0), and
HIV/HCV (n=2). The estimated prevalence for syphilis, gonorrhoea, and chlamydia were 1.9% (95% CI, 0.0–2.6), 0.0%, and 3.7% (95% CI, 0.0–6.0), respectively.

Conclusions: Unlike in some Southern and East African countries, the burden of HIV is presently low among IDUs in Lagos. Widespread availability of sterile needles/syringes at pharmacies is likely keeping an explosive HIV and HCV epidemic at bay, and must continue. HBV vaccination should be made available to all IDUs in order to prevent future high disease burden.
Introduction: The 2010 sentinel survey revealed that the rural areas are more affected by the HIV epidemic, the rural-urban ratio was: 3.6% to 1.3%, In spite of this, the capacity for responding to HIV prevention, care and support at the local government level is weak. This has been attributed to poor coordination and lack of participation of community people in the design and implementation of programme activities or interventions.

Background: Enhancing Nigeria’s Response to HIV (ENR) is a UK aid-funded programme, implemented by eight partners, managed by Society for Family Health (SFH), with the overall goal of improving access to effective HIV and AIDS prevention, care and support information and services. Lagos State is among the seven states in which the programme is currently being implemented, and Ikorodu local government is among the Local Government Areas (LGAs) selected. The managers of the local action committees on AIDS (LACA), were trained on managing, monitoring community-based programmes and coordination of HIV activities at the local government level. The local government officers were introduced to the use of the national monitoring framework in data collection and collation. The Enhancing Nigeria’s Response to HIV/AIDS (ENR) programme provided funding and technical support to the local government by holding monthly review meetings with civil society organisations and interpersonal communication conductors in the local government. The LACA manager established monitoring structures in Ijede, Agbede and Odogunyan communities of Ikorodu, through the participation of the local health providers, Heart-2-Heart Centre coordinators and community
development officers/chairmen. This mechanism has strengthened the LACA to understand community-level programming, community participation and monitoring/providing feedback on community programmes.

**Lessons Learnt:** This process has increased the LACA output in key deliverables like data collation, consistent monitoring of activities and working with key community stakeholders in planning, designing and implementing programmes. Also, the programme enhanced the understanding of the LACA on feeding the state data bank and sending reports to state agencies on HIV programmes running in the community. It was seen that based on the LACA participation in the programme, the Ikorodu community had high participation of key stakeholders and opinion leaders, who in turn created support for the programme. The capacity of the LACA was increased to the extent that he/she led state advocacy to demand for HIV testing kits for the general population. It enables the LACA Manager to be on top of all local programmes running in their communities and agencies supporting or providing funds. It adds value for money spent because the ENR programme focused on the programme content while the LACA managers provided an enabling environment and structure/resources to run the process.

**Recommendations:** Donor/implementing partners of HIV programmes should involve the LACA managers in planning, design and implementation of community-based HIV programmes, which will increase sustainability and ownership.

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**Helping the Geese Lay More Golden Eggs: Strengthening Participation through Sustaining Local Organisations in Nigeria**

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¹The Society for Family Health

**Introduction:** International non-governmental organisations (NGOs), foundations and development agencies often roll out development programmes with little recourse to community-based organisations (CBOs) as agents for sustainability. Between 2001 and 2009, over $US300 million has been invested in Nigeria by various agencies to address HIV/AIDS challenges, but less than 1%
of this funding goes to strengthening CBOs. What factors will assist in strengthening the participation and sustenance of local CBOs?

**Background:** The Society for Family Health (SFH) works with large numbers of small CBOs all over Nigeria. At the early stage of the programme, a conscious attempt was made to nurture and/or strengthen CBOs in poorer communities. In communities where CBOs did not exist, trained community facilitators/influencers and key target population peer educators were encouraged to form CBOs. CBO-nurturing took an average of 2–3 months, during which skills gaps and capacity development issues were addressed. To encourage CBOs, members,- many of whom were poor- were provided stipends to cater for transport costs and refreshments during programmes.

**Lessons learnt:** An assessment showed that 103 out of the 180 CBOs formed were still active one year after the end of the programme. About 50 were self-sustaining, needed minimal technical assistance, and had obtained some forms of funding either through grants or community support. The rest will require further support to be independent. CBO members, especially male and female out-of-school youth were found to be mainly motivated by opportunities to learn life skills.

**Recommendations:** Programme sustainability and cost-effective scale-up of interventions are important. However, sustaining CBOs as “geese” that will lay the “golden eggs” of programme sustainability is often not taken into consideration when developing plans for communities until late in a project cycle. Institutions, governments, the private sector and implementing agencies should recognise their importance and support the early inclusion of these groups.

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**Background:** Since the first reported case of HIV and AIDS in Nigeria in 1986, the disease has spread among the general population, and has been a major health problem in the country. People living with HIV/AIDS (PLWHA) face stigma and discrimination. Stigma and discrimination can worsen the spread and impact of the HIV/AIDS epidemic. PLWHAs may be less inclined to declare and openly acknowledge their HIV sero status as a result of fear of stigma and discrimination. Stigma and discrimination can also lead to continued under-reporting of the epidemic, increased transmission and limited access to treatment, care and support programmes. Stigma and discrimination violate the human rights and dignity of PLWHAs and those affected by the epidemic.

**Method:** The National HIV/AIDS and Reproductive Health survey is a population-based study among females aged 15–49 years and males aged 15–64 years living in households in rural and urban areas in Nigeria. A multi-stage cluster sampling technique was used in the selection of respondents drawn from the updated master sample frame of rural and urban localities, and developed and maintained by the National Population Commission. Structured and semi-structured questionnaires were used to collect data among survey participants. Census and Surveys Processing Software (CSPro) was used for data entry, validation, and cleaning. Data was subsequently imported into SPSS (version 19) for analysis.

**Results:** The proportion of persons who feel the rights of people with HIV/AIDS are protected in Nigeria has continuously increased over the study period. This increased from 32.3% to 39.2% and 45.5% for females, and from 34.8% to 47.3% and 49.9% for males in 2007. The proportion of females willing to care for male relatives living with HIV/AIDS also increased from 48.1% to 61.1% and 64.5% and males from 61.6% to 68.9% and 76.0% within the study period. The proportion of females willing to care for female relatives living with HIV/AIDS increased from 48.7% to 61.5% and 64.9%, and males
from 60% to 67.6% and 73.8% in 2007, while proportion of females willing to work with HIV-infected colleagues increased from 35.7% to 50.7% and 58.2%; with males, the same statistic was 43% to 50.9% and 66.3%. Proportion of females willing to share meals with HIV-infected persons increased from 19.6% to 30.0% and 42.4% in 2007, and for males, it increased from 27.7% to 36.6% to 50.3%. However, the proportion of males willing to keep AIDS in the family a secret increased from 41.4% to 45.4% and 50.2%. The proportion of females also increased from 37.9% to 51.7% and 49.5% in 2007.

Conclusions: While improvement has been recorded in most HIV/AIDS stigma and discrimination indicators, the same success has not been recorded in the disclosure of family members living with the virus. One of the main reasons is the perceived fear by family members that the family will be ostracised if others know that a member of the family has HIV. This can pose a serious challenge in terms of access to services for those affected.

Recommendations: Stigma and discrimination programmes should address both perceived and self HIV/AIDS stigma and discrimination.

Are the Resources Going to Those at High Risk of HIV Infection? Evidence from Nigeria HIV Mode of Transmission Study and the National AIDS Spending Assessment

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Background: Nigeria has the third highest number of people living with HIV in the world. To make interventions effective, information is needed on which risk groups constitute the bulk of new infections. Understanding the epidemiology among the various categories of persons with different HIV risk behaviours will provide evidence to adapt the national response to target interventions with the highest probability of mitigating the spread of the virus. The paper is aimed to identify sub-populations with the highest probability of HIV incidence and whether resources are allocated accordingly based on epidemiological evidence.
**Method:** Secondary data were obtained from two core sources: the 2010 Nigeria Mode of Transmission (MoT) and the 2009 National AIDS Spending Assessment (NASA). The MoT methodology, developed by UNAIDS and applied in several countries, calculates the expected short-term incidence of HIV infections among the adult population. The modelling is based on the current HIV prevalence, the number of individuals in particular risk groups, and the risk of exposure to infection within the group. NASA describes the flow of resources from their origin down to the beneficiary populations. NASA employs double-entry tables or matrices to represent the origin and destination of resources, avoiding double-counting the expenditures by reconstructing the resource flows for every transaction from funding source to service provider and beneficiary population. NASA has been recommended as a methodology for reporting to United Nations General Assembly Special Session on the World Drug Problem (UNGASS).

**Results:** While most at risk persons (MARPs) - intravenous drug users (IDUs), sex workers and their clients, and men who have sex with men (MSM) constitute just 2.66% of the total population, they account for 28.4% of new infections. Similarly, while sex workers, their clients and the partners of the clients form only 3.5% of the total population, they account for 1/3 of new infections. The probability a MARP or their partner being infected is 13 times more than the general population. In terms of spending, there appears to be a large disconnect between epidemiological evidence and resource allocation. While between 25%–30% of all new infections is estimated to come from MARPRPs, only 0.1% of total AIDS expenditures in 2007 and 2008 was spent on prevention interventions among MARPs.

**Conclusions:** Notwithstanding the evidence that MARPs account for a sizeable proportion of new infections in Nigeria, resource allocation is skewed against MARP interventions. Preventing one MARP from HIV infection can significantly reduce the spread of the virus not only among MARPs, but also among their partners and the general population.
Gender Analysis of Key Determinants of Use of Male Condom in Boy/Girlfriend Sexual Relationships Among Unmarried Youths Age 15 – 24 years.

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Background: The purpose of the paper was to provide evidence for improved HIV prevention intervention among youths (15–24 years). Specifically, the objectives were: to identify the key variables that determine condom use in non-marital sex; to ascertain the magnitude of identified variables on the dependent variable and to ascertain whether there are gender differences and to what extent in determining the use of condom in boy/girlfriend relationships among the age group. The dependent variable was use of condom (male) in last sex act in a boy/girlfriend relationship while the independent variables included ever having heard of HIV/AIDS; UNAIDS indicators for accurate knowledge of HIV transmission and prevention; perceptions of condom availability, affordability and the belief that male condoms break during sexual intercourse. Others included being unashamed to buy condoms in public; having ever discussed condoms with a partner; confidence to convince a partner to use a condom; belief that government, parents, friends and religious leaders support young people to use condoms; and socio-demographic variables.

Method: Secondary data were obtained from three waves of the National HIV/AIDS and Reproductive Health Survey (NARHS), a biannual population-based study among females (15–49 years) and males (15–64 years) living in households in rural and urban areas in Nigeria. A multi-stage cluster sampling technique was used in the selection of respondents drawn from the updated master sample frame of rural and urban localities, and developed and maintained by the National Population Commission. Structured and semi-structured questionnaires were used to collect data among survey participants. Census and Surveys Processing Software (CSPro) was used for data entry, validation, and cleaning. Data was imported into SPSS (18) and analysed using logistical regression method.
**Results:** Of the 19 variables tested at 5% level of significance, only four for males and seven for females were significant. The significant variables for both sexes are: having ever discussed condoms with a partner (male/female: \( p<0.001 \)); confidence to convince a partner to use condoms (Males: \( p<0.001 \); females: \( p=0.023 \)); confidence to wear a condom (males/females: \( p<0.001 \)) and condom breakage during intercourse (males: \( p=0.011 \); females: \( p=0.004 \)). Accurate knowledge of HIV prevention (.015); parental support for condom use (\( p<.001 \)) and confidence to buy condom (.043) were also significant for females. Youths who discuss condom use with their partner are almost seven (males) and 13 (females) times likely to use condoms, as compared to those who do not. Youths who perceive that they can convince their partner to use a condom are about 3 times likely to use condom compared with those who cannot.

**Conclusions:** Discussions on condom use, ability to convince a partner to use a condom, ability to wear condoms and the belief that condoms do not break during sex are significant factors that explain condom use among youths. Accurate knowledge of HIV prevention, parental support for condom use and confidence to buy condoms are additional significant variables for females. Improving behavioural skills (negotiation, self-esteem, and wearing condoms) of youths, and creating an appropriate enabling environment especially for the girl child will significantly improve condom-use among sexually active youths.

**Participatory Monitoring and Evaluation: A Possible Tool for Mobilising Communities for Sustainable HIV Prevention Intervention**

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**Introduction:** The HIV prevalence rate ranges between 0% in some localities of Nigeria and over 21% in others. Community members’ ownership of most HIV interventions is very minimal. This is not surprising, considering that their understanding of the epidemic’s reality is also minimal; only about 21.7% of persons have seen or known someone with HIV/AIDS. Efforts to address the
epidemic are thus still largely donor-driven. Community involvement at best is as recipients in “externally” designed HIV interventions. Most times, what is working or has worked well is best known to donors and the implementers only. This in turn creates mistrust between donor, implementers and project beneficiaries, with beneficiaries seeing themselves as being used to fatten implementers’ pockets and as instruments for fulfilling donors’ perceived hidden agendas.

Background: As part of the activities of the Enhancing the National Response to HIV/AIDS in Nigeria (ENR) project, key target groups were identified in the Kaduna, Benue, Nasarawa and Cross River States. Intervention sites were selected based on presence of key target populations and HIV prevalence. To build community ownership and participation, community leaders were advocated and encouraged to nominate monitoring and evaluation (M&E) focal persons for the programme. Orientation was held for M&E focal persons to jointly review an M&E tool and the process. Participatory monitoring and evaluation (PM&E) was conducted using discussion guides with selected members of the community. Issues from the discussions were shared with community representatives and action plans were developed with community members responsible for the delivery of the activity. Indicators were agreed upon. Community members were then supported to implement the suggested action plans. The process was repeated on a quarterly basis, which allowed community members know what was working and what was not. Where desired changes were not observed, new plans were developed.

Lessons learnt: The involvement of community members in collecting specific information improves their understanding of the reality of HIV and their vulnerability to HIV infection. The PM&E process improves project beneficiaries’ understanding of and relationship with project implementing partners and donors, as it offers them the opportunity to see what is changing and the extent of the change, if any, among them. The use of the discussion guide in identifying issues at the community level should aid the discussion and not the other way round. Among the uneducated groups, pictorial discussion guides will be more useful in leading discussions. Periodic visits and monitoring implementation of community action plans build and strengthen community
members’ confidence. Proper use of PM&E promotes accountability, transparency and builds trust among implementers and project beneficiaries.

Recommendations: PM&E is a strong community mobilisation tool. It is recommended that interventions build PM&E into their programmes. The process should be simple so that both literate and non-literate can actively participate in it.

Estimating the Population of Male Sex Workers (MSW) in Nigeria Using Capture Recapture Method

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Background: Accurate infection rates, though fundamental to epidemiology, are often very difficult to obtain. Estimation of the size of the population most at risk for HIV infection is crucial for structuring the response to the epidemic. However, measuring the size of populations most at risk to HIV, such as men who have sex with men (MSM), presents significant challenges, as these populations are often hidden or hard to reach. Male sex workers (MSW) are a more hidden high risk group, thus posing a bigger challenge to engage in research and HIV prevention interventions. This is the first attempt at determining the population size of MSWs in three states in Nigeria.

Method: Using capture-recapture methodology, the population size of MSWs in three major cities in Nigeria—Lagos, Kano and Port Harcourt- was estimated between July and December 2009. Following interviews with key informants, the location and peak times of activities when MSWs meet were mapped and designated as “hotspots.” An MSW was defined as any male ≥ 18 years who engaged in oral or anal intercourse with another man in exchange for money or gifts. In each city the enumeration involved conducting two counts on two consecutive weekend nights. The first count (“capture”) contacted men engaged in transactional sex with other men and tagged them with key chains. The second count (“recapture”), conducted one week later, counted men who were tagged the previous week, as well as newly “captured” men. Data were captured
in a register designed for the enumeration. Population estimates were computed using standardised formulas.

**Results:** A total of 56 hotspots were identified in Kano, 38 in Lagos and 42 in Port Harcourt, with varying numbers of MSWs. Overall, Lagos State had the highest estimated population of MSWs, 865 (95% CI: 707–1023) followed by Kano 642 (95% CI: 577–705), and Port Harcourt 358 (95% CI: 173–543).

**Conclusions:** There is a diverse spread of MSWs in Nigeria. MSM are a high risk group and MSW an even higher risk group. HIV prevention interventions must be target driven, relevant and appropriate to yield more impactful and cost-effective outcomes. Further research on MSWs is needed to better understand their risk profile and design appropriate HIV interventions.

**HIV and STI Prevalence among Men Who Have Sex with Men in Three Major Cities in Nigeria**

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**Background:** Although there is increasing evidence of the risks associated with HIV acquisition and transmission among men who have sex with men (MSM) in Nigeria, very little is known about other sexually transmitted infections (STIs) in this population.

**Method:** A total of 712 MSM were recruited between August and September, 2010 through respondent-driven sampling (RDS) from Lagos (43.3%), Ibadan (29.5%) and Abuja (27.2%). In addition to information elicited about reported STI and risk behaviours, screening for syphilis (S), chlamydia trachomatis (CT), gonorrhoea (GN), and hepatitis B (HBV) were also conducted.

**Results:** Most of the MSM were aged 18–25 years, and a large proportion (>60%) reported having multiple male and female partners, with whom they often had unprotected sex. Whilst 31% reported having contracted STIs in the
past 12 months, only 26 (3.7%) reported STI symptoms at the time of the survey. Weighted prevalence of STIs ranged from 0.5–1.9% for syphilis, 4.2–8.9% for gonorrhoea, 0–34.5% for chlamydia and 21.4–21.9% for HBV. Population-based estimates of HIV were highest in Abuja (34.9%), followed by Lagos (15.2%) and Ibadan (11.3%). Overall, prevalence of STIs was low in Lagos and Abuja. However, in Ibadan, prevalence of chlamydia was highest among MSM who had casual sex partners [AOR=2.6 (1.2–5.5)] and among those who self-identified as homosexual [AOR=2.8 (1.3–6.0)]. Similarly, HBV infections were more likely among the more educated [AOR=2.8 (1.01–2.7)] and MSM who had sex with men exclusively (compared with those who had sex with both men and women) [AOR=2.0 (1.2–3.3)]. This study afforded many MSM first-time opportunities to be tested and treated for STIs.

**Conclusions:** There is a large unmet need for MSM in Nigeria. This calls for an urgent need for targeted screening and vaccination to prevent the untoward sequelae of STIs among MSM in Nigeria.
Improving Rural HIV/AIDS Interventions through the Use of the Local Government Structures: Key Lessons from Rivers State, Nigeria

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Introduction: The difference in prevalence rates in rural and urban centres is often marginal, and in some states, including Rivers State, rural sites have prevalence rates that are higher than urban ones. While the relative proportion of infected cases is growing in rural areas, interventions are mainly concentrated in urban areas, as a larger number of persons can be reached easily in urban centres. This paper describes an innovative intervention to improve programming by using local government structures.

Background: A situation analysis of HIV/AIDS intervention programmes in randomly selected local government areas (LGAs) was conducted in Rivers State. Capacity gaps were identified, ranging from inadequate programming skills, poor motivation of LGA HIV focal persons and lack of support from local government authorities. Heads of health departments and HIV/AIDS focal persons in each LGA were subsequently trained on basic programming, including effective communication, programme design and implementation, and data management. Information and education communications (IEC) materials were developed in groups, refined and shared. At the end of the training programmes, LGAs were supported to develop a six-month action plan with local peculiarities of communities and target groups reflected. Periodic reviews
were conducted and data obtained was fed into the state monitoring and evaluation (M&E) database. Outstanding LGAs received financial support.

**Lessons learnt:** With the use of existing local government structures, programmes can be extended to rural communities. Acceptance and ownership of the programme is deepened when LGA heads participated in the training programmes. Capacity-building leads to multiplier effects as skills acquired (especially in data management) have been adapted to other health intervention areas such as maternal and child health. Including an element of reward can lead to healthy competition among LGA focal persons, improving programming.

**Recommendations:** The use of LGA structures can facilitate rural interventions and should be taken advantage of. The development of standardised manuals and mentoring programmes will facilitate prevention efforts.

**Comparison of Different Approaches to National Strategic Plan Development—A Case Study of Five Enhancing Nigeria's Response to HIV/AIDS Programme Implementing States**

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**Introduction:** The Nigeria HIV prevalence rate dropped from 5.8% in 2000 to 4.6% in 2008. Within this period, different strategic planning approaches were adopted. These planning processes involved very limited community participation. As a result, an enhanced participatory approach to develop a 2010–2015 strategic plan was used. This paper seeks to compare the developmental processes of these strategic plans.

**Background:** An HIV and AIDS emergency plan was developed in 2001, followed by a national strategic framework and plan in 2005, using a top-bottom approach. These two plans were crafted at the federal level and states were requested to derive their plans from them. In 2010, a bottom-top approach was adopted to develop the 2010–2015 plan. This new approach allows the states to develop activities to fit into the national strategic framework. The states’ plans were aggregated and validated by all stakeholders as the national strategic plan.
We examined the reactions of stakeholders in five states to document the lessons from the two approaches.

**Lessons learnt:** The implementation of a top-bottom approach to strategic planning can be contributed to the reduction of HIV prevalence in Nigeria. Using the bottom-top approach, the local peculiarities and needs of the poor and vulnerable are aligned with national priorities. It also strengthens local ownership and ensures local communities' resources are available to guarantee sustainability of the interventions thereby having high impact in the communities. We therefore infer that the implementation of this bottom-top approach plan is more likely to shift the epidemic in a further downward direction.

**Recommendations:** Efforts will be channelled to ensure use of plans at all levels for decision-making, operational planning and resourcing by government and development partners. The implementation of the bottom-top plans will be subjected to joint annual reviews at all levels for documenting and sharing of information to validate the assumption of the approach.

**Developing a Cost Function for Peer Education Programmes in Nigeria: A Review of the Peer Education Plus (PEP) Model**

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**Background:** The Peer Education Plus (PEP) Model is a theory-driven, evidence-informed HIV prevention model for use among key target populations developed by the Promoting Sexual and Reproductive Health and HIV/AIDS programme, and funded by the Department for International Development (DfID) and the United States Agency for International Development (USAID). The model has been adopted by the Nigerian government for HIV and AIDS prevention. A cost function for the model has never been developed. This paper attempts to develop one for PEP, for two purposes: to have a cost function that potential users can apply to estimate cost of interventions using PEP; and to determine variable(s) that have significant impact on determining cost.
**Method:** A cross-sectional analysis of the cost of civil society organisations implementing PEP across Nigeria between 2007 and 2008 was carried out. Data was generated from a review of the total expenses. SPSS version 17 was used for analysis. A linear cost function was developed with three dependent variables: number of peer education sessions undertaken, number of peers reached and number of persons reached through non-peer sessions. The fixed costs were estimated as spend on institutional support, irrespective of number of persons reached, while variable costs are those expended as a result of reaching one individual with the intervention.

**Results:** There is a strong collinearity between the number of peer educators (PEs) trained and number of peers reached through sessions. The number of peers reached was the only variable of significance in explaining the cost function (p< 0.05). Annual average cost of a PE reaching 10 peers was $401, while marginal cost was $242. Economics of scale was between 600 and 800 peers; any number higher than this led to loss of quality unless fixed costs were increased.

**Conclusions:** The number of peers reached had the highest impact on cost. This analysis is limited, as cost was defined mainly from the sub-grantor’s perspective.

**Implementing HIV/AIDS Interventions in Conflict-Prone Situations: Experiences and Lessons Learnt Among Militants in the Niger Delta Area of Nigeria**

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**Introduction:** The oil wealth of the Nigerian Niger Delta, and the perceived lack of development, has given rise to militant activities in the area. As most militants have high levels of disposable income due to illegal activities (oil bunkering, kidnapping and trading in illegal arms), many are involved in substance abuse and sexual activities that put them at risk. Because of their illegal activities, and the fact that they live in isolated communities deep in
creeks, it is challenging to reach them with HIV prevention interventions. The Society for Family Health (SFH) conducted an intervention among this group.

**Background:** At the initiative of a state in the Niger Delta, partners in the state, including SFH, met and agreed to address HIV and AIDS among this group. An in-house review determined needs, possible fears and concerns. All agreed that the intervention would be most effective if implemented on neutral ground. Local persons with links to militant groups were contacted, after assuring them of confidentiality. Intensive HIV/AIDS awareness programmes were conducted for the militants using drama, role play, and audio and video educational materials. Peer educators were trained in the conduct of HIV and AIDS peer education activities to ensure sustainability.

**Lessons learnt:** Engagement with persons or groups considered illegal and violent requires the development of confidentiality and trust. The detailed review and analysis of target audience behaviour made programming more focused and ultimately more effective. It is important to consider the safety of staff and community members when conducting programmes in such communities, and agreements must be sought with leaders, including assurances of safety.

**Recommendations:** Members of militant groups are integral parts of certain societies and must be effectively and actively engaged by programmers. Poor access to HIV counselling and testing (HCT) and condoms makes the provision of mobile HCT and condoms imperative.

**Rethinking Priority Target Populations in Nigeria: An Analysis of Results from Recent HIV Biomarker Surveys**

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**Background:** The prevalence of HIV has been based on estimates from HIV sentinel surveys among pregnant women attending antenatal clinics (ANC) and surveillance surveys of key target populations (KTPs). But are we really looking at data in taking programming decisions? This paper reviews HIV prevalence
rates from recent surveys and suggests new priority populations for interventions.

**Method:** In 2007–2008, with support from the United States Agency for International Development (USAID), the Federal Ministry of Health in Nigeria and the Society for Family Health (SFH) conducted a population-based biomarker survey, National HIV/AIDS Survey+ (NARHS+), and the first Integrated Bio-Behavioural Surveillance Survey (IBBSS) was also implemented in the same year. KTPs tested included brothel and non-brothel based sex workers, transport workers, uniformed servicemen, men who have sex with men (MSM) and intravenous drug users (IDUs). The sample for the NARHS was a representative sample of the general population, and for the IBBSS, from special sampling techniques including respondent driven sampling for KTPs.

**Results:** The national estimated HIV prevalence in NARHS+ was 3.6% compared to 4.6% in the 2008 ANC survey. Prevalence was higher among females (4.0 vs. 3.2%, p< 0.0001); and in urban areas (3.8 vs. 3.5%, p=0.0047). Prevalence was higher among divorced (8.9%), widowed (8.0%) and separated (7.4%) respondents. In the case of KTPs in Nigeria, prevalence among sex workers, MSMs and IDUs was expectedly high, but surprisingly, prevalence of HIV in 2 groups- members of the armed forces and transport workers- were below general population prevalence rates. Prevalence rates for inmates in a recent prison survey were 7.1%.

**Conclusions:** Attention should be devoted by implementers to a careful determination of actual groups at risk of HIV infection at the local level, as Nigeria is at a generalised stage of the HIV epidemic, and many groups previously considered as “low risk” may need to be targeted with interventions. Incidence modelling will also need to be developed at sub-national levels to inform programming.

**Measuring Access to Male and Female Condoms in Nigeria: Implications for HIV Prevention in a Generalised Epidemic**

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Background: In Nigeria, recent evidence using modes of transmission models suggests that 66% of new HIV infections occur among persons involved in low risk (have one marital or cohabiting partner) and casual heterosexual sex. Key factors responsible for this include low condom use within marriage, especially among discordant couples. A study was undertaken to determine if access to condoms could be a possible barrier to condom use in states with a high prevalence of HIV.

Method: This study was designed as part of the six-year Enhancing Nigeria's Response to HIV/AIDS (ENR) programme aimed at improving coverage of effective prevention interventions within high prevalence states. The study evaluated the coverage of male and female condoms in seven states. Data were collected on coverage and quality of coverage indicators. Coverage was defined as the presence of at least one outlet that sold male or female condoms within a geographical area. Quality of coverage was measured in terms of adherence to predetermined standards of price and promotion. Nineteen enumeration areas each were drawn from rural and urban areas using probability proportionate to size (PPS).

Results: Findings showed substantial geographical variations in male and female condom distribution across urban and rural communities and in the different states. Coverage rates varied from less than 20% for female condoms to 95% for male condoms. Female condom coverage was low in all states. Overall, the coverage and quality of coverage rates were much lower in rural communities than in urban areas.

Conclusions: This study revealed that access to and quality of coverage of condoms, particularly female condoms, was low in rural communities, where 65% of the population resides. Innovative programmes need to be designed to improve access to and promote use of condoms in rural communities, as this is one step to reducing new HIV infections.
The Cost of ART; the Anti-development Face of HIV Treatment on Developing Economies in Sub-Saharan Africa

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Background: In Nigeria, HIV infection is at the stage of a generalised epidemic. Over 2.3 million persons were estimated to be infected in 2008. The government first commenced the distribution of antiretroviral therapy (ART) in 2003, placing 10,000 persons on antiretrovirals (ARVs). This was scaled up over the last five years, as international partners supported HIV treatment in Nigeria. This paper reviews the cost of ART in Nigeria and its implications on the economy.

Method: The number of persons on ARVs was sourced from the country’s HIV Response’s management information systems (MIS), while the number of those that are likely to need ARVs was sourced from prevalence studies and other relevant reports. The average cost of manpower was calculated as a proportion of the salary of staff dedicated to attending to people living with HIV/AIDS (PLWHAs). The HIV Programme Sustainability Analysis Tool (HAPSAT) was used.

Results: With 387,000 persons on ARVs as of 2008, the total cost of treatment was $253 million. As Nigeria’s gross national product, purchasing power parity (GNP PPP, a standardised measure of gross domestic product, GDP) is $261 billion, ARV expenditure was calculated to be 0.10% of GNP. As 1.2% of GNP is health expenditure, HIV treatment comes to 8.3% of Nigeria’s total health expenditures. In 2008, more than 800,000 persons were estimated to need HIV treatment, and if all were to receive treatment, ARVs would account for 16.6% of total health expenditures.

Conclusions: HIV treatment places a considerable burden on the economy of developing nations, especially in the face of scarce resources. This is expected to increase over the years, as new infections in 2008 were estimated to increase by 280,000. ARVs alone account for about 60% of expenditures on HIV treatment. Purchasing generic ARV drugs will not only make them affordable to developing countries, but will ensure that those already on treatment can
remain on treatment. In a country faced with numerous health needs, HIV treatment is currently unsustainable without the support of international partners.

The Participatory Ethnographic Evaluation and Research Approach: A Tool for Enhancing Behaviour Change among Female Out-of-school Youth in a Slum in Nigeria

Society for Family Health, Abuja, Nigeria

Background: Targeting female out-of-school youth (FOSY) is imperative in HIV prevention. This study describes the implementation and evaluation of an intervention aimed at generating an in-depth understanding of the determinants of risk in a slum in Nigeria, in order to better understand the context of risk behaviour among this group. The approach used was the peer ethnographic evaluation and research (PEER) approach. This paper discusses the intervention methodology and analyses the impact of the intervention on young girls within the community.

Method: Working with local community leaders and youth groups in Mpape, a slum near Abuja, 36 females were recruited. A six-step evidence-based process—from narrative data collection through analysis and intervention design and implementation—was developed. Peer educators were selected in a participatory manner, then recruited and trained. They communicated HIV prevention through 'gisting': a local slang for informal newsy conversation among peers, as well as through peer sessions. Community-wide activities for parents and guardians were undertaken. A quantitative ex-post facto design study was conducted to evaluate the programme, interviewing 800 respondents (400 exposed, 400 non-exposed).

Results: The study showed a positive impact among FOSY who were exposed to the intervention, compared with those who were not. They were more informed about sexual behaviour, were more likely to know at least three symptoms of sexually transmitted infections (STIs) in women (p< 0.0001), and
that STIs can stop a man from fathering a child in the future, (p=0.005). The majority of female youth exposed preferred the PEER programme to other forms of media intervention, such as television, radio and newspaper campaigns. Findings also reveal that the intervention succeeded in increasing the desire to access HIV counselling and testing (HCT) services, seeking appropriate treatment of STIs and willingness to delay sexual debut.

**Conclusions:** Through this approach, appropriate interventions could be designed to address key determinants of risk, and is particularly useful for female youth.

### High HIV Sero-Prevalence Rates in Prisons in Nigeria: A Case of Double Sentencing for Prison Inmates

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**Background:** HIV/AIDS is a serious health threat for prison populations in many countries and presents significant challenges to public health authorities and national governments. Worldwide, levels of HIV infection among prison populations tend to be much higher than in the general population. This paper presents results of the first national HIV biomarker survey among prison inmates and staff in Nigeria and policy implications.

**Method:** The Society for Family Health (SFH), in collaboration with the Nigerian Prisons Service, conducted a National Prisons Baseline Survey to measure sexual knowledge, attitudes and behaviour among prison staff and inmates. The baseline was conducted with a biomarker component to estimate HIV prevalence within the prison population. The study area covered six states representing the geo-political zones of the federation. A two-stage sampling design aimed at selecting eligible persons for the survey was used. The sample allowed for HIV sero-prevalence estimates for prison staff and inmates. The biomarker component aimed at consented testing and storage of blood samples from all eligible respondents.
**Results:** The overall acceptance rate for HIV testing was 87%. The acceptance rate was higher among inmates (93%) than staff (81%). The HIV prevalence rate for inmates (7.0%) was higher than among prison staff (3.4%). Prevalence was highest amongst inmates aged 30–39 years (8%) and 25–29 years (5.2%), and lowest among inmates aged 15–19 years (2.6%). Prevalence was almost two times higher among married inmates.

**Conclusions:** The HIV prevalence rate among inmates (7%) was higher than the national prevalence rate of 3.6%. The survey report affirmed existence of same sex practices (anal and oral) among prison populations. There is urgent need to advocate for a national framework that will address access to quality health services and promote HIV prevention programmes among prison populations. Improved health and welfare services for prison populations needs to be addressed through policy and legislative reforms at the national level.

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**Urgent Need for HIV/AIDS Programming Scale-Up Among Women in Nigeria: Evidence from South Eastern Nigeria Mobile HIV Counselling and Testing Intervention**

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**Introduction:** HIV counselling and testing (HCT) is an important strategy in HIV/AIDS programming, as it serves as an entry point to prevention and control programmes. In Nigeria, 55.7% of males and 48.9% of females aged 15–49 years know where to get an HIV test, 72.6% expressed the desire to get an HIV test, while only 14% had ever gone for the test. Of those who had had an HIV test, 72.7% received their result. To increase the number of persons with access to HCT service, the Society for Family Health (SFH), with funding from the United States Agency for International Development (USAID), introduced mobile HCT services to its other health interventions.

**Background:** Mobile HCT guidelines were developed, reviewed and accepted for use by the federal government. HCT counsellors were trained and deployed.
Rural communities were mapped. On special days and occasions, free mobile HCT services were provided. HIV treatment centres were identified, so that positive cases may be referred there. Community leaders and members were mobilised. Each HCT counsellor and tester was given a register with unique coding. Persons referred were given a referral card.

**Lessons learnt:** Within a period of eight months, it was observed that 61% of persons who were counselled, tested and who received their results were males. While females accounted for less than 38% of those tested, they accounted for over 65% of those who tested positive. Of the proportion of those that were referred who accessed further treatment and social support services, females accounted for approximately 45%.

**Recommendations:** The proportion of women who test positive is relatively high, while services reaching them are on the low side. Creative interventions tailored to meet their needs are recommended. Experience has shown that faith-based organisations (FBOs) are veritable routes through which women can be mobilised and educated. This should be explored, as women bear more than a proportional burden of HIV/AIDS in Nigeria.

**Male Sex Work in Nigeria: A Population-based Estimate of a Hidden and Vulnerable Population**

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**Background:** Male sex workers (MSWs) are a highly marginalised population in Nigeria. Stigma, secrecy, and HIV risk are highly associated with this lifestyle. In Nigeria, studies show HIV prevalence for men who have sex with men (MSM) at 13.5%, and over 30% among the subset of MSWs. Little is known about the locations and size of this population; more information is necessary to
shape interventions and conduct effective advocacy with policy-makers and practitioners.

**Method:** A population-based enumeration of MSW using the “capture-recapture” methodology was conducted in two Nigerian cities, Lagos and Kano, in 2009. Two teams of field enumerators known to the MSM community mapped hotspots where MSW and clients congregate on two successive weekend nights over a one-week interval. Enumerators approached consenting individuals in the locations and inquired if he accepts money or goods in exchange for sex with another man. If yes, a key chain “tag” was offered. The same procedure was followed on the subsequent visit, allowing the team to determine the number of new “captures” and repeat “recaptures” per location.

**Results:** On any given Friday night in Lagos, an estimated 865 (95% CI: 707–1023) men are willing to engage in sex for money or goods with other men. In Kano on any given Saturday night, 641 (95% CI: 577–705) men are willing to engage in sex for money or goods with other men.

**Conclusions:** MSWs are a visible and significant community in Nigeria. With careful planning and sensitive intervention strategies, MSW can be effectively engaged through prevention, care and support programs. However, location-based MSW studies capture only part of the picture. Further in-depth study is needed to engage this community effectively.
From Addiction to Infection: Managing Drug Abuse in the Context of HIV/AIDS in Africa

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http://www.ajrh.info/home/abstract.php?id=104

Summary: People who use drugs are at higher risk of HIV: directly through the sharing of injecting equipment, indirectly through associated risk behaviour, and physiologically through the substances’ impact on the immune system. Drug users, especially people who inject drugs (PWID) are a bridge to the general population. The treatment of drug addiction and provision of harm reduction interventions have an impact on HIV transmission and incidence. Addiction treatment reduces the frequency of drug-related risky behaviours and enhances access and adherence to HIV treatment, resulting in fewer new infections. However, the drug policies of many African countries are punitive and hostile to harm reduction programs. These fuel criminalisation of drug use and discrimination against the drug user, thereby preventing individuals with drug addiction from accessing treatment programs. There is a need to formulate policies aimed at protecting the rights of people with drug addiction and address the ethical aspects of treatment.
Money, Power and HIV: Economic Influences and HIV among Men Who Have Sex with Men in Sub-Saharan Africa

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www.ajrh.info/home/abstract.php?id=108

Summary: Despite consistent evidence, effective interventions and political declarations to reduce HIV infections among men who have sex with men (MSM), coverage of MSM programmes in sub-Saharan Africa (SSA) remains low. Punitive legal frameworks and hostile social circumstances and inadequate health systems further contribute to the high HIV burden among MSM in SSA. The authors use the Modified Social Ecological Model to discuss economic influences in relation to HIV and MSM in SSA. Nigerian, South African and Ugandan case studies are used to highlight economic factors and considerations related to HIV among MSM. The authors argue that criminalisation of consensual sexual practices among adults increases the frequency of human rights violations contributing to the incidence of HIV infections. Furthermore, marginalisation and disempowerment of MSM limits their livelihood opportunities, increases the prevalence of sex work and drug use and limits financial access to HIV services. Sexual and social networks are complex and ignoring the needs of MSM results in increased risks for HIV acquisition and transmission to all sexual partners with cumulative economic and health implications. The authors recommend a public health and human rights approach that employs effective interventions at multiple levels to reduce the HIV burden among MSM and the general population in SSA.
The Promise and Peril of Pre-Exposure Prophylaxis (PrEP): Using Social Science to Inform PrEP Interventions among Female Sex Workers

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www.ajrh.info/home/abstract.php?id=107

Summary: Advances in biomedical interventions to prevent HIV offer great promise in reducing the number of new infections across sub-Saharan Africa, particularly among vulnerable populations such as female sex workers. Several recent trials testing pre-exposure prophylaxis (PrEP) have demonstrated efficacy, although others have been stopped early for futility. Given the importance and complexities of social and behavioural factors that influence biomedical approaches to prevention, we discuss several key areas of consideration moving forward, including trial participation, adherence strategies, social relationships, and the structural factors that shape PrEP interest, use, and potential effectiveness among female sex workers in sub-Saharan Africa. Our review highlights the importance of involving social scientists in clinical and community-based research on PrEP. The authors advocate for a shift away from a singular “re-medicalization” of the HIV epidemic to that of a “reintegration” of interdisciplinary approaches to prevention that could benefit female sex workers and other key populations at risk of acquiring HIV.
Introduction: Face-to-face (FTF) interviews are the most frequently used means of obtaining information on sexual and drug injecting behaviours from men who have sex with men (MSM) and men who inject drugs (MWID). However, accurate information on these behaviours may be difficult to elicit because of sociocultural hostility towards these populations and the criminalisation associated with these behaviours. Audio computer assisted self-interview (ACASI) is an interviewing technique that may mitigate social desirability bias in this context.

Method: This study evaluated differences in the reporting of HIV-related risky behaviours by MSM and MWID using ACASI and FTF interviews. Between August and September 2010, 712 MSM and 328 MWID in Nigeria were randomised to either ACASI or FTF interview for completion of a behavioural survey that included questions on sensitive sexual and injecting risk behaviours. Data were analysed separately for MSM and MWID. Logistical regressions were run for each behaviour as a dependent variable to determine differences in reporting methods.
Results: MSM interviewed via ACASI reported significantly higher risky behaviours with both women (multiple female sexual partners 51% vs. 43%, $p = 0.04$; had unprotected anal sex with women 72% vs. 57%, $p = 0.05$) and men (multiple male sex partners 70% vs. 54%, $p \leq 0.001$) than through FTF. Additionally, they were more likely to self-identify as homosexual (AOR: 3.3, 95%CI: 2.4–4.6) and report drug use in the past 12 months (AOR: 40.0, 95%CI: 9.6–166.0). MWID interviewed with ACASI were more likely to report needle sharing (AOR: 3.3, 95%CI: 1.2–8.9) and re-use (AOR: 2.2, 95%CI: 1.2–3.9) in the past month and prior HIV testing (AOR: 1.6, 95%CI 1.02–2.5).

Conclusions: The feasibility of using ACASI in studies and clinics targeting key populations in Nigeria must be explored to increase the likelihood of obtaining more accurate data on high risk behaviours to inform improved risk reduction strategies that reduce HIV transmission.

A Spatial Analysis of Age at Sexual Initiation among Nigerian Youth as a Tool for HIV Prevention: A Bayesian Approach

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link.springer.com/chapter/10.1007%2F978-94-007-6778-2_14

Summary: A study into the geographical variations of sexual initiation among Nigerian youth, aged 15–24 years, was carried out using a dataset from the 2005 National HIV/AIDS and Reproductive Health Survey in Nigeria. Spatial patterns at highly disaggregated level of state/district of residence as well as nonlinear effects of observed metrical covariates were explored. The influence of cluster
information was explored at two hierarchical levels (census blocks nested within ethnic groups) to assess the impact of random effects (frailties). Effects of all categorical covariates were assumed to be linear and hence estimated in a usual parametric form. Inference was based on Bayesian Markov chain Monte Carlo (MCMC) simulation techniques. Appropriate priors were assigned to all effects. Model diagnostics were based on the Deviance Information Criterion (DIC). Time to experience of first sexual intercourse was found to be associated with gender, current age, level of education and rural-urban location of respondents as well as with sexually transmitted infections. Findings also revealed substantial geographical variations on age at sexual initiation. Models that controlled for unobserved heterogeneity due to census blocks were observed to be more adequate than the ones that ignored them, while ethnic groups did not seem to provide obvious frailty information in the data. However, models that included census blocks frailty nested within ethnic groups were superior to all other models in terms of the DIC.
Marital Status and HIV Prevalence in Nigeria: Implications for Effective Prevention Programmes for Women

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Background: Until recently, HIV prevalence has been based on estimates from antenatal sentinel surveys, which have been found to overestimate HIV prevalence among the general population. Multiple studies have shown women to be disproportionately affected by the HIV and AIDS epidemic.

Method: Data for this study were based on the first Nigerian population household-based HIV biomarker survey of 2007, which used a multi-stage probability sampling technique. Respondents were selected through probability sampling (males aged 15–64 years and females aged 15–49 years). This paper, therefore, examined the correlates of marital status and HIV prevalence among women in Nigeria.

Results: A descriptive analysis of the data showed that HIV prevalence amongst women that were formerly married- divorced, separated or widowed- were more than double that of those who were currently married/cohabiting with a sexual partner, and more than three times those that were never married. Bivariate and multivariate levels of analysis were explored in this paper. At bivariate level, findings showed a significant difference in HIV prevalence among women according to their marital status (p < 0.0001), educational attainment.
(p = 0.004) and geo-political zones (p = 0.003). Respondents that were formerly married were 5.6 times as likely to be infected with HIV compared to those who had never married (OR = 5.6, p < 0.0001), while HIV prevalence increased with higher educational levels.

**Conclusions:** In view of these findings, HIV programmers should design interventions that will improve economic empowerment as well as social security for women that were formerly married. In addition, gender mainstreaming in the ongoing HIV and AIDS preventive efforts should be strengthened and scaled-up.

**Barriers to Repeated Use of Female Condoms among Women and Men of Reproductive Age in Nigeria**

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**Summary:** Repeated use of female condoms is very low in Nigeria. Just three out of ten persons who have ever used female condoms intend to continue using them. This study conducted in three Nigerian States was aimed at identifying the barriers to repeated and non-repeated use of female condoms. Among men and women of reproductive age, 16 focus group discussions (FGDs) and 16 in-depth interviews (IDIs) were conducted using structured tools. Key findings showed that the first experience with the use of female condoms was a major reason for continuing or discontinuing use of female condoms. First-use experience was influenced by what users were told and the skills they have in wearing female condoms. Informed and supported female condom users were willing to repeat its use while those who were not, had had “bad” first experiences. Female condoms are a unique commodity. Simply handing them out without proper education will pose a serious challenge for their continuous and sustained use.
Frontline staff should be well informed and educated on the product. First time users should be supported to use the product.

Determinants of Condom Use by Men in Extramarital Relationships in Nigeria

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Background: Extramarital sex is a high-risk behaviour in terms of HIV transmission, yet condom use in extramarital relationships is an understudied area in Africa, and Nigeria in particular, where such liaisons are not uncommon. This study highlights key determinants of condom use among men who engage in extramarital sex in Nigeria.

Method: Results are based on a subsample of 642 married men from a combined dataset from three waves of the National HIV/AIDS and Reproductive Health Survey (NARHS), a set of multiround nationally representative surveys. Logistical regressions were employed to explore possible determinants of condom use in extramarital sex. The motivation, opportunity, and ability model was applied in selecting the determinants.

Results: HIV risk-reduction knowledge was found not to be associated with condom use. At the full logistical regression model, being of the Yoruba tribe, having no misconception about HIV transmission, ability to discuss condom use, and ability to wear condoms were the key variables significantly associated with condom use in extramarital sex.
Conclusions: Implementing HIV risk-reduction behaviour change requires more than knowledge. Behavioural skills in condom use are critical. Intervention efforts should move away from knowledge about risk to concentrate on improving skills on how to discuss condom use and wear condoms correctly.

High Levels of Unprotected Anal Intercourse and Never Testing for HIV among Men Who Have Sex with Men in Nigeria: Evidence from a Cross-sectional Survey for the Need for Innovative Approaches to HIV Prevention

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http://sti.bmj.com/content/89/8/659.abstract

Background: To describe sexual risk behaviour, correlates of unprotected anal intercourse (UAI) and never testing for HIV and its implications for HIV prevention interventions among men who have sex with men (MSM) in Nigeria and other similar contexts.

Method: A cross-sectional survey was administered to 712 MSM in Abuja, Ibadan and Lagos, recruited through respondent-driven sampling (RDS). Levels of sexual risk behaviour and never having tested for HIV prior to the survey were calculated using weighted data for each city and unweighted data for the pooled sample. Correlates of UAI and never testing for HIV were determined using multiple logistical regression.

Results: The risk for HIV and sexually transmitted infections (STIs) among MSM in Nigeria is high, with 43.4% reporting UAI at last sex, 45.1% never
having been tested for HIV and 53.9% reporting exchange of sex for resources in the past six months. Correlates of UAI in multivariate analysis included living in Ibadan, marriage or cohabitation with a woman, identification as bisexual, not having tested for HIV and being HIV-positive. Correlates of not having tested for HIV in multivariate analysis included living in Ibadan, young age, less education, unemployment and reports of UAI.

**Conclusions:** HIV testing is low and associated with UAI. Findings merit targeted and innovative approaches for HIV prevention for MSM, especially access to HIV self-testing. Attention to social and structural determinants of health-seeking and sexual risk behaviour is also needed, including the criminalisation of homosexuality and social marginalisation of MSM.

A Profile on HIV Prevalence and Risk Behaviours among Injecting Drug Users in Nigeria: Should We Be Alarmed?

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**Background:** Injecting drug use is now recognised as a significant risk factor for HIV in sub-Saharan Africa. We evaluated prevalence and correlates of HIV among intravenous drug users (IDUs) in Nigeria.

**Method:** A cross sectional design using respondent driven sampling (RDS) was conducted in six states in 2010. Weighted HIV prevalence and injecting risk behaviours were calculated using RDS analytic tools. Logistical regressions were used to determine correlates of HIV infection, stratified by state.
Results: Total numbers of IDUs ranged from 197 in Lagos to 273 in Cross River and Oyo states. HIV prevalence was highest in Federal Capital Territory (FCT) at 9.3%, Kaduna 5.8%, Oyo 5.1%, Kano 4.9%, CR 3.3% and Lagos 3.0%. Although >90% of participants were male, females had higher HIV prevalence in all states surveyed except FCT (range: 7.4% in CR to 37.7% in Kano). Logistical regressions showed that females were significantly more likely to be HIV positive in Kano [OR = 33.2, 95% CI: 6.8–160.4], Oyo [AOR = 15.9, 95% CI: 3.69–68.51], Lagos [OR = 15.5, 95% CI: 2.41–99.5] and Kaduna States [AOR = 19.6, 95% CI: 4.4–87.6]. For injecting risk behaviour, only receptive sharing was associated with HIV [AOR = 7.6, 95% CI: 1.2–48.7] and [AOR = 0.2, 95% CI: 0.04–0.92] in Oyo and Kaduna States, respectively.

Conclusions: Considerable heterogeneity in the prevalence of HIV and associated risk behaviours exist among IDUs across Nigeria. Females had higher HIV prevalence among IDUs in five of six states, suggesting a need for targeted interventions for this hidden subgroup. Further research is needed to understand HIV transmission dynamics of IDUs in Nigeria. Community-based opioid substitution therapy and needle exchange programs should be implemented without delay.
2012

Sexual Risk Behaviours and HIV among Female Sex Workers in Nigeria

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http://journals.lww.com/jaids/Fulltext/2012/12010/Sexual_Risk_Behaviors_and_HIV_Among_Female_Sex.15.aspx

Background: Female sex workers (FSWs) account for about 20% of new HIV infections in Nigeria. We estimated the change in HIV prevalence and sexual risk behaviours between two consecutive rounds of integrated biological and behavioural surveillance surveys (IBBSSs) and determined correlates of HIV transmission among female sex workers (FSWs).

Method: In 2007 and 2010, HIV prevalence and risk behaviour data on brothel-based (BB) and non–brothel-based (NBB) FSWs from the integrated biological and behavioural surveillance survey were evaluated in six Nigerian states. Logistical regressions were used to identify correlates of HIV infection.

Results: A total of 2897 and 2963 FSWs were surveyed in 2007 and 2010, respectively. Overall HIV prevalence decreased in 2010 compared to 2007 (20% vs. 33%; P < 0.001), with a similar magnitude of declines among BB-FSW (23% vs. 37%; P < 0.0001) and NBB-FSW (16% vs. 28%; P < 0.0001) in the same time period. Consistent condom use with boyfriends in the last 12 months was lower in 2010 compared to 2007 overall (23% vs. 25%; P = 0.02) and among BB-FSWs (17% vs. 23%; P < 0.01), while NBB-FSWs showed a
marginal increase (30% vs. 27%; P = 0.08). FSWs residing in the Federal Capital Territory [adjusted odds ratio (AOR): 1.74 (1.34–2.27)] and Kano State [AOR: 2.07 (1.59–2.70)] were more likely to be HIV-positive, while FSWs recruited in 2010 [AOR: 0.81 (0.77–0.85)] and those who had completed secondary education [AOR: 0.70 (0.60–0.80)] were less likely to be HIV-positive.

Conclusions: Results suggest significant progress in reducing the burden of HIV among FSWs in Nigeria, although low condom use with boyfriends continued to be a potential bridge between FSWs and the general population. Venue-based prevention programmes are needed to improve safer sex practices among BB-FSWs.
2011

Reasons for Delaying or Engaging in Early Sexual Initiation among Adolescents in Nigeria

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Background: Annually, over one million births in Nigeria are to teenage mothers. Many of these pregnancies are unwanted and these mothers are also exposed to the risk of HIV infection. Sexual abstinence is a critical preventative health strategy. Several quantitative studies in Nigeria have identified the correlates and determinants of early sex, yet few have explored in-depth the underlying reasons for early sex. This paper explores both the key factors that motivate some unmarried young people to engage in early sex and reasons why some delay.

Method: This qualitative study was based on data from 30 focus group discussions held among unmarried 14- to 19-year-olds in four geographically and culturally dispersed Nigerian states. Focus groups were stratified by sexual experience to capture variations among different subgroups.

Results: Several reasons for early premarital sex were identified. The “push” factors included situations where parents exposed young female adolescents to street trading. “Pull” factors, particularly for males, included the pervasive viewing of locally produced movies, peer pressure and, for females, transactional sex (where adolescent girls exchange sex for gifts, cash, or other favours). Also noted were overtly coercive factors, including rape. There were also myths and misconceptions that “justified” early sexual initiation. Reasons cited for delay included religious injunction against premarital sex; disease prevention (especially HIV/AIDS); fear of pregnancy, and linked to this, the fear of dropping out of school; and, for females, the fear of bringing shame to
the family, which could lead to their inability to get a "good" husband in the future.

Conclusions: The differences observed between sexually active and abstinent adolescents were that the latter were more confident, had greater determination, and, most important, deployed refusal skills to delay first sex. Health promoters need to focus attention on educating adolescents in the skills needed to delay sexual debut.

HIV-related Risk Perception among Female Sex Workers in Nigeria

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Background: Over 1/3 of sex workers in Nigeria are infected with HIV, yet there is a lack of understanding of sex workers’ own perception of sexual risk-taking. Applying the theory of cognitive dissonance, this paper examined the personal HIV risk perception of brothel-based sex workers.

Method: The study is based on 24 focus group discussions held among brothel-based sex workers in four geographically and culturally dispersed cities in Nigeria.

Results: It was found that sex workers underestimated their risk of infection and rationalised, defended, or justified their behaviours, a typical psychological response to worry, threat, and anxiety arising from the apparent discrepancies between beliefs and behaviours. To reduce dissonance, many sex workers had a strong belief in fatalism, predestination, and faith-based invulnerability to HIV infection. Many believed that one will not die of AIDS if it is not ordained by God. The sex workers also had a high level of HIV-related stigma.
**Conclusions:** From these findings, most sex workers considered risk reduction and in particular condom use as far beyond their control or even unnecessary, as a result of their strong beliefs in fatalism and predestination. Therefore, one critical area of intervention is the need to assist sex workers to develop accurate means of assessing their personal vulnerability and self-appraisal of HIV-related risk.

**Attitudinal and Behavioural Factors Associated with Extramarital Sex among Nigerian Men: Findings from a National Survey**

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**Summary:** Using couple data from a national survey, this article examines couples’ characteristics associated with extramarital sex among Nigerian men. The authors found 15.4% of married men had had extramarital sex in the past 12 months. Extramarital sex was significantly associated with men’s attitudes toward extramarital sex ($OR = 1.7$ [1.4–3.0]), early sexual debut ($OR = 1.9$ [1.6–2.3]), alcohol use ($OR = 1.7$ [1.4–2.1]), and intimate partner violence against wives (IPV) ($OR = 1.4$ [1.2–1.7]). Increased wife’s education was associated with decreased husband’s extramarital sex. Men living in rural areas and in the Central and Southern regions were also more likely to have extramarital sex. The findings suggest useful implications for HIV prevention programmes in Nigeria. Interventions should focus on influencing social norms around protective behaviours for men to avoid risks associated with extramarital sex and IPV, helping men to change attitudes toward extramarital sex and IPV, and promoting delay in age at first sex among young men.
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The Impact of Exposure to Mass Media Campaigns and Social Support on Levels and Trends of HIV-related Stigma and Discrimination in Nigeria: Tools for Enhancing Effective HIV Prevention Programmes

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Summary: People living with HIV and AIDS (PLWHAs) often face stigma and discrimination, especially in developing countries. HIV-related stigma is expressed through social ostracism, personal rejection, direct and indirect discrimination, and denial from families and friends. Consequently, it is associated with reduced adoption of preventive and care behaviours, including condom use, seeking HIV tests and care-seeking behaviour subsequent to diagnosis. Ignorance of the epidemiology of the disease on modes of transmission and prevention aggravates HIV-related stigma in Nigeria. Behaviour change communication activities through mass media have been shown to be an effective approach in improving people's knowledge about the disease. This paper monitors trends in the level of accepting attitudes towards PLWHAs in Nigeria between 2003 and 2007. It also evaluates the impact of exposure to mass media and social support on the levels of accepting attitudes towards PLWHAs. A significant and positive trend was evident between 2003 and 2007 ($p<0.0001$). Furthermore, exposure to mass media communications on HIV and AIDS issues and social support were significantly related to the reduced stigma and discrimination against PLWHAs ($p<0.0001$).
Understanding Self-appraisal of HIV-infection Risk among Young Adults in Nigeria: Evidence from a National Survey

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Summary: A major component of HIV prevention is to encourage individuals to appreciate their personal risk of contracting the virus with the aim of encouraging them to take steps to reduce the risks. This article addresses the accuracy of an individual's risk assessment by matching this with the individual's reported risk behaviours in order to assess possible congruence. Although the relationship between risk perception and risk behaviours has been studied by previous authors using cross-sectional studies, this has not been extensively studied using a large nationally representative data set, such as in Nigeria. In our attempt to address this, we classified HIV-risk behaviour into low-risk and high-risk behaviour. We considered both descriptive and inferential approaches in our analyses. The findings were triangulated with qualitative studies using focus group discussions conducted among members of the target group in Nigeria. Dependence of risk perception on some selected background characteristics, HIV/AIDS-knowledge indicators, experience of sexually transmitted infections (STIs), as well as exposure to the Society for Family Health (SFH) radio campaigns in Nigeria were investigated through multiple logistical regression models. Among the respondents with risk behaviours, being single, Christian, male, and listening to the SFH radio campaigns were associated with a higher perception of risk of contracting HIV.
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