

African Journal of Drug and Alcohol Studies

The *African Journal of Drug & Alcohol Studies* is an international scientific journal published by the African Centre for Research and Information on Substance Abuse (CRISA). The Journal publishes original research, evaluation studies, case reports, review articles and book reviews of high scholarly standards. Papers submitted for publication may address any aspect of alcohol and drug use and dependence in Africa and among people of African descent living anywhere in the world.

The term “drug” in the title of the journal refers to all psychoactive substances other than alcohol. These include tobacco, cannabis, inhalants, cocaine, heroin, prescription medicines, and traditional substances used in different parts of Africa (e.g., kola nuts and khat).

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Special Issue:

Substance Abuse and HIV/AIDS in Sub-Saharan Africa

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FROM THE EDITOR-IN-CHIEF

This special issue of the *African Journal of Drug and Alcohol Studies* is devoted to the theme of substance use and HIV/AIDS in Africa. Though substance abuse, especially injecting drug use, has long been associated with HIV infection in western countries and is today the driving force behind the rapid spread of infections in some low and middle income countries, not much is known about the role of alcohol and drug use in the African HIV/AIDS epidemic.

The papers in this issue of the journal are a first coordinated attempt to address this gap in our understanding of the direct and indirect links between substance use and HIV infection based on research conducted in seven countries – Kenya, Mauritius, Nigeria, Rwanda, South Africa, Tanzania and Zambia.

This is the second time a full issue of this journal has been devoted to a topic of significant contemporary relevance. The first was the immediate past issue (Volume 5, Number 1) which focused on alcohol policy in Africa at a time when many countries in the region are experiencing rapid increases in per capita consumption of alcohol and in alcohol-related problems. A special issue of this or any other journal provides a forum for concentrated attention on any topic of current interest, but we hope that this effort will also serve as a catalyst for more work on this important topic.

The publication of these thematic issues of the journal has been made possible by a grant from the IOGT-NTO, Sweden, through a collaborative arrangement with the journal *Nordic Studies on Alcohol and Drugs* (NAT). We are grateful to the IOGT-NTO and NAT for this support and that of the Alcohol and Drug Research Group of the Medical Research Council (MRC), Cape Town, South Africa.

In response to the Council of Science Editors' call for a Global Theme Issue on Poverty and Human Development we are planning a special issue on "Substance abuse, poverty and human development in Africa" for publication in October 2007. More than 100 other scholarly journals across the world have signed on to this initiative and we are happy to be part of it. We hope you will submit a paper for publication in this special issue. Established researchers are also encouraged to suggest topics deserving of special attention and to serve as guest editors for future special issues.

The journal continues to seek high quality submissions from researchers working on any aspect of psychoactive substance use and abuse with a focus on Africa and Africans in the diaspora. We are happy with the response to our new look and the overall quality of the journal and look forward to greater support and encouragement from you and your organization.

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SUBSTANCE ABUSE AND HIV IN SUB-SAHARAN AFRICA: INTRODUCTION TO THE SPECIAL ISSUE

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INTRODUCTION

This special issue of the *African Journal of Drug and Alcohol Studies (AJDAS)* is devoted to describing the current status of the HIV/AIDS epidemic among substance users in sub-Saharan Africa. Included in this issue are papers that address two important and overlapping public health concerns: drug use and HIV, and alcohol use linked to high-risk sexual practices and HIV transmission, both within the sub-Saharan Africa context. Sub-Saharan Africa remains the “global epicentre” of the HIV/AIDS epidemic. The region contains only 10% of the world’s population but carries more than 60% of the global HIV/AIDS burden. In 2005, an estimated 24.5 million people were living with HIV/AIDS in the region, 2.7 million persons were newly infected with the virus, and 930,000 died of AIDS (UNAIDS, 2006). In addition to facing the enormous burden of heterosexually transmitted HIV, some sub-Saharan African countries are experiencing significant changes in the patterns of illicit drug use, through both non-injection and injection drug use, which has implications for the potential spread of HIV.

Concern about drug use and its consequences in sub-Saharan Africa was raised as early as 1999 in a publication by the United Nations Office on Drugs and

Crime (UNODC) formerly named the United Nations Office for Drug Control and Crime Prevention (UNODCCP). The UNODC report “The Drug Nexus in Africa” documented trends in drug production, trafficking to and through sub-Saharan Africa, and the consumption of cannabis, heroin, cocaine, and other drugs, suggesting that illicit drug use in sub-Saharan Africa is not a “minor” concern as was often assumed (UNODDCP, 1999). Following the publication of the UNODC report on drugs in Africa in 1999, a series of meetings, starting in 2000, was convened to review HIV in drug-using populations in sub-Saharan Africa. The link between drug use and HIV was formally discussed at the Third Annual Meeting of the Global Research Network for the Primary Prevention of HIV/AIDS in Drug-Using Populations, Durban (NIDA 2000). In 2001, the UNODC and UNAIDS held the first joint workshop on drug abuse and HIV/AIDS in Africa in Sharm-el-Sheik, Egypt. Despite limited data available to characterize HIV and injection drug users (IDUs) in sub-Saharan Africa, there were reports of the expansion of both injection and non-injection drug use and the emergence of HIV among drug-using populations. Since that time, the literature on drugs and HIV in sub-Saharan Africa has expanded, although it is still limited.

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Our goal in assembling these papers for the special issue of the *African Journal of Drug and Alcohol Studies* is to present in a single document the most current data on HIV and substance use, including alcohol, in sub-Saharan African countries, drawing attention to the potential for substance use related HIV transmission in the region.

This issue is organized into two sections. The first section focuses on drug use and HIV. It includes reports from five sub-Saharan countries on the emergence of injection drug use and HIV and the use of non-injection drugs such as crack cocaine and amphetamine-type stimulants (ATS) and implications for increasing sexual risk in Kenya, Tanzania, South Africa, Nigeria and Mauritius. Deveau, et al., report on outcomes from a community outreach programme targeting drug users in Mombasa and Nairobi, Kenya (2006). Dahoma, et al., report findings from a cross-sectional study conducted to document HIV and sexually transmitted infection (STI)-linked risk behaviours among drug users in Zanzibar, Tanzania (2006). Timpson et al., report preliminary findings from an ongoing study of drug use and sexual risk behaviours among IDUs in Dar es Salaam, Tanzania (2006). Parry and Pithey review the relevant literature on HIV and drug use in South Africa, and also report the findings of a 2005 rapid assessment conducted among drug users in three South African cities (2006). Adelekan and Lawal review the results of three rapid assessments recently conducted in Nigeria to investigate injection drug use and HIV (2006). Abdool et al., review national surveillance data and the results from a 2004 assessment of drug-using, sex work, and prison populations in Mauritius (2006). The data for these reports derive primarily from rapid ethnographic assessments that rely on

qualitative methods to allow for quickly collecting locally relevant data to help better understand emerging patterns of risk, and the potential for rapidly changing dynamics of HIV transmission in vulnerable, hard-to-reach, stigmatized, and hidden drug-using populations not included in sentinel surveillance systems in resource limited settings (Stimson et al., 2006; Needle, 2003).

In the second section, reports on alcohol use, high risk sexual behaviour and HIV are included. Ashley et al., summarize proceedings from the 2005 meeting, *Alcohol, HIV Risk Behaviours and Transmission in Africa: Developing Programme fro the President's Emergency Plan for AIDS Relief (PEPFAR)*, held in Tanzania (2006). Morojele et al., discuss proceedings from the 2006 meeting, *The World Health Organisation (WHO) Technical Consultation on Public Health Problems Caused by Harmful Use of Alcohol in the African Region*, held in Congo (2006). Morris et al., present results from a three-country assessment on alcohol and HIV carried out in 2006 in Kenya, Rwanda and Zambia (2006).

Contributors to this special issue are country and regional experts on HIV, drugs, and alcohol in Africa and their papers represent an important collective contribution to the growing body of published evidence on expanding epidemics of drug use and emerging substance abuse-related HIV in the region. They present the available data drawn from reviews of the literature and the results of small studies, drawing attention to the need to strengthen methodologies and systems for better understanding and monitoring the changing dynamics of drug and alcohol use and HIV in the region. They also point out the urgent need to utilize evidence-based approaches to reach drug users with prevention interventions, and to tailor and adapt interventions to

improve accessibility, acceptability and appropriateness for the local cultural context and specific needs of the targeted population. This introductory paper presents an overview of the key findings related to the dynamics of risk for HIV associated with drug and alcohol use, and outlines some of the steps that need to be taken to address this issue in sub-Saharan Africa. It also acknowledges the challenges inherent in drawing attention to the HIV prevention, care, and treatment needs of this underserved, hidden population in a region that continues to be overwhelmed with responding to generalized heterosexual epidemics of HIV.

DRUG TRAFFICKING AND PATTERNS OF USE IN SUB-SAHARAN AFRICA

In 2004, Aceijas et al., reviewed available data on HIV and IDUs for 1998-2003 and documented injection drug use in 130 countries and HIV among IDUs in 78 countries. Nine of these were sub-Saharan Africa countries (Côte d'Ivoire, Ghana, Guinea, Mauritius, Niger, Nigeria, Somalia, South Africa, and Zambia). Only one country, South Africa, had data on HIV prevalence among IDUs, reported as 2% in a study done in the early 1990s (Aceijas et al., 2004). In 2005, a review of published and unpublished data and reports found evidence for injection drug use in 23 sub-Saharan African countries and HIV among IDUs in 5 of these countries (Needle et al., 2005). Global estimates indicate that 13 million people inject drugs, and at least 10% of all new HIV infections occur among IDUs (Aceijas et al., 2004). In Eastern Europe, Central Asia and a number of countries in the Middle East, North Africa, South and Southeast Asia and Latin America, injection drug use is the major mode of

HIV transmission (UNAIDS, 2005). Sub-Saharan Africa has become increasingly vulnerable to illicit drug production, trafficking, and consumption. Historically, a number of sub-Saharan African countries were sources for large scale trafficking of indigenously cultivated cannabis (Affinah, 1999). Heroin, which is not indigenous to sub-Saharan Africa, is, in increasing volumes, shipped through Africa en route to European and North American drug markets (UNDCP, 1999). In addition to heroin shipments that originate in Asia, cocaine shipments that originate in South America are trafficked through South, West and Central Africa en route to Europe (UNODC, 2006).

The expansion of drug trafficking in the region can be attributed to several factors, including international air and sea connections, international trade links, and inadequate law enforcement. Lax border controls and a weak criminal justice system, along with modern telecommunications and banking systems, and international trade links with South America, North America, Europe and Asia all contribute to an increase in the transshipment of drugs, both heroin and cocaine, through the region. This has resulted in an expansion of the local drug market and consumption of a greater variety of drugs, including heroin from Asia and cocaine from South America. Trafficking and transport of drugs is not limited to sea and airports; drugs are also shipped overland and along interior transport corridors, which introduces drugs into new geographic areas, expands domestic markets, and can introduce HIV into new communities and populations along transport routes (Parry and Pithy). This has already been demonstrated in parts of Burma, China, India and Vietnam, where molecular epidemiology has been used to document the spread of particular sub-types of HIV along drug trafficking routes (Beyrer et al., 2000).

Heroin is the primary drug used by both IDUs and non-injection drug users (NIDUs) in Kenya, as it is in Mauritius and Tanzania (Abdool et al., 2006; Deveau et al., 2006; Timpson et al., 2006). The introduction of heroin and pattern of heroin use are similar across countries. Initially, when heroin was introduced to sub-Saharan Africa in the 1980s, it was more commonly available in its “brown sugar,” or less refined form, was high in quality, relatively inexpensive, and commonly used by “chasing the dragon,” a practice in which the drug is heated and the fumes are inhaled. Later, as the price of heroin increased, a shift took place from the use of ‘brown sugar’ to ‘white’ or more refined, heroin, accompanied by a shift from non-injection to injection use of the drug (Beckerleg and Hundt, 2004). Injection is a more cost-effective and efficient way of delivering the drug into the body, as none is lost to the air as it is when smoked or inhaled. White heroin is now less expensive than brown in most cases.

The use of non-injection drugs, such as cannabis, cocaine and methamphetamine also appears to be spreading. Cannabis is reported to be used in Mauritius, Kenya (often in combination with heroin), in Nigeria, and in South Africa (often in combination with Mandrax¹) (Abdool et al., 2006; Deveau et al., 2006; Parry and Pithey, 2006). Cocaine use has also been reported in Kenya (Deveau et al., 2006). Of all the countries reported on in this special issue, there appears to be a greater range of drugs being used in South Africa, where crack cocaine is now the third most widely used drug in the country, after

Mandrax and cannabis (Parry and Pithey, 2006). There are also dramatic increases in use of methamphetamine in South Africa, particularly among young people, and in urban areas (Parry and Pithey, 2006; SACENDU, 2006).

DRUGS AND HIV RISK

HIV transmission due to sharing of injection equipment has been extensively documented (Aceijas, 2004; AED, 2000; Friedland GH et al., 1985; Marmor M et al., 1984), and is present in many of the countries reported on in this issue. In Kenya 38.7% (278/719) of drug users reached through community outreach reported sharing needles, and high prevalence of equipment sharing, including cookers, filters, rinse water and injection solution was also reported in Nigeria, Tanzania, and Mauritius. The adoption of a high risk injection practice referred to as “flashblood” has been documented among both male and female drug users in Tanzania. This is a practice in which an IDU who cannot afford to purchase heroin injects the blood of another IDU who recently injected, in the belief that the blood contains heroin and can prevent withdrawal. The potential for HIV transmission through the exchange of such a large quantity of blood—usually 3 or 4 ccs—is substantial. This practice is particularly alarming because it was first identified in female commercial sex workers (CSWs), who are already at increased risk of sexually transmitted HIV infection and have the potential to transmit HIV to their clients (McCurdy, 2005).

In addition to sharing injection equipment, many IDUs have regular sexual partners with whom they may not be using condoms. Also, as documented in this issue, both male and female IDUs often trade or sell sex to support their

¹ Mandrax is a blend of methaqualone and antihistamine and was originally used as a sleeping tablet (UNODC, 2002).

drug addiction. Most countries do not have estimates of how many CSWs inject drugs; however, this population is significant because clients of both male and female sex workers can serve as a bridge for HIV transmission to low risk partners in the general population.

HIV transmission risks are also associated with non-injection drug use. Cocaine and amphetamine-type stimulants (ATS) can lead to high-risk sexual behaviours by inhibiting judgment and decreasing the likelihood that one will practice safe sex. Methamphetamine, for example, has been associated with increased HIV sexual risk behaviours among men who have sex with men (MSM) and heterosexuals. Risk behaviours include unprotected receptive anal and vaginal sex and greater numbers of sex partners (Mansergh et al., 2005; Colfax et al., 2001; Molitor et al., 1998; Frosch et al., 1996). Crack cocaine use has been associated with higher prevalence of HIV infection due to greater frequency of high-risk sexual practices such as unprotected sex and sex with multiple partners and with exchange of sex for drugs (Edlin et al., 1994). Male and female CSWs interviewed in South Africa reported using methamphetamine, crack cocaine, or ecstasy before or during sex, and said that using these drugs increased the likelihood of high-risk sex, including anal sex, unprotected sex, and group sex (Pithey and Parry, 2006).

HIV in drug-using populations

The data on HIV among drug users are limited. Nevertheless, contributors to this special issue identify several trends of concern to the public health community. Mauritius, for example, is experiencing “a dramatic shift in the mode of [HIV] infection from heterosexual to injection drug use.” In 2001, 64% of new infections were through heterosexual trans-

mission, while injection drug use accounted for only 7% of new cases. In 2005, only 6% of new cases were through heterosexual contact and 90% were through injection drug use. Mauritius has between 17,000 and 18,000 IDUs; nearly a third of new infections were among prisoners (Abdool et al., 2006). Data from Kenya, for example, indicate that in Mombasa, of 1000 drug users referred through community outreach to HIV counselling and testing, 31.2% (43/138) of IDUs and 6.3% (352/1546) of NIDUs were HIV positive (Deveau et al., 2006). In Zanzibar, a recent study of drug users documented HIV prevalence of 26.2% (50/191) among IDUs, and 4.1% (13/316) among NIDUs, as well as co-infection with hepatitis C (HCV) and other STIs (Dahoma et al., 2006). Timpson et al. also note that the number of female IDUs in Tanzania appears to be increasing and report that among 417 IDUs in Dar es Salaam, 27% of men and 58% of women were HIV positive (2006). Compelling data also come from South Africa where a rapid assessment conducted among male and female drug users in three cities documented HIV prevalence of 28% (n=92) (Pithey and Parry, 2006).

Alcohol Abuse and HIV Risk

Along with increasing concern about the potential for HIV spread among drug-using populations, there is also growing awareness in sub-Saharan Africa of the relationship between alcohol use, particularly misuse and abuse of alcohol, and HIV risk (Bryant, 2006; Campbell, 2003). Sexual risk-taking behaviours associated with alcohol use are highly prevalent in many African countries severely affected by HIV/AIDS (Fritz et al., 2002; Mnyika et al., 1997; Simbayi et al., 2004). According to the World Health Organization (WHO), the eastern and southern regions in Africa have the highest con-

sumption of alcohol per drinker in the world, and the prevalence of hazardous drinking patterns, such as drinking a large quantity of alcohol per session, or being frequently intoxicated, is second only to Eastern Europe.

Within the past two years, several significant events have generated momentum for addressing the link between alcohol use and HIV as a public health issue in the region. In May 2005, Resolution WHA58.26 on the Public Health Problems Caused by Harmful Alcohol Use was adopted, giving WHO the mandate to intensify efforts to reduce the burden of alcohol-related problems regionally, nationally, and globally. In August 2005, U.S. government agencies hosted a meeting, *Alcohol, HIV Risk Behaviours and Transmission in Africa: Developing Programmes for the President's Emergency Plan for AIDS Relief (PEPFAR)*, in Dar es Salaam, Tanzania, with the purpose of providing expert consultation on alcohol and HIV risk and assisting countries in developing programmes to address this issue. A key outcome of the Tanzania meeting was its impact on the technical and programmatic resolutions made at the 42nd Annual Regional Health Ministers' Conference held in Mombasa, Kenya in February 2006. Health ministers from countries in the East, Central and Southern Africa regions resolved to incorporate issues related to alcohol into their national HIV/AIDS strategies, to ensure that appropriate alcohol and HIV/AIDS policies, guidelines, and programmes are in place, and to establish national and regional technical working groups to spearhead the implementation of alcohol and HIV/AIDS programmes. The ministers also called for rapid situational analysis to be conducted on the relationship between alcohol and HIV in the region. The resulting three-country assess-

ment carried out in Rwanda, Kenya, and Zambia identified priorities for HIV and alcohol-related programming and policy changes to address alcohol use. Finally, *The World Health Organization (WHO) Technical Consultation on the Public Health Problems Caused by Harmful Use of Alcohol in the African Region* in Brazzaville, Congo in 2006 was held to address alcohol consumption and production and resulted in the development of a five-year plan for work in the region.

PUBLIC HEALTH RESPONSE TO SUBSTANCE RELATED HIV

Given the efficiency of injection as a mode of HIV transmission (UNODC, 2005), early intervention with IDUs in the region is of the utmost importance to prevent the further escalation of HIV. Mauritius, Tanzania, and Kenya are among the countries that have acknowledged the need for HIV prevention with drug users in their national HIV/AIDS strategic plans, but other countries have yet to do this. Adelekan et al. note the "general lack of awareness among policy makers and health practitioners of the emerging injection drug use and HIV among drug users" in Nigeria (2006). Contributors to this special volume recommend strategies to address HIV prevention among drug users, including community outreach and peer-based interventions to discourage sharing of injection equipment and encourage safe injecting as well as safe sex practices, and increasing the availability of commodities such as sterile injection equipment and condoms. Increasing access to important services such as VCT is critical and may require tailoring and adaptation of traditional models to meet the needs of hidden and hard to reach populations of drug users. Rapid HIV testing, for example, has great potential for reaching drug users and sex workers in non-clinical settings including brothels, bathhouses, homeless

shelters, street outreach locations and other venues frequented by drug users. Integration of HIV and substance abuse programmes, and increased facilities for HIV, STI, Hepatitis B and C counselling and testing are also needed. While countries such as Kenya and South Africa offer drug treatment, facilities are often inadequate in number and geographic distribution, and services are unaffordable for most drug users. In addition, most drug treatment programmes do not address HIV prevention.

Contributors also call for prevention interventions that address alcohol-related HIV sexual risk behaviours, including individual and community-level behavioural interventions. In addition, alcohol treatment programmes provide the opportunity to incorporate HIV risk-reduction interventions and promote adherence to HIV treatment for persons already diagnosed with HIV. Morris et al., call for a multi-sectoral approach to alcohol and HIV issues, including involvement from civil society, faith-based organisations, government and law enforcement (2006). Morojele's report identifies the need for advocacy at the national level to raise awareness about the seriousness of alcohol-related social and health problems among policy makers, community and other key stakeholders, and to encourage greater financial commitment to prevention activities (2006). Countries are urged to strengthen national alcohol policies and legislation, with a particular emphasis on those activities that are most likely to have success in the shorter term.

CONCLUSION

Global, regional, and country-specific reports suggest that the epidemic of HIV/AIDS in drug users continues to spread, with an increasing number of

countries reporting HIV infection in this group (Ball, 1999). Data from studies described in this special issue indicate that drug trafficking and drug abuse, including injection drug use, are increasing in some sub-Saharan Africa countries. Shifts in patterns of drug trafficking, including expansion of local markets, when linked to ongoing and serious epidemics of HIV, are a major concern for the region. While the primary mode of HIV transmission in the region will continue to be through heterosexual contact, there is still a need to focus on the potential for drug driven HIV to exacerbate the heterosexual epidemic. HIV transmission among drug users is not limited to sharing contaminated injection equipment; it includes IDUs' sexual contact with partners, and the non-injection use of drugs such as cocaine, crack or ATS associated with high risk sexual behaviours. Twenty-five years of research indicate that a comprehensive approach is the most effective strategy for preventing HIV/AIDS in drug-using populations and their communities (NIDA, 2002). In addition, momentum is growing in sub-Saharan Africa to address HIV transmission linked to alcohol use and high-risk sexual behaviour. Early implementation of prevention programmes can significantly limit the further spread of HIV and, by acting now, sub-Saharan Africa has the opportunity to meet this challenge.

Contributors to this special issue acknowledge the limitations of the available literature and data on drugs, alcohol, and HIV. Of the five countries reporting on drugs, South Africa is the only one with a surveillance system for monitoring drug use over time. Currently, most HIV surveillance systems focus on antenatal clinic populations and do not include drug users as sentinel populations. Moreover, large population

studies such as Demographic Health Surveys (DHS) or AIDS Indicator Surveys (AIS) will not capture hard-to-reach populations, and size estimates of drug-using populations are lacking.

Data reported on drugs and HIV in Kenya, Tanzania, South Africa, Nigeria, and Mauritius have been derived primarily from rapid assessments, a methodological approach used globally to better understand the dynamics of HIV risk in hidden populations, particularly drug users (Fitch et al., 2004). Other small-scale studies have focused on drug use and HIV risk. These studies, while important, employ a variety of methodologies and approaches, making it difficult to identify trends or make systematic comparisons across the region. There is a critical need to strengthen systems for monitoring the epidemic in drug-using populations. This includes planning for and implementing more systematic data collection on drug users and HIV, including routine sentinel surveillance and integrated behavioural and biological surveillance. Data are needed not only to monitor prevalence of HIV and risk behaviours, but also to design, manage, and evaluate prevention, care, and treatment programmes for drug users. Both qualitative and quantitative data are essential to our understanding of how to better reach and serve hidden populations of drug users. Data are needed to describe the context of risk behaviours, identify barriers and gaps in services, tailor and adapt interventions and inform the design of programmes. Finally, data are needed to determine if programmes are successfully reaching drug users and if interventions are effective in reducing drug and alcohol related HIV risk.

We want to acknowledge and thank the dedicated researchers and public health practitioners working in the field to

characterize the epidemic and create awareness through publishing and speaking. We hope that this special issue will become a useful resource for researchers and policy makers, as well as a catalyst for collaboration among countries in the region as they work together to address drug- and alcohol-related HIV risks both nationally and regionally.

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REFERENCES

- Abdool, R., Sulliman, F., & Dhannoo, M. (2006). The injecting drug use and HIV/AIDS nexus in the republic of Mauritius. *African Journal of Drug and Alcohol Studies*, 5(2), 107-106.
- Academy for Educational Development (AED) (2000). A Comprehensive Approach: Preventing Blood-Borne Infections among Injection Drug Users. December 2000.
- Aceijas, C., Stimson, G.V., Hickman, M., & Rhodes, T. (2004). Global overview of injecting drug use and HIV infection among injecting drug users. *AIDS*, 18(17), 2295-2303.
- Adelekan, M.L., Lawal, R.A., Akinhanmik A.O., Haruna, A.Y.A., Coker R., Inem, V. et al. (2000). *Injection drug use and associated health consequences in Lagos, Nigeria: Findings from WHO Phase II Injection drug use study*. Paper presented at the Global Research Network on HIV prevention in Drug-using Populations, Durban, South Africa.
- Adelekan, M.L., Lawal, R.A. (2006). Drug use and HIV infection in Nigeria: a

- review of the recent findings. *African Journal of Drug and Alcohol Studies*, 5(2), 117-128.
- Affinnih, Y.H. (1999). A review of literature on drug use in Sub-Saharan Africa countries and its economic and social implications. *Substance Use & Misuse*, 34(3), 443-454.
- Affinnih, Y.H. (1999b). Drug use in greater Accra, Ghana: Pilot Study. *Substance Use & Misuse*, 34(2), 157-169.
- Ashley, J., Levine, B., & Needle, R. (2006). Summary article: proceedings of August 2005 Alcohol Meeting in Dar es Salaam, Tanzania. *African Journal of Drug and Alcohol Studies*, 5(2), 191-199.
- Ball, A. (1999). Epidemiology and prevention of HIV in drug-using populations: global perspective. *Global Research Network on HIV Prevention in Drug-Using Populations: Second Annual Meeting*.
- Beckerleg, S.E., and Hundt, G.L. (2004). The characteristics and recent growth of heroin injecting in a Kenyan coastal town. *Addiction Research and Theory*, 12(1), 41-53.
- Beyrer, C., Razak, M.H., Lisam, K., Chen, J., Lui, W., & Yu, X.F. (2000). Overland heroin trafficking routes and HIV-1 spread in south and south-east Asia. *AIDS*, 14(1), 75-83.
- Bryant, K. (2006). Expanding Research on the Role of Alcohol Consumption and Related Risks in the Prevention and Treatment of HIV/AIDS. *Substance Use and Misuse*, 41(10-12), 1465-1507.
- Campbell, E.K. (2003). Note on Alcohol consumption and sexual behaviour of youths in Botswana. *African Sociological Review*, 7(1), 146-161.
- Colfax, G.N., Mansergh, G., Guzman, R., Vittinghoff, E., Marks, G., Rader M, et al. (2001). Drug use and sexual risk behaviour among gay and bisexual men who attend circuit parties: a venue based comparison. *Journal of Acquired Immune Deficiency Syndrome*, 28(4), 373-9.
- Dahoma, M., Salim, A., Abdool, R., Othman, A., Makame, H., Ali, A., Abdalla, A., Juma, S., Yahya, B., Shaka, S., Sharif, M., Seha, A., Mussa, M., Shauri, O., Nganga, L., & Kibuka, T. (2006). HIV and substance abuse: the dual epidemics challenging Zanzibar. *African Journal of Drug and Alcohol Studies*, 5(2), 129-138.
- Deveau, C., Levine, B., & Beckerleg, S. (2006). Heroin Use in Kenya and Findings from a Community Based Outreach Programme to Reduce the Spread of HIV/AIDS. *African Journal of Drug and Alcohol Studies*, 5(2), 95-106.
- Dewing, S., Pluddermann, A., Meyers, B.J., & Parry, C.D.H. (2006). Review of injection drug use in six African countries: Egypt, Kenya, Mauritius, Nigeria, South Africa and Tanzania. *Drugs, education, prevention, and policy*. 13(2), 121-137.
- East, Central and Southern African (ECSA) Health Community (2006). Resolutions of the 42nd Regional Health Minister's Conference.
- Edlin, B.R., Irwin, K.L., Faruque, S., McCoy, C.B., Word, C., Serrano, Y., et al. (1994). Intersecting epidemics-crack cocaine use and HIV infection among inner-city young adults. *New England Journal of Medicine*, 331(21), 1422-1427.
- Ekpo, M. (2000). *Preventing HIV and other blood-borne diseases among drug-using populations in Nigeria: implications for research, practice, and policy*. Report presented at 2000 Global research network meeting on HIV prevention in drug-using populations, Durban, South Africa.

- Fitch, C., Stimson, G.V., Rhodes, T., & Poznyak, V. (2004). Rapid assessment: an international review of diffusion, practice, and outcomes in the substance use field. *Social Science & Medicine*, 59(9), 1819-1830.
- Friedland GH, Harris C, Butkus-Small C, Shine D, Moll B, Darrow W, Klein RS. Intravenous drug abusers and AIDS: demographics, drug use and needle sharing practices. *Archives of Internal Medicine* 1985; 145:1413-7.
- Fritz, K. E., Woelk, G. B., Bassett, M. T., McFarland, W. C., Routh, J. A., Tobaiwa, O., et al. (2002). The association between alcohol use, sexual risk behaviour, and HIV infection among men attending beerhalls in Harare, Zimbabwe. *AIDS and Behaviour*, 6(3), 221-228.
- Frosch, D., Shoptaw, S., Huber, A., Rawson, R., & Ling, W. (1996) Sexual HIV Risk among gay and bisexual methamphetamine abusers. *Journal of Substance Abuse Treatment*, 3(6), 483-486.
- Gouws, E., White, P.J., Stover, J., & Brown, T. (2006). Short term estimates of adult HIV incidence by mode of transmission: Kenya and Thailand examples. *Sexually Transmitted Infections*, 82 (suppl 3), iii51-55.
- Kumar, M.S., Mudaliar, S., & Daniels, D. (2000) Identification and Critical Assessment of Intervention Strategies and Approaches. Paper presented at Global Research Network Meeting on HIV Prevention in Drug-using Populations. Third Annual Meeting Report, Durban, South Africa.
- Mansergh, G., Shouse, R.L., Marks, G., Gusman, R., Rader, M., Buchbinder, S. et al. (2006) Methamphetamine and sildenafil (Viagra) use are linked to unprotected receptive and insertive anal sex, respectively, in a sample of men who have sex with men. *Sexually Transmitted Infections*, 82 (2). 131-134.
- Marmor M, Des Jarlais D, Friedman S, Lyden M, El-Sadr W. (1984). The epidemic of AIDS and suggestions for its control in drug abuses. *Journal of Substance Abuse Treatment* 1984; 1:237-47.
- McCurdy, S.A., Williams, M.L., Kilonzo, G.P., Ross, M.W., & Leshabari, M.T. (2005). The emerging heroin epidemic in Dar es Salaam, Tanzania: Youth hangouts, maghetto and injecting practices. *AIDS Care*, 17 (Supplement 1), S65-76.
- McCurdy, S.A., Williams, M.L., Kilonzo, G.P., Ross, M.W., & Leshabari, M.T. (2005b). "Flashblood" and HIV Risk among IDUs in Dar es Salaam, Tanzania. Rapid Response accessed from <http://bmj.bmjournals.com/cgi/eletters/330/7493/684>
- Mnyika, K. S., Klepp, K. I., Kvale, G., & Ole-Kingori, N. (1997). Determinants of high-risk sexual behaviour and condom use among adults in the Arusha region, Tanzania. *International Journal of STD & AIDS*, 8 (3), 176-183.
- Molitor, F., Truax, S.R., Ruiz, J.D., & Sun, R.K. (1998). Association of methamphetamine use during sex with risky sexual behaviours and HIV infection among non-IDUs. *Western Journal of Medicine*, 168(2), 93-7.
- Morojele, N., Parry, C., Agossou, T., Poznyak, V., Obot, I., Odejide, O., & Koumare, B. (2006). Report of First Pan African Consultation on Alcohol Policies and its significance for the region. *African Journal of Drug and Alcohol Studies*, 5(2), 185-190.
- Morris, C., Levine, B., Goodridge, G., Luo, N., & Ashley, J. (2006). Three country assessment of alcohol-HIV

- related policy and programmatic responses in Africa. *African Journal of Drug and Alcohol Studies*, 5(2), 169-184.
- National Institute on Drug Abuse (2002). Principles of HIV Prevention in Drug-using Populations. (NIH Publication No. 02-4733). Washington, DC: U.S. Government Printing Office.
- National Institute on Drug Abuse (2000). Global Research Network Meeting on HIV Prevention in Drug-Using Populations. Second Annual Meeting Report, August 26-28, 1999. Atlanta, GA.
- Needle, R., Trotter, T., Singer, M., Bates, C., Page, J., Metzger, D., Marcelin, L. (2003). Rapid assessment of the HIV/AIDS crisis in racial and ethnic minorities: an approach for timely community interventions. *American Journal of Public Health* 93(6), 970-79.
- Needle, R., Hegle, J., & Jones, T.S. (2005). Injection drug use in sub-Saharan Africa: emergence of an under-recognized HIV transmission risk. Unpublished work. Centre for Disease Control and Prevention.
- Parry, C., & Pithey, A. (2006). Risk behaviour and HIV among drug-using populations in South Africa. *African Journal of Drug and Alcohol Studies*, 5(2), 139-156.
- Parry, C., Vardas, E., & Pludderman, A. (2000). HIV and Drug Use among Arrestees in Cape Town, Durban and Johannesburg, South Africa (Phase I). Paper presented at 2000 Global Research Network Meeting on HIV Prevention in Drug-using Populations. Third Annual Meeting Report, Durban, South Africa.
- Rehm, J., Room, R., Monteiro, M., Gmel, G., Graham, J., Rehn, T. et al. (2004). Alcohol. In M. Ezzati, A.D. Lopez, A. Rodgers, & C.J.L. Murray (Eds). *Comparative Quantification of Health Risks: Global and Regional Burden of Disease Due to Selected Major Risk Factors*. Geneva: World Health Organization.
- SACENDU (2006) Alcohol and Drug Abuse Trends July-December 2005 (Phase 19), South African Community Epidemiology Network on Drug Use, Accessed on June 28, 2006 from www.sahealthinfo.org.
- Simbayi, L. C., Kalichman, S.C., Jooste, S., Mathiti, V., Cain, D., & Cherry, C. (2004). Alcohol use and sexual risks for HIV infection among men and women receiving sexually transmitted infection clinic services in Cape Town, South Africa. *Journal of Studies on Alcohol*, 65(4), 434-442.
- Stimson, G., Fitch, C., Des Jarlais, D., Poznyak, V., Perlis, T., Oppenheimer, E., Rhodes, T. (2006). Rapid assessment and response studies of injection drug use: knowledge gain, capacity building, and intervention development in a multisite study. *American Journal of Public Health*, 96(2), 288-295.
- Timpson, S., McCurdy, S., Leshabari, M.T., Kilonzo, G.P., Atkinson, J., Msami, A., & Williams, M. (2006). *African Journal of Drug and Alcohol Studies*, 5(2), 157-168.
- UNAIDS. (2006). 2006 Report on the Global AIDS Epidemic. Accessed from www.unaids.org.
- UNAIDS. (2005). 2005 Report on the Global AIDS Epidemic. Accessed from www.unaids.org.
- UNAIDS. (2004). 2004 Report on the Global AIDS Epidemic. Accessed from www.unaids.org.
- UNAIDS. (2002). 2002 Report on the Global AIDS Epidemic. Accessed from www.unaids.org.
- United Nations Office on Drugs and Crime (UNODC). (2006), 2006

- World Drug Report. Accessed from <http://www.unodc.org/unodc/index.html>.
- United Nations Office on Drugs and Crime (UNODC). (2005), 2005 World Drug Report. Accessed from <http://www.unodc.org/unodc/index.html>.
- United Nations Office on Drugs and Crime (UODC). (2002). Country Profile: South Africa. Accessed from http://www.unodc.org/pdf/southafrica/country_profile_southafrica.3.pdf.
- United Nations Office on Drugs and Crime (UNODC). (1999). The Drug Nexus in Africa. Accessed from http://www.unodc.org/unodc/en/report_1999-03-01_1.html
- United States Department of State. (2006). International Narcotics Control Strategy Report. *Bureau for International Narcotics and Law Enforcement Affairs*.

HEROIN USE IN KENYA AND FINDINGS FROM A COMMUNITY BASED OUTREACH PROGRAMME TO REDUCE THE SPREAD OF HIV/AIDS

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ABSTRACT

Recent shifts in patterns of drug use and trafficking indicate that a shift from smoking to injecting heroin is taking place in Kenya. In addition, recent estimates of HIV infection in Kenya indicate that the number of cases of HIV attributed to injection drug users is increasing with 4.8% of new infections attributed to injection drug use. Community-based outreach is an evidence-based model for delivering HIV prevention to difficult to access drug users in the United States and Europe. This paper reports on the development and implementation of a community outreach programme for HIV prevention with drug users in Mombasa and Nairobi and offers lessons learned for other countries with emerging epidemics of HIV among drug users.

KEY WORDS: heroin, community outreach, HIV/AIDS, Kenya

INTRODUCTION

The first case of HIV in Kenya was documented in 1984. Since then, the country has had a generalized epidemic with an estimated national prevalence in 2004 of about eight percent among adult women and four percent in adult men. About 1.2 million adults are infected, and there are 100,000 HIV positive children and 650,000 AIDS orphans (UNAIDS 2004). Prevalence in urban areas is almost twice as high as in rural areas and nearly two thirds of those infected are women. Rates are 10% or higher in 17 of 39 sentinel surveillance sites, including sites in Nairobi, Mombasa, Kisumu, and Kakamega. Nyanza Province, for example,

has a prevalence of 15% in adults. Even in some low prevalence regions, however, evidence exists of significant behavioural risk for HIV. While behavioural indicators from the Kenya Demographic and Health Survey (KDHS, 2004) indicate that risky sexual behaviour has declined, the majority of new infections occur among young men and women. (Kenya PEPFAR Five Year Strategy, 2005).

Recent estimates, however, indicate that modes and patterns of HIV transmission in Kenya, as in other countries, may be shifting. Estimates of new infections for 2005 indicate that while Kenya is still experiencing a generalized, heterosexual epidemic, there has been an increase in the number of cases attributed

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to injection drug use and men having sex with men. Kenya is estimated to have experienced 82,369 new cases in 2005, with most of these occurring in the general, low-risk population (30.1%), those having casual heterosexual sex (18.3%), and among partners of those involved in casual sex (27.7%). However, 3991 (4.8%) new infections are attributed to injection drug use and 3697 (4.5%) infections occurred among men having sex with men. While injection drug users are a relatively small part of the total population (about 0.3% of the total male population), incidence among injection drug users is extremely high (16.3 per 100 per year) (Gouws et al., 2006)

CHANGING PATTERNS OF DRUG USE AND TRAFFICKING IN KENYA

According to the US Bureau for International Narcotics and Law Enforcement Affairs, in recent years Kenya has become a significant transit route for cocaine, heroin, and other drugs shipped from South America and Southwest Asia to US and European markets. In addition, there is a growing domestic market for heroin and to a lesser extent cocaine within Kenya, especially in the coastal cities and Nairobi (INL, 2006).

The increase in drug trafficking and transiting in Kenya is due in part to its extensive network of sea and airports, which provide the necessary infrastructure for moving drug shipments. In addition, a climate of weak regulatory and judicial controls, inadequate law enforcement resources, and endemic official corruption have enabled drug traffickers to operate "with near impunity." The seizure of more than a ton of cocaine in December 2004 indicates that international drug trafficking rings may be operating in Kenya; however cocaine seizures have declined

dramatically since that point. Commercial and family ties between Kenya and Southwest Asia have facilitated transit of heroin and hashish from that region, while cocaine shipments originating from South America also transit through the country on the way to the European market. Kenya is a minor producer of cannabis, with much of this product destined for the domestic market (INL2006).

In Mombasa, the second largest city in Kenya, heroin has been a street drug for over 25 years. During the 1980s, heroin in the form of 'brown sugar' quickly spread from Mombasa to smaller coastal towns such as Malindi and Watamu (Beckerleg, 1995). This type of heroin was mostly used through inhalation of the vapour, referred to as "chasing the dragon." A 1997 study of the social and economic effects of drug use in eight African countries identified Mombasa as a major entry point for heroin into Kenya (UNODCCP, 1999). In 1998, white crest, probably from Thailand, started to replace brown sugar. White crest cannot be chased, but is water soluble and therefore suitable for injecting. Hence, by the end of the 1990s users were shifting to injection of heroin in Mombasa and other coastal towns. There are fewer data charting the spread of heroin use in Nairobi. Nevertheless, it is probable that heroin use also began in the 1980s, and that injecting levels increased with the switch to 'white crest' in the late 1990s.

DRUG USE AND HIV RISK

Beckerleg and colleagues (Beckerleg et al., 2004, Beckerleg 2004a) conducted qualitative interviews with 40 heroin users in Malindi, a coastal town with a lively tourist industry, and reported that injecting practices were similar to those reported in other parts of the world. High

status, or 'cool', among heroin users was associated with injecting alone and with personal autonomy. Sharing of injecting equipment also occurred. Most users were ill informed about the risk of HIV transmission through injecting equipment (Beckerleg, 2004b). Most injectors were using the same equipment to inject more than once, with some reporting use of needles that had become rusty from being stored in damp hiding places. Few IDU reported buying new equipment each time they used heroin, and instead concealed needles and syringes in locations where drugs are consumed.

A serological survey carried out in 2004 in Mombasa confirmed the close relationship between drug abuse, injecting drug abuse and HIV/AIDS with 49.5% of IDUs testing positive for HIV, although this is likely an underestimate. This was part of a larger study (Ndetei, 2004) which also documented risky sexual practices among drug users in Kenya.

These findings were supported by the results of a rapid situational assessment carried out in 2004 by the Omari Project, a Kenyan CBO that has been monitoring the heroin situation in Mombasa since 1997. Four hundred ninety-six heroin users were interviewed; 471 (94.9%) were men. Respondents represented a wide range of cultural/ethnic groups, the two largest being Mijikenda and Swahili who are indigenous to the Kenya coast. Overall, 14.9% (74/496) of respondents had 'ever injected' heroin, and 7.1% (35/496) were current injectors, although this is likely to be an underestimate. These data indicate a shift away from injecting but also reflect the death of many established injectors, either through overdose, AIDS, or hepatitis. Although syringes were available from a number of pharmacies, most injectors reported using a syringe for 1-3 days. The majority reported injecting in groups of three or

more and described risk behaviours for HIV transmission (Beckerleg et al, 2006).

A rapid assessment and response (RAR) of 103 heroin users in Nairobi, Kenya found that 59.2% (61/103) of this sample were injectors and that a majority (60.5%, 37/61) of the injecting drug users interviewed injected up to four times per day. Heroin users engaged in risky injecting behaviour, with 32% (33/103) sharing injecting equipment, and 42% (42/103) injecting in an unhygienic environment (Odek-Ogunde et al, 2003). A follow up study of 348 drug users carried out in Nairobi indicated that prevalence of HIV and HCV was high. Of 332 blood samples analyzed, the overall seroprevalence for drug users was 22.9% (76/332) for HIV and 21.1 (73/331) for HCV. Among IDUs, prevalence was 36.3% (53/146) for HIV and 42.2% (66/146) for HCV (Odek-Ogunde et al, 2004). The elevated HIV prevalence rates among IDUs coupled with very low utilization of health care services in this group means that this 'most at risk population' (MARP) of drug users has the potential to exacerbate the generalized heterosexual HIV epidemic in Kenya.

COMMUNITY BASED RESPONSES: DEVELOPING PROGRAMMES FOR DRUG USERS

Drug users in Kenya are hidden and difficult to reach due to stigma, the illegal nature of drug use, the association of drugs with poverty and crime and the fact that the majority of drug users live in slums and other low income communities. Most substance abusers do not access medical services and if they do, they are likely to conceal their substance abuse from health care providers. In addition, drug and HIV/AIDS treatment services for drug users are extremely limited. The only public sector facility for the treatment of

addiction in Kenya is a fifteen bed inpatient facility located at the Mathare Psychiatric Hospital in Nairobi. All addiction treatment facilities in the country typically keep patients for four to six months as inpatients and offer very little aftercare or outpatient service. There are few personnel trained in drug abuse prevention or treatment, and treatment activities within facilities are minimal with patients sitting idle for most of the day. Due to high rates of unemployment, family and community stigma, and poor or no follow up care, relapse rates are high.

In spite of these challenges, a small but highly motivated treatment community of Kenyan professionals and “recovering alcoholics” and drug dependent persons has been working for many years to develop drug abuse prevention, care, and treatment services. Community based organizations (CBOs) have been instrumental in adapting international best practices for drug users in Coastal Kenya. For example, the Omari Project pioneered drug treatment and prevention work with drug users in Mombasa (Beckerleg et al., 1996; Beckerleg, 2001) and other CBOs have drawn upon and further developed the approach of the Omari Project. Three community based organizations (CBO) have been offering services to heroin users in Mombasa. Sinam, a Catholic organization, provides a drop-in advice service for drug users. The Muslim Education Welfare Association (MEWA) and Reachout Centre Trust primarily serve the Swahili community, running residential rehabilitation centres for male heroin and other drug users. Nairobi has a variety of services for substance abusers; most are private treatment centres and more recently established community based centres. An expanding AA (Alcoholics Anonymous) twelve-step community has existed in Nairobi since

the late 1970s and recently both AA and NA (Narcotics Anonymous) meetings have become available in Nairobi on a daily basis. Recently Narcotics Anonymous and an Islamic version of the 12-step process, “Milati Islami” have been introduced in Mombasa and in nearby coastal areas.

In 2004, an important meeting was held in Nairobi to sensitize key stakeholders in the Government of Kenya, donor and non-government organization (NGO) communities to growing concern about HIV/AIDS among IDUs. Before 2004, antiretrovirals (ARVs) were beyond the reach of most Kenyans due to prohibitive cost and a general lack of national commitment to AIDS treatment. During 2004 there were three million PLWHAs (persons living with HIV/AIDS) in Kenya with at least ten percent of them in urgent need of ARVs. Less than one third were able to access treatment. Since 2004, however, there has been rapid scale up of the HIV treatment infrastructure in Kenya with the assistance of the United States PEPFAR programme and other robust donor activities. Only recently has it become possible to begin to develop strategies for introducing ARVs to drug using and other marginalized populations (Sullivan et al, 2005).

Participants at the 2004 Nairobi meeting discussed the need to develop policy and programming for drug users. Follow up activities included field work with heroin dependent persons in Nairobi and Mombasa, meetings with Muslim leaders on the Kenyan Coast, presentations in Mombasa by U.S. drug abuse and HIV experts, and high level discussions with Kenyan Ministry of Health (MOH) and United States government (USG) policy makers on the feasibility of developing an initiative to provide programming in this area. In

2004, the United Nations office on Drugs and Crime (UNODC) received a PEPFAR-funded grant from USAID to implement a programme for the prevention and treatment of HIV/AIDS and addiction among drug using populations in Kenya. The funding included provisions for the development of two networks of NGO and MOH services. The core of the project is a community-based outreach programme for drug users designed to reach hidden populations of injection drug users and to refer them to VCT, drug abuse and HIV care and treatment services. The data presented in this paper are from the community outreach programmes administered by UNODC through a network of Kenyan NGOs, providing community-based outreach to drug users.

DESCRIPTION OF THE COMMUNITY OUTREACH PROGRAMMEME

Community-based outreach is an evidence-based model with a documented history of success in reaching difficult to access drug users (Needle et al 2005). Community-based outreach developed in the United States and Europe prior to the emergence of HIV and was used primarily to encourage drug users to enter methadone maintenance treatment (MMT) programmes for their drug addiction. While community outreach programmes have changed since they were first introduced as a strategy for HIV prevention, the fundamental principles of community outreach remain the same; to reach active, out of treatment networks of drug users, especially IDUs, and begin a sustained process that will, over time, result in reduced risk behaviours, reduced HIV transmission and ultimately reduced HIV prevalence.

The primary function of the Kenyan community outreach programme is to provide street-based interventions to drug users, utilizing a risk reduction approach to reduce HIV transmission through needle sharing and unprotected sex. Outreach workers, who are often former drug users, contact active drug users in the community to deliver HIV risk reduction messages and behavioural skills, and to engage them in HIV/AIDS and addiction care and treatment services. Interventions with IDUs focus primarily on reducing needle sharing and unprotected sex, and promoting safe injection practices. Interventions with NIDUs concentrate on safe sex practices and avoiding future injecting use.

As of mid-2006, outreach programmes are established in Mombasa and Nairobi, cities with high concentrations of heroin users. A team of approximately 20 outreach workers, at each site, is comprised of both addicted and non-addicted persons who work in the community, primarily with street users, and are based in drop in centres at each of the two sites. They make daily contacts with drug users, engaging users in the community and providing one-on-one risk reduction education and referrals to VCT, HIV care and addiction treatment services. An assessment form is completed for each contact with a drug user. Data collected during these contacts include demographic information as well as information on drug and sexual risk behaviours. These data are then entered in a central database and routinely analyzed to understand trends in drug use, injecting behaviour and to develop outreach interventions to most effectively provide services to the drug users.

Outreach workers establish rapport within the community and become known as a source of information and

support for drug users who wish to change or reduce their drug using and HIV risk behaviours. Drug users are encouraged to reduce the frequency of injecting, to shift from injecting to smoking, and to consider addiction counselling in order to stop using drugs. Outreach workers help drug users develop risk reduction plans that target specific behaviours such as decreasing the number of times one injects during the day or week, avoiding venues where shooting drugs takes place, using clean needles for each injection, and cleaning needles and syringes with supplies provided by outreach workers. Other strategies include encouraging clients to secure needles so they are not accessible to other addicted persons and to purchase new needles.

Developing partnerships with voluntary counselling and testing (VCT) centres was a critical aspect of developing the Nairobi and Mombasa programmes. Outreach workers refer clients to voluntary counselling and testing and frequently accompany them to provide support. Voluntary counselling and testing services have been established at drop in centres, and also are delivered through mobile VCT, with teams of outreach workers and VCT counsellors visiting high density drug using venues to engage drug users. Outreach workers also refer HIV positive clients to HIV treatment facilities, and whenever possible, provide case management. Outreach workers facilitate getting drug users into HIV care and provide support during ARV treatment. The outreach programme also supports addiction treatment services, through referrals to community based inpatient and outpatient treatment facilities. All clients are encouraged to take part in addiction treatment and are referred for such services. Because addiction

treatment services in Kenya are limited, PEPFAR funding was also allocated to support the development of both inpatient and outpatient addiction treatment services in Mombasa and Nairobi. The introduction of outpatient addiction services is an important aspect of the programme because it provides easy access to addiction treatment services for those on the street. In addition, community-based, mobile outpatient addiction services are being developed.

Outreach contacts with drug users

The community outreach programme in Kenya became fully operational in March 2005. Over the first 15 months of the programme, over 10,000 contacts were made with drug users; and 5805 contacts were made with individual drug users. Contacts with NIDUs outnumber IDUs in both sites; 80.2% (4656/5805) of contacts with drug users were with NIDUs. However, because many IDUs deny their injection drug use and report their status as non-injectors, their numbers are likely to be under reported. IDUs conceal their drug use from others and are rejected by NIDUs, who fear being criminalized by association. Family members often view injecting behaviour with disapproval and rejection. As a result, many IDUs tend to live isolated from family and community and are more difficult for outreach workers to access and identify. Several strategies are being utilized to gain greater access to IDUs, including recruitment of recovering IDUs and incentivizing contacts with IDUs for outreach workers. Nevertheless, the data in Table 1 provide an indication of the distribution of NIDUs and IDUs. A size estimate and NIDU/IDU population mapping are currently being planned for both sites to better understand and document the numbers of NIDUs and IDUs.

Table 1. Outreach contacts with drug users

Contacts	Mombasa	Nairobi	Both Sites
Total individuals reached	3090	2715	5805
NIDU	N= 2262 (73.2%)	N=2394 (88.2%)	N=4656 (80.2%)
IDU	N=828 (26.8%)	N=321 (11.8%)	N=1149 (19.8%)

Demographics

The general age range of drug dependent persons reached by the programme is from mid teens to mid 50s, with a mean age of 27 years in Nairobi and 29 in Mombasa. Non-injecting heroin users are about 2.5 years younger than injecting drug users. The mean age for NIDU is 28 years compared to 30 years for IDUs. Eighty eight percent (5110/5805) of all drug users contacted were male, since male drug users greatly outnumber female drug users. There were more contacts made with female drug users in Nairobi (15.5%, 421/2715) than in Mombasa (8.9%, 274/3090).

Approximately sixty percent (3549/5754)ⁱ of drug users contacted through outreach reported being unemployed. Nearly one third of respondents (1843/5754) reported being self-employed while only 5% (304/5754) reported working for someone else. In many cases, there exists a fine line between being unemployed and self-employed, since most addicted individuals attempt to do odd jobs when there is opportunity. Theft, pick pocketing, and other forms of stealing are reported as one of the primary sources of income for unemployed drug dependent persons.

Most of them have little or no formal education. Seventy five percent

ⁱ Data were available for only 5754 of the 5805 drug users reached, 51 drug users did not respond to this question

(4305/5726)ⁱⁱ of them have not gone beyond primary school. One challenge for the programme has been to provide information about HIV risk and addiction to drug dependent persons who are homeless and have limited education (low literacy). Drug users with low levels of education/low literacy, often find it difficult to understand concepts such as the disease concept of addiction, craving and denial as presented by the outreach team. Most outreach and recovery materials have been translated into Swahili and are read to them in order to improve understanding and comprehension.

Over 80% (4684/5768)ⁱⁱⁱ of those reached reported their marital status as single, divorced, or separated. Less than 20% report being married and not separated from their spouse. Many clients report a limited number of partner relationships and these relationships also tend to be of short duration.

Drug Use Behaviours: IDU and NIDU

Drug users in Nairobi and Mombasa have similar drug use patterns. Heroin, which can be smoked or injected, is the

ⁱⁱ Data were available for only 5726 of the 5805 drug users reached, 79 drug users did not respond to this question

ⁱⁱⁱ Data is available for only 5768 of the 5805 drug users reached, since 37 drug users did not respond to this question or provided responses outside of single, divorced, separated, or married.

primary drug of choice for all IDUs and NIDUs. Of the 3090 drug users in Mombasa, 2,909 (94.1%) reported heroin as the primary drug used. In Nairobi, 84.9% (1253/1475) reported heroin as the primary drug used (See Table 2). Most non-injecting users smoke heroin. As mentioned earlier, the heroin currently available in this region is refined opium, soluble in water and easy to inject; dependent users on the street refer to it as “White Crest”. “White Crest” is easily accessible and relatively inexpensive in both sites. An

earlier type of less refined opium, “Brown Sugar”, is now much less available in both Nairobi and Mombasa. Cannabis, also inexpensive and easy to find, is the second most commonly used drug in the sample. Other substances reported are alcohol, khat (miraa) and to a lesser extent, benzodiazepines. Drugs are commonly used in combination; for example, heroin is used with cannabis or alcohol. Most non-injectors using heroin smoke it in “cocktail” form, which is a combination of heroin and cannabis.

Table 2. Primary substances used (drug users, N=4565)

Substances	Mombasa	Nairobi	Both Sites
Heroin	94.1% (N=2909)	84.9% (N=1253)	91.2% (N=4162)
Cannabis	5.4% (N=168)	13.5% (N=199)	8.0% (N=367)
Other	0.4% (N=13)	1.6% (N=23)	0.8% (N=36)

Note: N=4565 as 1240 drug users in Nairobi did not provide a response

Drug users reached by the outreach programme report having used drugs for an average of just over six years. IDUs have been using heroin longer than NIDUs by approximately 2 years; the average length of time a NIDU used heroin is 5.9 years while the average for IDUs is 7.8 years. Many drug users also report having used other substances such as cannabis and *miraa* prior to using heroin.

Drug Risk Behaviours

Needle sharing is a high risk behaviour associated with increased likelihood of HIV transmission and infection (reference?). Obtaining accurate data on needle sharing is difficult because drug users are often reluctant to admit that they are injectors and even more reluctant to report they share needles. This poses two challenges for community outreach workers. As mentioned above, the first challenge is to identify accurately if drug users are actually NIDUs

or IDUs. This is especially challenging during the initial contact with drug users before trust and rapport have been established. Outreach workers have noted a pattern in which IDUs do not disclose their IDU behaviours until after they have had several contacts with outreach workers. Upon initial contact with an outreach worker, a drug user may deny injection use and be classified as NIDU; however, through subsequent contacts, the drug user may become comfortable enough to disclose his status as an IDU. At this point drug users will often begin to report needle-sharing as well.

Data collected through outreach indicate that 89% (642/719)^{iv} of IDUs in

^{iv} Data were available for only 719 of the 828 IDUs in Mombasa reached since 109 clients who had been injecting users have switched from injecting to smoking

^v Data were available for only 319 of the 321 IDUs in Nairobi reached since 2 clients who had been injecting users have switched from injecting to smoking

Mombasa and 81% (258/319)^v of IDUs in Nairobi report injecting one or more times during the past week. Sharing needles is also common, with approximately 39% (278/719) of the injecting drug users in Mombasa sharing needles at least once during the previous week. Data from Nairobi were not available; however, the pattern and frequency of needle sharing in Nairobi, as reported by outreach workers, appears to be similar to that of Mombasa.

Sexual Risk Behaviours

Data on the sexual risk behaviours of drug users were only available from the Mombasa programme. Forty one percent (836/2059)^{vi} of NIDUs reported having vaginal or anal intercourse at least once during the past week, compared to 24% (166/687)^{vii} of IDUs. In general, IDUs are considered to be less sexually active because of higher levels of heroin use and its associated impact on sexual functioning. There is a higher proportion of occasional heroin users among NIDUs compared to IDUs and occasional heroin users tend to experience less impairment in libido than IDUs. Outreach workers collected data on the number of sexual partners drug users had within the last 30 days and the past 6 months. Drug users reported having an average of 1.8 sexual partners during the previous 30 days and 3.4 partners during the previous 6 months.

The outreach workers collect condom use information during outreach contacts as part of the outreach assessment. Drug users are asked how often they engaged in vaginal or anal sexual intercourse during the past week, as well as how often they

used condoms during these sexual acts. The total numbers of vaginal or anal sexual intercourse acts per week, reported by all drug users, were compared to the number of times these drug users used condoms during the same time period. Data were also analyzed based on an individual drug user's condom use frequency. The number of sex acts per week reported by an individual drug user was compared to how many times they reported using condoms during the same time period. A benchmark of 50% condom usage was used to determine sexual risk behaviour. Of the 7,464 instances of sexual intercourse reported in Mombasa, drug users reportedly used condoms 33% of the time (2437/7464). Of the 1178 drug users who reported having vaginal or anal intercourse in Mombasa, 372 (31.6%) reported using condoms 50% of the time or more.

HIV Prevalence and Referral to Services

Of the 5805 individual drug users reached during the first fifteen months of the programme, 43.7% {(2539/5805) estimate} received HIV testing and counselling. One hundred percent of HIV-positive drug users were referred to HIV care and 48 drug users are receiving antiretroviral treatment. In addition, 10% (604/5,805), of the drug users contacted through outreach engaged in formal addictions treatment services.

HIV prevalence for NIDU and IDU was available in Mombasa through tests carried out on 1000 drug users tested at the drop-in centre, through mobile HIV testing and through a clinical site that provides HIV care. Of 1000 drug users tested, 862 (86.2%) were NIDUs, and 138 (13.8%) were IDUs. Nearly one third (31.2%, 43/138) of IDUs and 6.3% (54/862) of NIDUs in Mombasa were HIV positive. Additional programme data from Mombasa indicated that 2508 drug users

^{vi} Data were available for only 2059 of the 2262 NIDUs reached in Mombasa, 203 NIDUs did not respond to this question.

^{vii} Data were available for only 687 of the 828 IDUs reached in Mombasa, 141 IDUs did not respond to this question.

were referred to HIV testing and counselling and that 1546 drug users received counselling and testing. Ninety

one percent (1408/1546) of those tested were men and 21.5% (332/1546) were IDUs.

Table 3. Drug and sexual risk behaviours

Risk behaviours	Mombasa	Nairobi	Both sites
IDU Needle Sharing (≥ 1 time in past week)	38.7% (278/719)	N/A	N/A
IDU Injecting (≥ 1 time in past week)	89.2% (642/719)	80.9% (258/319)	86.7% (900/1038)
Frequency of Condom Use			
Total Number of sex acts in past week	32.7% (2347/7464)	N/A	N/A
Number of individuals using condoms >50% of the time (past week)	31.6% (372/1178)		

Note: Data were available for only 719 of the 828 IDUs in Mombasa reached; 109 clients who had been injecting users have switched from injecting to smoking.

Data were available for only 319 of the 321 IDUs in Nairobi reached; 2 clients who had been injecting users have switched from injecting to smoking.

Table 4. Drug users referred to services

Referrals	Mombasa	Nairobi	Both Sites
Total referred to HIV testing and counselling	2508	N/A	N/A
Total receiving HIV testing and counselling	1546	~ 993 (est)	~ 2539 (est)
Percent of HIV positive referred to HIV care	100%	100%	100%
Total receiving HIV care	77	44	121
Total receiving ARV Treatment	16	32	48
Total receiving drug treatment (In or Out patient)	452	152	604

CONCLUSION

Domestic heroin use in Kenya has become increasingly recognized as a public health problem, particularly in light of its association with needle sharing and high risk sexual behaviours. This recognition has grown at the same time that access to ARV treatment has rapidly expanded; thus it is now feasible to develop programmes to prevent and treat HIV in high risk drug using populations. The outreach programme described here

has provided a significant number of street based drug users with HIV risk reduction interventions and referral services. The programme has engaged them in HIV counselling and testing along with supporting and facilitating access to HIV and addiction treatment.

In the initial 15 months of the project more than 5800 drug users were contacted through the outreach programme. More than 2500 of these users were tested for HIV and known HIV-positive drug users received case management services to support them

in accessing necessary care and treatment for both their HIV and addictive disorders. Over 600 drug users received some form of outpatient or inpatient addiction treatment. Programme data confirm that HIV prevalence in IDUs is significantly elevated relative to the general population in Kenya at 31.2% while HIV prevalence in NIDUs is equivalent to the general population at 6.3%.

The data from drug user contacts reveal significant levels of drug and sexual risk behaviours. 43% of IDUs in Mombasa share needles and 88% of IDUs in both Nairobi and Mombasa inject heroin more than once weekly. This population of drug users had sex with an average of 3.4 partners during the six months prior to the outreach contact and condom use was low; only 32% used condoms more than 50% of the time and 33% of the total number of sexual acts involved condoms. The challenges in working with this population are considerable. Mechanisms to more effectively gather and report data at all levels are necessary to monitor programme outcomes in terms of HIV prevalence and behaviour change. Voluntary Counselling and Testing (VCT) partners have been effective in providing good quality community based HIV counselling and testing, but gaining access to HIV status information has been difficult. A shift from VCT to DTC (Diagnostic Counselling and Testing) is needed to obtain necessary information and feedback to provide follow-up.

Improvement in access to local HIV treatment services will help improve participation in services; only 121 clients were in HIV care after 15 months of programme operation. Accessibility to community based services is critical to engaging street-based drug users in treatment. Providing mobile services for VCT testing, addiction counselling, and medical detoxification can greatly improve client participation. These

programmes can follow the success of the outreach programme in providing highly accessible community based street level services.

Outpatient drug treatment services have received mixed responses by drug users. Participation in addiction treatment is limited; drug users request curative interventions for their addiction and are not always responsive to the concepts of addiction counselling. Raising community awareness about the nature of addiction as a health problem, educating drug users about the effectiveness of drug counselling and introducing medication assisted treatment for opiate addiction will be important next steps.

The outreach staff is the most critical resource to the success of the programme. Using former drug dependent persons as outreach workers poses challenges in regards to relapse and work performance, but they have enabled the outreach programme to penetrate drug using areas and networks. A combination of recovering dependent users and dedicated and well-trained community based workers can help to form a sustainable outreach programme. An added challenge is the limited number of female outreach workers who are ex-users.

As injecting and non injecting drug use in Kenya becomes more widespread there is a need to develop coherent multi-sectoral strategies for interdiction, prevention and treatment of drug related problems. In the health sector, as HIV care and treatment services ramp up for the general population, it will be important to continue to develop approaches to prevent and treat both HIV and addiction in drug users. There needs to be a coordinated effort by Ministry of Health, NGO and donor groups. Size estimates and IDU/NIDU mapping will be helpful to plan for services. HIV service providers will need to be trained to screen for substance abuse and how to effectively interact with drug

users to improve uptake of HIV+ substance abusers into HIV care and treatment. The outreach programme in Nairobi and Mombasa described here is an important first step in developing these services and raising awareness in the country to the magnitude and nature of the problem.

REFERENCES

- Beckerleg S, M Telfer and A Sadiq (2006) A Rapid Assessment of Heroin use in Mombasa, Kenya. *Substance Use and Misuse*, 41(6-7): 1029-1044.
- Beckerleg S. (2006) What harm? Kenyan and Ugandan Perspectives on Khat. *African Affairs*, 105(419): 219-241.
- Beckerleg, S. and Lewando Hundt, G. (2004). The characteristics and recent growth of heroin injecting in a Kenyan coastal town.' *Addiction Research and Theory*, 12(1): 41-53.
- Beckerleg S. (2004). Living with heroin at the Kenya Coast." (2004) (a) In (Eds.) R. Coomber and N. South. *Drugs in the global context: comparative perspectives on cultures and controls*. London: Free Association Press.
- Beckerleg, S. (2004) (b) How 'cool' is heroin use at the Kenya Coast? *Drugs: Education, Policy, Practice*, 11(1): 67-77.
- Beckerleg, S. (2001) Counselling Kenyan Heroin Users: Cross Cultural Motivation? *Health Education*, 101(2): 69-73.
- Beckerleg, S., Telfer, M., and Kibwana Sizi, A. (1996) Private Struggles, Public Support: Rehabilitating Heroin Users in Kenya. *Drugs: Education, Prevention and Policy*, 3(2): 159-169.
- Beckerleg, S. (1995) Brown Sugar or Friday Prayers: Youth Choices and Community Building in Coastal Kenya. *African Affairs*, 94: 23-38.
- Gouws E., White P., Stover J., Brown T., (2006) Short term estimates of adult HIV incidence by mode of transmission: Kenya and Thailand as examples *Sexually Transmitted Infections*, 82 (Suppl 3): iii51-55.
- Bureau for International Narcotics and Law Enforcement Affairs. International Narcotics Control Strategy Report, March 2006
- Central Bureau of Statistics (CBS) [Kenya], Ministry of Health (MOH) [Kenya], and ORC Macro. 2004. *Kenya Demographic and Health Survey 2003*. Calverton, Maryland: CBS, MOH, and ORC Macro.
- Ndetei, D. M. (2004) Study of the assessment of the linkages between drug abuse, injecting drug abuse and HIV/AIDS in Kenya. A Rapid Situational Assessment (RSA), 2004. UNODC
- Needle, RH et al (2005) Effectiveness of Community Based Outreach in Preventing HIV/AIDS among Injecting Drug Users.
- Odek-Ogunde M, Lore, W., Owiti, F. R. (2003) Risky behaviours among injecting drug users in Kenya. Paper presented at 14th International Conference on the Reduction of Drug Related Harm, April 2003, Chiang Mai, Thailand.
- Odek-Ogunde, M., Okoth, F.A., Lore, W., Owiti, F.R. (2004, July, 2004) *Seroprevalence of HIV, HBC and HCV in injecting drug users in Nairobi, Kenya: World Health Organization Drug Injecting Study Phase II findings*. Presented at the XV International AIDS Conference, Bangkok
- Sullivan, L., Levine B., Chawarski, M., Schottenfeld, R., Fiellin, D., HIV and drug use in Kenya: Assessing HIV and substance abuse treatment services, College on Problems of Drug Dependence 67th Annual Scientific Meeting, June 20, 2005, Orlando, FL.
- UNDCP The Eastern African Drug Beat (2000) Importance of Data in Control of Illicit Drug Trafficking Vol2 No1, 13-14, January 2000.
- UNODCCP (1999) *The Drug Nexus in Africa*. UN Office for Drug Control & Crime Prevention Monographs, UNODCP: Vienna.
- United Nations Office on Drugs and Crime (UNODC): Data Base and Progress Reports of the project. *AD/KEN/04/I08 – Prevention of drug abuse and HIV/AIDS among drug users, injecting drug users and vulnerable populations in Kenya. (October 2004 – September 2007)*. Nairobi, Kenya
- United States Government Mission to Kenya. (2004). Five year strategy for the President's Emergency Plan for AIDS Relief: Strong networks for a sustained

HEROIN USE IN KENYA

response. Nairobi, Kenya.

THE INJECTING DRUG USE AND HIV/AIDS NEXUS IN THE REPUBLIC OF MAURITIUS

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ABSTRACT

Mauritius has the highest per capita injection drug use in Africa and, in the last 6 years, injection drug use has become the main mode of HIV transmission. To report on the drug use, high risk injection practices, and high risk sexual behaviour among imprisoned injection drug users (IDUs), sex-worker IDUs, and non-prisoner, non-sex worker IDUs, we drew data and findings from a 2004 rapid assessment of drug use in Mauritius, and from the Mauritius Epidemiological Network on Drug Use, the AIDS Unit at Ministry of Health; and the Mauritius Prison Service. The findings showed that there are an estimated 17,000-18,000 IDUs in Mauritius of whom 4,800 are commercial sex workers and 2,871 are prisoners. Prevalence of needle sharing among IDUs is estimated at 25-50%, and 75-90% of IDUs report using condoms "seldom" or "never." Mauritius is facing a serious concentrated HIV epidemic among IDUs. The Mauritius government, through bilateral and multi-lateral collaboration, is making considerable progress in providing comprehensive services for people living with HIV/AIDS. Strengthening prevention interventions targeting IDUs will be critical to addressing this emerging epidemic.

KEY WORDS: injecting drug users, sex workers, prison inmates, HIV/AIDS, Mauritius.

INTRODUCTION

Mauritius is a country with a low national HIV prevalence, estimated between 0.1 and 0.5% (Government of Mauritius, AIDS Unit Report, 2005). However, the country has the highest prevalence of injection drug use in Africa, accounting for at least 50% of all drug users (Sulliman et al., 2004). The pattern of

injecting drug use combined with the high prevalence of drug use among sex workers and prison inmates and harmful injecting practices and risky sexual behaviour all constitute serious elements which are fuelling the country's HIV/AIDS epidemic. This article highlights the emergence of a serious concentrated epidemic among injecting drug users (IDUs) in Mauritius. Through

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review of the available data estimating the size and risk behaviours of the IDU population, and through review of the country's epidemiological history of HIV and drug trafficking patterns, this article addresses the implications of injecting drug use for the spread of HIV.

Background

The Republic of Mauritius is located in the Indian Ocean with an area of 1865 sq km. It is situated 900 km east of Madagascar. Mauritius gained independence from Great Britain in 1968 and became a Republic in 1992. Mauritius has a multi-racial population whose origins can be traced to Europe, Africa, and Asia. In 2002, the population of the Republic of Mauritius was 1,193,737 with 595,067 males and 598,130 females (Government of Mauritius, 2002). English is the official language, but Creole and French are widely spoken. Given the varied origin of the population, several other languages, including Hindi and Chinese are also spoken.

Mauritius has experienced progressive economic growth since gaining its independence, mainly due to an inter-play of economic policies and a favourable international environment. Between 1970 and 1995, the Mauritian economy grew by an average of 5.6% per year (Government of Mauritius, 2002). The past 30 years have witnessed a major shift from sugar cane cultivation to the tourism, textile, and information technology industries, moving the country into the group of upper middle income countries per World Bank classification (United Nations, 2005). With improvements in employment opportunities, living conditions, and an income per capita of US \$9,107, Mauritius ranked 62 on the 2003 UNDP Human Development Index (HDI)—a combined measure of the quality of life, educational attainment and GNP per

capita—the second highest in Sub-Saharan Africa after the Seychelles (United Nations, 2005). The country is firmly committed to the welfare state. Both primary and secondary education is free, and an extensive network of primary health care centres provides the population with easy access to free health care.

Drug Trafficking

Mauritius has extensive air and sea connections to south and south-east Asia, Australia, Africa and several capitals in Europe. Additionally its free port, offshore banking industry, and the high volume cash-turnover of its tourist industry have made Mauritius susceptible to drug trafficking. Historically, Mauritius' primary illicit drug traffic was the shipment of heroin from Mumbai, India, into the country via commercial airlines (United States Bureau for International Narcotics and Law Enforcement, 1995). However, the trafficking pattern has diversified from the south Asian axis, and an increasing number of seizures have been reported on the Nairobi and Johannesburg routes (Government of Mauritius, 2005, 2006).

Drug Use in Mauritius

Prior to the 1980s, drug abuse in Mauritius consisted mainly of locally-grown cannabis use. Cannabis is primarily smoked or used in a boiled concoction with milk, especially during a Hindu religious festival and also by a small Rastafarian community. Opium use is limited, and mainly consumed by elderly Chinese during mah-jong (Chinese dominoes) games (Rajah, 1998).

Beginning in the early 1980s, the 'brown sugar' unrefined form of heroin was introduced into the urban and peri-urban regions of the island, and was used predominantly by adult males through inhalation, known as 'chasing the dragon.'

Heroin use was initially propagated by the marketing of relatively inexpensive, 1/40 gram packet samples of high quality, brown sugar heroin which sold at approximately \$1 per packet. Within a matter of three to four years, the pattern of use expanded into the rural areas, and also shifted to include women and youth. As the market grew more established, prices rose, quality dropped, and sales were limited to larger quantities of between 1/4 and 1/8 gram packets of a lower grade heroin. The drug became unaffordable for most users who often pooled their money to purchase the drug. The rise in cost also changed the method of use from inhaling to injecting; with users often sharing with other users to avoid the loss of any drug to fumes and to maximize use.

HIV in Mauritius

The first case of HIV in Mauritius was diagnosed in 1987 in a woman who contracted the virus via sexual intercourse with a tourist. The slow spread of HIV through heterosexual transmission held

until 2000 when Mauritius experienced a dramatic shift in the mode of infection from heterosexual to injection drug use, which has emerged as the most important mode of HIV transmission in Mauritius. In 2001, 64% of new infections were transmitted heterosexually while IDU accounted for only 7% of new cases (Sulliman, 2005). From 2001-2005, there was a decrease in infection through heterosexual mode and a sharp rise in infection through IDU, which accounted for 90% of new infections in 2005, 34% of which were found among prison inmates (Sulliman, FT, 2005). Currently, Mauritius has a national HIV/AIDS prevalence of 0.1 to 0.5%, qualifying it as a low prevalence country (Government of Mauritius, AIDS Unit Report, 2005). However, IDU practice, the sharing of infected injecting equipment, the application of inappropriate methods of sterilizing the used injecting equipment, as well as unprotected sex, are contributing significantly to the propagation of HIV among IDUs populations, and by extension to the larger community (See Figure 1).

Modes of HIV Transmission in Mauritius, 2001-2005

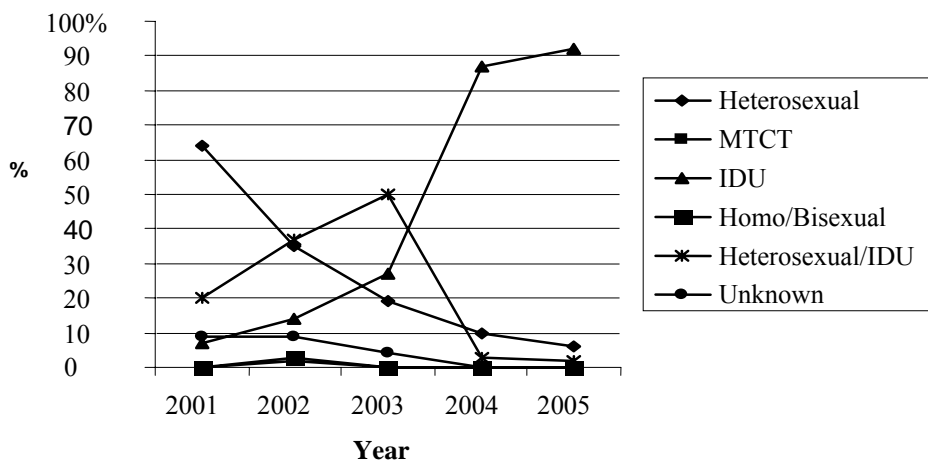


Figure 1. Modes of HIV transmission, 2001-2005

METHODS

Literature reviewed

This paper draws its data from four main sources: the 2004 Mauritius Rapid Situation Assessment; the Mauritius Epidemiology Network on Drug Use, administered by the National Agency for the Treatment and Rehabilitation of Substance Abusers; the AIDS Unit at Ministry of Health; and the Mauritius Prison Service.

The 2004 Mauritius Rapid Situation Assessment (RSA) was conducted to obtain evidence based data on the nature, extent, patterns and trends of drug abuse in Mauritius, and on the linkages between drug abuse/injection drug use and HIV/AIDS, and current interventions on HIV prevention among drug users. Data for the RSA was collected using both quantitative and qualitative methods from the following populations: out-of-treatment drug users; in treatment drug users; sex workers; secondary and tertiary level students; adult and juvenile prison inmates; and key informants. The findings of the RSA provided the basis for the development of a multi-sectoral National Drug Control Master Plan 2004-2009, which was developed using a consultative process with the major stakeholders in the country, the HIV sector, people living with HIV/AIDS and nongovernmental organizations (NGOs). (The National Drug Control Master Plan, 2004).

The Mauritius Epidemiology Network on Drug Use (MENDU), managed by the National Agency for the Treatment of Drug Abusers (NATReSA), collected data from a variety of sources, including the Ministry of Health Psychiatric Hospital, Drug Treatment Centres managed by NGOs, the police, and prisons. The data

was prepared into a report and presented to the regional meeting of the project Focal Points in Southern Africa (Sulliman, 2005). The AIDS Unit at Ministry of Health has established its own HIV surveillance system, based on data collected from anti-natal clinics for pregnant women, sexually-transmitted infections (STIs) clinics, and community outreach screening programmes targeting vulnerable populations such as injecting drug users and sex workers (Government of Mauritius, 2005). In addition, the Mauritius Prison Service (MPS), which provides Voluntary Counselling and Testing to inmates in collaboration with the AIDS Unit at Ministry of Health, runs a systematic data collection system and maintains a database on inmates' drug history and HIV/AIDS status (Government of Mauritius, 2005).

Estimation of IDU prevalence

Two estimation techniques were used to determine the prevalence of injecting drug use in Mauritius: 1) a *consensus estimate* of key informants interviewed for the study; and 2) an *indirect multiplier estimate* of the number of injecting drug users (IDUs) derived from estimates made from the number of IDUs in prisons, the number of IDUs in the community who were neither sex workers nor in prison (derived from treatment numbers), and the number of commercial sex workers (CSWs) who were also IDUs (WHO, 1998).

For the consensus estimate, key informants interviewed were asked to provide an estimate of the number of IDUs in Mauritius, as well as justification for this estimation. These estimates were averaged; the mean of these estimates was used as the mid-point, and the lower and upper limits used as a range for this data source.

Table 1. Summary of findings and methods from data sources used

Source	Year	Aims and objectives	Design and setting	Study population and procedure	Summary of findings
Rapid Situation Assessment	2004	To obtain evidence-based data on the nature, extent, patterns and trends of drug abuse in Mauritius, and on the linkages between drug abuse and HIV/AIDS.	Multi-method study conducted in population specific settings (i.e. prisons, schools, etc.)	<ul style="list-style-type: none"> • Out of treatment drug users <ul style="list-style-type: none"> • Snowball sample of 100 users from 6 sites • Drug users in treatment • Commercial sex workers <ul style="list-style-type: none"> • Convenience sample of 100 street-based CSWs • Qualitative interviews • Key informant interviews • Secondary level students <ul style="list-style-type: none"> • Convenience sample of 320 students, age 15-18 • Qualitative interviews • Tertiary level students <ul style="list-style-type: none"> • Census sample of 100 students from 5 institutions • Qualitative interviews • Adult prison inmates <ul style="list-style-type: none"> • Convenience sample of 150 inmates • Qualitative interviews • Juvenile prison inmates <ul style="list-style-type: none"> • Convenience sample of 50 inmates Qualitative interviews	<ul style="list-style-type: none"> • 17,000-18,000 IDUs in Mauritius <ul style="list-style-type: none"> • 50% report needle sharing • 80% report never using condom • 3% report using condom with CSW • 4,800 CSW/IDUs <ul style="list-style-type: none"> • 25% report needle sharing • 22% report no condom use • 77% report no condom use with regular partner • ~11,000 non-CSW, non-prisoner IDUs
Mauritius Prison Service	2003	Surveillance data	Data collection on inmates' from Beau Bassin Central Prison on drug history and HIV/AIDS status.	<ul style="list-style-type: none"> • Prison inmates 	<ul style="list-style-type: none"> • 2,871 Prisoners • 1412 IDUs <ul style="list-style-type: none"> • 5.5% report regular injection • 30% report needle sharing • 88% report never using condoms
Mauritius Epidemiology Network on Drug Use (MENDU)	2003	Surveillance data	Hospital, drug treatment centre, police, and prison data.	<ul style="list-style-type: none"> • Patients in hospitals, drug treatment centres and institutional settings 	<ul style="list-style-type: none"> • 622 IDUs treated in public drug and alcohol treatment centres • 1,000 IDUs seen by private psychiatrists • 1,000 IDUs seen by general practitioners
AIDS Unit at Ministry of Health		Surveillance data	HIV surveillance data from : <ul style="list-style-type: none"> • Anti-natal clinics • STI Clinics • Community screening programmes 	<ul style="list-style-type: none"> • Patients from antenatal and STI clinics and community screening programmes 	-

The sum of three separate estimates was used to determine the total number of IDUs in Mauritius: the number of IDUs in prison; the number of CSWs who report injecting drug use; and the number of reported IDUs in the community. IDU prevalence was calculated both for the general population and for the population aged 15-54 using the Mauritius population estimates for July 2002 (Government of Mauritius, 2002).

Data from Ghatak et al's 2002 estimation of the number of CSWs in Mauritius was used as the estimate for 2003 (2002). In this study, CSWs from the different regions across the country were asked how many CSWs were in their area; a second CSW in each area, known to the first, was asked how many CSWs they knew in that area who the first CSW did not know. Using this method, the researchers estimated a population of 6,400 CSWs in Mauritius, with 3,900 over 18 years of age and 2,500 under 18 years (Ghatak et al., 2002).

RESULTS

According to the literature estimates, there are between 17,000 and 18,000 IDUs in Mauritius, representing approximately 50% of the total drug using population. Of this population, approximately 4,800 are CSWs, and 1,400 are prisoners. A summary of these results can be found in Table 1.

The four studies reviewed reported data on the IDU prevalence among CSWs, prisoners, and the general population, as well as the prevalence of risky injecting and sexual behaviours among these IDU groups.

Commercial sex workers

In the RSA CSW sample, 74.5% of women surveyed reported injecting drugs in the past year. This estimate was

verified with key informants involved in the sex industry. Based on Gathak et al.'s estimate of 6,400 CSWs in Mauritius, with approximately 74.5% reporting injection, Mauritius has approximately 4,800 CSWs who are also IDUs (Ghatak et al., 2002). The RSA also found that 68 -75% of sex workers injected heroin regularly and 25% reported often or always sharing needles with other users. In addition, CSWs reported low condom usage, with 22% indicating never using a condom with clients, and 77% never using them when engaging in sex with a regular partner (RSA 2004).

Non-CSW, non-imprisoned IDUs

To estimate the prevalence of injection drug use among the non-CSW, non-imprisoned population in Mauritius, the RSA sample comprised those IDUs not imprisoned during 2003 and interviews and treatment data from treatment centres in Mauritius suggested to contain few, if any CSWs, and considered to be independent of the CSW population. Data on the number of IDUs treated in Mauritius were combined with data on rates of treatment among the out-of-treatment IDU sample. MENDU data indicate that 622 IDUs were treated in public drug and alcohol treatment centres in Mauritius in 2003 (Sulliman, 2005). It was estimated that another 1,000 IDUs were seen across the country by private psychiatrists and that general practitioners saw an additional 1,000 IDU clients in the same year. This produced a total of 2,622 IDUs seen by medical professionals across public and private sectors in Mauritius in 2003. This figure was verified by general practitioners and psychiatrists working with IDUs, and with those involved in the public drug and alcohol treatment system. This data was then combined with data obtained in the

RSA interviews with out of treatment IDUs in which 24% of IDUs reported receiving some treatment for their drug use in the past year and a multiplier of 4.17 was used to estimate the population of IDUs in the community.

Analysis of the RSA behavioural data reveals that 50% of IDUs in general, and 75% to 80% of out-of-treatment IDUs shared injecting equipment; 95% of IDUs reported cleaning their needles, however, 71% did so improperly with either water or vinegar; 62% of IDUs are sexually active and engage in risky sexual behaviour. Among IDUs not in treatment 80% reported never using a condom, and only 3% reported using condoms with CSWs. Additionally, only 10% of married IDUs reported using a condom with a regular partner.

Imprisoned populations

The RSA estimate of the number of IDUs in prison was derived by using 2003 data from the Mauritius Prisons Department at Beau Bassin Central Prison. In 2003, there were approximately 2,871 prisoners imprisoned, including 2,398 convicted prisoners, and 473 remand prisoners. In the RSA prison sample, inmates were asked if they had injected drugs when out of prison, and 49.2% reported injecting drugs at some point (Sulliman et al., 2004). In addition, 30% of the inmates injected heroin in prisons with 5.5% doing so regularly (Sulliman et al., 2004) Seven out of 10 convicted inmates reported a past history of drug abuse with 48% reporting ever using heroin. The sharing of injection paraphernalia is also common with 30% of prisoners reporting often or always sharing needles with other users. Further, 88% of prison inmates who engage in sexual activities reported never using condoms (Sulliman et al., 2004).

DISCUSSION

The RSA and MENDU data have revealed concentrated HIV/AIDS epidemics among IDUs, sex workers and prison inmates in Mauritius with a prevalence of 5%. A combined consensus and multiplier method estimated the total number of IDUs to be between 17,000 and 18,000, accounting for about 50% of the total number of drug users in this small island nation. The MENDU surveillance system and data from the HIV Unit indicate that injection drug use has emerged as the major mode of HIV transmission in Mauritius. However, there are limitations in the collection and sampling methods used that must be noted. While the AIDS Unit was comprehensive in its data collection, collecting from antenatal and STI clinics, as well as through outreach programmes, the RSA relied on relatively small samples and used snowballing and convenience sampling methods to recruit not-in-treatment drug users and CSWs. MENDU relied heavily on treatment centre and hospital data; thereby, capturing only a small portion of the researched population.

Although injection drug use has been prevalent in Mauritius since the early 1980s, given the low national prevalence of HIV/AIDS, the virus has only gradually begun to spread among the IDU population. This experience is a stark contrast to many other countries which have experienced rapid spread of HIV in IDU networks due to the sharing of injecting equipment and risky sex behaviours that are prevalent in these populations. In addition, with CSWs disproportionately involved in drug use, and drug-related offences accounting for about 65-70% of the total inmate population, there are indications that Mauritius is facing concentrated HIV

epidemics among IDUs, CSWs and prison inmates.

National response to illicit drug use

Private and public sector response to the drug problem in Mauritius has been a combination of supply reduction measures and demand reduction interventions, with a clear bias toward law enforcement. Demand reduction strategies encompass a wide range of awareness-raising campaigns; information, communication and education programmes targeting schools, communities and the work place; and free drug treatment and rehabilitation. The treatment and rehabilitation of drug abusers is mostly implemented by a number of NGOs with technical and financial support from the National Agency for the Treatment and Rehabilitation of Substance Abusers (NATReSA). The NGOs follow a number of therapeutic models, ranging from outpatient detoxification to inpatient rehabilitation following the therapeutic community philosophy (Abdool, 1998). A national detoxification centre will soon be operational, and detoxification for opiate users will be done on an inpatient basis. In 2004, The RSA findings paved the way for the development of the National Drug Control Master Plan which includes measures to address the drug problem by reductions of both supply and demand. This plan has been merged with the HIV/AIDS Action Plan for IDUs.

The National Response to HIV/AIDS

Mauritius' initial response to HIV occurred relatively early in the epidemic. In 1987, the government established the HIV Unit at the Ministry of Health. In the past 19 years, several educational and advocacy campaigns have been implemented to raise public awareness, a reliable surveillance system has been

established, and diagnostic testing and counselling were and are still provided free of charge for pregnant women and in STI clinics. In addition, as of April 2002, necessary blood testing for individuals who test positive for HIV— including CD4, liver function, and other tests—and antiretroviral therapy for those who meet the eligibility criteria are provided by the government at no cost.

The changing pattern of HIV infection, with injecting drug use emerging as the most important mode of transmission, has stimulated the government to take a number of drastic measures. Legislation was enacted in February 2006 which makes the introduction of methadone for detoxification or maintenance therapy for opiate users possible, and the government is currently awaiting recommendations from international experts on the best modalities for the introduction of methadone.

The government is also working with United Nations Development Programme (UNDP), United Nations Office on Drugs and Crime (UNODC) and Joint United Nations Programme for HIV/AIDS (UNAIDS), through the United Nations Country Team, and has taken a number of measures to address these emerging problems. Ministry of Health and Ministry of Social Security are currently working on the design of an intervention to prevent HIV infection among these target populations. Outreach programmes targeting drug users, especially IDUs, have started. Both the HIV Unit and a number of NGOs have initiated a number of programmes to reach out-of-treatment IDUs; provide them with risk minimization education; encourage them to access voluntary counselling and testing (VCT); and encourage them to enter drug treatment. All these services are provided free of charge. In some cases, mobile VCT clinics provide services during outreach programmes, while fully respecting the

rights of users. Drug using sex workers have also been reached in this manner. Condom distribution has been increased, and condoms are easily available in pharmacies and in health institutions. It is expected that these efforts will be scaled up and risk minimization measures will be expanded to reduce the dangers of HIV, and also hepatitis C, including the provision of prevention commodities for IDUs. The Ministry of Justice, through the State Law Office, has drafted the HIV/AIDS Preventive Measures Bill with a view to ensure that the treatment, care and support of people living with AIDS is done in confidentiality and with full regard to the maintenance of human rights. The HIV/AIDS National Strategic Plan 2006-2009 is also being currently formulated.

REFERENCES

- Abdool, R. (1998). Unpublished Report, 1998. Dr.I.Goomany Centre for the Prevention and Treatment of Drug Abuse, Mauritius.
- Ghatak, M. Koodoruth, I. Auchoybur, N. Dookhony, N. (2002). Report on Commercial Sexual Exploitation of Children in Mauritius, 2002, Mauritius.
- Government of Mauritius. (2002). 2002 Report of the Central Bureau of Statistics, Mauritius. Government of Mauritius.
- Government of Mauritius. (2005, 2006). Report of the Mauritius Police 2005, 2006. Mauritius: Government of Mauritius.
- Government of Mauritius. (2005). AIDS Unit. Report of Ministry of Health and Quality of Life, Mauritius.
- Rajah, S.G.M. (1998). Unpublished report, 1998. Ministry of Health, Mauritius.
- Sulliman, F.T. (2005). Mauritius Epidemiology Network for Drug Use (MENDU) Phase 1 to V, National Agency for the Treatment and Rehabilitation of Substance Abusers, 2001-2005, Mauritius.
- Sulliman, F.T, Ameerbeg, S. Dhannoo, M.I. (2004). Report of the Rapid Situation Assessment and Responses on Drug Use in Mauritius & Rodrigues. Ministry of Health, Mauritius.
- The National Drug Control Master Plan. (2004). Prime Minister's Office, Mauritius.
- United Nations. (2005). United Nations Human Development Report 2004. New York: UNDP.
- United States Bureau for International Narcotics and Law Enforcement (1995). International Narcotics Control Strategy Report. Retrieved September 17, 2006, from <http://dosfan.lib.uic.edu/dosfan.html>
- WHO (1998). WHO Rapid Assessment and Response Guide on Injecting Drug Use, 1998. WHO: Geneva.

DRUG USE AND HIV INFECTION IN NIGERIA: A REVIEW OF RECENT FINDINGS

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ABSTRACT

The aim of this paper was to review three studies that investigated injection drug use-related HIV issues in Nigeria. In World Health Organisation sponsored rapid assessment and response (RAR) projects, the snowball sampling technique was employed to recruit street drug users from eight state capitals in 2000, 2003 and 2005. Serological testing for HIV was conducted on participants who consented to the test. A total of 1147 street drug users were recruited comprising 90 (8%) current injection drug users (IDUs); 145 (13%) ex-injectors; and 912 (79%) non-injecting drug users (NIDUs). Substances mainly injected were heroin, cocaine, speedball and pentazocine. Injection and sexual risk practices were reported to varying degrees across the three studies. HIV rates obtained for IDUs and NIDUs were fairly similar in all the studies. HIV positivity was not significantly correlated with any of the injection risk behaviour variables tested. However, regardless of their injecting status, female users were three to 10 times more likely to be HIV positive. Drug services in general were limited while there was no evidence of the existence of specific IDU-HIV prevention and treatment services.

The studies have shown convincingly that IDUs exist in all the regions of Nigeria, although further research is needed to determine the real extent of the injection problem. The data obtained have not indicated a strong correlation between HIV and IDU; however, although this could be due to the low number of IDUs recruited and the emerging nature of the problem. Nonetheless, there is an urgent need to fill the identified service gaps.

KEY WORDS: injection drug use, HIV, Nigeria

INTRODUCTION

Nigeria is a federation of 36 states, and Abuja, the Federal Capital Territory. Nigeria is the fourteenth largest country in Africa; however, it is the most populous country on the continent with one in six Africans being Nigerians

(The World Factbook, 2006). Nigeria's population is estimated to be around 140 million and recent United National Development Programme (UNDP) reports put life expectancy at birth for men at 45 years and women at 46 years. The economy is heavily dependent on oil earnings, superimposed upon a

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traditional agricultural and trading basis.

Nigeria has emerged over the last 20 years as an important route for drug transit. Cannabis, cocaine and heroin are the most common drugs. Table 1 shows a marked increase in the amounts of cannabis seized over the period 1990 – 2005. There also has been a general increase in the amounts of cocaine and heroin seized within same period, although low seizure rates were recorded in some years. Many reasons have been

adduced for the drug trafficking problem in Nigeria. First, in addition to the country’s large population, it is strategically located between two large drug producing continents -Asia and Latin America. There are air and sea transportation links to most parts of the world, especially direct links to consumer countries in Europe. Further, the country has a very mobile population which is sometimes involved in illicit drug trafficking, and use the country as a transit and money laundering zone.

Table 1. Drug trafficking: seizure trends 1990-2005

Year	Drug type				Total drugs seized
	Cannabis (Kg)	Cocaine (Kg)	Heroin (Kg)	Other drugs	
1990	170.60	110.60	861.25	-	1,142.45
1991	1,496.61	545.39	66.82	15.72	2,124.54
1992	2,508.11	415.67	690.84	3.51	3,618.13
1993	7,378.89	1,293.69	283.51	1.87	8,957.96
1994	19,732.66	90.76	91.65	94.30	20,009.37
1995	15,258.74	15.91	30.27	210.39	15,515.31
1996	18,604.72	6.16	19.38	1,203.79	19,834.05
1997	15,904.72	31.90	10.49	1,736.01	17,683.12
1998	16,170.51	9.26	3.62	2,609.75	18,793.14
1999	17,691.14	15.64	81.35	322.25	18,110.38
2000	272,260.02	53.42	56.60	234.28	272,604.32
2001	317,950.20	195.82	46.63	308.84	318,501.49
2002	506,846.09	35.35	55.62	791.00	507,728.06
2003	535,593.75	134.74	87.58	937.41	536,753.48
2004	68,310.07	124.47	90.94	233.83	68,759.31
2005	125,989.00	395.91	70.42	88.72	126,543.65
TOTAL	1,941,865.43	3,474.69	2,546.97	8,791.67	1,956,678.76

Source: National Drug Law Enforcement Agency, October 2006

In the 1960s and 1970s, substances reported as being used in Nigeria were cannabis, alcohol and psychotropic substances (Asuni, 1964; Lambo, 1965; Boroffka, 1966; Oviasu, 1976; Odejide and Sanda, 1976). From the early 1980s, the country has witnessed an increasing use of heroin and cocaine, a trend closely

linked with the central role played by Nigerian syndicates in the international trafficking of these substances (Adelekan and Adeniran, 1988; UNDCP, 1998; NDLEA, 1999).

The first case of AIDS was identified in Nigeria in 1986 and HIV prevalence rose from 1.8% in 1988 to 5.8% in 2001.

The 2003 survey estimated that there were 3.3 million adults living with HIV and AIDS in the country, 1.9 million (57%) of whom were women and that the national prevalence rate had dropped to 5% from 5.8% in 2001 (UNAIDS/WHO, 2006). Most HIV transmission in Nigeria is related to heterosexual sex, and the most vulnerable groups are youths and women. The government has established HIV/AIDS prevention, care and treatment programmes at all levels in response to the epidemic; however, impact and coverage remain poor as recent UNAIDS data indicate that only about 7% of HIV-infected men and women currently have access to antiretroviral therapy (ART).

Only a few studies have reported the linkage between drug use and HIV. Adamson (1992) reported a case of HIV sero-positivity in a NIDU. Inem, Ekpo, Agomoh, Agbo, Doherty, and Yakubu (1999) screened 93 drug users in a rehabilitation home in Lagos for HIV and found HIV rates of 52% and 14% for females and males respectively. Unprotected and multiple sexual activity were identified as major risk factors, particularly among the female users who engage in commercial sex work as a means of maintaining their drug habit.

This report has reviewed three major studies (Adelekan et al., 2000; Lawal, Ogunsemi et al., 2003; Lawal, Ogunsemi et al., 2005) that have investigated injecting drug use and HIV/AIDS risk behaviours in Nigeria.

METHOD

Settings: The Adelekan *et al* (2000) study was conducted in Lagos State; the Lawal et al. (2003) study in Kano and Port Harcourt; and Lawal et al. (2005) in Ibadan, Benin, Calabar, Maiduguri and Kaduna. All the study sites are cosmopolitan state capitals.

Instruments: The Rapid Situation Assessment and Response (RAR) methodology was employed for all three studies. The RAR guidelines as outlined in the WHO RAR Guide on Injection Drug Use (WHO, 1998) were followed for the qualitative component. This comprised secondary data gathering, focused group discussions (FGDs), in-depth interviews, geographic mapping, observations and triangulation of the findings. For the quantitative component, the WHO Drug Injection Study Phase II Questionnaire (WHO, 1999) was used. This contained sections on sociodemographics, injection and non-injection drug use and risk practices, sexual risk factors, knowledge of HIV/AIDS related issues, complications of drug use and injection drug use, service availability and utilization.

Ethical Considerations: Confidentiality and the protection of research participants from harm were given utmost consideration. Informed consent was an important prerequisite for inclusion in the studies. Informed verbal consent was accepted for individuals who refused to sign the consent fearing the signed document could be used against them.

Selection of research team and site, training and pilot study: Training workshops for field workers and pilot studies were conducted in all the studies. Study sites were selected by the funding organisation in consultation with the local consultants for the study.

Sampling population and inclusion criteria: A combination of IDUs and NIDUs of heroin and cocaine were recruited off the streets for the surveys in all the cities. The inclusion criteria as contained in the guidelines for the surveys include that NIDUs must have been using one or a combination of heroin, cocaine, or other injectable drugs in the last two months. Current injectors must show

evidence that they have injected heroin, cocaine or any other injectable drugs within the last 6 months of the survey, while ex-injectors must have injected in the past, and stopped injecting drugs for more than 6 months prior to the survey.

Sample size, recruitment technique and interview site: The snowball sampling technique, involving the use of ex-users, was employed to recruit subjects for the three studies. The questionnaire administration was carried out in school

premises, churches, uncompleted buildings, cinema halls and restaurants. The choice of the interview site was informed in each case by the need to ensure confidentiality and safety of the subjects, as well as a good measure of security for the researchers. At the end of each interview, modest financial incentives were given to the subjects who participated in the study. The total number of subjects recruited in each of the studies is shown in Table 2.

Table 2. Some profiles of the three studies reviewed

Year of study	City	Part of country	No of subjects recruited	No of NIDUs	No of IDUs	No of blood samples analysed
2000	Lagos	South West	398	316	82	358
2003	Kano	North Central	113	92	21	50
2003	Port Harcourt	South South	91	86	5	63
2005	Ibadan	South West	112	82	30	112
2005	Benin	Middle West	115	111	4	93
2005	Calabar	South South	113	94	19	105
2005	Maiduguri	North East	99	53	45	98
2005	Kaduna	North Central	107	78	29	106

Serological testing: The basis and procedure for the tests was explained to respondents following the completion of the survey questionnaire. Respondents were assured of the anonymity and confidentiality before collection of 5mls of venous blood in appropriate blood bottles from subjects who gave verbal consent. The majority of respondents readily gave their consent, although five declined to do so in Lagos (Adelekan et al., 2000). Those who declined cited a phobia for needles or injections (Adelekan et al., 2000) or in the case of Kano, fear that the field workers were government agents who wanted to inject them with HIV virus (Lawal et al., 2003). The testing was anonymous and unlinked to their names. However, the results were

linked to the survey questionnaire through the use of common code numbers. The double Elisa method was employed to test for antibodies to HIV in all three studies.

RESULTS

Sociodemographics and injecting experience: Table 3 shows that participants recruited for the studies were predominantly males; however, 34%, 25% and 14% of respondents were female in Kano, Ibadan and Lagos, respectively. The participants were also predominantly young adults aged 20 – 39 years. However, those recruited from the cities of Maiduguri and Kano tended to be younger than those recruited from Lagos, Ibadan and Port Harcourt. The proportion

of the subjects who were married ranged from 9% in Maiduguri to 30% in Calabar to 33% in Port Harcourt. More than 50% completed secondary education in two cities (Kaduna and Benin) while more than 40% completed secondary school education in the five other cities. Their jail experience varied from 8% in

Maiduguri to 49% in Ibadan. The proportion of subjects who were ever-injectors (ex- and current) among the total subjects recruited ranged from 3% in Benin to 46% in Maiduguri. More than 20% of subjects recruited from Lagos, Ibadan and Kaduna were ever-injectors.

Table 3. Socio-demographics and injecting experience of participants

Demographics	Lagos	Port Harcourt	Kano	Ibadan	Benin	Calabar	Kaduna	Maiduguri
Sex	N=398 n %	N=91 n %	N=113 n %	N= 112 n %	N=115 n %	N=113 n %	N=107 n %	N=99 n %
Male	341 86	80 88	75 66	84 75	102 89	103 91	105 98	97 98
Female	57 14	11 12	38 34	28 25	13 11	10 9	2 2	2 2
Mean age (SD)	36.9 (6.3)	33.5 (8.0)	27.4 (6.0)	36.4 (8.4)	31.2	30.6	28.5	26 (5.2)
Min – Max	19 – 57	21 - 56	14 – 43	17 – 64	(9.1) 16 – 71	(10.0) 18 – 71	(6.4) 18 - 47	16 – 40
Highest Level of Education	n %	n %	n %	n %	n %	n %	n %	n %
Less than Secondary completed.	216 57	46 51	58 52	81 75	46 40	61 54	48 45	53 54
Sec. Completed	162 43	45 49	55 48	27 25	69 60	52 46	59 55	45 46
Marital Status	n %	n %	n %	n %	n %	n %	n %	n %
Married	106 27	30 33	11 10	14 13	24 21	34 30	11 10	7 9
Separated/Divorced/widowed	169 43	12 13	19 17	74 67	26 23	5 4	7 7	10 13
Never married	118 30	49 54	83 73	23 20	65 56	74 66	87 83	59 78
Ever Been in Jail	134 34	11 12	13 11	52 49	18 16	42 38	42 39	8 8
Injecting experience	n %	n %	n %	n %	n %	n %	n %	n %
Non Injectors	316 80	86 95	92 81	82 73	111 97	94 83	78 73	53 54
Ex-injectors	28 7	1 1	9 8	21 19	4 3	3 3	12 11	12 12
Current injectors	54 14	4 4	12 11	9 8	0 0	16 14	17 16	33 34

Injecting drug use pattern: The Lagos study found that the most commonly injected drugs were heroin, cocaine and speedball. Forty percent of current injectors of heroin reported that they inject at least once daily; 15% report injecting more than once a week but less than once a day; and 20% report injecting once a week or less. Similar figures for cocaine were 28%, 9% and 15%

respectively (Adelekan et al., 2000). Pentazocine was reported to be injected in parts of northern Nigeria (Lawal et al., 2005). Adelekan *et al* (2000) reported that ever-injectors first injected a drug at the mean age of 27.2 years (SD +/- 6.2) and that heroin was the first drug to be injected by most (62.5%) subjects, followed by cocaine (18.8%) and speedball (12.5%). The study further

reported that, before injecting a particular drug for the first time, 80% of ever-injectors had used the same drug in some other way, starting from the mean age of 25.5 years (SD +/- 6.0). Lawal *et al* (2005) also reported that for most, (52.8%) of the ever-injectors, a close friend was the one who injected the drug into them the first time.

Injecting risk practices: The IDUs generally employed various unhygienic methods both in the preparation and administration of their drugs. Adelekan *et al.* (2000) reported that 11% of current injectors had used needles and/or syringes that someone else had already used. Eight (15%) had passed their used needles and/or syringes to other people. About 70% of current injectors reported being able to obtain new sterile needles and/or syringes, mostly from chemists, but also from friends (6/37) and drug dealers (3/37). Current injectors in the same study reported that they shared container, filter or rinse water (28%) and drew up from a common drug solution (22%). In Port Harcourt, 40% of injectors admitted to injecting with pre-filled syringe, sharing cooker, filter or rinse water after injecting, drawing up drug from a common solution shared by others, injecting in a safe injecting room and injecting by a "hit doctor." One subject admitted injecting in shooting galleries or drug using place (Lawal *et al.*, 2003). Similarly, in Kano City, 9.5%, 19% and 14.3% of the injectors shared cooker, filter or rinsed water after injecting, drew up drug from a common solution shared by others and injected with a syringe after someone had squirted into it respectively. Twenty-nine percent of subjects reported injecting in an indoor shooting gallery and an outdoor shooting gallery or drug using place while 38% injected in a "safe injecting" room (Lawal *et al.*, 2003). From the five city study's pooled data,

subjects reported that they injected with pre-filled syringe (35%); shared cooker, filter or rinse water after injecting (44%); drew up drug from a common solution shared (38%) and injected in an indoor shooting gallery or drug using place (64%) (Lawal *et al.*, 2005).

Sexual risk practices: The majority of drug users (NIDUs and IDUs) reported having sex with someone of the opposite sex 6 months before the study, ranging from 51% in Lagos to 91% in Maiduguri. In Lagos, 30% and 7% of all respondents respectively claimed to have engaged in sexual intercourse with casual partners and "clients" in the past 6 months and only 40% reported "always" using condoms when they had sex with casual partners or clients of the opposite sex during the period (Adelekan *et al.*, 2000). Lawal *et al.* (2005) noted that less than 20% of the IDUs and NIDUs in the five city study used condoms either occasionally or always during sexual intercourse. The frequency of condom use was lowest in Port Harcourt (12%) and highest in Maiduguri (91.3%).

HIV test results: The HIV test results are shown in Table 4. For the Lagos sample, there was no significant difference between HIV rates obtained for NIDUs and ever-injectors (10% v. 8.9%). Further disaggregation of the data by gender revealed that female users were significantly more likely to be HIV positive compared with their male counterparts, regardless of their injecting status. Other significant correlates of HIV positivity obtained in the Lagos study included younger age group (<30 years of age); lower educational attainment; history of having sex with a "client" in the past 6 months; and self-report of commercial sex work as a main source of income compared with other sources of income. However, HIV positivity was not significantly correlated with history of

ever injecting, current injecting or injecting sharing behaviour variables (Adelekan *et al*, 2000). More female than male users (IDUs and NIDUs) tested positive in the two-city and five-city

studies. However, the injecting status of subjects did not appear to significantly influence the HIV results (Lawal *et al.*, 2003; 2005).

Table 4. HIV test results in the 3 studies reviewed

Drug users	Lagos study Adelekan et al, 2000	2-city Study Lawal et al, 2003	5-city study Lawal et al, 2005
All drug users	9.8% (35/358)	9.7% (11/113)	6% (36/514)
Males overall	4.2% (13/308)	6.7% (6/90)	5% (23/459)
Females overall	44% (22/50)	21.7% (5/23)	14.6% (8/55)
Ever IDUs	8.9% (7/79)	0% (0/11)	7.9% (10/127)
Current IDUs	11% (6/54)	NA	NA
Never IDUs	10% (28/279)	10.8% (11/102)	5.4% (21/387)
Male ever IDUs	4.3% (3/71)	NA	NA
Male never IDUs	4.3% (10/233)	NA	NA
Female ever IDUs	50% (4/8)	NA	NA
Female never IDUs	43% (18/42)	NA	NA

NA: Data sets not available

Service availability and utilization:

The respondents indicated the availability of a broad range of services including religious-based, traditional healers, drug users' organisations, or a combination of these. However, roughly 25% of the subjects in the Lagos study and less than 10% in the two city study reported ever having received treatment intended to help modify their drug habits. About a third of the subjects reported they had encountered difficulty in getting drug treatment if they needed it in Lagos and Port Harcourt. Lower figures of 13.3% and average of 14.7% (range: 3.3 – 24.8%) were obtained in Kano and the five city study respectively. Inability to pay was the main reason cited by 85% of subjects in Lagos and 35% in Port Harcourt. The interview of the policy makers responsible for providing care and treatment facilities revealed a low level of awareness of the emerging drug injection problem. The policy makers interviewed in Lagos acknowledged the poor state of affairs with regard to the provision of

services for drug users, but expressed helplessness in effecting an immediate improvement of the situation.

DISCUSSION

The inclusion of Lagos, Nigeria in the WHO Phase II IDU study in 2000 provided a unique opportunity for interested researchers to investigate IDU and related issues (Adelekan *et al.*, 2000). This pioneer IDU study was significant in several other ways. First, it facilitated the training of a group of researchers in the use of WHO IDU RAR and survey research techniques and instruments. The original research group also formed the core of the team that conducted similar studies conducted in two other state capitals in 2003 and later five state capitals in 2005 under the auspices of UNODC, Nigeria (Lawal *et al.*, 2003; 2005). Secondly, the expertise gained from the Lagos study was shared with researchers in other African countries (e.g. Kenya in 2000). Thirdly, the RAR

process facilitated the identification of IDUs, who previously had escaped the net of the previous assessments. The RAR process involved the interviewing of and participation by key stakeholders. This process stimulated interest and raised awareness about the IDU and HIV/AIDS issues.

However, the three Nigerian studies reviewed in this report should be appraised within the context of their limitations, including the small sample size of IDUs recruited in all the studies. In Port Harcourt and Benin, low recruitment was due largely to dangerous field situation encountered by the researchers in those cities. Other limitations were the use of the unlinked, anonymous method for serological testing and the use of verbal rather than written consents. Although the latter limitations were explicable on the basis of existing local conditions, they nonetheless raised major ethical issues. Further, although the three studies employed the same WHO IDU survey instrument, the data were not always analyzed to the same level. Thus, head-to-head data comparison across the three studies has not been possible on some key variables of interest, for example, injecting and sexual risk behaviours and HIV serology results.

The above limitations, notwithstanding, the studies have shown convincingly that IDUs do exist among street-recruited drug users in eight widely spread geopolitical zones of Nigeria. The snowballing technique facilitated the recruitment of IDUs through their existing networks. Further, the Lagos study revealed that almost two out of every three injectors recruited actually injected for the first time locally, contrary to the previously held belief that IDU is largely a foreign phenomenon.

There is still no answer to the vital question of the extent of the IDU problem

in Nigeria or the impact of injecting drug use behaviours on HIV transmission. The three IDU studies reviewed in this report did not set out to quantify the extent of IDU, but simply to employ the RAR methods to confirm the existence of the problem in the country. It took intensive fieldwork for 2-4 weeks each in eight of the most cosmopolitan cities in the country for researchers to recruit a total of 90 current IDUs and 145 ex-IDUs. The authors opine that although the figures of injectors recruited in these studies were fairly small, they may represent only the tip of the iceberg. Barriers to recruitment of IDUs include stigmatisation of drug use in general and IDU in particular, criminalisation of drug use and the suspicion by users that researchers might be agents of the National Drug Law Enforcement Agency. There was also the absence of low threshold, affordable and accessible treatment centres from which drug users could be recruited. Future research should be designed to allow for recruitment over a much longer period of time. The establishment of low threshold HIV prevention services for drug users could facilitate such recruitment.

None of the three studies reviewed in this report found significant differences between HIV rates in IDUs and NIDUs. For example, the Lagos study found a HIV rate of 8.9% for IDUs compared with 10% for NIDUs. Further, the Lagos study did not reveal any significant correlation between HIV positivity and history of ever-injecting, current injecting or any of the injecting sharing behaviour variables (Adelekan *et al*, 2000). Similarly, in the pooled findings of the five city study, more than two-thirds of the HIV positive subjects were NIDUs. These findings would suggest a fairly low contribution of the IDU phenomenon as a driving force of the HIV/AIDS epidemic in Nigeria. Possible reasons for the

current state of affairs could include the relatively small number of IDUs recruited in the reviewed studies compared to the NIDU group, as well as the low rates of reported frequency of injection and sharing. The lack of association between IDU and HIV notwithstanding, the findings in the Lagos and five city studies of about 8% HIV prevalence rates among ever-injectors should serve as a warning shot that the rates could escalate very quickly over a short period of time as has been experienced in other countries such as Ukraine (Rhodes, Ball, Stimson, Kobysheva, Fitch et al., 1999), Kazakhstan (Honti Beniowski, Chebotarenko, Rumjantseva et al., 2000), India (Manipur) (Ball, 2000), Spain (Wiessing, 2000) and Argentina (Rossi, Touze, Weissenbacher, 2000). Policy makers should therefore waste no time in establishing appropriate intervention services.

In all the three studies reviewed in this report, female drug users (IDUs and NIDUs) were more likely to be HIV positive compared with their male counterparts. In the Lagos study, female users were significantly more likely to be HIV positive compared with their male counterparts, regardless of their injecting status (Adelekan et al., 2000). Similarly, the HIV rates for female users overall was about three times the rate for male users in both the two city and five city studies (Lawal et al., 2003; 2005). Further, the Lagos study revealed a significant correlation between HIV positivity and a history of commercial sex work and low level of condom use among the female subjects. In addition to this consistent statistical finding of a higher HIV vulnerability among the female users, the FGDs also revealed information that this group of users engage mainly in commercial sex work as the means of funding their drug habit. It is important to

note that the female users could serve as the transmission link of HIV infection to their sexual partners, drug using and non-drug using alike. They could also transmit the HIV virus perinatally to their children. These findings strongly suggest that while intervention strategies should target both genders, there is a clear need to pay greater attention to the special conditions and needs of the female users.

Some IDUs in all the reviewed surveys reported considerable risk taking behaviours in their drug using habits. Users reported preparing injecting solutions in non-sterile ways, injecting with a pre-filled syringes, drawing up drug from a common solution, shared cookers, filters or rinse water after injecting and failing to observe hygienic and sterility rules in the whole process of injecting. Some subjects admitted to being injected in "shooting galleries." However, in addition to the fact that IDU numbers in the three studies were fairly small, the frequency of the injection risk practices were generally low and did not seem to have impacted in any significant way on HIV positivity rates. Similar to injecting risk behaviours, the studies also found that many drug users engaged in risky sexual behaviours with both regular and casual partners. Our findings thus suggest that prevention programmes should include measures aimed at minimising the spread of blood-borne viruses among drug users through risky injecting and sexual behaviours.

All the studies reviewed in this report found substantial evidence of limited availability of services and limited utilization of scant existing services by drug users. Adelekan and Morakinyo (2000) noted that orthodox treatment facilities were inadequate in number and widely dispersed, and most facilities (including the government-funded ones) were too expensive for the average

Nigerian to afford. Many drug users found it difficult to present voluntarily at treatment and rehabilitation centres due to the fear of possible intimidation or arrest by law enforcement agencies. The more disquieting finding was the general lack of awareness by policy makers and health practitioners of the emerging injection drug use and HIV among drug users. Furthermore, drug use remains a highly criminalised activity and drug users are stigmatised and treated as nuisances and criminals in the country. Untreated and uncared for, this marginalised group will continue to suffer major deprivations and fatalities, while at the same time providing a potentially major source for the spread of HIV to the larger community. The data generated from the reviewed studies should be used to inform the establishment and provision of accessible, affordable, sustainable and multi-purpose drug services for the large pool of untreated drug users roaming the streets of major towns and cities in the country.

Despite the relatively small number of IDUs recruited and other technical limitations highlighted in the report, the three studies reviewed have convincingly confirmed the existence of IDUs in all regions of Nigeria. However, the real extent of the IDU problem remains unknown. Injecting risk behaviours were reported to varying degrees but did seem to have affected HIV positivity rates in any significant way. Female drug users, irrespective of their injection status, were significantly more likely to be HIV positive than their male counterparts. The studies noted the limited availability of services and the very low rate of utilisation of available services mainly due to affordability problem. Further, there remains a low level of awareness of the emerging twin problem of IDU and HIV among stakeholders.

Although the reviewed studies have confirmed the existence of pockets of IDUs in various cities of Nigeria, a surveillance system should be established to monitor and track IDUs in the country, including in different settings such as inpatient, rehabilitation centres and prisons. A national policy is urgently needed to address the problem of IDU in relation to the transmission of HIV, other blood borne infections and other adverse health consequences. The policy could form an integral part of the National HIV/AIDS control programme. Based on the findings of our studies, there is an urgent need for relevant stakeholders to establish low threshold, accessible and affordable preventive and treatment services for drug users in general, and IDUs in particular.

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REFERENCES

- Adamson, T.A. (1992). The first HIV seropositive drug addict in Ogun State: A case report. *Nigerian Medical Journal*, 23, 85-88.

- Adelekan, M.L. & Adeniran, R.A. (1988). Psychosocial and clinical profile of hospital-managed drug abusers in Nigeria. *Nigerian Medical Journal*, 18 (4), 461-468.
- Adelekan, M. L. & Morakinyo, O. (2000) *A Rapid Assessment of Treatment and Rehabilitation Facilities for Drug Dependent Persons in Nigeria* (Eds. O. A. Odejide), UNDCP, Lagos.
- Adelekan, M. L., Lawal, R. A., Akinhanmi, A. O., Haruna, A.Y. A. et al. (2000). Injection Drug Use and Associated Health Consequences in Lagos, Nigeria. *2000 Global Research Network Meeting on HIV Prevention in Drug-Using Populations, Third Annual General Meeting, Durban, July 2000*, pp 27-41, National Institute on Drug Abuse, Baltimore, USA.
- Asuni, T. (1964). Socio-psychiatric problems of cannabis in Nigeria. *Bulletin on Narcotics*, 16 (2), 17-28.
- Ball, A. (2000). Epidemiology and Prevention of HIV in Drug-Using Population: Global Perspective. *1999 Global Research Network Meeting on HIV Prevention in Drug-Using Populations, Second Annual Meeting Report, August 26-28, 1999, Atlanta, Georgia*, pp. 8 –11, National Institute on Drug Abuse, USA.
- Boroffka, A. (1966). Mental illness and Indian hemp in Lagos, Nigeria. *East African Medical Journal*, 43, 377-384.
- Honti, J., Beniowski, M., Chebotarenko, N., Rumjantseva, T. et al. (2000). Central-Eastern European Harm Reduction Network Report. *1999 Global Research Network Meeting on HIV Prevention in Drug-Using Populations, Second Annual Meeting Report, August 26-28, 1999, Atlanta, Georgia*, pp. 29-32, National Institute on Drug Abuse, USA.
- Inem, V., Ekpo, M., Agomoh, A., Agbo, S., Doherty, T. & Yakubu, Z. (1999). Drug Use and HIV profile of "Area Boys and Girls" (ABG) in a Rehabilitation Programme in Lagos, Nigeria. *Nigerian Quarterly Journal of Hospital Medicine*, 9 (1), 11-16.
- Lawal, R.A, Ogunsemi, O.O., et al (2003). Report of a Rapid Situation Assessment of Injecting Drug Use, HIV and other Risk Behaviours among Drug Users in Two Nigerian Cities – Kano and Port Harcourt. UNODC, Lagos.
- Lawal, R.A. Ogunsemi O.O., et al. (2005). A Rapid Situation Assessment and Response Study of Drug Use, Injecting Drug Use, HIV/AIDS and other Risk Behaviours Among Drug Users Targeting Five Nigerian Cities. UNODC, Lagos.
- Lambo, T.A. (1965). Medical and social problems of drug addiction in West Africa, with special emphasis on psychiatric aspects. *Bulletin on Narcotics*, 17 (1), 3-13.
- NDLEA. (1999). Report of the Rapid Situation Assessment of Drug Abuse in Nigeria, National Drug Law Enforcement Agency, Lagos.
- Odejide A.O. & Sanda, A.O. (1976). Observations of drug abuse in Western Nigeria. *African Journal of Psychiatry*, 2, 203-209.
- Oviasu, V.O. (1976) Abuse of stimulant drugs in Nigeria: a review of 491 cases. *British Journal of Addiction*, 71, 51-63.
- Rhodes, T., Ball, A., Stimson, G. V., Kobysheva, Y., Fitch, C. et al. (1999). HIV infection associated with drug injecting in the Newly Independent States, eastern Europe: the social and economic contexts of epidemics. *Addiction*, 94 (9), 1323 –1336.
- Rossi, D., Touze, G. & Weissenbacher, M. (2000). HIV Prevention in Injection Drug Users in the Southern Cone of Latin America. *1999 Global Research Network Meeting on HIV Prevention in Drug-Using Populations, Second Annual Meeting Report, August 26-28, 1999, Atlanta, Georgia*, pp. 68-71, National Institute on Drug Abuse, USA.
- The World Factbook. (2006). Nigeria Country Information. Accessed from www.cia.gov/cia/publications/factbook/geos/ni.html
- UNAIDS/WHO. (2006). Report on the global AIDS epidemic, UNAIDS, Geneva.
- UNDCP. (1998). Economic, Social and Political Analysis of Illicit Drug Trends in Nigeria. *Report of a study conducted under the auspices of the United*

DRUG USE AND HIV INFECTION IN NIGERIA

- Nations International Drug Control Programme, Vienna, Austria, Project No AD/RAF/97/C48 by Centre for African Settlement Studies and Development (CASSAD), Ibadan.*
- Wiessing, L.G. (2000). Prevention of HIV, HBV and HCV in Injection Drug Users in the European Union. *1999 Global Research Network Meeting on HIV Prevention in Drug-Using Populations, Second Annual Meeting Report, August 26-28, 1999, Atlanta, Georgia*, pp. 35-38, National Institute on Drug Abuse, USA.
- World Health Organization. (1998). *The Rapid Assessment and Response Guide for Injecting Drug Use*, WHO, Geneva.
- World Health Organization. (1999). *The WHO Drug Injecting Phase II Questionnaire, Version II*, WHO, Geneva.

HIV AND SUBSTANCE ABUSE: THE DUAL EPIDEMICS CHALLENGING ZANZIBAR

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ABSTRACT

HIV prevalence in Zanzibar ranges from 0.6% in the general population to 0.9% in antenatal clinic attendees. As in most low prevalence countries, the epidemic is thought to be concentrated in most-at-risk populations (MARPs) including drug users (DUs) and commercial sex workers (CSWs). This study was conducted to determine the prevalence of HIV and other selected infections in a population of DUs in Zanzibar. Between September–October 2005, snowball sampling was used to identify DUs residing in Zanzibar on the islands of Unguja and Pemba. Consenting participants responded to a questionnaire on drug use practices and sexual behaviour. A blood sample was drawn and tested for HIV (Capillus & Determine), hepatitis B & C (Acon rapid test) and syphilis (RPR). A total of 508 persons (26 female and 482 male) self-identified DUs participated in the study. Median age was 31 years, ranging between 17 and 68 years. Injecting drug users (IDUs) accounted for 38.9% (n=198) of the study participants, of whom 46.1% reported to have shared needles; and 9.1% used flashblood (McCurdy et al, 2005). DUs spent an average of US\$8.2 per day to support their habits. The prevalence of tested infections was higher in IDUs compared with non-IDUs (HIV: 30% v.12%; hepatitis C: 22% v.15%; syphilis: 17% v. 10% respectively). IDUs who shared needles had higher infection rates compared to those who did not (HIV: 28% v. 5%; hepatitis C: 31% v. 7%). Injection drug use and needle-sharing are common among IDUs in Zanzibar and result in high prevalence of blood-borne infections. IDUs could present a bridge population for the spread of HIV into the general population in Zanzibar, and interventions are urgently needed to prevent this spread.

KEY WORDS: drug use; injection drug use; STI and hepatitis

INTRODUCTION

Zanzibar is comprised of two main islands, Unguja and Pemba, located off the eastern

Coast of Zanzibar, south of the equator. Zanzibar has an annual growth rate of 3.1% and a total population of 1,078,964 (National Bureau of Statistics, 2002).

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During the 1980s, Zanzibar began to document the growth of two intertwining epidemics, HIV/AIDS, and the increased use of illegal substances with negative outcomes. The first case of HIV/AIDS in Zanzibar was diagnosed in 1986. Routine antenatal clinic (ANC) surveillance of pregnant women has documented HIV prevalence of <1%. Similarly, a HIV magnitude validation survey¹ and a recently finalized ANC surveillance report have documented HIV prevalence as 0.6% (ZACP, 2003) and 0.87 % (ZACP, 2006a) respectively. The validation survey also documented higher HIV prevalence in females (0.9%) than in males (0.2%); with heterosexual transmission as the primary route of infection (Zanzibar AIDS Commission, 2003). The prevalence of HIV infection is highest in women between 15-29 years. Concurrently, voluntary HIV counselling and testing (VCT) data have shown an annual increase in the positively diagnosed subjects from 180 in 1999 (ZACP, 1999) to 690 in 2006 (ZACP, 2006b). The estimated HIV burden at health care delivery points is 4.02% (Fedeli et. al, 2002).

Drug abuse in Zanzibar

Zanzibar is located along an important corridor for drug trafficking (Zanzibar AIDS Commission, 2003). In recent years Zanzibar has documented increasing numbers of young people consuming illicit drugs (Mkapa, 2002). It is estimated that 3.1% of the adult drug using population are injecting drug users (IDUs) (WHO, 2003). Both males and females have been implicated in drug trafficking activities. There also has been an increase in drug trafficking activities

¹ Validation survey: A community based HIV prevalence survey conducted to determine HIV population prevalence among the sexual active population.

from 2001 – 2004 (Zanzibar Police, 2004).

Data on emerging epidemics of HIV among drug users in Zanzibar

Zanzibar has a concentrated HIV epidemic. The recently observed upsurge in illicit drug use has prompted authorities in Zanzibar to act quickly in order to contain the situation and mitigate accompanying consequences. In countries documenting significant drug use, drug users (DUs) are particularly vulnerable to HIV. This vulnerability is increased by the presence of injecting drug use and needle sharing among HIV-infected IDUs. These observations have been documented in Asian and North African countries and in South Africa (Wodak et. al, 2004; Reihman, 1996). In Zanzibar, addressing the HIV prevention needs of vulnerable populations has been acknowledged as a national priority (Zanzibar AIDS Commission, 2005; ZACP, 2005).

Prior to 2005, there were no data that linked HIV and substance abuse in Zanzibar. In recognition of the need to fill this gap, a special exploratory assessment study was designed and conducted in the islands to determine the prevalence of HIV among DUs and to identify, describe, and document sexual and drug using risk behaviours among DUs in Zanzibar.

METHOD

This exploratory cross-sectional study involved primary data collection to document HIV and sexually transmitted infection (STI)-associated risk behaviours and patterns of STI infection among DUs. A snowball sampling approach was used in which rehabilitated and reformed DUs helped to recruit potential participants. This approach

increased trust and encouraged participation among members of this hidden population. Qualitative (focus groups discussions [FGDs] and key informant interviews) and quantitative (semi-structured, pre-tested questionnaire) data collection was carried out in neutral sites. A modified WHO-Rapid Assessment and Response (RAR) questionnaire was used to collect quantitative data. Collected data included demographic information; basic information on drug use (including predisposing factors to drug abuse; amount and type of consumed drugs; drug related behaviour); sexual behaviours, and key challenges facing drug users in Zanzibar. The study recruited 508 self-identified DUs who were over 12 years of age. Verbal consent was obtained from study participants prior to recruitment and during blood sample collection. The decision to seek verbal rather than written consent was based on concerns about associated stigma in this sub-population and high cultural sensitivity regarding drug use. Based on this, an anonymous unlinked approach was applied. Ethical clearance was sought from the Zanzibar Health Research Council and from the police anti-narcotics section. Verbal consent for blood sample collection was sought from study participants.

Collected specimens were labelled and transported to a central laboratory and processed to analyze the presence of (i) HIV (rapid test and Elisa); (ii) hepatitis B & C (Acon rapid test); (iii) syphilis (using RPR and TPHA). Biological samples were also subjected to internal and external quality control. Drug samples (brown and white heroin) were collected and submitted to the Chief Government Chemist for analysis. Collected data were entered, cleaned and analyzed using Microsoft Excel and Epi-

Info for Windows version 3.2.2 of 2004 and SAS.

RESULTS

A total of 508 participants were recruited. Ninety-two (18.1%) were residents of Pemba Island and 416 (81.8%) residents of Unguja Island. Female DUs accounted for 5.1% (26/508) of the study participants. More than half (51.9%, 264/508) of the study participants were aged 25 to 34. Never married participants accounted for the majority of study participants (59.4%, 302/508); (20.4%, 104/508) were divorced. Three times as many females (53.8%, 14/26) were divorced than were males (18.7%, 90/482). Marriage was more common among men compared to women, who were more likely to be cohabiting. Most of the study participants had either a primary (42.3%, 215/508) or a secondary (50.4%, 256/508) school education. Drug users came from diverse occupational background where petty trade (21.7%, 111/508) and casual labour (15.9%, 81/508) were the most common occupations.

Injection drug risk behaviours

Of the 508 study participants, 198 (38.9%) were IDUs. The prevalence of IDUs was higher in Unguja (41.0%) compared to Pemba (30.0%). The proportion of male IDUs (39.6%, 191/482) was larger than the proportion of female IDUs (26.9%, 7/26).

Blood sharing or “flashblood” is a practice in which one IDU with no access to drugs gets an aliquot of blood from a friend who has just injected himself with a drug. The first IDU draws blood back into a syringe until the barrel is full and then passes the syringe to the second injector. This practice has been documented since at least 2005 in female IDUs in Dar es Salaam, Tanzania (McCurdy et al, 2005). In Zanzibar, the

practice of sharing flashblood was documented in 9.1% (18/198) of male IDUs all of whom were from Unguja Island in the Urban District.

Although IDUs are already at high risk of contracting blood borne infections, their vulnerability is increased by the practice of needle sharing because of the risk of sharing residual and potentially infected blood across users. Needle sharing was reported by 45.9% (91/198) of the IDUs. About 46.6% (89/191) of male IDUs shared needles. About 29.8% (59/198) of IDUs reported that water cleansing of injecting paraphernalia (syringes) was the most commonly practiced sterilization technique.

Drug costs and coping strategies

In FGDs, participants emphasized that drug users “*spend as they earn*,” with IDUs reportedly spending the equivalent of US\$8.2 per day, or an average of US\$246 per month, an amount that is extremely high when compared with Tanzania’s 2005 per capita income of US\$330 (World Bank, 2006). Coping strategies used to support a drug habit include pursuing legal but low paying jobs or engaging in illegal and other high risk behaviours such as sex work, theft, and selling drugs.

DUs in Zanzibar are aware of the negative effects of drug abuse. A total of 79.3% (403/508) of respondents acknowledged knowing individuals who had negative outcomes from drug use and who could name the individuals, the adverse effects, and the individuals’ places of residence. Forty-three percent of respondents mentioned HIV and drug use associated deaths (220/508); 14% mentioned HIV/TB infections; other medically-associated conditions such as mental disorders, paralysis, pneumonia, tetanus and public intimidation accounted for the remaining adverse effects mentioned by respondents. However,

20.7% (105/508) could not associate drug use to any negative effects.

Sexual risk behaviours of drug users in Zanzibar

Sexual behaviour plays an important role in the transmission of HIV and other STIs. The rapid assessment also examined risky sexual behaviours that overlap with drug use. Fifty-nine percent (300/508) of DUs reported having had their sexual debut between the ages of 15-19 years; 22.6% (115/508) between the ages of 20-24 years; and 7.1% (36/508) under the age of 14 years. The median age for sexual debut was 18 years of age. The majority of DUs reported a preference for vaginal sex with caressing and more than 50% reported engaging in oral sex (cunnilingus and fellatio). Of all the reported sexual behaviours, anal sex (receptive) has the highest transmission risk of sexually transmitted infections such as HIV, and hepatitis B and C. Only one female reported a preference for anal sex compared to 126 (26.1%) males. It is important to note that participants were asked about sexual preference and not specific sexual behaviours; however, given the number of male participants who indicated a preference for anal sex (34.0%; 65/191), there is some concern about the frequency with which high risk anal sex may be occurring among DUs in Zanzibar.

Nearly 71% (359/508) of the study participants reported having multiple sexual partners in the past 12 months. Females reported higher numbers of multiple sex partners compared to males 76.9% (20/26) v. 70.5% (340/482). Eleven (11) of 21 females (52.3%) reported five or more sex partners in the last 12 months. About 11.6% of male study participants (56/482) reported having had at least five (range 5-130) sexual partners in the last 12 months. Five of the study participants said that the partners were too numerous to

remember. Participation in group sexⁱⁱ was reported by 16.3% of study participants. This practice was lower in females 7.7% (2/26) compared to males 23.0% (111/482). Some female IDUs (85.7%; 6/7) reported exchanging sex for drugs. An equal proportion reported having five or more sex partners in the past 12 months while only 7.9% (15/191) of male IDUs reported having exchanged sex for drugs. Documented group sex participation was three times as common in males (23%; 111/482) as in females (7.7%; 2/26). Forty-seven percent of respondents reported witnessing group sex in exchange for drugs while 50.1 % (255/508) witnessed group rape of an overdosed DU.

HIV Infection rates among drug abusers

The overall prevalence of HIV among DUs was 13%. The HIV prevalence was higher in women (30.7%; 8/26) compared to men (12.0%; 58/482- $p \leq 0.001$). HIV infection in Pemba was lower (3.3%) compared to those documented in Unguja (15.1%). The highest prevalence of HIV infection is found among DUs aged 30-34 years. HIV prevalence among DUs (12.9%) is significantly higher compared to that in the general population (0.6%).

HIV infection rates were almost two times higher among participants who reported five or more sex partners (15.8%-32/202) compared to those with only one partner 7.8% (9/115). Male DUs who reported having had anal sex (19.9%; 96/482) had twice the risk of contracting HIV infection compared to those who did not (10.5%; 51/482 – $p < 0.001$). The prevalence of HIV infection was 26.2% among IDUs compared to 4.5% in non-injecting drug users ($p \leq 0.0001$). The HIV infection rates among those who reported

ⁱⁱ Group sex: entail sexual activities performed to a DU by his/her peers as a result of drug overdose or as a means of acquiring drugs (coping strategy) to maintain the drug taking habit.

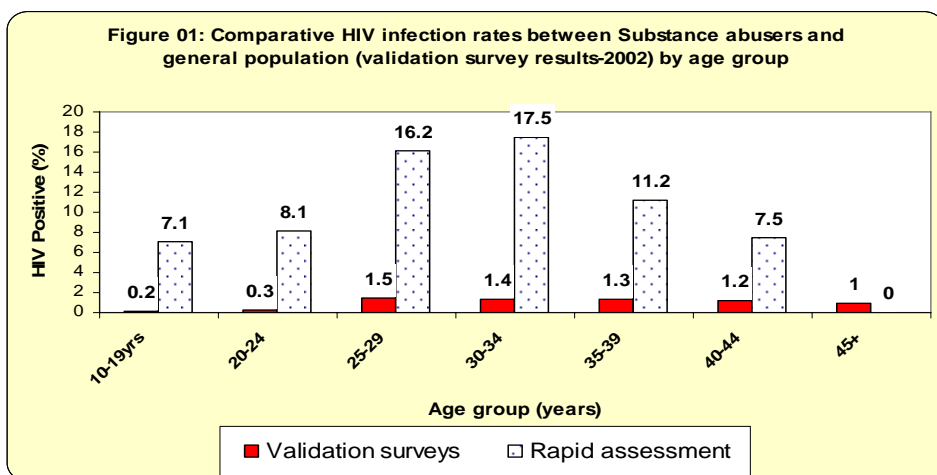
sharing needles was 28%. Prevalence of HIV was higher in those with only primary school education (17.5%; 36/206) compared to those with a secondary school education (10.2%; 25/245). The prevalence of HIV was higher among single (14.4%; 42/292) and divorced (14.1%; 14/99) participants than in married (6.8%; 5/74) and cohabiting (9.5%; 2/21) participants. Attempts to compare HIV infection rates between DUs and the general population by marital status revealed higher rates in the DUs than in the latter.

HIV prevalence among Injecting Drug Users (IDUs)

Nearly all participants (98.2%; 499/508) reported using heroin in the form of white and brown sugar. Heroin was the only injectable drug reported in this population. There were 300 participants who were using but not injecting heroin. The prevalence of HIV among injecting heroin users was 26.2% (50/191) compared to 4.1% (13/316) among non-injecting heroin users. Needle sharing was reported in 91 of the 198 IDUs. The prevalence of HIV among those IDUs who shared needles was 28.4% (25/88ⁱⁱⁱ), compared to IDUs who did not share needles at 24.70% (23/93), compared to non-IDUs at 4.2% (13/310).

Non-IDUs had the lowest infection rates (5.0%). The difference in HIV prevalence between IDUs and non-IDUs was statistically significant in males but not in females (Males: 25.8% v. 2.8%; $p=0.0001$; Females: 40.0% v. 27.8%). When IDUs were stratified by needle sharing, infection was 28.4% in those who shared needles compared to 24% in IDUs who did not share needles.

ⁱⁱⁱ The results of three samples were not conclusive-for laboratory diagnosis.



Source: Zanzibar AIDS control programme (ZACP/MOHSW) validation survey report -2003

Table 1. HIV prevalence by injecting heroin use

Heroin-IDU	Number in Sample	HIV prevalence	
		N	%
Non-injecting heroin user	288	13	4.5
Injecting heroin user	191	50	26.2
Non-injecting, non-heroin user	9	0	0
IDU & Needle Sharing			
Non-IDU no needle sharing	219	11	5
IDU, no needle sharing	93	23	24.7
IDU, needle sharing	88	25	28.4

Other infections

The assessment documented the overall prevalence of hepatitis C among IDUs in Zanzibar at 15.5% (74/478^{iv}). Hepatitis C prevalence was higher in female participants (21.7%, 5/23) compared to male participants (15.1%, 69/455), and also higher in study participants with anal sexual preferences (21.3%, 26/122) compared to 13.6% of those who did not ($p=0.04$). Hepatitis B infection was low among participants with prevalence of 2.1% (10/479^v) in males and 0% in females.

The study revealed an overall syphilis prevalence of 9.9 % (48/486) being

^{iv} 30 samples were not enough for the laboratory processing and diagnosis of HCV. (SNE-sample not enough)

relatively higher in females compared to males at 17.4% (4/23) and 9.5 % (44/463) respectively.

Co-infections

The study also documented co-existence of multiple infections among the DUs. Nearly 40% of infected DUs are co-infected with HIV and hepatitis C. Further analysis to rule out co-infection was conducted on all study participants who were found to be infected with either HIV; hepatitis C and B; or syphilis. Marked level of co-infections was documented especially between HIV/hepatitis C; hepatitis C/syphilis; HIV/syphilis and hepatitis B/Syphilis as shown in Table 2.

^v 29 samples were not enough for HBV analysis.

Table 2. Prevalence of co-infections

Co-infections	Number in sample	Prevalence of Co-infection	
		n	%
HIV and Hepatitis C	59	20	33.9
HIV and Syphilis	61	9	14.8
HIV and Hepatitis B	59	1	1.7
Hepatitis C and Hepatitis B	74	4	5.4
Hepatitis C and Syphilis	74	16	21.6
Hepatitis B and Syphilis	10	2	20.5

There were challenges in reaching this hidden population. The involvement of former substance users facilitated access to DUs; however, the study team encountered additional socio-cultural barriers to recruiting female study participants that called for special recruitment strategies and transportation arrangements. Female participants were recruited only in Unguja, and not in Pemba. The strength of snowball sampling is that it uses social networks to reach and recruit hard to access and socially marginalized hidden populations; however, the method may miss DUs who are not part of the network. Recall power limitation of study participants' is also a limitation of this study, especially in reporting daily drug consumption, number of sexual partners; and frequency of sexual behaviours. In addition, some participants may find it difficult to reveal socially undesirable and stigmatized behaviours such as drug use, commercial sex work, and anal sex.

DISCUSSION

There is a lack of detailed information and literature on the sex and drug-related behaviours that put DUs in Zanzibar at risk for HIV, hepatitis C, and STIs. The existing surveillance and monitoring systems cannot routinely capture and link

HIV to substance use. The results of this assessment underscore the need to monitor and track HIV and STIs among most-at-risk populations (MARPs) including DUs. The study has documented that the majority of DUs in Zanzibar are middle-aged single men with a primary to secondary school education who live in the urban areas of Unguja Island and engage in petty trade or casual labour. Results of this assessment indicate that the majority of DUs also are located in major towns while the predominant consumed drug in rural Zanzibar remains (illicit) alcohol and marijuana.

Blood sharing (flashblood) has been documented among CSWs in mainland Tanzania (McCurdy et al, 2005). The rapid assessment reported on in this paper documented for the first time the practice of sharing flashblood among male IDUs in one district in Unguja, Zanzibar. Flashblood emerges as another mode of cost sharing and a coping mechanism to sustain a drug habit among DUs. This practice has the potential to fuel the epidemic in Zanzibar, especially when the majority of male IDUs are married or have multiple sexual partners; potentially providing a significant bridge for HIV transmission to the general population. Furthermore, the documented high prevalence of needle sharing increases the likelihood that other blood borne

infections will spread in Zanzibar. Experiences in Asia demonstrate that needle sharing has contributed to HIV prevalence among IDUs (Wodak et al., 2004; CDC/GAP, 2004; Chu and Levy, 2005).

This study also documents high prevalence of HIV, and hepatitis B and C infection rates among DUs and IDUs in particular compared to those found in the general population. HIV infection among DUs and IDUs in particular has been fuelled by overlapping risks behaviours including injection drug use and needle sharing, multiple sexual partners, high levels of STIs, commercial sex work, the exchange of sex for drugs, and high risk sexual behaviours including anal sex. Similarly, the absence of proper sterilization techniques while sharing injecting paraphernalia contributes to HIV infection as well as other bacterial infections (Gordon and Lowry, 2005). Higher co-infection rates HIV/hepatitis C and syphilis/HIV infection rates have also been documented in countries where co-epidemic exists (Garten et al, 2005; Lopez-Zetina et al, 2000).

HIV RELATED DRUG ABUSE PREVENTION IN ZANZIBAR

Currently, in Zanzibar, HIV and drug abuse prevention campaigns are limited to increasing knowledge and awareness of HIV and have involved both government and civil society organizations (CSO's). The Zanzibar Multisectoral HIV Strategic Plan and the Zanzibar National HIV policy have strongly acknowledged the need for HIV prevention targeted for hidden populations. Efforts to mainstream HIV and drug abuse issues in Zanzibar are just beginning. Involvement of CSO's and community-based organizations (CBOs) and other community structures should include support to affected

families. Harm reduction strategies are acknowledged in key documents but are difficult to implement due to the existence of national policies, laws and regulations that are more culturally oriented. To prevent the coalescence of the HIV and drug use epidemics there is an unequivocal need to intensify the advocacy and demand for advanced HIV and substance abuse prevention, care and support services to all in need. We must support IDUs "as drug addicted people badly in need of health services and support from society rather than as criminals. Arrangements need to be in place to ensure that they are referred to care, treatment and rehabilitation rather than being taken to court" (Samdach Hun Sen, CDC/GAP, 2004).

CONCLUSION AND RECOMMENDATIONS

Monitoring the drug treatment and HIV/AIDS prevention, care and treatment needs of at-risk populations, particularly DUs, will shed more light on drug abuse related transmission dynamics in Zanzibar. The presence of risk sex and drug-related risk behaviours that lead to increased transmission of HIV and other blood borne infections calls urgently for holistic interventions that include prevention, care, treatment and support services for DUs in Zanzibar. Unequivocally, there is an urgent need to review and update the governing laws and policies that hamper the implementation of public health interventions to control and contain the co-epidemics among DUs.

Addressing stigmatised hidden populations should involve key actors from public and non-public sectors including CBOs and CSOs. As part of an overall approach to intervention, services that encompass VCT and HIV screening services and referrals; access to care and treatment

including HAART; needle exchange programmes and harm minimisation programmes; hepatitis management (prevention-immunization and treatment); rehabilitation services; and mobile home-based care services are crucial components in ensuring access to prevention and the continuum of care to the affected communities. There is need to scale up awareness campaigns and use reformed DUs as peer educators through HIV and DU clubs and drop-in centres in the country.

In conclusion, this rapid assessment has documented and described the HIV/STI transmission dynamics among DUs in Zanzibar. Further in-depth studies are needed to establish HIV patterns in other at-risk subpopulations to better establish the burden of HIV on at-risk households and care delivery facilities. More research also is needed to estimate the size of at-risk populations, and to document behavioural risk patterns among men who have sex with men; CSWs and persons in correctional facilities.

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REFERENCES

Centres for Disease Control and Prevention/Global AIDS Programme (CDC/GAP) (2004). Report on HIV prevention, care and treatment for drug users in CDC/GAP Asia Regional meeting Cambodia. Atlanta: CDC.

- Chu, T., & Levy, J. (2005). Injection drug use and HIV/AIDS transmission in China; Epidemiology and social studies. *Cell research*, 15(11-12), 865-869.
- Fedeli, P., Croce, F., Ramsan, M., Deho, L., Piatti, A., Dahoma, M.J., Albonico, M., et al. (2002). Report on the Sero-epidemiology for HIV, HBV, HCV and HTLV among patients attending public health clinics in Zanzibar-Tanzania. A hospital based HIV infection prevalence study report. ZACP/MOHSW and Sacco Hospital. Zanzibar: ZACP.
- Garten, R.J., Zhang, J., Lai, S., Liu, W., Chen, J., & Yu, X.F. (2005). Co-infection with HIV and Hepatitis C virus among injection drug users in southern china. *Clinical Infectious Disease*, 41 (supplement 1), S18-24.
- Gordon, R. & Lowry, F. (2005) Bacterial infections in drug users. *The New England Journal of Medicine*. 353(19), 1945-1954.
- Lopez-Zetina, J., Ford, W., Weber, M., Barna, S., Woerhle, T., Kerndt, P. & Monterroso, E. (2000). Predictors of syphilis seroactivity and prevalence among street recruited injection drug users in Los Angeles County, 1994-6. *Sexual Transmitted Infections*, 76(6), 462-469.
- McCurdy, S., Williams, M., Ross, M., Kilonzo, G., & Leshabari, M. (2005). 'Flashblood' and HIV risk among IDUs in Tanzania, August, 2005. Accessed from <http://bmj.bmjournals.com/cgi/eletters/330/7493/684#115307>.
- Mkapa, B. (2002): Presidential speech. Third council of home affairs minister meeting, Bwawani Hotel, Zanzibar. Date – Day and month. Or source of publication.
- National Bureau of Statistics (2002) Population and Housing Census, Tanzania. Dar es Salaam: NBS. ????
- Reihman, K. (1996): Drug use and AIDS in developing countries: Issues for policy consideration. Background paper for Confronting AIDS, World Bank, 1997. Washington: World Bank ????
- Wodak, A., Ali, R., and Farrell, M. (2004): HIV in injecting drug users in Asian countries. *British Medical Journal*, 329 (7468), 697-698.

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- World Bank. (2006). Tanzania Country Brief. 2006. Accessed on Oct 31, 2006 from www.webworldbank.org/
- World Health Organization (2003). Substance use in southern Africa – KAPB and opportunities for intervention. WHO: Geneva.
- Zanzibar AIDS Commission (2003). Situation and response analysis on HIV and AIDS, 2003. Ministry of Health, Zanzibar.
- Zanzibar AIDS Commission. (2005). Zanzibar national multisectoral HIV and AIDS strategic plan, 2005/2009. Ministry of Health, Zanzibar.
- ZACP (2006a). ANC surveillance report. Where and by whom? Ministry of Health, Zanzibar.
- ZACP (2006b). Report on the epidemiology of HIV among substance users in Zanzibar. Ministry of Health, Zanzibar.
- ZACP (2005). Zanzibar National HIV and AIDS policy (draft). Ministry of Health, Zanzibar.
- ZACP (2003). Community-based HIV magnitude validation survey, 2003. Ministry of Health, Zanzibar.
- ZACP (1999). HIV/AIDS Report No. 1. 1999. Ministry of Health, Zanzibar.
- Zanzibar Police (2004). Annual report: Anti Drug – Unit. Zanzibar Police, Zanzibar.

RISK BEHAVIOUR AND HIV AMONG DRUG USING POPULATIONS IN SOUTH AFRICA

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ABSTRACT

This paper reviews the epidemiology of HIV and the changing patterns of drug trafficking and use in South Africa. One in five adults (15 to 49 years) in South Africa is HIV positive with an unequal burden of the epidemic in terms of gender, race and age. In terms of illicit drugs, the biggest changes have been the increased trafficking and availability of various kinds of drugs, changing patterns of use (e.g. more use of stimulants and heroin) and demographic shifts in usage patterns, especially the use of heroin and methamphetamine by persons aged younger than 20 years. A review of existing local studies on drug-related HIV risk among drug users revealed that most of the studies focused on drug use as a risk factor for HIV infection among adolescents and female street sex workers, with very few studies conducted among injection drug users (IDUs). A paucity of research on HIV prevalence among drug users in South Africa was noted. This article also reviews current prevention strategies for addressing substance use in relation to HIV in South Africa and in the short-term recommends the implementation of risk reduction strategies that focus on reducing the adverse consequences of substance abuse. In the long-term, more integrated HIV and substance prevention programmes that include the biological, cultural, social, spiritual and developmental needs of individuals and groups are required to alleviate the double burden of drug abuse and HIV.

KEY WORDS: drug abuse, HIV, sexual risk behaviour, injection drug use

INTRODUCTION

South Africa is currently experiencing one of the world's most devastating HIV epidemics and was estimated to have 5.54 million people (18.8% for adults aged 15 to 49 years) living with HIV in 2005 (Department of Health, 2006). The factors associated with the rapid spread of the epidemic in South Africa include the burden of sexually transmitted infections (STIs), poverty and income inequality, malnutrition, unemployment, gender inequality, the growing commercial sex industry, a long history of labour

migration, inconsistent use of condoms and social norms that accept or encourage multiple sexual partners (Parry and Abdool-Karim, 2000; Pettifor et al., 2005; Shisana et al., 2005). The following section discusses the statistics from three national South African HIV prevalence surveys. The sources for these studies are the South African Department of Health, the Human Sciences Research Council (HSRC) and the Reproductive Health Research Unit (RHRU).

Since 1990 the South African Department of Health has conducted annual, unlinked, anonymous surveys

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among women attending antenatal clinics to derive an estimate of HIV prevalence among the general South African population. The rate is still on the increase

and in 2005 reached the unprecedented figure of 30.2% based on the sample of 16,510 women attending antenatal clinics across all nine provinces (Figure 1).

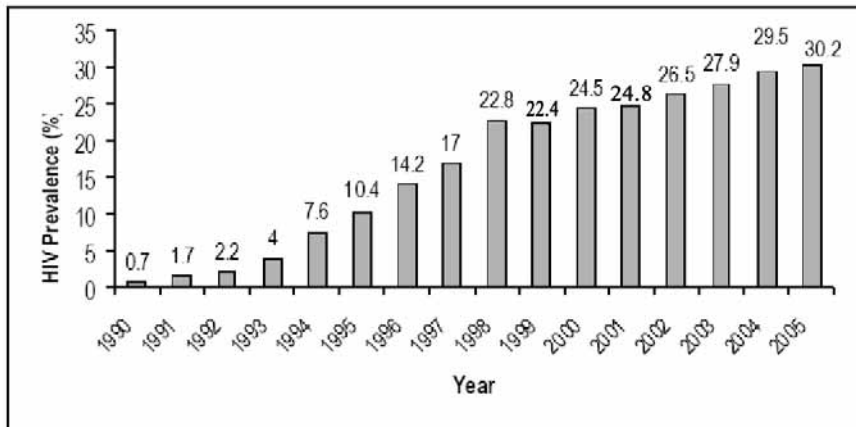


Figure 1. HIV prevalence trends in South Africa, 1990-2005: antenatal clinic attendees
Source: Department of Health, South Africa, 2006

Projections from the antenatal data estimated that the number of people infected with HIV in South Africa at the end of 2005 were as follows: women aged 15 to 49 years (2.94 million); men aged 15 to 49 years (1.96 million); and children aged 0 to 14 years (235,060) (Department of Health, 2006).

Among the antenatal clinic attendees HIV prevalence rates varied among the different age groups suggesting different patterns of risk. Women in their late 20s and early 30s had the highest HIV infection rates and teenagers the lowest. The prevalence rate for teenagers (aged 15 to 19 years) was 15.9% and for women aged between 25 and 34 years the rate was 38.0%. There were increases in prevalence across most age groups between 2004 and 2005, with the largest increase (24.5% to 28.0%) observed among women aged between 35 and 39 years (Department of Health, 2006).

South Africa’s first nationally representative survey of HIV/AIDS was conducted in 2002 by the HSRC (Shisana and Simbayi, 2002). The second in the

series took place in 2005 (Shisana et al., 2005). Based on the latter survey the overall HIV prevalence among persons aged 2 years and older was estimated to be 10.8%, slightly less than the 11.4% estimated in 2002. For adults aged 15 to 49 years HIV prevalence increased slightly from 15.6% in 2002 to 16.2% in 2005. HIV prevalence among females aged 15 to 49 years was 20.2% in the 2005 household survey, lower than the 29.5% found in the 2004 antenatal survey in which more than 90% of the participants were Black/Africanⁱ. However,

ⁱ The terms “Black/African”, “White”, “Coloured” and “Indian”, originate from the apartheid era. They refer to demographic markers and do not signify inherent characteristics. They refer to people of African, European, mixed (African, European and/or Asian) and Indian ancestry, respectively. These markers were chosen for their historical significance. Their continued use in South Africa is important for monitoring improvements in health and socio-economic disparities, identifying vulnerable sections of the population, and planning effective prevention and intervention programmes

when the findings were restricted to Black/African females aged 15 to 49 years, the overall HIV prevalence was 24.4%, and among those who were pregnant in the last 24 months the figure was 26.8%. Overall, females were more likely to be living with HIV and showed an increase in prevalence from 12.8% in 2002 to 13.3% in 2005, in contrast to males whose prevalence decreased from 9.5% in 2002 to 8.2% in 2005. Among

young females there was a striking increase in HIV prevalence which peaked at 33.3% in adults aged 25 to 29 years. For males, HIV prevalence increased more progressively and peaked at 23.3% in adults aged 30 to 34 years and those aged 35 to 39 years. However, from age 35 to 39 years onward more males than females were infected with HIV. Table 1 shows HIV prevalence by sex and age (Shisana et al., 2005).

Table 1: HIV prevalence among respondents aged 2 years and older by sex and age group, South Africa 2005

Age (years)	2-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+	Total
Male prevalence %	3.2	3.2	6.0	12.1	23.3	23.3	17.5	10.3	14.2	6.4	4.0	8.2
Female prevalence %	3.5	9.4	23.9	33.3	26.0	19.3	12.4	8.7	7.5	3.0	3.7	13.3

Source: Shisana et al., 2005

Reducing HIV risk among young people is known to be critical in curbing the HIV epidemic. Among youth aged 15 to 24 years, HIV prevalence in the 2005 survey was 10.3%, higher than the figure of 9.3% found in the 2002 survey. A significant increase in prevalence was found among females aged 15 to 24 years, from 12.0% in 2002 to 16.9% in 2005. For males in this age group HIV prevalence decreased from 6.3% in 2002 to 4.4% in 2005. These results confirmed the findings of the RHRU Youth Survey conducted in 2003. In this nationwide survey of 11,904 South Africans aged 15 to 24 years, HIV prevalence was 10.2% overall, with the figure among females considerably higher (15.5%) than found among males (4.8%) (Pettifor et al., 2005).

Seen together, these three prevalence studies provide a clearer picture of the South African HIV epidemic than either of them viewed alone. What is evident from each of these studies is that HIV prevalence is exceptionally high in South Africa and although it affects all segments of the population women are more likely to be living with HIV than men.

CHANGING PATTERNS OF DRUG TRAFFICKING AND USE

South Africa has experienced a considerable increase in drug trafficking and use of heroin, cocaine and amphetamine-type stimulants (ATS) since its first democratic election in 1994 and subsequent re-entry into the global economy. The country's geographic location, lax border controls, weak criminal justice system, modern telecommunications and banking systems and international trade links with South America, North America, Europe, and Asia have, unfortunately, resulted in South Africa becoming a desirable zone for the transshipment of drugs. Heroin (from Asia) and cocaine (from South America) are both imported into South Africa and also exported to Europe, North America and even Australia. Regrettably, it is now also without a doubt, the leading market for illicit drugs entering Southern Africa (Bureau for International Narcotics and Law Enforcement Affairs, 2006; Parry and Karim, 2000; Siegfried, Parry and Morojele 2001; UNODC 2002, 2005).

Unlike other sub-Saharan countries, South Africa is unique in that it has a well-developed capacity for surveillance and research on drug-related problems. The primary resource of this information is the South African Community Epidemiology Network on Drug Use (SACENDU) project which currently monitors alcohol and other drug use trends at six sentinel sites in South Africa. Four of these are large port cities (Cape Town, Durban, Port Elizabeth and East London) and two are provinces (Gauteng, a largely urban province that includes the cities of Pretoria and Johannesburg; and Mpumalanga, a mostly rural province that borders Mozambique, Swaziland, and Zimbabwe). SACENDU primarily uses secondary data sources such as treatment demand data and information from the South African Police Service's Forensic Science Laboratories (FSLs) (Parry et al., 2002; Plüddemann et al., 2005).

Most of the cannabis consumed in the country is of South African, Lesotho or Swazi origin with the cultivation and wholesaling primarily in the hands of poor rural Black/African communities. However, trafficking networks from South Africa to Western Europe tend to involve British and Dutch expatriates living in South Africa (UNODC, 2002). The proportion of patients at specialist substance abuse treatment centres having cannabis as their primary substance of abuse has in the last few years remained fairly stable, but has recently increased in Durban, Gauteng and in East London, and among patients aged less than 20 years (Plüddemann, Parry, Cerff, Bhana, Harker, Potgieter, Gerber, and Johnson, 2006). Although Mandraxⁱⁱ has recently

been illicitly manufactured in South Africa and its neighbouring countries, it is estimated that most of the Mandrax consumed in the country is primarily sourced from India and China. Mandrax use is mainly a male phenomenon with Coloured patients dominating treatment admissions in Cape Town and Port Elizabeth, and Black/African patients accounting for the majority of admissions in other SACENDU sites. Of late treatment demand for the cannabis/Mandrax combination ("white pipes) has declined across all sites (Plüddemann et al., 2006).

In the late 1990s South Africa witnessed an increase in demand for "club drugs" (principally Ecstasy and LSD, but including a wide range of substances) among young people attending rave clubs. Initially, users of Ecstasy tended to be White, but the last few years have seen increasing numbers of Coloureds (in Cape Town) and Black/Africans (in Gauteng and Mpumalanga) presenting for treatment for Ecstasy abuse. Even so, the proportion of persons using specialist treatment services presenting with Ecstasy as their primary substance of abuse has over the years remained relatively low across all sites (Plüddemann, Parry, Myers, and Bhana, 2004; Plüddemann et al., 2006). Although there is evidence of local manufacturing of Ecstasy, the majority of the drug consumed in South Africa is imported from Europe (UNODC, 2002).

In contrast, the last few years have seen a dramatic increase in the local manufacturing and abuse of methamphetamine, commonly known as 'tik' in the Western Cape. Disturbingly, the greatest extent of use is among young people in the city of Cape Town which has in the last few years experienced an unprecedented increase in the number of patients reporting methamphetamine as

ⁱⁱ Mandrax is a blend of the pharmaceutical drugs methaqualone and antihistamine. It was originally used legally as a sleeping tablet. The term "mandrax" refers to the common street name for a drug containing significant quantities of methaqualone. It derives from Mandrax[®], the original Roussel trade name (UNODC 2002).

their primary substance of abuse (Parry, Myers, and Plüddemann, 2004; Plüddemann et al., 2006). From the first half of 1999 to the second half of 2005, the proportion of patients reporting methamphetamine as their primary substance of abuse rose from 0.1% to a staggering 35%. For the latter, the average age of patients was 21 years and an astonishing 48% of patients aged less than 20 years reported methamphetamine as their primary substance of abuse (65% as a primary or secondary substance of abuse). The majority of the patients were Coloured (92%) and male (71%). Across all age groups, 45% of all patients reporting for treatment in Cape Town in the second half of 2005 reported methamphetamine either as a primary or secondary substance of abuse (Plüddemann et al., 2006). Anecdotal evidence indicates that (pseudo)ephedrine or the fully manufactured product is also being sourced from China, but as yet, there have been no seizures at points of entry. There is also evidence of the local production of methcathinone (CAT); however, there is no evidence to suggest that trafficking involves the crossing of any borders (UNODC, 2005). Treatment demand has mainly been found in Gauteng, where 4% (n=108) of persons presenting for treatment in the second half of 2005 reported CAT as their primary or secondary substance of abuse (Plüddemann et al., 2006).

Originally South Africa predominantly served as a transit point for cocaine leaving the Andean countries en route to Europe, but in recent years it has become a significant market for cocaine in Africa in its own right. Trafficking was initially controlled by White syndicates and the domestic market for consumption was mostly limited to White affluent recreational users. However, in the mid-1990s a number of Nigerian organized

crime syndicates began to dominate the cocaine trade and with this a shift away from the use of cocaine powder toward the use of crack cocaine occurred (UNODC, 2002). Consequently, crack cocaine became firmly entrenched in most urban areas in South Africa during 1998. The use of crack cocaine has been reported among all socio-economic classes and is especially prominent among vulnerable groups in society, for example commercial sex workers (CSWs) (Parry and Karim, 2000; UNODC, 2002).

Treatment demand indicators for cocaine powder and crack cocaine increased exponentially in the late 1990s across most sites in South Africa and by the early 2000s cocaine/crack had become the third most widely used illicit drug in South Africa, after Mandrax and cannabis. Although this trend has not continued and a levelling off appears to be occurring in most sites (except for Port Elizabeth and East London), overall treatment data for the second half of 2005 found that cocaine/crack use was still substantially more prevalent than heroin or Ecstasy use with 18% of admissions across SACENDU sites indicating cocaine/crack as their primary or secondary drug of abuse, compared to 12% for heroin and 5% for Ecstasy. As in the past, a relatively high proportion of females sought treatment for cocaine as their primary substance of abuse compared to many other illicit drugs (28% in Cape Town). Similar to previous reporting periods, data for the second half of 2005 indicated that Whites still formed the majority (65%) of patients across all sites reporting cocaine/crack as their primary substance. However, some of the sites have over time noted significant increases in the proportion of cocaine/crack patients who are Coloured (in Cape Town, Gauteng and Port Elizabeth) or Black/African (in Gauteng and Mpumalanga).

One of the most unsettling trends in the last few years has been the striking increase in the trafficking and consumption of heroin in the South African drug market. Even though South Africa is a convenient transshipment zone for heroin destined for Western Europe and North America, it is apparent that a substantial proportion of heroin is meant for the local market. Heroin is primarily imported by air into South Africa from Southeast and Southwest Asia, however, there is mounting evidence of heroin from Southwest Asia entering South Africa overland via road transport from the seaports of Maputo (Mozambique), Mombasa (Kenya) and Dar es Salaam (Tanzania). Similar to cocaine, trafficking of heroin into and within South Africa is dominated by Nigerian organized crime syndicates. Nonetheless, there is some indication that nationals from Tanzania, Burundi, Kenya and Ethiopia also feature prominently in the heroin trade (UNODC, 2002, 2005). In the past heroin users have been predominantly White and relatively young; however, recent trends indicate growing numbers of Coloured (in Cape Town) and Black/African users (in Gauteng) (Parry, Plüddemann and Myers, 2005; Plüddemann et al., 2006).

From the first half of 1999 until the second half of 2005 the SACENDU project has noted a significant increase in the proportion of patients reporting heroin as their primary substance of abuse at specialist treatment centres in three of the sentinel sites. Over this time period this proportion has increased from 4-14% in Cape Town, from 3-8% in Gauteng and finally the most alarming increase from <1-10% was recorded for Mpumalanga. This increase may be related to the increased traffic on the "Maputo Corridor" (Maputo to Pretoria) which functions as a conduit for heroin coming from Tanzania via Maputo. Over the last few years the proportion of Coloured heroin patients has steadily

increased in Cape Town and both Gauteng and Mpumalanga have seen increases in Black/African heroin patients, with figures of 84%, 20% and 30% respectively, recorded for each site in the second half of 2005 (Plüddemann et al., 2006).

The proportion of heroin users who inject in Cape Town, relative to other modes of use has fluctuated widely since 1999, whereas over time there has been an overall increase in Gauteng and Mpumalanga. For the second half of 2005 intravenous use by patients with heroin as their primary drug of abuse declined in Cape Town, with only 8% reporting injecting use compared to 15% in the previous period. In Gauteng, 39% of patients reported injecting, compared to 44% in the previous period. In Mpumalanga 34% of heroin patients reported injecting, compared to 31% in the previous period. In the second half of 2005 the percentage of patients seeking treatment for heroin as their primary substance of abuse who were female was 26% in Cape Town and 27% in Gauteng. Treatment data for the second half of 2005 showed an increase in the proportion of patients aged under 20 years having heroin as their primary substance of abuse in all sites, except in Mpumalanga. Furthermore, several sources have recently indicated that there is an increase in the availability and popularity, particularly in youth, of inexpensive heroin which is mixed with cannabis and sold under the name 'Unga' (in Cape Town), 'Nyope' (in Pretoria), 'Sugars' (in Durban) and 'Pinch' (in Mpumalanga) (Plüddemann et al., 2006).

In the last few years, national cases processed and amounts of drug seized by the FSLs have generally followed a similar trend to the drug consumption patterns. National data from the FSLs for each drug in the first half of 2002 and the first half of 2005 are shown in Table 2 below.

Table 2. National Forensic Science Laboratories data on drug seizures for the 1st half of 2002 and 2005.

Drug category	2002a			2005a		
	Cases	Seizures		Cases	Seizures	
		Kg	Tablets		Kg	Tablets
Mandrax	2914	13.93	± 2.8 million	5413	41.3	49 804
ATS	732	0.74	150 101	2 955	40.12	58 214
Cocaine	918	229.43	-	2 105	409.83	-
Heroin	232	6.3	-	469	23.88	-

Over this time period cases processed by the FSLs more or less doubled for Mandrax, cocaine and heroin and quadrupled for ATS. Although seizures of Mandrax and ATS tablets decreased, seizures of Mandrax powder increased threefold and were 54 times more for ATS powder. From the first half of 2002 to the first half of 2005 amounts of cocaine powder seized by the FSLs nearly doubled and seizures of heroin increased almost fourfold (Plüddemann et al., 2005; FSL, personal communication).

DRUG-RELATED HIV RISK

A number of studies on drug-related HIV risk among adolescents and other vulnerable groups at risk of becoming infected with HIV have been conducted in South Africa. The first six studies discussed examined drug use and sexual risk behaviour among adolescents of both genders, followed by three studies conducted among female CSWs. The next two studies discussed include a survey that investigated various factors associated with STIs and HIV-risk behaviour among African women and a study of the nature and extent of heroin use in the Cape Metropole. The final study discussed is an International Rapid Assessment, Response and Evaluation (I-RARE) study of drug use and sexual-HIV risk patterns among three vulnerable

drug-using populations in three South African cities.

Accompanying the rise in HIV prevalence among young people in South Africa is a concomitant increase in other high-risk behaviours (e.g. early sexual behaviour and substance abuse) putting this population group at even greater risk of contracting HIV. Although a few studies have found associations between the use of substances and high-risk sexual behaviour among adolescents, the causal links between the two behaviours, access to drugs and other people's drug use still need further investigation (Flisher, Ziervogel, Chalton, Leger, and Robertson, 1996a, 1996b; Flisher, Parry, Evans, Muller and Lombard, 2003; Flisher, Reddy, Muller, and Lombard, 2003; Morojele, Flisher, Muller, Ziervogel, Reddy, and Lombard, 2001). A cross-sectional community study in Durban examined the relative importance of adolescents' access to drugs, self-drug use, and the drug use of family members, partners and peers in their sexual activity. Analysis revealed that there was a significant relationship between having engaged in sexual intercourse and self-drug use, drug use by the father of the participant and greater accessibility to drugs (Morojele, Brook and Moshia, 2002). Another study conducted in Cape Town at three culturally distinct schools involved a qualitative investigation that

examined adolescents' perceptions surrounding the influence of drug use on their sexual behaviour. Despite knowing the risks, males in particular, purportedly abstained from using condoms and engaged in sex with multiple partners. The main reasons given by females for engaging in risky sex were their desire to please their partners and their limited power in negotiating safer sex for fear of being beaten or rejected. The use of drugs was considered to be both positively and negatively reinforcing, extensive and largely tolerated by the communities they lived in (particularly for the Black/African and Coloured students). Observations surrounding the use of drugs in relation to sexual risk behaviour were that the psychopharmacological effects of drugs (sexual arousal, impaired judgment, lowered inhibitions) would most likely increase the probability of engaging in risky sexual acts (Morojele, Brook and Kachieng'a, 2006).

A further study investigated the association of alcohol and substance use on sexual behaviour among male and female adolescents in KwaZulu-Natal, a province in the northeast of South Africa (James, Reddy, Ruiters, and Van den Borne, submitted). The data used for this study was a subset of data collected for the first South African National Youth Risk Behaviour Survey conducted in 2002 which found that of the students in KwaZulu-Natal that reported being sexually active, 15% had used alcohol or drugs the last time they had sex (Reddy, Panday, and Swart et al., 2003). Results showed that male students were significantly more likely than female students to report ever having had sex, initiating sex at a younger age, having had multiple partners, lifetime use of alcohol or drugs, and alcohol or drug use before their last sexual encounter. In addition, those students who used alcohol *and*

drugs were much more likely to be sexually active, compared to those who only used alcohol or drugs or did not use alcohol or drugs (James et al., submitted). In summary, these studies have shown that besides early sexual debut, low levels of condom use and multiple sexual partners among South African adolescents, this population group is at further risk of contracting HIV due to its easy access to drugs and the extent of drug use.

Even though sex work in South Africa is criminalized under the Sexual Offences Act 23 of 1957, it is on the increase. In many ways the multi-faceted sex industry reflects the many gender-based social and economic inequalities that are the legacy of the apartheid era (Pauw and Brener, 2003). Consequently, many women have by necessity turned to sex work as a means of survival. Unfortunately, in many instances these activities further expose the women to sex-related violence and possibly to increased use of alcohol and drugs. This in turn, would increase the likelihood of having unprotected sex and becoming infected with HIV (Wechsberg, Luseno and Lam, 2005). An anonymous survey of female street sex workers in Cape Town, Johannesburg and Durban was carried out to determine the degree to which drug addiction had led to prostitution (Leggett, 2001). Responses by the sex workers to questions about their use of drugs found that the most commonly consumed illicit drug was cannabis and a large majority reported using Mandrax and crack cocaine. Not surprisingly, results revealed that there was a strong link between drug abuse and ethnicity (especially the use of Mandrax and crack cocaine by White participants). The use of alcohol and cannabis before or during sex work was reported by many of the participants. In addition, a significant relationship was found between high client

volumes and the use of hard drugs (drugs other than alcohol and cannabis). This increase in client volume could have clear implications for HIV transmission. Unfortunately, due to the misinterpretation of the question of causality of whether drug use had preceded or followed the inception of sex work for each individual, the hypothesized link between drug addiction and sex work was not found (Leggett, 2001).

In order to identify barriers to HIV-risk reduction among female CSWs, individual and focus group interviews were conducted in another Cape Town study. Analysis of the data revealed that there were a number of barriers to sustained safer sex practices or factors that could possibly lead to an increased risk of contracting HIV. Among these factors was the resistance by some clients to the use of condoms, client violence and forced unprotected sex, low rates of condom use in their personal relationships and substance abuse among the sex workers. Substance use was common among both the individual and focus group participants and the most common substances used alone and in combination with other drugs were alcohol and "white pipes." Furthermore, an increase in the availability of crack cocaine was reported and two of the participants had injected heroin. Reasons given by CSW for continuing to use substances were to reduce levels of anxiety and fear associated with sex work, to make them feel happy, to increase their enjoyment of sex, to increase their self confidence and to help them cope with their job. Some of the participants perceived that the use of drugs increased their vulnerability to violence and abuse (Pauw and Brener, 2003).

A pilot study among Black/African sex workers in Pretoria using a street outreach sampling method sought to elucidate the intersecting experiences of

high-risk sexual behaviour, substance abuse and victimisation. The first substance ever used by most of the participants was cannabis, followed by alcohol, crack cocaine, and lastly Thai White (heroin). In the previous month, 46% of women reported using cannabis, 25% crack cocaine, and 18% Thai White. Drug use with their clients was reported by 44% of the women. In addition, most of the women that reported that one or more of their last 10 clients had been violent stated that these clients were often intoxicated with alcohol or other drugs. The findings of this pilot study support the critical need for focused, comprehensive interventions that deal with substance abuse, sexual risk, and violence as interconnected phenomena (Wechsberg, Luseno and Lam, 2005). In summary, the studies found a large degree of high-risk sexual behaviour, violence and substance abuse (especially alcohol, cannabis, crack cocaine and some heroin) among female street sex workers in South Africa. In addition, drug use often occurred in conjunction with sex work.

Levels of sexual and physical violence against women in South Africa are considerably high and result from a study among women attending antenatal clinics in Soweto found that women with violent or controlling male partners were at an increased risk of HIV infection (Abrahams, Jewkes, Laubscher and Hoffman, 2006; Dunkle, Jewkes, Brown, Gray, McIntyre and Harlow, 2004; Jewkes and Abrahams, 2002). These findings have been supported by an anonymous street intercept survey among women residing in an African township in Cape Town that investigated factors associated with STIs and HIV-risk behaviour. This survey found that women who had been sexually assaulted were more likely to have STIs, multiple male sex partners, greater rates of

unprotected vaginal sex, lower rates of anal sex with condoms, to have used alcohol, more than five times as likely to have exchanged sex to meet survival needs and nearly five times more likely to have shared needles to inject drugs than women without a history of sexual assault (Kalichman and Simbayi, 2004).

As noted previously there has over time been a steady increase in treatment demand for problems associated with heroin abuse; however, the nature and extent of the problem in the general population was unknown. Based on findings from a qualitative study conducted in 2004 (Plüddemann and Parry, 2004), a community survey then used snowball sampling to recruit and interview 250 heroin users (mostly male) in Cape Metropole. In the three days preceding the interview the most common substance abused, after tobacco, was heroin. This was followed by methamphetamine then alcohol, cannabis, and the cannabis/Mandrax “white pipe” combination. The majority of study participants used either smoking/inhaling or snorting as their route of heroin administration. Eighteen percent of all participants reported having injected heroin in the past three days and of these, 80% had done so daily. In the 30 days preceding the interview, needles were obtained either from a pharmacy, a heroin dealer, a hospital or another user. During this time, almost half of users had been denied needles, predominantly at a hospital or pharmacy. Of those that had injected heroin during the past 12 months, 67% had shared a needle. Inconsistent condom use with both regular and casual partners was reported by many of the participants. Nine participants were currently sex workers. Based on treatment utilization, it was estimated that Cape Town had approximately 14,700 heroin users (Plüddemann, Parry, Flisher, and Jordaan, 2004; Dewing, Plüddemann, Myers, and Parry, 2006).

Finally, a significant contribution to the research on drug-related HIV risk in South Africa resulted from the I-RARE conducted in late 2005 among drug-using CSWs and men who have sex with men (MSM), together with intravenous drugs users (IDUs) and non-IDUs (who were not CSWs or MSM) in Cape Town, Durban and Pretoria (Parry, Plüddemann, Achrekar, Pule, Koopman, Williams, and Needle, 2006). The methodology involved both key informant and focus group interviews with drug users of both genders and across all ethnic groups. There was a moderate amount of overlap between the various subgroups. Cannabis, Ecstasy, crack cocaine and heroin were used extensively by all subgroups. In addition, for other drugs and among the different subgroups, extensive use was reported for alcohol (MSM), Mandrax (MSM and IDUs), cocaine hydrochloride (CSWs and MSM) and crystal methamphetamine (MSM). Moderate use was reported for alcohol (CSWs), cocaine hydrochloride and Wellconalⁱⁱⁱ (IDUs), crystal methamphetamine (CSWs and IDUs), and CAT (MSM). A number of CSWs and MSM reported the use of drugs (especially crystal methamphetamine, crack/cocaine and Ecstasy) before or during sex, but many of the IDUs seemed more interested in taking drugs than in having sex. There were mixed views on the effects of heroin on sexual behaviour, with some users reporting that it removed a person’s sex drive with others stating that it prolonged sex. For most participants, the use of drugs increased the likelihood of unsafe sex practices (e.g. unprotected sex, group sex and anal sex). Intravenous use was

ⁱⁱⁱ Wellconal is a prescription drug containing dipipanone hydrochloride and cyclizine hydrochloride and is commonly known as “pinks” (Williams, Ansell, and Milne, 1997).

reported for crack cocaine, cocaine hydrochloride, Ecstasy, crystal methamphetamine, heroin and Wellconal. Several participants admitted to sharing needles (mostly with a single regular partner, but occasionally in groups) and most IDUs reported using the same needle a number of times even when they were aware of the risks associated with these practices (Parry et al., 2006).

HIV PREVALENCE AMONG DRUG USERS

A survey of the literature revealed that there are few studies that have investigated HIV prevalence among drug users in South Africa. This section briefly discusses those studies that have done so, however it must be noted that most of these have either been small studies or have been included as part of a wider study.

One of the earliest studies to document the prevalence of HIV infection among IDUs in South Africa was a retrospective analysis of Wellconal abusers admitted to one of two hospitals in Johannesburg over an 18-month period (July 1991 and December 1992). The study analysed the case records of 86 patients (median age of 24 years) with a total of 121 admissions presenting for complications from Wellconal abuse. Of the 72 patients tested for HIV, two (2.8%) were found to be positive (Table 3) (Williams, Ansell, and Milne, 1997).

Between the months of August and September 1999 the HIV prevalence rate was assessed among a sample of 827 arrestees from Cape Town, Durban and Johannesburg as part of a broader project that investigated the link between drug use and crime in South Africa. The overall HIV prevalence rate was 20% and was higher among females (30%) than among males (18%). Among Black/African arrestees HIV prevalence was

found to be 25%, followed by Indians (19%), Whites (10%), and Coloureds (5%). Even though only a very small number of arrestees reported injection drug use (1.3%) or needle sharing (0.8%) in the previous 12 months, IDUs were found to have higher rates of HIV infection than non-IDUs (45% versus 22%). An unexpected finding was that arrestees reporting substance use in the past 12 months (excluding alcohol) were significantly less likely to be HIV-positive than non-users (17% versus 25%) (Parry, Vardas and Plüddemann, 2001).

In his study among street sex workers in Cape Town, Johannesburg and Durban Leggett (2001) also sought to test the hypothesis that there is a positive association between hard drug use (drugs other than alcohol and cannabis) and HIV among CSWs in South Africa. Of the total sample, results for 249 sex workers could be accurately correlated with HIV test results. Statistical analysis revealed that ethnicity was highly associated with HIV, but not with hard drug use^{iv}. The results showed that over 66% of Black/African sex workers were HIV positive, compared to 18% of White and 17% of Coloured sex workers. With regards to drug use, hard drug users were less likely to be HIV positive (27%) than non-users (56%). In summary, the findings found that the poorest Black/African women, who were the least likely of the sex workers to be using hard drugs and therefore, paradoxically more likely to have lower client volumes, were the most susceptible to contracting HIV. This is possibly due to the high base rate for HIV among Black/African women in South Africa, a group which until recently was not found to be using harder drugs substantially.

^{iv} Hard drug use was used to refer to illicit drugs other than cannabis

Table 3: Prevalence of HIV among drug users

Study	Population	Location	% positive
Williams et al., 1997	Wellconal users	Johannesburg	3
Parry et al., 2001	Drug using arrestees	Cape Town, Durban, Pretoria	17
Leggett, 2001	Sex works using "hard" drugs	Cape Town, Johannesburg, Durban	27
Plüddemann et al., 2004	Heroin users	Cape Town	5
Parry et al., 2006	Drug using vulnerable populations in "hotspots"	Cape Town, Pretoria, Durban	28

In the 2004 community survey of 250 heroin users in the Cape Metropole region, eight participants reported being HIV positive, resulting in an HIV prevalence of 5.4% for those who had been tested and an overall prevalence of 3.2% for the total sample. Of those who were HIV positive, two had shared a needle (Plüddemann, Parry, Flisher, and Jordaan, 2004).

The most recent study to provide an indication of HIV prevalence among HIV-risk related drug users was the I-RARE study conducted in late 2005 by Parry et al., (2006). Of the participants tested for HIV (n=92), 28% were found to be HIV positive and for each subgroup these figures were 34% for CSWs, 35% for MSM, 20% for IDUs and 0% for non-IDUs (who were not CSWs or MSM). A cause for concern was that some of the participants (mostly the CSWs) were not well informed about safe sex practices or where to access HIV testing and treatment services (Parry et al., 2006).

It is apparent that there are clear gaps in the research on HIV prevalence among drug users. However, the recently conducted I-RARE study by Parry et al., (2006), has at least given some indication of the possible emergence of an HIV epidemic among IDUs in South Africa.

PREVENTION OF HIV AMONG DRUG USING POPULATIONS

Since 1994 there has been a substantial increase in the number of programmes aimed at the prevention of HIV or substance abuse in South Africa, however, programmes that focus specifically on the prevention of HIV among drug-using populations are scant. As part of an effort to ensure an integrated response to substance abuse problems the South African government established a multi-sectoral coordinating body (the Central Drug Authority) in 2000 to oversee the implementation of the National Drug Master Plan. Over the past decade the South African government has implemented various strategies to reduce both the supply and demand for drugs (especially among youth). In terms of reducing supply, programmes have been setup to improve the monitoring of the importation and manufacture of precursor chemicals, to limit the possibilities of money laundering by strengthening banking procedures, and by aggressively pursuing persons involved with organised crime by allowing for the forfeiture of assets by the State (Parry, 2005). Also during 2002 the Safety and Security Secretariat, the Central Drug Authority and the UNODC successfully piloted the

“Ke Moja – No thanks, I’m fine!” drug awareness campaign in Pretoria. The campaign is aimed at reducing the demand for drugs and is specifically targeted at both in school and out of school youth aged 10 to 18 years. The campaign was launched in the provinces of the Western Cape and Gauteng in 2003 and 2005, respectively, and is currently being rolled out to the other provinces under the auspices of the Department of Social Development (Department of Social Development, 2006). Lastly, a randomized-controlled trial is currently in progress in the Western Cape to test the effectiveness of a classroom-based leisure, life-skill and sexuality education curriculum, “HealthWise: Learning Life Skills for Young Adults”. The programme is designed to reduce substance use and sexual risk behaviour and to increase healthy intra- and interpersonal skills and leisure behaviour. The experimental group comprises students from four high schools in Grades 8 and 9, and students from five comparison schools will serve as the control group. It is hypothesised that the HealthWise participants will engage in less risk behaviour than the controls (Caldwell, Smith, Wegner, Vergnani, Mpfu, Flisher, and Mathews, 2004).

In November 2002 a pilot study was completed among women at risk in Pretoria using a woman-focused HIV prevention intervention. This intervention was based on a modified standard HIV intervention which was designed in the United States and adapted from the revised NIDA standard intervention. The woman-focused intervention presented the same information as the standard intervention, but was culturally-specific, addressing male dominance and attitudes toward women, multiple partners and beliefs and values about sex, and safer sex practices (particularly with boyfriends).

Eighty of the initial 93 women who reported recent substance use and sex trading completed the one-month follow-up interview. At baseline high rates of sexual risk and violence were reported by the participants and at follow-up findings showed decreases in the proportion of women reporting unprotected sex and the daily use of alcohol and cocaine. At follow-up women receiving the woman-focused HIV prevention intervention reported a greater decrease in the daily use of alcohol and cocaine, fewer STI symptoms and reported being victimised less often than the women receiving the modified standard intervention (Wechsberg, Luseno, Lam, Parry, and Morojele, 2006). In continuation of this research, preliminary data reported in January 2006 for a larger study using the woman-focused intervention with an initial 304 women indicated that 83% of the women had returned for the 3-month follow-up. Overall, when compared to baseline, the proportion of unprotected sex acts had decreased significantly and the proportion of participants reporting violent victimisation had also decreased (Wechsberg, 2006).

In addition to the studies in Pretoria, a 1-month pilot study was conducted among Black/African and Coloured high-risk drug-using women in Cape Town. Ninety-nine percent (112) of the 113 women (62 Coloured and 51 Black/African) who completed the baseline assessment had returned for their 1-month follow-up assessment. At baseline, rates of lifetime use of alcohol and cannabis were high (70% to 98%) among both the Black/African and Coloured women, and as many as 89% of the Coloured women reported lifetime use of methamphetamine versus only 7% of the Black/African women. Results for the 1-month follow-up recorded significant decreases in the proportion of

unprotected sex acts and rates of physical and sexual abuse from baseline. In addition, the proportion of participants reporting alcohol and other drug use during sex had also decreased substantially (Wechsberg, Luseno, Myers, and Parry, 2006).

RECOMMENDATIONS FOR MONITORING AND INTERVENTIONS

It is evident from the review of the literature that concurrent to the HIV epidemic, South Africa has over the last decade experienced an escalation in the trafficking and use of drugs such as heroin, crack/ cocaine and crystal methamphetamine. Most notable is the increase in, and extent of drug use across all population groups and, in particular, the use of heroin and methamphetamine among those aged less than 20 years. In addition to increased demand on the already overburdened public health system, the use of drugs has further exacerbated the underlying problems associated with the high levels of sexual risk behaviour such as unprotected sex, inconsistent condom use, multiple partners and both sexual and physical violence against women. In addition, there is some indication that the number of IDUs is growing in some sites, providing an auxiliary route for HIV transmission. It is thus critical that policymakers, researchers and those involved with HIV and substance abuse programmes consider these intersecting issues when developing intervention strategies in order to diminish their combined impact on the South African population.

In the short-term the implementation of risk reduction strategies that focus on reducing the adverse consequences of substance abuse are a critical step toward

limiting the exposure to HIV among drug-using populations. Such strategies include the introduction of needle-exchange programmes; increased condom availability; the integration of HIV and substance abuse programmes, especially for vulnerable groups (e.g. street children, young people, and women and men at risk); the cross-training of health workers in these fields; improved access to and more substance abuse treatment, rehabilitation and counselling facilities, and HIV, hepatitis B and C testing and counselling facilities (e.g. mobile clinics and community outreach programmes); more education about safer sex and drug use practices (e.g. consistent condom use and use of clean needles), including messages targeted at specific vulnerable drug-using populations such as MSM and CSWs; the monitoring of HIV prevalence among drug-using populations by the SACENDU project and community surveys, and more intervention studies on programmes designed to prevent sexual and HIV-risk related behaviour among drug users.

However, in the long-term, more comprehensive HIV and substance abuse prevention and treatment programmes that include the biological, cultural, social, spiritual and developmental needs of individuals and groups will most likely be the most effective means of reducing the transmission of HIV among both IDU and non-IDU populations (Amodia, Cano, and Eliason, 2005). In addition in accordance with the findings of a 2002 review of South African literature on alcohol use and sexual risk behaviours, it is essential that further research is needed to clarify the various proximal (e.g. intra- and inter-personal) and distal (e.g. community, cultural, social and environmental) factors that determine a

person's sexual and drug use behaviours (Pithey and Morojele, 2002).

The South African public health system should consider pursuing an integrated response to address the inevitable challenges confronting South Africa regarding this complex situation. For example, the various components that must be considered in following this strategy would include factors from all of the following levels:

- *Subjective and intentional individual factors such as drug of choice, emotional and subjective well-being, and level of cognitive, emotional, spiritual, moral and interpersonal development.* Possible strategies to enhance development and improve general well-being include developing a positive identity and coping skills, individual counselling, the creation of supportive networks and spiritual or mindful awareness practice.
- *Biological and behavioural factors such as age, gender, types of drugs used and modes of use.* Possible intervention strategies include broadening research priorities and treatment approaches to include nutritional supplements, African and other indigenous medical and complementary therapies (e.g. herbal medicines, acupuncture, massage and meditation).
- *Social and cultural factors such as employment status, community values and attitudes towards drug use, dominant mode of drug use, gender inequality, multiple sexual partners, condom use and notions of masculine and feminine sexuality.* Possible strategies include facilitating less tolerance to the availability of drugs within communities, reducing the stigma associated with drugs users, reducing the extent of drug use, gender/age specific services, culturally-specific treatment programmes, encouraging family counselling, intervention and support, life skills training, customised skills training and assistance with reintegration into society, the promotion of healthy lifestyles, leisure education, the empowerment of women, the promotion of norms that encourage safer sex practices (e.g. monogamy and condom use) and the resurgence of the spirit of "ubuntu" (humanity).
- *Social, economic and environmental factors such as poverty, availability of and access to drugs, the lack of efficiency of the country's border controls, criminal justice system, inter-governmental communication systems, dissemination of information, and public health system.* Possible intervention strategies include the improved enforcement of the existing illicit drug laws and regulations; improving the efficiency of the country's border controls and the criminal justice system; the provision of more employment and recreational opportunities by both the public and private sectors and increasing the capacity and training of health workers, practitioners (allopathic, African traditional and complementary) and researchers.

In conclusion, even though the combined impact of the HIV epidemic together with extent of drug trafficking and use in South Africa seems dire, prompt multi-sectoral and multi-cultural approaches by government, industry and civil society will allow for an integrated response that ought to significantly alleviate both the current and anticipated problems arising from this regrettable predicament.

REFERENCES

- Abrahams, N., Jewkes, R., Laubscher, R., and Hoffman, M. (2006). Intimate partner violence: prevalence and risk factors for men in Cape Town, South Africa. *Violence Vict*, 2, 247-64.
- Amodia, D.S., Cano C., Eliason, M.J. (2005). An integral approach to substance abuse. *Journal of Psychoactive Drugs*, 37(4):363-71.
- Bureau for International Narcotics and Law Enforcement Affairs (2006). International Narcotics Control Strategy Report. (<http://www.state.gov/p/inl/rls/nrcrpt/2006/vol1/html/62112.htm>)
- Caldwell, L., Smith, E., Wegner, L., Vergnani, T., Mpfu, E., Flisher, A.J., and Mathews, C. (2004). HealthWise South Africa: Development of a Life Skills Curriculum for Young Adults. *World Leisure*, 3, 4-17.
- Department of Health (2006). *National HIV and syphilis antenatal seroprevalence survey in South Africa 2005*. Pretoria: Department of Health
- Department of Social Development (2006). *National Roll Out of Ke Moja "No Thanks I Am Fine" Without Drugs*. (<http://www.socdev.gpg.gov.za/KemojaRollout.htm>)
- Dewing, S., Plüddemann, A., Myers, B. J., and Parry, C. D. H. (2006). Review of injection drug use in six African countries: Egypt, Kenya, Mauritius, Nigeria, South Africa and Tanzania. *Drugs: education, prevention and policy*, 13(2), 121-137.
- Dunkle, K.L., Jewkes, R.K., Brown, H.C., Gray, G.E., McIntyre, J.A., and Harlow, S.D. (2004). Gender-based violence, relationship power, and risk of HIV infection in women attending antenatal clinics in South Africa. *Lancet*, 363(9419), 1415-21.
- Flisher, A.J., Ziervogel, C.F., Chalton, D.O., Leger, P.H., & Robertson, B.A. (1996a). Risk-taking behaviour of Cape Peninsula high-school students: Part IX: Evidence for a syndrome of adolescent risk behaviour. *South African Medical Journal*, 86 (9), 1094-8.
- Flisher, A.J., Ziervogel, C.F., Chalton, D.O., Leger, P.H., & Robertson, B.A. (1996b). Risk-taking behaviour of Cape Peninsula high-school students: Part X: Multivariate relationships among behaviours. *South African Medical Journal*, 86 (9), 1094-8.
- Flisher, A.J., Parry, C.D., Evans J., Muller, M. and Lombard, C. (2003). Substance use by adolescents in Cape Town, South Africa: prevalence and correlates. *Journal of Adolescent Health*, 32(1), 58-65.
- Flisher, A.J., Reddy, P., Muller, M., and Lombard, C. (2003). Sexual behaviour of Cape Town high-school students. *South African Medical Journal*, 93 (7), 537-541.
- James, S., Reddy, S.P., Ruiters, R.A.C., and Van den Borne, B. (submitted). Alcohol and substance use as moderators of sexual behaviour amongst secondary school students in KwaZulu-Natal, South Africa: A view to comprehensive programme development.
- Jewkes, R., and Abrahams, N. (2002). The epidemiology of rape and sexual coercion in South Africa: An overview. *Social Sciences and Medicine*, 55(7), 1231-1244.
- Kalichman, S.C. and Simbayi, L.C. Sexual assault history and risks for sexually transmitted infections among women in an African township in Cape Town, South Africa (2004). *AIDS Care*, 16 (6), 681-689.
- Leggett, T. (2001). Drugs, sex work, and HIV in three South African Cities. *Society in Transition*, 32(1), 101-109.
- Morojele, N.K., Flisher, A.J., Muller, M., Ziervogel, C.F., Reddy, P., & Lombard, C.J. (2001). Adolescents, HIV, and Drug abuse in South Africa. IN NIDA (Eds.). *Proceedings of the 3rd Global Research Network on HIV Prevention in Drug-Using Populations, Durban 2000*. Washington, D.C.: U.S. Department of Health and Human Services.
- Morojele, N. K., Brook, J. S., and Moshia, K. M. (2002). *Sexual behaviour among South African adolescents as it relates to drug use, exposure to drug use and access to drugs*. Cape Town: Medical Research Council.

- Morojele, N.K., Brook J.S., and Kachieng'a, M.A. (2006). Perceptions of sexual risk behaviours and substance abuse among adolescents in South Africa: A qualitative investigation. *AIDS Care*, 18(3), 215-219.
- Parry, C.D.H. (2005). Substance abuse intervention in South Africa. *World Psychiatry*, 4(1), 34-35.
- Parry, C. D. H., and Abdool-Karim, Q. (2000). Country Report: Substance abuse and HIV/AIDS in South Africa. In: NIDA (Eds.), *Proceedings of 2nd Global Network Meeting on HIV Prevention Drug-Using Populations, Atlanta, 1999, 81-88*. Washington, D.C.: U.S. Department of Health and Human Services.
- Parry, C.D.H., Bhana, A., Plüddemann, A., Myers, B., Siegfried, N., Morojele, N.K., Flisher, A.J., and Kozel, N. (2002). The South African Community Epidemiology Network on Drug Use (SACENDU): Description, findings (1997-1999), and policy implications. *Addiction*, 97, 969-976.
- Parry, C.D.H., Myers, B., and Plüddemann, A. (2004). Drug policy for methamphetamine use urgently needed. *South African Medical Journal*, 94(12), 964-965.
- Parry, C.D.H., Plüddemann, A., and Myers, B. (2005). Heroin treatment demand in South Africa: trends from two large metropolitan sites (January 1997-December 2003). *Drug and Alcohol Review*, 24, 419-423.
- Parry, C.D.H., Plüddemann, A., Achrekar, A., Pule, M., Koopman, F., Williams, T., and Needle, R. (2006). "Rapid assessment of drug use and sexual HIV risk patterns in Durban, Pretoria and Cape Town, South Africa". *Poster presented at the 68th Annual Scientific Meeting of the College on Problems of Drug Dependence (CPDD), June 2006*. Scottsdale, Arizona.
- Parry, C.D.H., Vardas, E., and Plüddemann, A. (2001). HIV and drug use among arrestees in Cape Town, Durban and Johannesburg, South Africa (Phase 1). In NIDA (Eds.) *Proceedings of 3rd Global Research Network Meeting on HIV Prevention Drug-Using Populations, Durban, 2000*. Washington, DC: US Department of Health and Human Services.
- Pauw, I. and Brener, L. (2003). 'You are just whores - you can't be raped': barriers to safer sex practices among women street sex workers in Cape Town. *Culture, Health and Sexuality*, 5(6), 465-481.
- Pettifor, A.E., Rees, H. V., Kleinschmidt, I., Steffenson, A. E., MacPhail, C., Hlongwa-Madikizela, L., Vermaak, K., and Padian, N.S. (2005). Young people's sexual health in South Africa: HIV prevalence and sexual behaviours from a nationally representative household survey. *AIDS*, 19, 1525-1534.
- Pithey, A.L., and Morojele, N.K. (2002). *Literature review on Alcohol use and Sexual Risk Behaviour in South Africa*. Report for WHO Project "Alcohol and HIV: Development of a methodology to study determinants of sexual risk behaviour among alcohol users in diverse cultural settings." Cape Town: South African Medical Research Council.
- Plüddemann, A., Parry, C.D.H., Myers, B., and Bhana, A. (2004). Ecstasy use in South Africa, findings from the South African Community Epidemiology Network on Drug Use (SACENDU) Project (January 1997 - December 2001). *Substance Use and Misuse*, 39, 97-105.
- Plüddemann, A. and Parry, C.D.H. (2004). The Nature and Extent of Heroin Use in Cape Town, a Qualitative Study. *African Journal of Drug and Alcohol Studies*, 3(1and2), 31-52.
- Plüddemann, A., Parry, C.D.H., Flisher, A.J., and Jordaan, E., (2004). *The nature and extent of heroin use in Cape Town: Part 2 - A community survey*. Cape Town: South African Medical Research Council.
- Plüddemann A., Parry, C., Cerff, P., Bhana, A., Harker, N., Potgieter, H., Gerber, W., and Johnson, C. (2005). Monitoring alcohol and drug abuse trends in South Africa (July 1996-June 2005): Phase 18. *SACENDU Research Brief*, 8(2), 1-12.
- Plüddemann A., Parry, C., Cerff, P., Bhana, A., Harker, N., Potgieter, H., Gerber, W., and Johnson, C. (2006). Monitoring alcohol and drug abuse trends in

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- South Africa (July 1996-December 2005): Phase 19. *SACENDU Research Brief, 9(1)*, 1-12.
- Reddy, P., Panday, S., Swart, D. *et al.* (2003). Umthente Uhlaba Usamila – *The 1st South African National Youth Risk Behaviour Survey 2002*. Cape Town: South African Medical Research Council.
- Shisana, O., and Simbayi, L. (2002). Nelson Mandela/HSRC study of HIV/AIDS. *South African National HIV prevalence, behavioural risks and mass media household survey 2002*. Cape Town: Human Sciences Research Council.
- Shisana, O., Rehle, T., Simbayi, L. C., Parker, W., Zuma, K., Bhana, A., Connolly, C., Jooste, S., and Pillay, V. *et al.* (2005). *South African National HIV prevalence, HIV incidence, behaviour and communication survey, 2005*. Cape Town: HSRC Press.
- Siegfried, N., Parry, C., and Morojele, N. (2001). *Position paper: Non-injecting Drug Use and HIV in HIV/AIDS in South Africa*. Cape Town, South Africa: Commissioned by the Global Research Network on HIV Prevention in Drug-using Populations.
- United Nations Office on Drugs and Crime (UNODC). (2002). *Country Profile: South Africa*. (http://www.unodc.org/pdf/southafrica/country_profile_southafrica_3.pdf)
- United Nations Office on Drugs and Crime (UNODC), (2005). *World Drug Report 2005*. Vienna: United Nations Office on Drugs and Crime.
- Wechsberg, W. (2006). *Women's Health Co-op Newsletter, January 2006*. Pretoria, South Africa.
- Wechsberg, W.M., Luseno, W.K., and Lam W.K. (2005). Violence against substance-abusing South African sex workers: intersection with culture and HIV risk. *AIDS Care, 17(Supplement 1)*, S55-S64.
- Wechsberg, W.M., Luseno, W.K., Lam, W.K.K., Parry, C.D.H., and Morojele, N.K. (2006). Substance use, sexual risk and violence: HIV Prevention Intervention with sex workers in Pretoria. *AIDS and Behaviour, 10(2)*, 131-137.
- Wechsberg, W.M., Luseno, W. Myers, B., and Parry, C.D.H. (2006). "Differences in use of methamphetamine and other drugs among poor black and coloured women in the Western Cape Province: South Africa". *Poster presented at the NIDA International Forum, June 2006*. Scottsdale, Arizona.
- Williams, P.G., Ansell, S.M., and Milne, F.J. (1997). Illicit intravenous drug use in Johannesburg - medical complications and prevalence of HIV infection. *South African Medical Journal, 87*, 889-891.

SUBSTANCE ABUSE, HIV RISK AND HIV/AIDS IN TANZANIA

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ABSTRACT

This article reviews the existing literature on substance abuse in Tanzania and reports preliminary findings from an ongoing HIV prevention study investigating risky drug use and sexual behaviours in a sample of heroin injectors in Dar es Salaam, Tanzania. The mixed method study included in-depth interviews with heroin injectors, a survey, voluntary HIV counselling and testing, and the collection of biologicals. HIV status was confirmed by the Elisa Western Blot. Here we analyze preliminary survey data from 319 (76%) men and 98 (24%) women. All participants reported using heroin and one-third reported sharing needles with other injectors. Eighty-five percent of the women reported trading sex for money. Twenty-seven percent of the men and 58% of the women tested positive for HIV infection. Due to the high number of injecting drug users reporting HIV risk behaviours and the high prevalence of HIV infection in this group, multiple strategies for harm reduction in this population must be pursued.

KEY WORDS: substance abuse, HIV/AIDS, Tanzania

INTRODUCTION

In East Africa, especially Tanzania and Kenya, injection drug use came into practice as the AIDS epidemic in Africa neared the end of its second decade. East Africa had become a drug transit point by the 1980s, but consumption of heroin was limited and confined mainly to smoking. The Tanzanian government, in response to a growing awareness of drug trafficking established its inter-ministerial Anti-Drug Commission in 1995 (UNODC, 2006). In sub-Saharan Africa at the end of the 1990s, HIV/AIDS education for behavioural change was

focused on the ABCs [Abstinence, Being faithful, Condoms] of safer heterosexual sexual practices rather than education about safer illicit needle use practices. In this paper, we present what is known about substance abuse and HIV risk in Tanzania and present preliminary findings on demographic factors, drug use, sexual behaviours, and HIV status of participants in an ongoing research study, the Tanzanian HIV Prevention Project, being conducted with sexually-active heroin injectors in Dar es Salaam, Tanzania. The HIV prevalence rate for the general population in Tanzania is currently estimated at 7%; however, there are

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particular subgroups and regions of the country at higher risk with higher HIV prevalence rates than the general population (REPOA, 2005).

Coastal communities in Tanzania and Kenya, two East African countries sharing the Indian Ocean coastline, have historically been part of an Indian Ocean trading network that connected them with the Indian sub-continent and the Arabian Peninsula. During the nineteenth century the slave and ivory trade marked the first wave of globalization and urbanization in this region. During the colonial era from the late nineteenth century through the post World War II era, first German and then British colonial authorities laid claim to what would become mainland Tanzania and its resources and peoples. The independence period of the 1960s and 1970s was marked by attempts to carve out an African socialist programme that promoted a nationalist identity. Over the course of the twentieth century, the sea transport network was expanded by connections between air terminals, and new commodities began to move through this route that now easily and quickly connects to Europe and the United States. As Tanzania became a part of international drug trafficking routes, some youth became drug users and slowly a local Tanzanian drug using subculture developed.

Tanzania has a population of 36.2 million people and approximately 120 different ethnic groups. Swahili, the national language, facilitates easy communication. Between 1965 and 2002, Tanzania experienced dramatic urbanization, as the urban population grew from 5-33%. Dar es Salaam, the commercial capital of the country, is home to 50% of the urban population. Economic liberalization marked the opening of increased movement of young Tanzanians abroad and increased trade opportunities with Asia and Europe. Measures taken by the

International Monetary Fund (IMF) forced Tanzania to reduce government expenditures and increase government revenues. The Tanzanian government, among other measures, reduced education and health care expenditures. By 1999 one-third of Tanzanian children did not attend primary school, 51% of Tanzanians lived on less than US\$1 a day, and most of the urban workforce was unskilled and underemployed (UNDP, 2000). Re-introduction of free primary schooling in 2003 has led to overall reported school attendance rates of 90%; however, required fees for other school needs still limit the poorest Tanzanians from keeping their children in primary school (REPOA, 2005).

In this third decade of the AIDS epidemic, both urban migrants and long-term residents are finding support networks and family ties stressed and less able to provide moral, social, and community resources. Rural to urban migration took place in an environment of reduced job opportunities and limited access to affordable social and health services. Once in the city, new migrants often found they had little, if any, access to urban-based social support institutions (Kilonzo, 1989). In the absence of, or diminished presence of, family and community support systems in new urban settings, men and women of different generations, backgrounds, and places of origin have negotiated new practices, social roles and obligations (Hodgson & McCurdy, 2001). Out of school youth lacking the skills necessary to seek occupations that provide them with a steady income are increasingly spending free time on the street. Harmful patterns of alcohol and drug consumption in Tanzania emerged in tandem with this process of rapid urbanization, decrease in employment opportunities, breakdown of the traditional social fabric and family system, and limited affordable social services and healthcare

facilities (Kilonzo, 1989; McCurdy et al. 2005a; Singano, 1984).

Drug Abuse

Drug abuse, especially use of heroin, is a fairly recent phenomenon in Tanzania and so the role of illicit drug injection in the HIV epidemic in Africa has received minimal attention. In recent years both local and international young adults have been involved with the increased importation of illicit drugs into the country (See Table 1 for drug seizures in Tanzania). Although there are no official statistics on drug abuse in the country, it is estimated that the city of Dar es Salaam, which has a population of 2.5 million, has 200,000 to 250,000 drug abusers (IRIN, 2006). The country has a long history of trade and smuggling with neighbouring countries making it easy for drug traffickers to move in and out of the country. From 1980 to 1985 a total of 6,019 persons were prosecuted on narcotics charges, of whom, 7% were aged less than 16 years and 49% were aged between 16 and 25 years. During 1986 and 1989 alone, more than 250,000

tablets of Mandrax were intercepted at Tanzanian ports. Cases of heroin seizures increased from 54 in 1997 to 230 in 2005. The many direct international air and sea connections through Tanzania make the country even more vulnerable.

HIV/AIDS

HIV prevalence in Tanzania has been estimated at 9.2%, although this figure was recently revised to 7%, reflecting more representative sampling frames (Ministry of Health United Republic of Tanzania, 2004). The first AIDS cases were reported in Northwest Tanzania in 1983 and by 1986 the disease had spread to all regions in the country (NACP, 1994). During 2004, 16,430 AIDS cases were reported from Tanzania’s 21 mainland regions. Heterosexual intercourse has pre-dominantly been the major mode of trans-mission (NACP, 2003); however, and about 5% of all new cases reported in 2004 were in individuals aged less than 15 years suspected to have been infected perinatally, bringing the cumulative number of AIDS cases for Tanzania up to 192,532 (MOH, 2005).

Estimated Number of Males and Females Living with HIV/AIDS in Tanzania 2000-2006

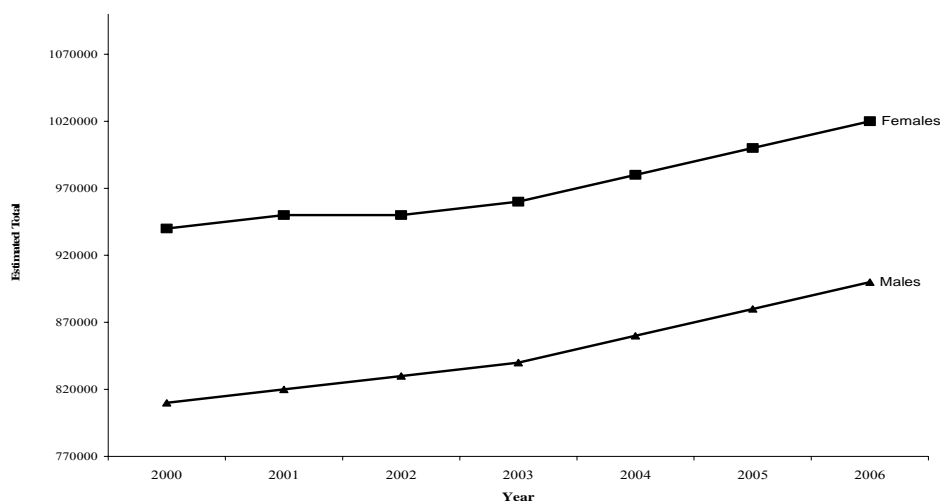


Figure 1. Estimated number of males and females living with HIV/AIDS in Tanzania 2000-2006

Table 1: Drug Seizures in Tanzania during Calendar years 1997 to 2005

Year	Cannabis marijuana			Cannabis resin			Khat			Heroin			Morphine			Cocaine			Methaqualone		
	Case	Suspect	Kg	Case	Susp	Kg	Cas	Susp	Kg	Cas	Susp	Kg	Cas	Susp	Kg	Cas	Susp	Kg	Cas	Susp	Kg
1997	3,787	5,446	82,539				230	261	592,128	54	219	4.852	38	33	0.283	46	75	0.2	52	30	0.58
1998	3,895	4,539	4,625.616	34	46	42.162	237	131	320.575	160	200	2.745							2	1	3.5
1999	3,895	4,539	6,186.371				1	293	2,209.876	199	236	7.107			53	79	0.161	2	10	73	
2000	4,431	3,756	24,936	34	46	15	265	209	1,415.1	160	200	5.322			36	5	2.104	2	1	295	
2001	4,288	5,125	249,639.256	3	4	12.5	219	345	1,905.602	207	412	7.9965	1	3	3.338	31	64	7.3885	2	364	0.10
												44			2		4				7
2002	3,674	4,711	111,510.857	5	3	1,865.6137	233	401	2,971.180	193	294	1.4579	32	23	0.850	67	180	2.4610	34	44	1.5
			721			34			55		07				45		4				
2003	4,034	5,399	733,222.63				254	410	12,002.58	234	277	4.71			70	16	10.727				
									2												
2004	2,229	3,749	964,070.381				120	265	9,650.98	250	350	14.354			3	3	0./620	1	1		
																	4				0.5
2005	2,790	3,949	150,450.4	3	1	78.75	322	289	1,206.945	230	269	9.936	6	2	1.401	19	20	0.3615			

Key:

Case = Number of legal cases involving drugs

Susp = Number of suspects involved in the legal cases involving drugs

Kg = Weight in kilograms of the seized drugs

Khat = Khat edulis (chat, mirungi)

Cannabis resin = hashish

Note 1: It is very rare for amphetamines to be seized in Tanzania. The only case noted during this period was one case involving one suspect during 2004 who was seized with 154 grams of amphetamine.

Note 2: During calendar year 2005 there were 19 Tanzanians apprehended in foreign countries for drug trafficking. Out of these, 8 were arrested in Pakistan, 8 in Iran, 2 in Ethiopia and one in Kenya. All of these were trafficking in heroin except one who was arrested in Iran carrying cocaine. Quantities of the illicit drugs involved were indicated for 9 traffickers amounting to 9,622 grams (9.622 kg) of heroin.

Prevalence has varied widely among segments of the population. HIV prevalence studies among sex workers in Dar es Salaam showed an increase from 29% in 1986 to 49.5% in 1993 (UNAIDS/WHO 2005). During 2001, a study reported that 70% of the sex workers in Mbeya, in southwestern Tanzania were HIV positive (UNAIDS/WHO 2005). During 2003, seroprevalence was 9.1% among antenatal clinic attendees in Tanzania HIV, and 8.8% among blood donors. Across various regions, the HIV prevalence for youth aged 15 to 24 years, who provided blood donations, ranged from 0% to 19%. In the Dar es Salaam region, HIV prevalence among adolescent blood donors was 5-10% (NACP, 2004). During 2004, 6.9% of the male blood donors from Ilala municipality, Dar es Salaam (n=2348) were HIV positive compared to 18.8% from Kinondoni (n=224) (MOH, 2005), which has been a centre for a great deal of injecting activity during our study.

Overall, the prevalence rate for those attending national voluntary HIV counselling and testing (VCT) sites during 2004 was 24.8% (MOH, 2005). Among males testing at Magomeni, Mnazi Mmoja, and Muhimbili sites in Dar es Salaam the proportion of those testing positive were 7% (n=142), 10.4% (n=205), and 16.6% (n=514); for females it was 17.6% (n=373), 22% (n=385), and 33.5% (n=1106), respectively. Magomeni is the first suburb past the commercial business district of Kariakoo and the National Referral Hospital Muhimbili. Mnazi Mmoja is between city centre and Kariakoo, the commercial trading centre, both places where there are established practices of sex work and drug trading.

As shown in Figure 1, generally rates of HIV infection are highest among females aged 25 – 29 years (NACP,

2005). The peak age for HIV infection for males has constantly been 30 – 34 years suggesting that most infected males had female partners who were at least five years younger (NACP, 2005; See Table 1 for estimated number of HIV/AIDS cases in Tanzania). Available behavioural surveillance surveys show that multiple partners are fairly common among youth and condom use is generally low (NACP, 2004). The observed differences in rates of infection by age and gender are most likely linked to the practice in most ethnic groups of men usually marrying women who are several years younger (Leshabari et al., 2005).

REVIEW OF LITERATURE

The literature on illicit drug use in Tanzania is sparse. In a 2000 study comparing drug use in Kinondoni, Dar es Salaam to that in Old Stone Town, Zanzibar, researchers found that 30 day drug use for adults from Kinondoni was 1% for heroin with no injection use. In comparison, in Old Stone Town, Zanzibar, 30 day drug use for adults was 7% for heroin with 3% injection use. Lifetime youth heroin use was 9% with 2% injection use (UNDCP/WHO, 2001).

During 2001, Save the Children funded a rapid situational assessment of drug use conducted in five regions of the country, Arusha, Dar es Salaam, Mbeya, Mwanza, and Zanzibar. Researchers found increased availability and consumption of drugs in all areas investigated (Kilonzo et al., 2002, unpublished report). Using 44 focus groups and 127 individual interviews conducted with district leaders (i.e., medical officers, police commanders, social welfare officers, administrative officers, and community leaders), former and current drug users, and youths living on the street, Kilonzo et al. noted with

particular concern an increase in injection drug use and needle sharing by heroin users (2002). Heroin use was highest in Arusha, Dar es Salaam, and Zanzibar, and was emerging as a concern in Mwanza. In another study conducted during 2001 in and near the commercial district of Ilala, Dar es Salaam, 624 drug users (40 female) reported they started using drugs as adolescents, used multiple drugs, were unemployed, and had a high number of health problems (Muhondwa and Mpembeni, 2002, unpublished report).

Among substance abuse patients admitted to psychiatric hospitals in Dar es Salaam between January and June 2004, heroin was the second most common primary substance of abuse accounting for 30% use among 169 patients ($n = 50$) (Parry and Pluddemann, 2005). Nine percent of these heroin using patients admitted they were injecting. These early studies were focused on the prevalence of substance use alone. Samples were small, specialized, preliminary, and focused primarily on Dar es Salaam and many of the methods and sampling techniques were not well described.

The above studies demonstrate that little was known about the sexual and drug using practices that put heroin injectors in Dar es Salaam at risk for HIV at the beginning of 2003. Our initial semi-structured interviews with 51 male and female injecting drug users (IDUs) residing in eight neighbourhoods in Dar es Salaam, Tanzania revealed that Dar es Salaam IDUs began smoking heroin in hangout areas with their friends, either because of peer pressure, desire, or involved deliberate deceit (they did not know they were ingesting heroin in the marijuana or tobacco they were smoking). Most IDUs began their heroin use with marijuana-laced heroin (McCurdy et al., 2005a). During this first research phase, it was found that 33% of male IDUs were

no longer sexually active and that gendered practices had emerged in the day-to-day practices young men and women engaged in. Most women were sex workers and kept different hours than men, not surprisingly, they also made more money. We found that injecting heroin was a comparatively recent practice in Africa and coincided with: 1) Tanzania transitioning to becoming a heroin consuming community; 2) the growing importance of youth culture; 3) the technical innovation of injecting practices and the introduction and ease of use of white heroin (that became increasingly available after 2000); and 4) the perceived need of heroin smokers, sniffers, and inhalers to escalate their use through a more effective and satisfying form of heroin ingestion (McCurdy et al., 2005a,b).

Analysis of survey data collected from 237 male and 123 female heroin users between October 2003 and January 2004 found that men were older, more likely to inject only white heroin, share needles, and give or lend used needles to other injectors. Women were more likely to be living on the streets, to have injected brown heroin, to have had sex, to have had a higher number of sex partners, and to have used a condom with the most recent sex partner. Despite other gender differences, both male and female injectors in Dar es Salaam exhibited elevated risk of HIV infection associated with drug use (Williams et al., in press).

During July 2005, female study participants reported that they had adopted a new needle sharing practice that they called 'flashblood.' Flashblood is the English term Swahili speakers use to describe drawing blood back in a syringe until the barrel is full, and then passing the syringe to a female companion who injects the blood. By injecting the syringe, women believed that they could avert

symptoms associated with heroin withdrawal because the first injector's blood was thought to have 'some heroin in it.' The rationale for flashblood may have been the price and quality of heroin. Most female heroin users in Dar es Salaam trade sex for money to support their habits, and have been greatly affected by the increase in cost and decline in quality of heroin. Women in poor health as the result of chronic heroin abuse and who cannot attract a sufficient number of male sex trade partners to support their use are most likely to engage in this practice out of desperation. Female IDUs still able to attract customers for sex have begun accommodating women in more desperate circumstances by providing them with flashblood (McCurdy, 2005b).

Perhaps because of the relative newness of injection drug use and the magnitude of the heterosexual HIV epidemic, the needle sharing behaviours of users have received little attention. Study participants did note, however, during in-depth interviews conducted in 2003 that they knew they should not share needles because they had listened to radio programmes that warned of the dangers of needle-sharing. Despite this warning, many IDUs left their needles with owners of shooting galleries, a location where drugs are purchased and used, and would come back later to use them. Though they might have hoped that these needles and syringes would remain safe and not be used, there were aware that others could use them in their absence (McCurdy, 2005a). Currently, a number of international and local nongovernmental organizations (NGOs) and the Tanzania Commission on Drug Control are working on strategies to address injection drug use and HIV transmission.

The objective of this most recent research phase was to investigate

sociodemographic factors, drug use, sexual behaviours, and HIV seroprevalence in a sample of heroin injectors in Dar es Salaam, Tanzania. During this second phase we focused solely with heroin injectors who were sexually active. Here we report on preliminary findings from our Tanzanian HIV/AIDS Prevention Project that includes, along with the collection of biologicals, a VCT component, and a demonstration of how to use bleach to sterilize needles and syringes.

METHOD

Data for this study were collected in an ongoing cross-sectional study between October 2005 and April 2006 in Dar es Salaam, Tanzania. Individuals were recruited to participate in the study using targeted snowball sampling (Booth et al, 1993; Watters & Biernacki, 1989). A sampling plan was developed based on information provided by key informants knowledgeable about illicit drug use in Dar es Salaam and the experience of a Tanzanian investigator who has worked extensively in local drug treatment programmes. Neighbourhoods targeted for sampling were selected through interviews with local key informants and direct observation of drug use activities, including injection, by an outreach worker in areas of the city where heroin injectors hung out and in shooting galleries. Local key informants were interviewed and asked to refer other heroin users to be screened for the study. The outreach worker pre-screened heroin injectors by asking if an individual had injected an illicit substance in the last 48 hours. If the response was "yes," the individual was asked to show evidence of recent needle track marks, and then transported to the project office to be further screened by project personnel.

Study participants were then asked to respond to a brief questionnaire to determine eligibility. Eligibility criteria for the study required that participants were at least 18 years of age, had injected an illicit drug in the 48 hours before being screened, and were willing to give informed consent. Individuals matching eligibility criteria were given information about the study, and then asked to provide verbal informed consent. If consent was obtained, the respondent was interviewed by a trained research assistant. The interview took about one hour. Participants were paid approximately US\$3 for their time and travel expenses. All procedures and data collection forms for the study were reviewed and approved by university committees for the protection of human subjects at the University of Texas Houston Health Science Centre, the Tanzania Commission for Science and Technology, Muhimbili University College of Health Sciences, and the Tanzanian National Institute for Medical Research.

Data were collected using the Swahili version of the Peer Outreach Questionnaire (POQ). Items included in the POQ were developed by the investigators and used in other studies with drug users (Bowen et al, 2001; Williams et al., 2003). All data were self-reported. Data were collected on sociodemographic variables, drug and needle use, sexual risk, and HIV status. Data from 319 (76%) men and 98 (24%) women were analyzed. Means and frequencies of sociodemographic characteristics, drug use, and sexual behaviours were assessed. All analyses were conducted using SPSS version 14.

RESULTS

Twenty-seven percent of the men and 58% of the women in this sample tested positive

for HIV infection. Thirty-five percent of participants reported ever having been diagnosed with gonorrhoea and 8% with syphilis. The average and median age for all participants was 28 years (range = 18-59). Ninety-two percent of participants were able to read and write, and 93% had more than 4 years of formal schooling. Three-quarters reported being single and 27% reported either being married or living with a partner of the opposite sex. There were significant differences between men and women ($p = .0001$) in their major source of income. Six men reported having regular jobs and 67% of men said that they did odd jobs. Twenty-six percent of the men reported engaging in illegal sources to obtain money. Eighty-five percent of the women were trading sex for money compared to only one man. Twelve percent of the women were being supported by their spouses or sexual partners and the remainder was doing odd jobs. Of all participants, 23% considered themselves homeless. Two-thirds of the participants, however, were living with their parents or partners at home and 76% of the men lived at home. Women were more likely to perceive themselves as homeless (41%) and less likely (28%) to be living at home.

All participants reported having a sex partner in the past 30 days and 75% reporting having sex partners in the past seven days. Of those with sex partners during the past seven days, all but two had engaged in vaginal sex. Sixty percent of those reporting they had sex partners during the last seven days said they never used a condom. Only 22% of those who reported having sex during either the past 30 days or the past seven days said they always used condoms. Thirty-eight percent reported not having a primary partner in the past seven days and most (60%) said they had one primary partner. Two-thirds of participants reported no casual partners in the past week. The

women who were trading sex for money reported having sex with a paying partner an average of 92 times in the past 30

days. The women reported always using condoms with paying partners only 68% of the time.

Table 2. Reported drug use

Drug Use	% Used	Average Age of Onset	Length of Time used	Average in 30 Days	Average in 7 Days
Heroin	100	20	8.3 yrs	98 times	23 times
Marijuana	98	16	9.6 yrs.	73 times	17.6 times
Alcohol	83	18	6.6 yrs	3.8 times	2.2 times
Valium	50	24	1.6 yrs	20 times	6.2 times
Mirungi	9	23	2.5 yrs	11 times	4 times
Mandrax	2	23	1.6 yrs	5 times	1 time.

Source: National AIDS Control Programme, Report 18, Ministry of Health, United Republic of Tanzania

All participants were using heroin (See Table 2). Sixty-seven percent reported never using a needle that had already been used and 55% said they had never given a used needle to someone else. One-third reported using a needle that had been used by at least one other person.

DISCUSSION

The HIV seroprevalence of the study participants is much higher than that reported by any other subgroup testing for HIV in Dar es Salaam. Fifty-eight percent of the female IDUs, tested HIV positive, an increase of 8.5% from the sex workers study conducted in Dar es Salaam in 1993. There is evidence that few sex workers were injecting during the early 1990s; however, we do not know much about the circulation of sex workers between cities in Tanzania to know how much the HIV seroprevalence of Mbeya at 70% during 2001 might be related to HIV seroprevalence in Dar es Salaam. A United States study of male sex workers in Texas found that sex workers moved between three cities during the course of the year in order to attract more clients. When the number of partners decreased in

one location, sex workers would rotate to another city where the number of partners would increase for a period of time (Williams et al. 2005). Our findings and the study in Mbeya demonstrate that sex workers' HIV seroprevalence is very high in Mbeya and Dar es Salaam.

Prevalence among women testing at VCT centres in Dar es Salaam during 2004 ranged from 17.6% to 33.5%. Female IDU HIV prevalence was 58%, triple that of the lowest group and slightly less than double that of the highest group of female VCT clients, making female IDUs in Dar es Salaam at highest risk for HIV.

What is especially striking in this study is the 27% HIV seroprevalence of male IDUs, especially since only one man reported trading sex for money. During 2004, male blood donors in Dar es Salaam had a HIV seroprevalence ranging from 8% in Ilala to 18.8% in Kinondoni and males testing at VCT centres in Ilala and Magomeni municipalities and Muhimbili Hospital in Dar es Salaam had rates of 7%, 10.4%, and 16.6% respectively in 2004. Male blood donors are likely to be a family member or friend of someone hospitalized and those visiting VCT

centres are most likely to reporting believing they are at risk for HIV infection. The high prevalence (18.8%) of HIV among the 224 men attending VCT centres in Kinondoni is likely related to drug use and sex work.

Only 28% of the women were living at home in contrast to 76% of the men. Eighty five percent of the women engaged in sex work and 26% of men engage in illicit activities to survive and support their habits. More than twice as many women perceive themselves to be homeless (42%) compared to men (16%). This may reflect men's tendency to remain at home and the insecurity of survival on the streets as a sex worker.

Sixty percent of the study participants reported having a main partner and 60% reported never using a condom in the past seven days. It is likely that those IDUs never using condoms during sex were having sex with a main partner. This is true of the general population as well. Of the 22% IDUs who reported always using condoms during sex in the past 30 days, it is likely, when the respondent was female, that all of those partners were clients. Yet, as a group, women in the study reported they only used condoms with clients 68% of the time.

In regards to needle sharing, 45% reported they had given a needle to someone else to use and 33% admitted they had used the needle of someone else; however, this self-reported data does not reveal much about reuse of needles left in a shooting gallery for future use. Whether or not an IDU or shooting gallery owner intentionally left a needle for someone else to use, it was likely that someone who encountered a hidden or saved needle and syringe and needed it would use it. Needle and syringe sterilization practices have only just been introduced and are not commonly used. Typically, for those reusing a needle and syringe the

works are flushed two or three times with water until no trace of blood can be seen.

Clearly both male and female IDUs are in a position to act as a bridge to the main population given their high HIV seroprevalence; lack of condom use with their main partners; and less than 70% condom use with clients by female IDUs who are sex workers. These study participants are also more likely to be more infectious than others who are HIV positive because they are less likely to take care of their own health care needs and more likely to become sick, because of their drug and sexual practices, than the general population. Further research is called for in order to increase understanding of the context in which sex work practices emerge and transform; the ways that HIV risk and IDU practices converge; and the types of interventions that IDUs might find acceptable to reduce their risky sex and drug use practices. In addition, a better understanding of methods for helping drug users, along with their families and friends, transition back into mainstream society and whether or not self-sustaining family-based IDU interventions are possible.

Public health interventions must take into account the local context in which these risky sex and drug practices emerge. In the absence of a well-developed infrastructure or adequate funding to systematically provide treatment options to IDUs, grassroots programmes that build on local efforts should be considered. Interventions developed with local communities that combine theory with a deep knowledge of the local situation are likely to be the most successful and continue after donor or research funding ends. Possible interventions could include self-help support groups, structured behavioural change sessions focused on either encouraging the use of bleach to sterilize

needles or increasing condom use, and strategies designed to increase the availability and accessibility of syringes and condoms.

REFERENCES

- Booth, R., Watters, J., & Chitwood, D. (1993). HIV Risk-related sex behaviours among injection drug users, crack smokers, and injection drug users who smoke crack. *American Journal of Public Health*, 83 (8), 1144-1148.
- Bowen, A., Williams, M., McCoy, H., & McCoy, C. (2001). An investigation of the psychosocial determinants of condom use among sexually active heterosexual drug users. *AIDS Care*, 13 (5), 579-594.
- Hodgson, D.L. and McCurdy, S. 2001. Introduction. In Hodgson, D.L. and S. McCurdy, (eds.), *"Wicked" Women and the Reconfiguration of Gender in Africa*, (Portsmouth, NH: Heinemann), 1-24.
- IRIN (2006) Tanzania: Church Still Opposes Condom Use, Sex Education. IRIN Plus News:
- Kilonzo, G. P. (1989) Tanzania Country Profile on Alcohol (WHO study on contribution of state monopoly systems to the control of alcohol related problems) WHO Task Force. Stockholm, Sept 7-14, 1986. Appeared as a chapter in Kortteinen, T. (Ed.) *State Monopolies and Alcohol Prevention. Social Research Institute of Alcohol Studies, University of Helsinki Report No. 181*, Helsinki 1989.
- Kilonzo, G.P., Mbwambo, J.K., Kaaya, S.F., & Hogan, N.M. (2002). Rapid situational assessment for drug demand reduction in Tanzania. *The United Nations Drug Abuse Control Programme (UNDCP)*. Geneva.
- Leshabari, M.T.; Kaaya, S.F.; Killewo, J.Z.J. and Mbwambo, J.K. (2005). "Youth Mobility and Unprotected Sex as Key Factors in the Spread of the AIDS Virus in Tanzania. In *Social Change and Health in Tanzania* (Eds.: Heggenhongen, K.; Lugalla, J.) Dar es Salaam University Press, Dar es Salaam 2005.
- McCurdy, S., Williams, M., Kilonzo, G., Ross, M., & Leshabari, M. (2005a). Heroin and HIV risk in Dar es Salaam, Tanzania: Youth hangouts, mageto, and injecting practices. *AIDS Care*, 17 (Supplement 1), S65-S76.
- McCurdy, S., Williams, M., Kilonzo, G., Ross, M., & Leshabari, M. (2005b). "Flashblood" and HIV risk among IDUs in Dar es Salaam, Tanzania. Accessed from www.bmj.com/cgi/letters/330/7493/684#115307
- Ministry of Health United Republic of Tanzania (2004). Surveillance of HIV and Syphilis among Antenatal Clinic Enrolees 2003-2004, Dar es Salaam.
- Ministry of Health-Tanzania (MOH). (2005). Report No. 19, 2005. Dar es Salaam: United Republic of Tanzania.
- Muhondwa, E., Mpembeni R., and Mayunga, F. (2002). An assessment of the treatment needs of drug users in Dar es Salaam. *Save the Children UK, Tanzania Programme*. Dar es Salaam.
- NACP (1994). National AIDS Control Programme Report No. 8, Ministry of Health, Dar es Salaam, Tanzania.
- NACP (2003). National AIDS Control Programme: HIV/STI Surveillance Report No. 18, Ministry of Health, Dar es Salaam, Tanzania.
- NACP (2004). Behavioural Surveillance Surveys among Youth, 2002, Ministry of Health, Dar es Salaam, Tanzania.
- NACP (2005). National AIDS Control Programme: Surveillance of HIV and Syphilis Infections Among Antenatal Clinics Attendees 2003/2004, Ministry of Health, Dar es Salaam, Tanzania.
- Parry, C. and Pluddemann, A. (2005). Southern African Development Community Epidemiology Network on Drug Use (SENDU) Report: January – June 2004. Cape Town, South Africa.
- REPOA. (2005). Poverty and Human Development Report, 2004, United Republic of Tanzania. Dar es Salaam: Mkukina Nyota Publishers.
- Singano, B J (1984). The Prevalence and Patterns of Alcohol Consumption in

SUBSTANCE ABUSE AND HIV IN TANZANIA

- Urban Communities of Dodoma Municipality. Dip.PH Dissertation, University of Dar es Salaam, 1984.
- UNAIDS/WHO. (2005). UNAIDS/WHO Epidemiological Fact Sheet, United Republic of Tanzania, 2004.
- UNDCP/WHO (2001). Substance Use in Southern Africa. Geneva.
- UNDP. (2000). Tanzania Human Development Report: The State of Progress in Human Resource Development.
- UNODC. (2006). Tanzania Country Profile Accessed on September 21, 2006 from http://www.unodc.org/kenya/en/country_profile_tanz.html.
- Watters, J. & Biernacki, P. (1989). Targeted sampling: Options for the study of hidden populations. *Social Problems*, 36 (4), 416-430.
- Williams, M., McCurdy, S., Kilonzo, G.P., Leshabari, M.T., Ross, M. (in press). Differences in HIV risk behaviours by gender in a sample of Tanzanian injection drug users. *AIDS and Behaviour*.
- Williams, M., Klovdahl, A., Atkinson, J., M. Ross, Timpson, S. (2005). Spatial bridging in a network of drug using male sex workers. *Journal of Urban Health*, 82 (Supplement 1), i35-i42.
- Williams, M., Timpson, S., Klovdahl, A., Bowen, A., Ross, M., & Keel, K. (2003). HIV risk among a sample of male sex workers. *AIDS*, 17 (9), 1402-1404.

THREE-COUNTRY ASSESSMENT OF ALCOHOL-HIV RELATED POLICY AND PROGRAMMEMATIC RESPONSES IN AFRICA

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ABSTRACT

The significant role of alcohol in HIV transmission and treatment has not been addressed in Africa. Given the widespread use of alcohol in Africa and its impact on HIV/AIDS, decision makers are now recognizing that action is needed. The authors conducted a situational analysis of the relationships between alcohol and HIV in three sub-Saharan countries: Kenya, Zambia and Rwanda. Key findings emerging from these countries include: the importance of youth as a risk group for harmful use of alcohol and increased HIV risk; the lack of enforcement of laws relating to alcohol leading to increased HIV risk; the central role of traditional and informal alcohol production in alcohol use; the lack of alcohol screening tools in antiretroviral therapy (ART); and the lack of alcohol treatment availability especially linked to voluntary HIV counselling and testing (VCT) and ART.

KEY WORDS: alcohol, HIV, policy, Kenya, Zambia, Rwanda

INTRODUCTION

The association between alcohol use, reduced sexual inhibitions, HIV transmission and individual behaviour has been demonstrated in numerous studies in both the developed and developing world (Cook & Clark, 2005; Klinger, Kapiga, Sam, Aboud, Chen, Ballard, and Larsen,

2006; Markos, 2005; Shaffer, Njeri, Justice, Otero, and Tierney, 2004; Talbot, Kenyon, Moeti, Hsin, Dooley, El-Halabi, and Binkin, 2002; WHO, 2005; Zablotska, Gray, Serwadda, Nalugoda, Kigozi, Sewankambo, Lutalo, Mangen, and Wawer, 2006) Population-based evidence also exists for the link between sexual behaviour and alcohol (Chesson,

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Harrison, and Stall, 2003; Lugalla, Emmelin, Mutembei, Sima, Kwesigabo, Killewo, and Dahlgren, 2004). Alcohol use is particularly problematic among groups that are at increased risk of HIV infection including mobile populations, commercial sex workers and youth (Amayo, 1996, Ao, Sam, Nasenga, Seage and Kapiga, 2006; Madhivanan, Hernandez, Gogate, Stein, Gregorich, Setia, Kumta, Ekstrand et al., 2005; Malta, Bastps. Pereira-Koller, Cunha, Marques and Strathdee, 2005; Seloilwe, 2005; Hoffman, O'Sullivan, Harrison, Dolezal, and Monroe-Wise, 2006; Wechsberg, Luseno, Lam, Parry, and Morojele, 2006). To date, however, HIV prevention programmes have generally overlooked or only marginally addressed this transmission factor. The significance of alcohol and HIV and AIDS programming has recently assumed a measure of interest among public health professionals in Africa, with regard to the role alcohol plays in promoting risky sexual behaviour, accelerating progression to disease, reducing efficacy of HIV treatment, and reducing adherence to drug regimens.

Political and public health leaders in eastern, central and southern Africa are beginning to address the impact of alcohol consumption on HIV and also in relation to economic productivity, household and community security, road safety and overall health. An important step in highlighting the links between alcohol and HIV was a three-day technical meeting held in Dar es Salaam in August 2005 that focused on "Alcohol, HIV Risk Behaviours and Transmission in Africa: Developing Programmes for the United States Emergency Plan for AIDS Relief." Sponsored by the Office of the Global AIDS Coordinator (OGAC), the conference was attended by 80 people from 13 countries. Conference speakers

provided technical updates on alcohol use related to HIV risk behaviours; discussed policies and best practices on effective HIV prevention interventions; and provided information on treatment for alcohol dependence and implications for HIV treatment adherence.

Following the meeting, the East, Central and Southern Africa (ECSA) Health Community Secretariat, with funding from the United States Agency for International Development (USAID)/East Africa (formerly the Regional Economic Development Services Office [REDSO]) of the U.S. Agency for International Development, commissioned a review of the impact of alcohol on health, HIV transmission, HIV disease progression and treatment compliance and efficacy.

The review demonstrated that alcohol influences high risk behaviour, such as unprotected casual and indiscriminate sex, sex with commercial sex workers (CSWs) and unprotected sex with multiple partners. In addition, alcohol consumption is highest in poor communities where potent home-brewed alcohol, such as *mnazi* in Coast Province, Kenya, is cheap and readily available. Quality control is weak, meaning alcohol content can at times be dangerously high. Some local government authorities regulate production of home-brewed alcohol as well as drinking age but regulations are often un-enforced.

Several studies have demonstrated that alcohol consumption can reduce drug compliance and efficacy, harming the patient and breeding drug-resistant strains of HIV. (Aweeka, Lizak, Karan, et al, 2003; Braithwaite, McGinnis, Conigliaro, Maisto, Crystal, Day, et al, 2005; Kresina, Flexner, Sinclair, Correia, Stapleton, Adeniyi-Jones, Cargill and Cheever, 2002; Mugisha, and Zulu, 2004) Alcohol can further suppress the immune system

of HIV-infected individuals, which might speed the onset or exacerbate the pathology of AIDS and related illnesses. Governments in the region have limited infrastructure to provide antiretroviral therapy (ART) and related services and cannot afford to waste limited treatment slots.

The review also described the role of formal sector alcohol producers in the region. Producers spend significant sums on advertising, positioning alcohol as essential to an enjoyable, well-rounded lifestyle. While the alcohol lobby funds some social campaigns, such as responsible drinking campaigns, they rarely draw sharp connections between alcohol consumption and domestic violence, HIV transmission and other negative consequences. Health advocates do not have the resources to effectively counteract media that glamorizes alcohol.

Finally, alcohol-treatment programmes in developing countries are generally scarce or non-existent. There is an absence of clear national health policies related to the role of alcohol in HIV/AIDS prevention, care, support and treatment and there are no consistent national strategies or protocols relating to prospective ART patients who are heavy alcohol users or abusers.

These findings and related topics were summarized in a policy paper developed by ECSA and presented to the 42nd Regional Health Ministers Conference in Mombasa, Kenya, in February, 2006. The paper resulted in the passage of a resolution recognizing that an effective response to the HIV/AIDS epidemic must address the underlying social factors that drive risk behaviour. The resolution expressed concern about the high percentage of people, including youth, who turn to alcohol to deal with societal and poverty-related stress. It noted that excessive alcohol use increases

vulnerability to HIV transmission, reduces the efficacy of HIV medicines and reduces drug compliance. The ministers urged the member states to put issues related to alcohol in their national HIV/AIDS strategies and ensure that appropriate alcohol and HIV/AIDS policies and programmes are in place. They endorsed the appointment of national technical working groups to spearhead the implementation of alcohol and HIV/AIDS programmes.

The resolution requested a situational analysis on policies, programmes and legal frameworks in member countries selected to represent the three regions of the secretariat. The ECSA secretariat, with technical and financial support from USAID East Africa through Family Health International, conducted a three country assessment in Rwanda, Kenya and Zambia to validate the observations and findings of the desk review and gather information on the availability of alcohol and HIV/AIDS policies, programmes, needs and gaps in these three countries. These countries were selected because they were representative of different regions in the ECSA regions and demonstrated willingness to participate in the assessment. All three countries have generalized HIV epidemics of varying intensities. The epidemic in these countries is primarily driven by unprotected heterosexual sex. According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), in Zambia the adult male prevalence is 3.6-11.9%, female 4.0-13.6%, while in Rwanda the prevalence is 0.7-0.8% and 1.9-2.0%, Kenya 0.7-0.8% and 4.5-6.0% respectively. (UNAIDS, 2006) The discordance between males and female prevalence is an important feature of the HIV epidemic in sub-Saharan Africa. The alcohol consumption in these countries according to the World Health Organization

(WHO) Global Status Report on Alcohol varies from approximately 5 litres per capita in Rwanda, 2.5 litres in Zambia to 1.75 litres in Kenya. (WHO, 2005) These figures do not include unrecorded alcohol consumption which, according to expert opinion, varies from 5 litres per capita in Kenya, 4.3 litres in Rwanda to 1.0 litre in Zambia although no quantitative data exists for this important source of alcohol in sub-Saharan Africa.

This paper describes the methodology and results of the assessment and a discussion on the way forward.

METHOD

A descriptive study using qualitative data collection methods, including focus group discussions (FGD), key informant interviews (KI) and literature review was undertaken. A team of consultants with expertise in the areas of epidemiology, prevention and treatment of HIV/AIDS, public health policy in Africa and substance abuse conducted the assessment. The process of the study in each country included coordination with Ministry of Health officials, the national AIDS control body, and related stakeholders. FGDs and KI interviews with stakeholders and community members were completed by the consultant team over 14 consecutive days.

In each country, a review of existing country legislation and policy was undertaken through inquiry of public sector, private sector, civil society and faith-based organisations. National and local epidemiological studies or other studies that addressed the impact of alcohol on the transmission or treatment of HIV/AIDS were reviewed. In addition, a Medline search was carried out for relevant scientific literature, using keywords such as alcohol, HIV, Africa, and risk factors. Selected experts and all

participants in FGDs and KIs also were asked for unpublished and other literature.

FGDs and KI interviews also were conducted in each of the three countries. A semi-structured guide was used to ask general questions about culture, programmes, policies, existing data and strategies around alcohol and HIV. Focus groups discussions were used to gather information from a broad cross section of stakeholder groups in the areas of research, monitoring and evaluation, prevention, treatment, civil society, gender, private sector, and public sector. Discussions were undertaken with groups of 8 - 12 individuals representing stakeholders in the areas of HIV and/or alcohol. Community members, including persons living with HIV/AIDS (PLWHAs) were also included. These discussions were organized by topic areas, including HIV prevention, gender and domestic violence, public sector responses, civil society responses, HIV treatment and care of AIDS patients, and alcohol treatment.

Key informant interviews were used to triangulate information obtained from focus groups and to allow relevant individuals to elaborate upon key themes. Interviews were undertaken with specific stakeholders selected for their strategic positions or special areas of expertise. Key informants were identified by the consultants and, in each country, included policy makers from the public and private sectors, and from civil society.

In addition, site visits took place in each country to locations where the nexus of alcohol use and risky sexual behaviour were felt to predominate. Observed sites were selected by stakeholders and local experts. Site visits usually lasted one to two days for each location. Onsite KI interviews and FGDs were undertaken where feasible. Groups and individuals interviewed included PLWAs, purveyors

of traditional alcohol, providers of ART, mobile populations, youth, women, alcohol treatment providers, peer educators, community members and HIV prevention specialists.

RESULTS

Legislation, policy and taxation

Table 1 shows the presence or absence of legislation in each of the three countries on operating hours for drinking establishments and legal age of consumption of alcohol. The table also lists any legislation pertinent to the production and sale of traditional alcohol; whether a national policy framework of alcohol exists; whether alcohol is a component of the National HIV Strategic Plan; and whether there are specific alcohol taxes. Documents reviewed included national HIV strategic plans for each country and legislation on alcohol and taxation when present. These

documents are important indicators of the degree of engagement with alcohol and HIV as an issue by the public sector and are frameworks that may be built upon to strengthen national responses. As noted below, legislation and laws are present in all countries but are either outdated or poorly informed. In Rwanda and Zambia legislation largely dates from the colonial era; however, in Kenya some reforms have been instituted to address public health and contemporary issues. An overarching multi-sectoral alcohol policy framework in all countries is absent. Informal alcohol production is poorly regulated and not systematically addressed in any of these countries. With regards to HIV the issue of alcohol has been incorporated into national strategic plans but only in a cursory way and only in relation to behavioural risk. Even here the issue of alcohol is not prioritized and has not resulted in any response to the problem.

Table 1. Alcohol legislation, policy and taxation

Policy component	Zambia	Rwanda	Kenya
Existing legislation on opening hours and age of consumption	Present	Present	Present
National policy framework on alcohol	Absent	Absent	Absent
Traditional alcohol legislation existent	Present*	Present*	Present*
Alcohol as component of National HIV Strategic Plan	Present**	Present**	Present**
Differential taxation on alcohol products	Present	Present	Present
	*Legislation exists from colonial era	* Legislation exists from colonial era	*Legislation in draft form, some forms illegal e.g. change
	**Mentioned as risk factor	**Mentioned as risk factor	**Mentioned as risk factor

Focus group discussion results

FGDs and KI interviews were undertaken in the capitals of the three

countries, (Lusaka, Zambia; Kigali, Rwanda; and Nairobi, Kenya) and at other sites. Those included truck stops, border

crossings, geographic areas of intense informal alcohol use, ART sites, and alcohol treatment sites. Results are presented by theme: legislation, policy and

taxation, prevention and treatment, and gender. Table 2 reports the numbers of participants in FGDs and the number of KI interviews conducted in each country.

Table 2. Numbers of focus group discussions and key informant interviews in the three countries

Data collection method	Zambia	Rwanda	Kenya
Number of focus groups carried out	8	8	12
Number of participants in focus groups	44	31	86
Key informant interviews	16	8	14

Focus groups were held with stakeholders from research, monitoring and evaluation, prevention, youth, treatment, gender, civil society, and the public sector. PLWHA were incorporated into the KI interviews and FGDs in all three countries where possible. Youth themes and comments have been incorporated into the discussion of other theme areas as there was considerable overlap. The number of private sector stakeholders available was small so they were interviewed as KI and their themes are presented below. Transcripts and notes were reviewed, and key themes and messages identified in relation to the areas of interest.

Prevention: Focus groups working in the area of HIV prevention were held in all three countries. Participants included voluntary counselling and testing (VCT) providers, leaders of community-based prevention programmes, national prevention programming representatives from non-government organisations (NGOs) and public sector focal points for prevention. In all three countries these groups emphasized the important role that alcohol plays in the transmission of HIV in their target populations and the need to address misuse of alcohol in the context of prevention activities. Community members questioned in separate FGDs

substantiated these findings. None of the prevention activities described by participants in the focus groups addressed alcohol misuse. Those implementing prevention activities that participated in the FGDs receive no training in the area of substance abuse and have no addiction counselling skills. When hazardous drinkers are identified in any of these programmes there are no referral options for treatment of substance abuse except in the major urban areas in Kenya where limited services exist in the private sector.

Several at risk populations for alcohol misuse and high risk sex were identified in FGDs in Rwanda, Zambia and Kenya. University students, out-of-school youth, mobile populations such as transport workers, CSWs and military and uniformed services were identified as “most at risk populations.” In Kenya men who have sex with men (MSM), intravenous drug users (IDUs) and prisoners were also identified as groups at high risk.

The issue of alcohol misuse and masculinity was emphasized in FGDs in all countries. In Zambia existing research also supports this link. (Haworth,1995). FGD participants report that heavy drinking is expected in men but not women in Kenya, Zambia, and Rwanda. In Rwanda men are expected to consume

large amounts of alcohol but not appear to be intoxicated. Women in Rwanda who are HIV-positive frequently cite alcohol as a risk factor in acquisition of HIV. FGDs indicated that in Kenya gender roles regarding drinking are changing in urban environments such as Nairobi and both men and women are consuming alcohol regularly. This is linked to a shift toward perceived western cultural norms in Kenya which is especially pronounced in youth. In Rwanda where more than 90% of the population is rural this shift has not been pronounced. In Zambia this theme was not emphasized in the FGDs. Both men and women in the three countries who are HIV-positive cite alcohol as a risk factor in acquisition.

Preliminary results from a national study in Kenya looking at alcohol misuse in VCT clients in Kenya demonstrates that there are multiple alcohol related problems relevant to the VCT setting that are not being addressed. (Kiragu & Mackenzie, 2006). VCT facilities in Kenya are not identifying alcohol as an issue in risk counselling nationally and counsellors lack the tools to address the problem. In Rwanda and Zambia VCT providers in the FGDs did identify alcohol as an issue in risk counselling but there are no alcohol treatment referral options for individuals with substance abuse disorders.

Treatment: FGDs with ART providers in Rwanda, Zambia and Kenya revealed similar findings. Alcohol problems are generally perceived as minimal in patients receiving ART. Drop out rates due to non-adherence were reported as generally low and even lower as a consequence of alcohol misuse. In all countries there is limited counselling done at intake which addresses the need to abstain from alcohol while in treatment. In Rwanda there are strong community linkages to support

adherence in patients on ART and these linkages may be linked to the low reported rates of alcohol misuse. In Kenya and Zambia there are also community linkages to support adherence in some programmes but not nationally as in Rwanda.

The scope of the problem of alcohol misuse in treatment settings is not clear in Rwanda, Zambia, or Kenya. The FGDs revealed discordance between community feedback and providers of care. There are no existing mechanisms to estimate the actual quantity of alcohol consumption in treatment settings by biological testing and there are strong disincentives for patients on ART to accurately self report alcohol use due to fear of exclusion from treatment. In Kenya FGDs with groups working with PLWAs consistently report that alcohol is used by the majority of patients on ART and anecdotal reports from FGDs in Rwanda and Zambia are consistent with that finding. Another related finding is that even though the epidemic in Africa has affected females in greater numbers there are a disproportionate number of women receiving ART relative to men in these countries. Men are much more likely to engage in hazardous drinking in Kenya, Zambia and Rwanda and are less likely to access health care services. HIV-positive problem drinkers, therefore, are more likely to be men, less likely to access health care services generally and ART specifically. FGDs with treatment providers working in the slums of Nairobi are consistent with this point as they report that problem drinkers are rarely seen in HIV treatment settings even for intake despite the high prevalence of serious drinking in these areas.

There are no services for alcohol linked to HIV treatment settings in

Zambia, Rwanda or Kenya. Where these services are available in the private sector in Kenya there are barriers due to cost and lack of a referral network from HIV treatment facilities to substance abuse treatment.

Gender: In addition to the points raised above related to gender issues in prevention and treatment, several other pertinent themes related to gender were raised in both the Kenyan, Zambian and Rwandan FGDs. The civil society groups working with gender all described gender based violence and domestic violence linked to alcohol in all these countries. In Rwanda rape and forced sex was linked closely with alcohol. A common scenario described in many of the FGDs is that of the intoxicated husband returning home and forcefully demanding sex from his wife. Wives are unable to negotiate condom use with HIV-positive intoxicated husbands who often have engaged in unprotected sex under the influence of alcohol. One NGO working with women with HIV/ AIDS pointed out that this scenario comes up repeatedly in dramas created by HIV-positive women which were performed throughout Rwanda as a part of the NGO's intervention to support women living with AIDS.

Other prominent themes from the FGDs in the three countries link female headed households, the promotion of transactional sex, trans-generational sex and the selling of traditional alcohol or home brews. Older single women in both countries are often in desperate economic situations where the only option open to them is to brew traditional alcohol (home brews). When this occurs in their homes male customers may engage in trans-generational sex with their daughters. These informal drinking venues are also areas where CSWs trade sex for money

with male patrons. In Rwanda widows were identified as being significantly affected by alcohol abuse. The problems associated with gender based violence, domestic violence, and forced sex are widespread in the rural areas of Rwanda. Some areas in Kigali, Rwanda are also significantly associated with gender/alcohol related problem. In Kenya the gender based issues described are more significant in certain geographical areas such as fishing villages on Lake Victoria in Western Kenya, slum areas of Nairobi and specific impoverished areas on the Kenyan Coast.

Public sector stakeholders: Public sector stakeholders included officials of the Ministries of Agriculture, Health, Defense, Home Affairs, Trade and Commerce, Local Government, Education, Gender, Justice, Finance, Youth, Planning, Internal Affairs, and alcohol related parastatals. The public sector groups in general were aware of alcohol as a risk factor for transmission of HIV; however, they had no specific direction to reshape alcohol policy or strategies to reduce the impact of alcohol on the spread of HIV. The exception is Rwanda, where alcohol was considered in a multi-sectoral way by ministries. The level of public sector engagement in other countries in alcohol as an HIV issue was minimal, especially outside the Ministry of Health. However, in Kenya the prison services had identified substance abuse as a major issue related to behaviour and were looking for tools to address it. The public sector group also identified informal use of alcohol and lack of enforcement of current laws as important issues in the alcohol HIV response in their countries. High risk groups for alcohol abuse identified by these stakeholders included youth, CSWs, mobile populations including transport workers and people in the correctional

system. Stakeholders also identified defense forces and police forces as at risk for alcohol misuse.

Civil society: FGDs with civil society organizations were conducted with faith-based organisations (FBOs), NGOs, and community-based organizations (CBOs) in all three countries. These organisations included youth groups, women's groups, multi-faith/single faith organisations, and groups working with marginalised populations. They reported many of the alcohol related problems listed in the sections on gender and prevention. Another finding of civil society FGDs was that women often seek help from their religious leaders and community groups with alcohol problems in their families. These community groups, pastors, priests and imams have no training in substance abuse problems and usually have nowhere to refer individuals seeking their counsel for help in dealing with alcohol issues. Other prominent themes from these FGDs were the prevalence and insidious nature of informal alcohol on the social fabric of the societies and the impact of the lack of law enforcement on these issues. All stakeholders had consensus over the issue of lack of enforcement of laws and pointed to both lack of leadership and in some instances complicity in the law enforcement community.

Key informant interviews

KI interviews were done in all three countries. Individuals in the public sector, civil society and private sector were interviewed. This included specialists in ART and alcohol abuse. Topics included the cultural setting for alcohol use in the country, perceived drinking patterns and social norms,

sector specific questions about programme responses, policies and strategies on alcohol as it relates to HIV and the sector represented by the KI.

Prevention: The KI interviews substantiated the findings of the FGDs. The linkage between alcohol and HIV risk was apparent to all. High risk groups for alcohol abuse identified were youth, mobile populations, CSWs, and the unemployed. Cultural aspects that contributed to behavioural risk included the use of informally produced alcohol and the lack of enforcement of laws regarding opening hours and age limits on sales to minors. The prevention KIs highlighted the need for VCT to serve as an entry point for services designed to reduce the impact of alcohol on HIV transmission. KIs indicated that currently there was little training around these issues except in isolated programmes in select countries.

Treatment: Overall, ART interventions pay little attention to alcohol as a factor in adherence and toxicity and KIs were divided on its importance. In general, providers reported that alcohol was not an active issue in ART. In opposition to this view, KIs from the civil society organisations, including those working with women, felt that alcohol was a significant problem that was minimised by beneficiaries of services in discussion with providers. Both groups agreed that some form of screening tool on intake into ART programmes was needed and surveillance for abuse was warranted. Those few alcohol treatment specialists interviewed in the countries felt that ART was being instituted as vertical stand alone programmes and that alcohol related technical expertise where present was not being utilized.

Table 3. Summary of key informant interview results

ALCOHOL-HIV RELATED POLICY

Thematic Areas	Zambia	Rwanda	Kenya
Policy	Some interest at public sector policy level limited to health	Interest at public policy level to deal with issue in a multi-sectoral manner	Interest at the public policy sector level limited to health
Civil Society Engagement	Civil society acknowledges problem and displays willingness to respond	Civil society acknowledges problem and displays willingness to respond	Civil society engaged and involved in response
Availability of Treatment for Alcohol Abuse	Private treatment of alcohol very limited and not linked to HIV ART	Limited private treatment sector for alcohol not engaged or linked to HIV ART	Private treatment sector involved in treatment of alcohol and other substances but not linked to HIV ART
Gender	Gender issues central to alcohol HIV risks	Gender issues central to alcohol HIV risks	Gender issues central to alcohol HIV risks
Enforcement and Regulation	Lack of enforcement of current laws. Informal sector alcohol production and consumption a major issue in risk behaviours	Lack of enforcement of current laws. Informal sector alcohol production and consumption a major issue in risk behaviours	Lack of enforcement of current laws. Informal sector alcohol production and consumption a major issue in risk behaviours

Gender: The gender-related KIs in these countries agreed that gender-related violence and associated high risk sexual activity was directly linked to alcohol. KIs reported that cultural determinants related to male roles and drinking patterns underlie these serious behaviours. Rape and domestic abuse were common and related to alcohol. Frequently HIV was an element in this mix of issues. An important theme articulated by KIs in all three countries was that informal alcohol production was done primarily by female headed households as a means of subsistence survival that frequently led to either household commercial sex work or abuse of the children in the household.

Public sector: In Zambia there was expressed interest on the part of the public sector informants to engage in policy development and reform around prevention of HIV as it relates to alcohol but this was primarily limited to the

health sector. There was also an acknowledgement of a lack of current effort in this area. In Rwanda this interest was broad based and extended to all public sector participants with acknowledgement of alcohol HIV prevention linkages and concrete plans for multi-sectoral responses. In Kenya the responses were similar to Zambia in terms of recognition of the issues around alcohol and prevention but only health sector interest in intervention and policy reform.

All public sector stakeholders emphasized the importance of youth as a high-risk population; the role of traditional alcohol in this area; and the lack of enforcement of current laws as significant issues in prevention.

Civil society: All civil society informants in the three countries saw clear linkages between alcohol and HIV prevention and in all countries were

willing to respond if called upon. This included informants from NGOs, FBOs, and CBOs. They also emphasized the issues of traditional alcohol and the damage this has done to the communities in the three countries as well as the importance of the non-enforcement of current laws and regulations.

Private sector: The private commercial sector did not express interest in any of these countries in engaging in multi-sectoral responses and did not highlight the linkage between high risk behaviour and alcohol. In the private medical sector there was engagement over the issue of treatment of alcohol in Kenya but this was lacking in the other two countries.

DISCUSSION

In addressing the prevention and treatment of HIV, it is essential to acknowledge and define the underlying core determinants for transmission and effective treatment. Alcohol has increasingly been recognised as a driving force in transmission related to risky sexual behaviours and the dangers of alcohol use in ART are well known in the developed world. Twin challenges facing policy and decision makers in developing countries involve how to respond to alcohol use in HIV care and prevention. This assessment validated many of the preconceptions that have been expressed both at the policy and operational level in the selected countries. The results of this assessment are also consistent with the range of concerns presented by the ECSA Secretariat to the 42nd Health Ministers Conference in Mombasa, Kenya, in February 2006 and with the resolutions passed by the Health Ministers at that meeting.

Policy, Legislative and Regulatory Issues

Currently at the policy, legislative

and regulatory level there is an existing alcohol policy framework in all three countries but not that specifically address the linkage with HIV. The existing legal frameworks for alcohol in Zambia and Rwanda date from colonial times and in Kenya are of more recent origin. Specific legislation regulating hours of operation of retail outlets and bars is present in all these countries and uniformly limits sale of alcohol to comparatively short times of operation. Traditional alcohol is regulated in Zambia and certain forms of traditional alcohol are outlawed in Rwanda and Kenya. No country has an integrated alcohol policy that incorporates the various sectors involved in its consumption, regulation and consequences. Alcohol is mentioned in the HIV plans of all three countries but only as a passing reference to HIV prevention and behaviour.

A serious area of concern articulated by all stakeholders in FGDs and KI interviews was the nearly complete lack of enforcement of existing regulation and laws in the three countries. This is particularly true of laws regulating the opening hours for selling alcohol and the legal age required to purchase alcohol products. The magnitude and consequence of this lack of enforcement differed by country but certain elements were common in all three countries. These were: the undermining of social order and regard for law that followed from widespread disregard for alcohol-related regulation, the access to alcohol in all three societies at any time of day or night and the widespread and misuse of potent forms of traditional alcohol that also were the least expensive alcoholic beverages available in the marketplace. This last point is particularly relevant to the linkage between hazardous drinking and risky sex as inexpensive home brews are consumed by impoverished

populations where higher prevalence rates of HIV and more limited understanding of HIV prevention practices are predominant. This issue of informal alcohol production and links to high risk sexual activities was raised by all FGDs and KIs.

Prevention issues

With regards to HIV prevention, all three countries acknowledge the link between alcohol and HIV in their HIV strategic plans, in particular, alcohol-related behavioural changes predisposing individuals to high risk sexual interaction. However, there is no systematic incorporation of alcohol or substance abuse control as a strategy in the HIV response and it is not seen as a cross-cutting issue by policy makers in their existing documentation of approaches to the HIV epidemic in these three countries. This is especially true in Kenya and Zambia where FGDs and KI interviews among public sector participants demonstrated the absence of any such approach. In Rwanda there was the beginning of a cross ministry policy at the public sector level but this was in its infancy. More specifically the link between alcohol and VCT as the entry point into alcohol interventions and risk reduction has not been developed in any of the countries. In the FGDs and KI interviews drinking alcohol was frequently cited by groups involved with those having had high-risk exposure as the behaviour that put them at risk. In Kenya some isolated programmes have incorporated alcohol into their VCT approach and used the VCT encounter as an opportunity to address identification of alcohol misuse. Also in Kenya there was an attempt at a public media campaign linking alcohol use and high-risk behaviour but this was aborted due to alcohol industry pressure. No country had

a general public health campaign targeting alcohol misuse but all had national alcohol promotion advertising linked to national brewers and other related industries.

HIV treatment issues

In terms of HIV treatment the linkages and framework for alcohol interventions were weaker than those for prevention. As mentioned, none of the three HIV strategic plans linked the idea of alcohol control or use and treatment of HIV. All HIV treatment programmes addressed alcohol in their national programmes but this typically took the approach of being mentioned in ARV uptake and rarely mentioned after this. From the discussions and document survey no national HIV programme had a screening tool or method for quantification of alcohol use either on ARV intake or follow-up. Not surprisingly no programme visited or treatment provider interviewed had recorded significant alcohol misuse. But the beneficiaries of treatment, both PLWAs and civil society groups working with them, identified alcohol misuse as prevalent among those on ARTs. The lack of disclosure of alcohol use between clients and providers is likely the reason for this, as one KI from a women's PLWHAs group stated, "they are scared that if they disclose alcohol use to their providers they will be removed from their ART." In all countries this was identified as an issue but it was especially evident in Kenya.

Treatment for alcohol-related problems

Only Kenya had significant treatment options for alcohol abuse and dependence. Both Zambia and Rwanda have both a paucity of qualified substance abuse professionals and a lack of support services. In Kenya treatment

professionals are concentrated in the urban areas and are in the private fee for service sector. Also there is a notable absence of linkage between existing ARV therapeutic responses and alcohol treatment where these are present. This theme was constant across the countries, where technical support for alcohol interventions are present there is no structure or linkage for this to be implemented in the HIV prevention or treatment arenas.

Gender

An important cross-cutting issue in all three countries is the gender aspect of alcohol as it impacts on HIV. In these countries alcohol consumption was generally seen by the participants as a male dominated recreational activity and this remains the case in all but a few exceptions. These exceptions are female sex workers who use alcohol extensively and urban youth in countries such as Kenya where the assimilation of modified Western values regarding alcohol is becoming increasingly common. All stakeholders in FGDs and KI interviews expressed linkages between sexual and gender violence and alcohol. These behaviours were also linked to high-risk sexual behaviours and non-use of condoms. The issues of forced sex, rape and linkages to unprotected sex are clearly a part of the alcohol problem in these countries as has been recently demonstrated. (Kiene et al., 2006)

There is clearly a need for a multi-sectoral approach to the issue of alcohol and HIV in this sample of sub-Saharan African countries and likely the whole region. This includes roles for civil society and especially faith-based groups, local government and police in addressing this issue at the grass roots level. Also needed are updated legal and policy frameworks that acknowledge the public

health significance of alcohol in HIV transmission and treatment. Most important is the enforcement of these laws and regulations so compliance with the law becomes the normative behaviour in these societies. Linked to this is the regulation and formalizing of traditional alcohol so that misuse of this form of intoxicant can be reduced.

The mainstreaming of alcohol misuse identification and alcohol education into VCT and other interventions is an important preliminary step toward development of alcohol services within HIV prevention activities. With regard to HIV treatment the incorporation of screening and monitoring tools and systems for problem identification in follow-up care are obvious next steps. Treatment interventions for alcohol should be included in the national HIV treatment campaigns and expertise on alcohol treatment made available in the public sector of each of these countries. In all these areas there is a need to identify, evaluate and disseminate any current best practice in the area and start pilot interventions based on best practices.

REFERENCES

- Amayo, G.N. (1996). Current drug dependence scene in Kenya and strategies for national preventive education. Cited in C. Parry, Global Alcohol Database Project Review. Memorandum submitted to WHO/Geneva, 19 December 1996.
- Ao, T.T., Sam, N.E., Masenga, E.J., Seage, G.R., & Kapiga, S.H. (2006). Human immunodeficiency virus type 1 among bar and hotel workers in northern Tanzania: the role of alcohol, sexual behaviour, and herpes simplex virus type 2. *Sexually Transmitted Diseases*, 33 (3), 163-9
- Aweeka, F., Lizak, P., Karan, L., et al. (2003). The effect of ethanol on protease

- inhibitor exposure in chronic heavy ethanol users. Presented at the Conference on Opportunistic Infections, Abstract 545.
- Braithwaite, R.S., McGinnis, K.A., Conigliaro, J., Maisto, S.A., Crystal, S., Day, N., et al. (2005). A temporal and dose-response association between alcohol consumption and medication adherence among veterans in care. *Alcoholism: Clinical and Experimental Research*, 29, (7), 1190-1197
- Chesson, H.W., Harrison, P., & Stall, R. (2003). Changes in alcohol consumption and in sexually transmitted disease incidence rates in the United States: 1983-1998. *Journal of Studies on Alcohol*, 64(5), 623-30.
- Cook, R.L., & Clark, D.B. (2005). Is there an association between alcohol consumption and sexually transmitted diseases? A systematic review. *Sexually Transmitted Diseases*, 32(3), 156-64.
- Haworth, A. (1995). *Zambia*. In: Heath, D.B., International Handbook on Alcohol and Culture, Greenwood Press, Westport, CT. pages 316-27.
- Hoffman, S., O'Sullivan, L.F., Harrison, A., Dolezal, C., & Monroe-Wise, A. (2006). HIV risk behaviours and the context of sexual coercion in young adults' sexual interactions: results from a diary study in rural South Africa. *Sexually Transmitted Diseases*, 33 (1), 52-8.
- Kiene, S.M., Christie, S., Cornman, D.H., Fisher, W.A., Shuper, P.A., Pillay, S., Friedland, G.H., & Fisher, J.D. (2006). Sexual risk behaviour among HIV-positive individuals in clinical care in urban KwaZulu-Natal, South Africa. *AIDS*, 20 (13), 1781-1784
- Kiragu, K. & Mackenzie, C. (2006). Data interpretation meeting of the Kenya Alcohol VCT Study, 2006. Population Council/Horizons
- Klinger, E.V., Kapiga, S.H., Sam, N.E., Aboud, S., Chen, C.Y., Ballard, R.C., & Larsen, U. (2006). A community-based study of risk factors for *Trichomonas vaginalis* infection among women and their male partners in Moshi Urban District, Northern Tanzania. *Sexually Transmitted Diseases*, published ahead of print May 31, 2006.
- Kresina, T., Flexner, C., Sinclair, J., Correia, M.A., Stapleton, J.T., Adeniyi-Jones, S., Cargill, V., & Cheever, L.W. (2002). Alcohol use and HIV pharmacotherapy. *AIDS Research on Human Retroviruses*, 18 (11), 757-70.
- Lugalla, J., Emmelin, M., Mutembei, A., Sima, M., Kwesigabo, G., Killewo, J., & Dahlgren, L. (2004). Social, cultural and sexual behavioural determinants of observed decline in HIV infection trends: lessons from the Kagera Region, Tanzania. *Social Science & Medicine*, 59 (1), 85-98.
- Madhivanan, P., Hernandez, A., Gogate, A., Stein, E., Gregorich, S., Setia, M., Kumta, S., Ekstrand, M., Mathur, M., Jerajani, H., & Lindan, C.P. (2005). Alcohol use by men is a risk factor for the acquisition of sexually transmitted infections and human immunodeficiency virus from female sex workers in Mumbai, India. *Sexually Transmitted Diseases*, 32 (11), 685-90.
- Malta, M., Bastos, F.I., Pereira-Koller, E.M., Cunha, M.D., Marques, C., & Strathdee, S.A. (2006). A qualitative assessment of long distance truck drivers' vulnerability to HIV/AIDS in Itajai, southern Brazil. *AIDS Care*, 18 (5), 489-96.
- Markos A.R. (2005). Review of alcohol and sexual behaviour. *International Journal of STD & AIDS*, 16 (2), 123-7.
- Mugisha, F., & Zulu, E. (2004). The influence of alcohol, drugs and substance abuse on sexual relationships and perception of risk to HIV infection among adolescents in the informal settlements of Nairobi. *Journal of Youth Studies*, 7(3), 280-293
- Seloilwe, E.S. (2005). Factors that influence the spread of HIV/AIDS among students of the University of Botswana. *Journal of Association of Nurses in AIDS Care*, 16 (3), 3-10.
- Shaffer, D.N., Njeri, R., Justice, A.C., Odero, W.W. & Tierney, W.M. (2004). Alcohol abuse among patients with and without HIV infection attending public clinics in Western Kenya. *East African Medical Journal*, 18 (11), 594-98.
- Talbot, E.A., Kenyon, T.A., Moeti, T.L., Hsin, G., Dooley, L., El-Halabi, S., &

- Binkin, N.J. (2002). HIV risk factors among patients with tuberculosis--Botswana 1999. *International Journal of STD & AIDS*, *13*(5), 311-7.
- Wechsberg, W.M., Luseno, W.K., Lam, W.K., Parry, C.D., & Morojele, N.K. (2006). Substance use, sexual risk, and violence: HIV prevention intervention with sex workers in Pretoria, *AIDS & Behaviour*, *10* (2), 131-7.
- UNAIDS. (2006). Epidemiological Updates, August 2006.
- WHO. (2004). Global Status Report on Alcohol, Department of Mental Health and Substance Abuse, Geneva, Switzerland.
- WHO. (2005). Alcohol Use and Sexual Risk Behaviour: A Cross-Cultural Study in Eight Countries. Geneva, Switzerland.
- Zablotska, I.B., Gray, R.H., Serwadda, D., Nalugoda, F., Kigozi, G., Sewankambo, N., Lutalo, T., Mangen, F. W., Wawer, M. (2006). Alcohol use before sex and HIV acquisition: a longitudinal study in Rakai, Uganda. *AIDS*, *20* (8), 1191-1196.

REPORT OF FIRST PAN AFRICAN CONSULTATION ON A LCOHOL POLICY AND ITS SIGNIFICANCE FOR THE REGION

INTRODUCTION

The World Health Organization (WHO) Technical Consultation on the “Public health problems caused by harmful use of alcohol in the African Region” was held at WHO/AFRO, in Brazzaville, Congo, from 10-12 May 2006. The meeting was convened as a follow-up to the adoption of Resolution WHA58.26 on Public Health Problems Caused by Harmful Alcohol Use at the fifty-eighth World Health Assembly in May 2005 (WHO, 2005) which gave the WHO the mandate to make a number of specific requests of Member States and the WHO Director-General to intensify efforts to reduce the burden of alcohol-related problems nationally, regionally and globally.

The primary goals of the consultation were to assess the situation related to alcohol production and consumption and its harmful consequences, and to develop a programme to guide the work on alcohol in the African region over the next five years.

The meeting was attended by representatives from 13 sub-Saharan countries, representatives of non-governmental organizations, the United Nations Office on Drugs and Crime, and the WHO Secretariat. Participants were representatives of health ministries, academia, medical and allied professions, non-governmental organizations and civil society.

THE BURDEN OF ALCOHOL CONSUMPTION IN AFRICA

In Sub-Saharan Africa an estimated 1.8% of the disease burden is attributable to

alcohol, and 1.3% is attributable to high-risk drinking (Rehm et al. 2006). It has been estimated that alcohol contributes 7% to the burden from death and disability in South Africa, and is the third in burden of disease after unsafe sex and interpersonal violence (Schneider, personal communication). In most parts of Africa, problems associated with alcohol consumption can be expected to rise as a result of increased economic development (Rehm et al., 2004). Africa Region Eⁱ has among the highest total litres of alcohol consumed *per drinker* in the world at 16.6 litres per adult per year (WHO, 2004). This is similar to adult per capita consumption for Europe Region C (a low child mortality and high adult mortality region, including countries such as the Russian Federation and the Ukraine), where the figure is 16.5 litres. The most characteristic patterns of alcohol consumption in the region involve binge and episodic drinking.

Levels of alcohol consumption, and alcohol-related problems and harm are related to the availability of alcohol. When calculating the availability of alcohol in countries and in the region, it is essential to focus on both unrecorded and recorded alcohol consumption. Unrecorded alcohol consumption is reported to be approximately 50% for the

ⁱ Africa Region E is one of two sub-regions of WHO's Sub-Saharan Africa Region, and comprises countries with very high child mortality and very high adult mortality rates (e.g. Ethiopia and South Africa). WHO member states are grouped into six regions: Europe and Central Asia, the Americas and the Caribbean, Sub-Saharan Africa, East Asia and the Pacific and South East Asia.

African region as a whole, and high (above 80%) in many East African countries such as Tanzania, Uganda, and Kenya (WHO, 2004).

Alcohol and young people

Among young people, binge drinking – typically operationalised as the consumption of five or more drinks per occasion - is also the most common pattern of alcohol consumption. Several delegates pointed to the decreasing age of onset of alcohol use and the increasing prevalence rates of alcohol use among young people as being of particular concern.

Alcohol and women

Numerous delegates also reported that rates of alcohol consumption among women are on the increase, but that their overall rates of alcohol consumption are still generally lower than those of men. However, the rates of *problem drinking* among men and women who consume alcohol are not always substantially different.

Risk factors for harmful alcohol use

The post-colonial era has evidenced a marked change in patterns and quantities of alcohol consumed (Odejide, 2006; Parry, 2005). Many delegates identified the causes of such changes to include urbanization, the commercialization of the production and consumption of alcohol, the weakening of cultural controls that used to limit the quantities and frequency of alcohol consumed, and reductions in social cohesion. Participants from various parts of the region identified stress, conditions of work, and financial and family problems as psycho-social risk factors for harmful alcohol use.

Quantities of alcohol consumed

The actual quantities of alcoholic beverages consumed in Africa are

difficult to establish because as much as 50% of consumption is estimated to be unrecorded, often comprising non-commercially produced beverages.

Health and social problems associated with harmful use of alcohol

The delegates of the consultation identified the most serious social and health problems associated with the harmful use of alcohol as being intentional and non-intentional injuries; road traffic (and other) accidents; family and interpersonal conflict; sexual violence, high risk sexual behaviours and decreased condom use that lead to HIV infection; and unemployment and economic problems. The highest recorded rates of foetal alcohol syndrome have also been found in Africa (e.g. May et al., 2000).

Alcohol use disorders and treatment

Harmful alcohol consumption can lead to the development of alcohol use disorders and a need for specialist intervention. Many delegates echoed a concern that treatment services, which are generally provided as part of general psychiatric services and infrequently at specialist treatment centres, are generally inadequate, particularly for women, young people, and people of lower socio-economic groups.

SITUATION ASSESSMENTS

Data collection and information systems

The meeting identified a lack of reliable and consistent information on alcohol consumption and alcohol-related harm in many parts of the African region. Delegates described various data collection and information systems on alcohol and other drugs that have been used in certain African countries that

could be rolled out more widely. Two such systems that were highlighted are the WHO's Stepwise approach to non-communicable disease risk factor surveillance (WHO, 2003) and the Southern African Epidemiology Network on Drug Use (SENDU; Parry et al., 2005).

Situation assessments at the country-level

The consultation identified uneven degrees of implementation of situation assessments across the region. The lack of reliable, valid and standardised tools for measurement of home-brewed beverages has made it difficult to accurately measure such alcohol consumption. In addition, a lack of reliable sources of routine facilities-based alcohol data (e.g. from hospitals, and other health care facilities) in many countries prevents the use of such records in surveillance.

Identified activities for improving situation assessments in the region

Various activities were identified by the participants as potentially useful for improving situation assessments in countries and the region. These include the completion of mapping and auditing exercises to determine the nature of existing information, data collection systems, and prevention and treatment responses; the execution of research to determine the specific harms caused by home-distilled beverages; the execution of research to determine patterns, trends and harms related to alcohol consumption among particular sub-populations (e.g. women and youth); the execution of more research on the role of alcohol in HIV transmission; and the training of health care and allied workers on situation assessment and data collection methods to increase the sustainability of surveillance efforts.

Recommended Strategies for the Regional Office

The consultation recommended various coordinating and oversight activities for the WHO regional office to facilitate situation assessments on the country and regional levels. These include among other things, the development or adaptation of guidelines, norms and standards, and research tools for countries; training and capacity building for research; the promotion, support and expansion of regional surveillance networks and the organizing of periodic meetings/conferences for information sharing.

INTERVENTIONS

Current national responses to alcohol-related problems

The consultation identified great variation and unevenness in the extent of implementation of responses to address public health and social problems caused by harmful alcohol use across countries. The following were identified as among the current responses that are implemented, but poorly enforced in most countries:

- (1) Regulations on drink-driving, the sale of alcohol, under-age drinking, and liquor outlet density and locations;
- (2) Education and life-skills programmes;
- (3) Treatment and rehabilitation;
- (4) Training of health care workers;
- (5) Taxation of alcohol products;
- (6) Advertising restrictions;
- (7) Work place initiatives.

A number of factors were identified as hindering the implementation of clear policies in various countries in the African region, including human resource constraints (competence and capacity), alcohol-related problems among health care workers, denial, and a reluctance to

tackle problems. Other challenges to effective implementation of policies include a lack of awareness of the extent of the burden of alcohol consumption at the societal, community and individual levels. Inaction was also attributed to a lack of political will and a perception that there are more urgent public health problems, such as HIV/AIDS and malaria, which need attention.

Recommended policy strategies for the African region

Given the relatively low level of implementation and enforcement of policies and regulations in the African region, the meeting identified the following strategies as most urgent for policy and intervention development at the national level:

- (1) Raising awareness about the seriousness of alcohol-related social and health problems (such as HIV/AIDS, TB and violence) among policy makers, community and other key stakeholders, and encouraging greater financial commitment to prevention activities;
- (2) Developing and strengthening national alcohol policies and legislation, with existing and new evidence, and with a particular emphasis on those activities that are most likely to have success in the shorter term;
- (3) Education and training of health care and allied professionals;
- (4) Community empowerment and mobilization;
- (5) Policy research and programme evaluation activities;
- (6) Treatment, rehabilitation and brief interventions in health care settings, to improve access and address resource and capacity challenges.

Recommended regional mechanisms

for supporting alcohol policy and intervention

To support countries' development and implementation of alcohol policies and interventions the proposed mechanisms for the WHO regional office to adopt include among other things:

- (1) The establishment of guidelines, norms and standards for policy development;
- (2) The identification of potentially effective policies, with particular attention being paid to non-commercially produced beverages, and unrecorded alcohol;
- (3) The provision of technical support (and capacity building) for the development of national policies;
- (4) The organising of high level meetings on alcohol in the region for advocacy and increasing commitment of member states, including the involvement of the African Union;
- (5) The mobilisation of resources with support from WHO Headquarters and other sources.

PARTNERSHIPS/COLLABORATION

Collaboration with partners at country, regional and international levels was viewed as being vital to the success of the programme. A potentially useful mechanism for coordination of activities at the country level could involve a national coordinating body headed by the Ministry of Health in each country or by the WHO country office. Such a body would work in consultation with representatives of different local or global NGOs and professional associations, the media network, and international agencies and intergovernmental organizations.

Potentially useful mechanisms could

involve holding regular meetings of national focal points under the auspices of WHO and collaborating with sub-regional centres to work with WHO on data collection, analysis and dissemination. “Collaboration” or “partnership” with the alcohol industry (as opposed to “dialogue”) was discouraged so as not to compromise the public health agenda of the proposed programmes.

CONCLUSION

There was general agreement at the end of the consultation that the adoption of the WHO resolution WHA58.26 was an important and not-to-be-missed opportunity for the African community to implement programmes to address alcohol problems in the region. The availability of reliable data to inform responses in the Afro region was seen as essential to the success of the programmes. In addition, it was acknowledged that greater attention needs to be placed on identifying and implementing interventions that are likely to succeed in addressing the burden of harmful use of alcohol in the African region in the short and medium terms. The most important time-frame for the programme is five years (2005-2010), while the initial activities, including the outcomes of the consultation are planned to be presented at the World Health Assembly in 2007. Continued involvement of the participants will entail group work focusing on information at the country and regional levels. The meeting participants identified a strong need for immediate action and encouraged the commitment of the partners to implement programmes of action to raise awareness and urgently address the public health problems that are associated with harmful alcohol use in the African region.

REFERENCES

- May, P.A., Brooke, L., Gossage, J.P., Croxford, J., Adnams, C., Jones, K.L., Robinson, L. & Viljoen, D. (2000). Epidemiology of fetal alcohol syndrome in a South African community in the Western Cape Province. *American Journal of Public Health, 90*, 1905-1912.
- Odejide, A.O. (2006). *Current situation, state of scientific knowledge on alcohol, health and social problems associated with alcohol in the African Region*. Paper presented at the WHO Technical Consultation on the Public Health Problems Caused by Harmful Use of Alcohol in the African Region. Brazzaville, Republic of Congo.
- Parry, C.D.H. (2005). South Africa: alcohol today. *Addiction, 100*, 426-429.
- Parry, C.D.H., & Plüddemann, A. (2005). Southern African Development Community Epidemiology Network on Drug Use (SENDU): January – June 2004. Cape Town: Medical Research Council.
- Rehm, J., Chisholm, D., Room, R. & Lopez, A.D. (2006). Alcohol. In D.T. Jamison, J.G. Breman et al. (Eds.). *Disease Control Priorities in Developing Countries. Second Edition*. (pp. 887-906). New York: Oxford University Press/World Bank.
- Rehm, J., Room, R., Monteiro, M., Gmel, G., Graham, J., Rehn, T. et al. (2004). Alcohol. In M. Ezzati, A.D. Lopez, A. Rodgers, & C.J.L. Murray (Eds.). *Comparative Quantification of Health Risks: Global and Regional Burden of Disease Due to Selected Major Risk Factors*. Geneva: World Health Organization.
- World Health Organization (2003). Surveillance of noncommunicable disease risk factors. Fact Sheet No 273. Available online at: <http://www.who.int/mediacentre/factsheets/fs273/en>. [Accessed 19 May 2006].
- World Health Organization (2004). *Global Status Report on Alcohol 2004*. Geneva: WHO, Department of Mental Health and Substance Abuse.
- World Health Organization (2005) *Public Health Problems Caused by the Harmful Use of Alcohol*. Fifty-Eighth World Health Assembly. Geneva: World Health Organization.

Report by:

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**SUMMARY OF THE PROCEEDINGS OF MEETING ON ‘ALCOHOL,
HIV RISK BEHAVIOURS AND TRANSMISSION IN AFRICA:
DEVELOPING PROGRAMMEMES FOR THE UNITED STATES
PRESIDENT’S EMERGENCY PLAN FOR AIDS RELIEF (PEPFAR)’**

BACKGROUND

In response to growing concern among public health experts about alcohol use and HIV in Africa, several U.S. government (USG) agencies, including the Department of Health and Human Services/Centres for Disease Control and Prevention/Global AIDS Programme (HHS/CDC/GAP), the National Institute on Alcohol Abuse and Alcoholism (NIAAA), the Department of Defense (DoD) and the United States Agency for International Development (USAID) hosted a meeting in Dar es Salaam, Tanzania, 30-31 August 2005, "Alcohol, HIV Risk Behaviours and Transmission in Africa: Developing Programmes for the United States President's Emergency Plan for AIDS Relief (PEPFAR)." The primary objective of the meeting was to provide scientific and programmatic updates on alcohol-related HIV risk behaviours and transmission in Africa and to inform the development of PEPFAR programming. PEPFAR is a 5-year, US\$15 billion initiative intended to support treatment for 2 million HIV positive patients with antiretroviral drugs (ARVs), to prevent 7 million new cases of HIV/AIDS and to care for 10 million patients suffering with AIDS. HIV prevention and treatment initiatives which address alcohol abuse and increase adherence to ARV treatment have the potential to contribute to PEPFAR's goals.

This article summarizes the major technical issues and key points raised in the meeting which included presentations in several key areas: epidemiology and ethnography of alcohol and alcohol-related

risk factors for HIV transmission; prevention and treatment of HIV in the context of alcohol use; and approaches to policy and partnership designed to promote the exchange of resources and knowledge related to programmes addressing alcohol use and HIV/AIDS risk behaviours. Finally, the meeting sought to strengthen partnerships between USG agencies implementing PEPFAR and multi-sectoral organizations, including faith based communities, non-governmental organizations (NGOs), community-based organizations (CBOs), uniformed services, and the alcohol industry to support HIV prevention interventions.

The meeting benefited from a diverse range of experts and participants from across the region and the United States including USG PEPFAR-implementation staff, host-country government staff, alcohol and substance abuse specialists, researchers on alcohol and on HIV/AIDS, policy experts, community-based programme managers, and communication experts. Representatives of the military and the alcohol industry from across the region also participated and expressed commitment as partners in addressing the issue of alcohol abuse. Approximately 80 participants from 13 African countries participated in the technical meeting.

**ALCOHOL AND RISK FACTORS
FOR HIV TRANSMISSION**

***HIV Risk Behaviour in Relation to
Alcohol and HIV Transmission – A
Global and Regional Overview***

The presenters in this session described the prevalence of alcohol use

globally and regionally, and reviewed scientific data on the links between alcohol use and HIV infection. The outcomes of the World Health Organization (WHO) sponsored studies on alcohol, sexual risk, and HIV transmission were reviewed.

Patterns of alcohol consumption vary throughout the world with substantial proportions of populations abstaining from the use of alcohol. It was noted that in eastern and southern Africa, 70% of females and 45% of males abstain from alcohol. However, many individuals engage in the misuse or abuse of alcohol, leading to serious public health consequences. According to WHO 2000 estimates, the eastern and southern Africa regions have the highest consumption of alcohol per drinker in the world (WHO, 2004). In addition, the prevalence of hazardous drinking patterns in the region, such as drinking a high quantity of alcohol per session, or being frequently intoxicated, is second only to Eastern Europe.

There is increasing evidence linking alcohol consumption with high-risk sexual behaviour and infection with HIV and other sexually transmitted infections (STIs). Evidence includes neurobiological studies linking alcohol consumption and sexual arousal and disinhibition; ethnographic studies linking drinking and risky sex; and cross-sectional and prospective epidemiologic studies from around the world, including many from Africa, that link alcohol consumption and HIV infection; and strong ecologic associations between alcohol consumption, alcohol taxes, and rates of STIs in the United States.

Alcohol consumption also has been shown to contribute significantly to reduced adherence to ARVs and tuberculosis (TB) treatment in studies from Africa and the developed world. For

example, studies from the United States found an association between heavy alcohol use and decreased compliance to treatment regimens as well as poor response to HIV therapy in general. In Botswana, alcohol use was associated with interruptions in TB treatment, and treatment outcomes improved significantly when patients stopped drinking (Talbot et al., 2002).

A report from the April 2005 meeting of the 58th World Health Assembly highlighted the association between alcohol consumption and unsafe sex, STIs, and HIV/AIDS. The Assembly adopted a resolution requesting action from member states. These requested actions included population-based policy measures such as taxation or raising the drinking age, which are the most cost-effective public health responses to alcohol-related disease burden in countries with moderate and high levels of alcohol consumption. Alcohol consumers represent a critical target group for HIV prevention, treatment and care interventions. The role of alcohol must be addressed in order to reduce alcohol-related risk of transmission of HIV.

Heavy drinking populations should be recognized as key target groups for HIV intervention programmes. HIV prevention programmes targeting alcohol misuse should focus not only on preventing sexual risk behaviours, but also on the treatment of alcohol-related problems. Drinking venues can be ideal settings in which to implement HIV prevention programmes, particularly with support and collaboration from the owners and staff. Multi-faceted intervention strategies are required and may include education/awareness campaigns, condom negotiation and other life skills activities for clientele in drinking establishments, and HIV prevention training activities for

bar servers and owners. The presentations in this session addressed the clear and urgent need for programmes to address the impact of the use and abuse of alcoholic beverages on HIV-related sexual risk behaviours in sub-Saharan settings.

Presentations on the epidemiology of alcohol consumption in the eastern and southern regions of Africa indicated that these regions have the highest consumption of alcohol per drinker in the world. Despite high levels of knowledge about HIV risk, high alcohol consumption is associated with disinhibition and low levels of condom use. Presenters stressed that alcohol consumption is linked to social, community and cultural factors, including easy access to alcohol; widespread acceptance of heavy drinking; alcohol advertising and lack of employment or recreational opportunities. Substantial evidence links alcohol consumption with increased risk of STI and HIV infection and with non-adherence to ARV and TB treatment. Finally, experts emphasized that multi-level interventions are needed to address social and cultural norms that contribute to alcohol-related HIV risk.

Ethnography of Alcohol, Sexual Risk and HIV Transmission

Presenters in this session provided a focused description of HIV risk behaviour in the context of alcohol use, with specific reference to the socio-economic determinants that define the production and use of alcohol; the community and cultural practices that shape or provide opportunities for alcohol use and HIV risk.

Ethnographic studies on alcohol abuse and HIV prevention in Africa show how ethnographic work can inform public health interventions by providing detailed descriptions of people in their natural settings, and an understanding of the

social, cultural, economic and material contexts in which alcohol and HIV-related risk behaviours take place. As anthropologists have noted, public health is a cross-cultural exercise, in which public health professionals collaborate with a variety of partners from national and local government, NGOs, and CBOs, and local recipient communities with differing social organization, values, beliefs, and practices. Public health interventions, thus, require “translation” into local models and terms appropriate for and understood by the community (Hahn, 1999).

Alcohol production and consumption are an integral part of the local culture and economy in the eastern and southern Africa region. Locally brewed alcoholic beverages are inexpensive and readily available, making their consumption difficult to limit. Alcohol also plays an important role in rites of passage such as marriage ceremonies and funerals. Cultural restraints, including religion, have varying influence on alcohol consumption; some religions accept alcohol consumption while others that prohibit drinking are also influential. In some areas, socioeconomic factors resulting in loss of land and livelihood have contributed to the weakening of traditional cultural restraints around alcohol consumption. Therefore, for interventions to be effective, public health professionals must collaborate with local recipient communities with differing social organization, values, beliefs, and practices. Ethnography can be useful in public health planning and programming; for example, to access and document the practices of hidden and hard to reach populations; to provide detailed descriptions of the social contexts and settings for alcohol and drug use and HIV-risk behaviours; and to inform the design of interventions that are appropriate for the local context.

Alcohol, Gender-Based Violence, and Risk for HIV Transmission

Women's vulnerability to HIV is often increased when family members, husbands, and partners drink alcohol. The primary objectives of this session were to provide a framework for examining the relationship among alcohol use, gender-based violence (GBV), and HIV; to identify practices that contribute to increased HIV risk and to describe interventions that address the interplay of alcohol, GBV, and HIV, with lessons learned and implications for transfer to other settings.

Violence is a key factor that contributes to women's vulnerability to HIV infection, particularly among younger women. The United Nations Population Fund (UNFPA) Gender Theme Group defines GBV as "violence involving men and women, in which the female is usually the victim; and which is derived from unequal power relationships between men and women. It includes, but is not limited to, physical, sexual and psychological harm (including intimidation, suffering, coercion, and/or deprivation of liberty within the family, or within the general community)" (UNFPA, 1998). The prevalence of GBV ranges from rates of 40% to 60% in sub-Saharan countries. Gender-based violence pertains to both sexes, but most frequently impacts young women. It includes harmful customs and behaviours perpetrated against women, including intimate partner violence, domestic violence, assault, child sexual abuse, rape, and the growing problems of forced prostitution and trafficking of women.

There are physical, behavioural and social effects of the link between GBV and HIV. Violence is associated with higher numbers of sex partners, unprotected sexual intercourse, earlier sexual debut, and excessive drug and

alcohol use. Gender based violence is consistently linked with heavy drinking patterns and women who experience sexual or physical violence are at increased risk for HIV. One study found that women who were physically or sexually abused were 50% more likely to be HIV positive than women who had not been abused (Dunkle et al., 2004). A key explanation for the link was that women's ability to successfully negotiate condom use becomes compromised when women are in relationships involving violence. Substance abuse and sexual risk taking were described as among the main behavioural effects of having experienced GBV, while the main social effects were stigma, blame and alienation.

In some cultures, gender roles and cultural, familial and religious constructions of masculinity and femininity dictate that women are submissive and male partners control the sexual relationship. Among the implications for policy and programme is a need to challenge norms regarding violence, to empower girls and women, and to include screening for GBV in health facilities. Post-violence interventions that are much needed include the provision of HIV post-exposure prophylaxis with ARVs, adequate referral, and the need for perpetrators to be punished. Interventions to reduce the prevalence of GBV include normative changes, empowerment of females, screening and provision of services, and behavioural interventions with men.

Alcohol Use and HIV Risk among Military/Uniformed Services

The objectives of the session were to describe the prevalence rates, risk factors, and issues regarding alcohol use, risk behaviours, and HIV prevention for persons in military and uniformed services; and to share potential strategies

for addressing the unique challenges for this at-risk population.

Military personnel are vulnerable to abusive alcohol consumption due to isolated postings, boredom, separation from family, camaraderie or “esprit de corps,” high tension and danger, regular salary, easy access (the cost of alcohol is subsidized for personnel), availability (it is considered necessary for morale to have alcohol in the mess halls), and peer pressure. Young recruits may be particularly vulnerable to alcohol and HIV-related behavioural risk because they are susceptible to peer pressure; have feelings of invulnerability; are away from their home environment; and may be more likely to patronize commercial sex workers (CSWs).

HIV-positive military personnel may suffer poor outcomes due to environmental, psychological or emotional stress related to military duty, stigma and discrimination, compromised access to care, inadequate nutrition and the potential for re-infection. The potential impact of HIV on the military is enormous and includes: the inability to sustain external deployments; the inability to sustain a technologically advanced force; increased expenses; loss of productivity; loss in continuity of command; and compromised morale and security. Interventions should draw on the unique structured environment of the military with its values of camaraderie, mutual protection, and peer influence to encourage and strengthen HIV/AIDS prevention.

PREVENTION AND TREATMENT OF HIV

Prevention of Alcohol Risk Behaviour and HIV Transmission – An Overview of Policies and Interventions

While no causal link exists between alcohol and HIV/AIDS, there is a clear

association between the abuse of alcohol, especially when associated with intoxication, and engagement in risky behaviours, substantially increasing the risk of STIs including HIV/AIDS. If the HIV pandemic is to be effectively addressed, reducing rates of alcohol misuse and associated risk taking is a key step.

The key components of risk reduction in relation to alcohol use include coalition building, community empowerment, professional capacity building and access to effective and evidence-based treatment. Integrated policies and interventions are needed to address population-level (such as alcohol availability) and individual-level (more specifically targeted to special alcohol contexts and behaviours) problems. Sensible and comprehensive national alcohol policies are a prerequisite to reducing the risk of alcohol abuse and impact on the rates of HIV/AIDS in the community. Increased use of screening, brief interventions, properly targeted social marketing, and the regulation and enforcement of culturally-appropriate laws governing access to alcohol are all beneficial in reducing alcohol-related risk behaviours. It is also important to work in partnership with the alcohol industry as it has more resources and access to the market. The societal response to HIV/AIDS, in which governments, civil society and the alcohol beverage industry work together to promote sensible and sustainable alcohol policies encouraging risk reduction and moderation is essential. Research and evaluation should be carried out to identify the most effective policies and interventions.

Alcohol abuse and misuse should be addressed as part of a comprehensive approach to health. Drinking alcohol is a major social activity in many parts of Africa, especially for men; however, HIV prevention programmes have been slow

to intervene. Interventions to reduce alcohol-related high risk sexual behaviour may need to specifically target men and address their interests, concerns, and needs.

Opportunities exist to incorporate alcohol screening and brief interventions into existing services such as primary care, STI treatment, and voluntary counselling and testing (VCT). Lack of referral systems between HIV and alcohol programmes and services must be addressed.

As part of a comprehensive approach to reduce alcohol-related risk, the following interventions can be implemented: media campaigns to increase awareness of alcohol-related health risks; school-based interventions for high-risk youth; brief interventions for high-risk drinking (prevention and treatment); brief interventions for alcohol and HIV/ AIDS risks and modified alcohol treatment to improve adherence to ARV and TB medication. Key components of a comprehensive programme to reduce alcohol-related risk behaviours include community mobilization, collaboration between public and private partners, training and capacity building for health care workers and public health professionals, and access to effective, evidence-based treatment.

Impact of Alcohol Abuse on HIV Treatment and Options for Treatment of Alcohol Addiction – A Global and Regional Overview

Alcohol treatment is disease prevention and provides opportunities for HIV risk-reduction interventions as well as promoting adherence to HIV treatment. The presenters of this session emphasized that addiction is a brain disease and that a major challenge in the identification and treatment of these patients is that alcohol

and drug dependent individuals are stigmatized by society due to the destructive behavioural consequences of addiction. Consequently, treatment of alcohol addiction requires a bio-psychosocial approach that includes treatment for both physical and psychological dependence. It is also important to understand the diagnostic spectrum of alcohol use disorders focusing on the distinctions and characteristics of heavy drinking, alcohol abuse and alcohol dependence.

Profound neurobiological changes accompany the transition from use to abuse to dependence. Treatment interventions are based on accurate diagnostic assessments. It has been demonstrated internationally (including in Africa) that brief interventions to reduce alcohol use in patients who are heavy drinkers can be effective. Brief interventions are time-limited patient centred counselling strategies that focus on changing behaviour and increasing compliance with treatment medications. They are often used in outreach and primary care settings to change at-risk alcohol use patterns. These interventions can be delivered in primary health care facilities, VCT and HIV care settings by health care providers already assigned to those delivery systems. Patients suffering from more severe alcohol abuse or dependence disorders need more specialized treatment. Treatment for addictive disorders can be provided in a variety of setting including outpatient, intensive outpatient, day care and inpatient settings, depending on availability of these services and the intensity of the disorder.

Psychosocial counselling delivered in individual and group sessions with involvement of family members or significant others is the central component of treatment. The major counselling approaches that have been

shown to be effective internationally are cognitive behavioural treatment, 12-step oriented treatments, and relapse prevention. In addition to counselling, various medications are available that can reduce or prevent feelings of discomfort associated with withdrawal and help restore the chemical balance in the brain, or reduce the desire for alcohol, or produce a highly unpleasant reaction when the patient ingests alcohol.

There are significant challenges and opportunities associated with providing treatment for alcohol disorders in developing countries and in diverse cultural settings. Significant challenges include training and employing addiction counsellors and the viability of outpatient models where transportation may be difficult. An important opportunity exists to cross-train VCT counsellors and HIV care providers to identify alcohol disorders and provide brief behavioural interventions to reduce alcohol misuse and HIV risk in heavy drinkers, and to refer patients with more severe addictive disorders to specialized treatment programmes. While the value of peer-led and free 12-step programmes in any population of alcohol and drug dependent persons has been demonstrated, their applicability varies significantly across cultures and this must be taken into consideration.

A successful approach for delivering services for alcohol treatment and HIV could be to integrate primary health care, HIV prevention, care and treatment, and alcohol treatment services. These health care services should be supported by CBOs, churches, mosques and self-help groups. In this model providers at all sites are cross-trained in HIV and addiction, and VCT, primary health care and HIV treatment sites screen for substance abuse disorders and provide assessment and referrals for alcohol dependence and brief

interventions for at risk drinking. Primary health care and HIV sites can address ongoing medical complications of substance abuse and monitor medications such as naltrexone or disulfiram in conjunction with directly observed anti-retroviral therapy (DART).

One of the most daunting challenges for HIV-positive persons who are addicted to drugs and alcohol is the level of sustained adherence to ART that is required to ensure viral suppression. Studies have shown that increased alcohol consumption may interfere with adherence to treatment regimens. A recent paper by Braithwait et al (2005) describes self-reported alcohol consumption among 2,702 veterans in care and demonstrates a temporal and dose response relationship to poor ARV adherence. The lack of adherence was particularly striking in the currently binge-drinking group. Another study using an intense individual-focused patient intervention to improve adherence in a group shown to be at high risk for non-adherence due to alcoholism was not associated with changes in medication adherence (Samet et al., 2005).

In conclusion, for individuals undergoing treatment with ARVs, alcohol abuse may be a significant negative factor affecting co-morbidity and drug interactions as well as treatment adherence. Targeted screening can identify those with hazardous use, abuse, and dependence, and brief interventions and brief treatment can help patients reduce hazardous use and motivate and assist more severely alcohol dependent patients to seek further treatment. Substance use treatment must be linked to primary care, mental health, AIDS-specific care and related services, such as counselling, testing, partner notification and social services. Important opportunities exist to cross train VCT counsellors and HIV care providers to identify alcohol disorders in

their patients and to provide brief interventions and referral to alcohol treatment programmes.

POLICY AND PARTNERSHIP

Significant challenges exist if the goal of sustainable and sensible alcohol policies at the national level is to be achieved. Alcohol policies must operate in the best interests of the community as a whole. Open debate is essential on the appropriate balance between personal freedom and the role of the state in providing appropriate protection for those at risk. Some of the key factors fuelling the desire for comprehensive alcohol policies include alcohol-related violence, access to alcohol by young people, binge drinking, and social dislocation. A major concern of governments is the increasing cost for police, health and local government in managing the consequences of alcohol misuse. Alcohol policy in the future should be based on creative partnerships, in which all sectors of society contribute to reducing alcohol-related morbidity and mortality.

In many countries, government is the largest financial stakeholder in the alcohol industry and these financial interests must be balanced with the costs of alcohol misuse. Local NGOs have an important role in providing counselling services, referrals, and training, and in advocating for sensible alcohol policies. Integrated policies and interventions are needed to address population- and individual-level problems. Research and evaluation should be carried out to identify those policies and interventions that are most effective in preventing alcohol and drug-related morbidity and mortality.

CONCLUSION

In order to meet the goals for HIV

treatment, prevention and care set by international initiatives such as PEPFAR, the relationship between alcohol misuse and the transmission of HIV must be addressed programmatically. The technical meeting held in Dar es Salaam August 30 – 31, 2005 was a critical step in providing representatives from 13 African nations that receive PEPFAR funding the technical and practical information necessary to develop programming in this area. At the end of the meeting, all of the countries attending developed action plans for possible future activities devoted to reducing alcohol and HIV/AIDS risk. As a result of the dissemination of information presented at the Tanzania meeting, some African PEPFAR countries are incorporating alcohol and HIV programming into their portfolio of services and projects for 2007. In addition, a special USG Technical Working Group (TWG) subcommittee on alcohol and HIV has been created by the U.S. Global AIDS Coordinator to provide assistance to PEPFAR countries in developing alcohol and HIV prevention and treatment initiatives.

This TWG subcommittee has already been tasked with developing two major initiatives: one initiative will address prevention of alcohol-related HIV risk in high-risk venues and another will develop brief interventions to be used in settings where HIV positive patients are receiving ARVs and in selected VCT sites and STI clinics.

Another key outcome of this meeting was the technical and programmatic resolutions made at the 42nd Annual Regional Health Ministers' Conference held in Mombasa, Kenya in February 2006. The Health Ministers, drawn from countries in the east, central and southern Africa regions resolved to incorporate issues related to alcohol in the national HIV/AIDS strategy and ensure that appropriate alcohol and HIV/AIDS

policies, guidelines and programmes are in place. They also resolved to establish a regional and national technical working group to spearhead the implementation of alcohol and HIV/AIDS programmes. At the time of this writing, USG and country technical experts in the region are working to identify critical needs and gaps with respect to national programmes in alcohol prevention and treatment. The data gathered and collected will be presented to Ministers of Health in these regions to help inform national HIV/AIDS programme and policy development.

REFERENCES

- Braithwaite, R. S., McGinnis, K. A., Conigliaro, J., Maisto, S. A., Crystal, S., Day, N., et al. (2005). A temporal and dose-response association between alcohol consumption and medication adherence among veterans in care. *Alcoholism: Clinical and Experimental Research*, 29(7), 1190-1197.
- Dunkle, K. L., Jewkes, R. K., Brown, H. C., Gray, G. E., McIntyre, J. A., & Harlow, S. D. (2004). Gender-based violence, relationship power, and risk of HIV infection in women attending antenatal clinics in South Africa. *Lancet*, 363(9419), 1415-1421.
- Hahn, R. A. (1999). *Anthropology and Public Health*. New York, NY: Oxford.
- Samet, J. H., Horton, N. J., Meli, S., Dukes, K., Tripps, T., Sullivan, L., et al. (2005). A randomized controlled trial to enhance antiretroviral therapy adherence in patients with a history of alcohol problems. *Antiviral Therapy*, 10(1), 83-93.
- Talbot, E. A., Kenyon, T. A., Moeti, T. L., Hsin, G., Dooley, L., El-Halabi, S., et al. (2002). HIV risk factors among patients with tuberculosis--Botswana 1999. *International Journal of STD AIDS*, 13(5), 311-317.
- UNFPA. (1998). Violence against girls and women. <http://www.unfpa.org/intercenter/violence/intro.htm>.
- World Health Organization (WHO). (2004). Global Status Report on Alcohol, 2004. *World Health Organization, Department of Mental Health and Substance Abuse*, from http://www.who.int/substance_abuse/publications/alcohol/en/index.html.

Report by:

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