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The Situation of Drug-Addicted HIV+ Street Children in Managua, Nicaragua

Introduction:

In terms of HIV/AIDS, adolescents (ages 10 to 19 years) are a salient focus group due to the frequency with which sexual activity is initiated at this time, and the elevated rates of sexually transmitted infections (STIs) in this population compared to youth over age 20; increasing the risk of contracting and spreading HIV by 3 to 5 times (Monasch & Mahy, 2006; Røttingen, Cameron, & Garnett, 2001). Youth who begin sexual activity early in adolescence are more likely to have multiple and high-risk sexual partners, and less likely to use condoms appropriately. Furthermore, the WHO identifies young people as an important bridge population for HIV transmission between various groups as a result of their propensity towards high-risk behavior. Specific groups of high-risk youth include sex workers, men who have sex with men (MSM), and injecting drug users (Monasch & Mahy, 2006). However, another important group, that has remained relatively neglected in the HIV/AIDS literature, is street children, who are especially at risk for HIV/AIDS due to a conflation of social vulnerability and frequent high-risk behavior. For example, these youth commonly engage in illicit drug use and unsafe sexual practices, and are at increased risk for sexual abuse, violence, and exploitation; all of which exacerbate their risk of contracting and spreading HIV (de Carvalho et al., 2006; Haley, Roy, Leclerc, Boudreau, & Boivin, 2004; Weber, Boivin, Blais, Haley, & Roy, 2002; Monasch & Mahy, 2006).

Studies of street children have shown elevated HIV prevalence rates comparable to other high-risk groups (Roy et al., 2000; Roy et al., 2003; Lambert, Torricco, Billot, Mazina, Marleen, & van der Stuyft, 2005; Zanetta et al., 1999; Avila et al., 1996; Kissin et al., 2007). Moreover, drug-addicted street children are more vulnerable to HIV infection than their non substance abusing peers. Aside from the inherent risks associated with the street environment, this group faces the additional risks of drug abuse, including an increased likelihood of engaging in high-risk sexual behaviors, early sexual debut, and prostitution. Additionally, in a study from Nicaragua, drug-addicted street children were more likely to live exclusively on the street (with no familial contact or support), to have lived on the street for more than five years, and to be illiterate, all of which increase the likelihood of risky behaviors (Martínez, Pauw, & Gorter, 1997). Another study situated in Brazil further suggests that the longer youth spend living on the street the more likely they are to engage in unsafe sexual practices and to use illicit substances (de Carvalho et al., 2006).

Finally, despite street children's elevated risks for and elevated rates of HIV infection, few programs exist to provide health services or medical treatment to HIV-positive cases (Walters, 1999; Rotheram-Borus, Song, Gwadz, Lee, Van Rossem, & Koopman, 2003; Lightfoot, Rotheram-Borus, & Tevendale, 2007). Treatment options are especially limited in resource-poor settings, and innovative strategies need to be adopted in order to ensure the provision of quality care. The purpose of the following paper is to describe, 1) the contextual background of street children (in particular drug-addicted street children), 2) current data regarding HIV prevalence in street children, 3) current treatment options available to HIV-positive street youth, and 4)

future directions for treating HIV/AIDS within this population. Further, a case study of drug-addicted street youth in Managua, Nicaragua is presented in order to provide a current example of programs for street youth and future directions for HIV+ and drug-addicted individuals.

Background:

Worldwide there are an estimated 100 to 250 million children living on the street, with approximately 50 million in Latin America alone (UNFPA, 2003). The reasons street children find themselves facing life on the street are varied and include familial instability, abuse, attraction to the street environment, and above all poverty (Raffaeli, 1997; Martínez, Pauw, & Gorter, 1997). Regarding HIV/AIDS, the extent of related knowledge varies widely between populations of street children, but in general overall use of protective behaviors (e.g. condom use) is low and participation in high-risk behaviors frequent (Walters, 1999; Baybuga & Celik, 2004; Wutoh, Kumoji, Xue, Campusano, Wutoh, & Ofosu, 2006). Drug abuse and prostitution are two of the most important behavioral risk factors promoting the spread of HIV both within this population and into the general population.

Substance abuse is almost ubiquitous among populations of street children. For example, in Brazil, de Carvalho et al. (2006) show that 88% of street children reported a lifetime use of some type of drug (76% alcohol, 63% tobacco, 44% inhalants), while in Canada, Roy et al. (2000) show that 97% of street youth had used at least one drug in the past, 76.2% had used four or more different drugs, and 56.8% were regular drug users. Drug addiction further marginalizes street youth, and increases their vulnerability to abuse, exploitation, and violence. Additionally, driven by addiction, these youth must find ways to procure their drugs of choice, and often resort to theft or prostitution in order to garner funds. Finally, in those areas where injection drug use is common, shared needles provide a highly effective mechanism for HIV transmission (Monasch & Mahy, 2006). However, measurements of drug usage are difficult to acquire due to this activity's illegal and/or stigmatized status.

Similarly, statistics regarding prostitution rates are also difficult to establish because of their extremely sensitive nature. Survival sex, "sexual intercourse in exchange for money living expenses or drug purchases, or for drugs themselves" (de Carvalho et al., 2006), is a common feature of life on the street (Wutoh, Kumoji, Xue, Campusano, Wutoh, & Ofosu, 2006; Haley, Roy, Leclerc, Boudreau, & Boivin, 2004; Weber, Boivin, Blais, Haley, & Roy, 2002). Various studies show prostitution rates in street children ranging from 8% in Brazil, 25.7% in Canada, and 43% in Nicaragua (de Carvalho et al., 2006; Roy et al., 2003; Martínez, Pauw, & Gorter, 1997). Additionally, in Canada, 27% of female street youth had engaged in prostitution in the last six months, and in Ghana, 83% of female street children reported ever having been paid for sex (Weber, Boivin, Blais, Haley, & Roy, 2002; Wutoh, Kumoji, Xue, Campusano, Wutoh, & Ofosu, 2006). Prostitution increases the likelihood of other risky sexual behaviors (such as high-risk sexual partners) and is positively associated with time spent living on the street (Weber, Boivin, Blais, Haley, & Roy, 2002; Haley, Roy, Leclerc, Boudreau, & Boivin, 2004). Moreover, anecdotal evidence from Nicaragua suggests that married men often seek street children for cheap sexual relations, increasing the likelihood of HIV spreading into the general population (Dr. Anna Gorter, Central American Institute of Health, personal communication, January 2008). This data is particularly important due to the findings of Haley, Roy, Leclerc, Boudreau, and Boivin (2004) who show that in a sample of male street children in Canada, HIV prevalence

was significantly higher in youth who were also participating in prostitution (2.1% vs. 0.3% respectively). Lastly, several studies demonstrate that youth engaged in prostitution are also more likely to abuse illicit substances (Weber, Boivin, Blais, Haley, & Roy; Martínez, Pauw, & Gorter, 1997).

HIV/AIDS:

The prevalence of HIV in street children worldwide has been shown to far exceed that of the general public. In Bolivia, for example, the prevalence of HIV in street youth is 3.5% while the overall country prevalence remains less than 0.1% (Lambert, Torrico, Billot, Mazina, Marleen, & van der Stuyft, 2005). Other studies from Latin America show HIV prevalence rates of 3.2% in street children in Brazil, and 4.6% in street children in Argentina (Zanetta et al., 1999; Avila et al., 1996). Additionally, two studies from Canada show HIV prevalence rates of 1.4% and 1.9% in street children, and one study from Russia documents prevalence as high as 37.4%; one of the highest prevalence rates in the world (Roy et al., 2000; Roy et al., 2003; Kissin et al., 2007). However, HIV prevalence studies are scarce and difficult to realize due to the transient nature of street life and the sensitivity of the subject.

Case Study: Managua, Nicaragua:

The capital city of Managua is located on the western coast of Nicaragua and is also within the municipality of the same name. In 2005, the population of Managua was 1,380,339, 90.5% of inhabitants lived within the department's main urban area, and population density was estimated at 364.5 inhabitants/km² (MINSa, 2005b). Poverty is a significant problem within Nicaragua and the United Nations Development Programme (UNDP, 2008) states that between 1990 and 2005, 45.1% of the total population was living below \$1/day, and 79.9% was living below \$2/day. Additionally in 2005, within Managua, only 26.3% of the population had a house with a floor made of a material other than dirt (brick, tile, or cement) and 63.9% had potable water within their homes. Moreover, in 2005, only 37.7% of Managua's population had completed secondary schooling and 47% of the population under ten years was economically active (MINSa, 2005c). These statistics reify both Nicaragua's position as one of the poorest countries in Latin America and Managua's impoverished condition.

HIV/AIDS in Nicaragua remains a concentrated epidemic, with a prevalence of 0.2% within the general adult population (Population Reference Bureau, 2008). Certain high-risk groups, however, exhibit a much higher prevalence rate than the general public. In particular, female sex workers and men who have sex with men (MSM) have been the focus of HIV prevalence studies, and show rates as high as 9.3% in MSM, 1.5% in adult sex workers, 2.9% in sex workers younger than 20 years, and 4.0% in sex workers who also use inhalant drugs (MINSa, 2006; ICAS, 2004). As previously stated, no data yet exist which show the extent of HIV infection within street children in Nicaragua, although cases have been identified within Managua. In a preliminary study conducted by ICAS, of eighteen glue-sniffing street children taken to HIV testing, seven were diagnosed as HIV+ (Dr. Zoyla Segura, Central American Institute of Health, personal communication, February 2008).

Drug-Addicted Street Children in Managua:

Overall estimates suggest that approximately 17,000 children live on the street in Nicaragua, with 15,000 children in Managua alone (Quadekker, van der Leest, & Gorter, 2003). Furthermore, of this total population, Managua holds a group of approximately 300 children

addicted to sniffing glue (ICAS, 2008). These drug addicted youth are further subdivided into two groups: 1) drug-addicted street children and 2) drug-addicted street children who are also sex workers. A study of Managuan street children from 1997 shows that in comparison to other street children, drug-addicts were more likely to live exclusively on the street (60% drug-addicted youth, and 40% drug-addicted and prostituting youth), and to have little or no familial support. Both drug-addicted and drug-addicted in prostitution groups were also more likely to report maltreatment than other street youth, to initiate sexual activity at a substantially earlier age than children in the other groups, and to be illiterate (Martínez, Pauw, & Gorter, 1997). Regarding HIV prevention, drug-addicts were the group least preoccupied with HIV/AIDS (57% not concerned) and were the least likely to know what AIDS was (30% do not know) (Martínez, Pauw, and Gorter, 1997).

In terms of substance abuse, a study conducted in 1997 in Managua identified the most common drug used by street children as alcohol (33%). Additionally, 19% of respondents reported using other types of drugs, the most popular of which were glue (68%), marijuana (52%), and cocaine (17%) (Martínez, Pauw, & Gorter, 1997). The percentage of overall drug use seen in Nicaragua, however, was much lower than data reported by other studies (de Carvalho et al., 2006; Roy et al., 2000). In terms of frequency of use, in Managua, 89% of drug-addicts and 88% of drug-addicts in prostitution used illicit substances on a daily basis, the highest percentages of reported use in any of street children groups. The predominance of glue use in Nicaragua is facilitated by a lack of legal prohibition in the procurement or use of glue as an inhalant drug. Additionally, the glue (Resistrol) is often portioned off into readily available small glass jars available for approximately 10 to 15 *cordobas* (approximately US 55¢ to 85¢). Glue-sniffers purchase anywhere between one to three jars of glue per day to satisfy their habit, and therefore must obtain between 10 and 45 *cordobas* daily (US 55¢ to \$2.50) and may turn to prostitution for drug funding. Besides the glue users who also officially work as prostitutes, 12% of drug-addicted street children said that they had been paid for sex (Martínez, Pauw, & Gorter, 1997). However, this statistic is most likely drastically under-representative of the magnitude of prostitution in this group.

Programs for HIV-positive street youth:

Primary prevention programs are available for street children worldwide (often provided by non-governmental organizations), however, there is a severe lack of any interventions for those youth who are diagnosed as HIV-positive. Of the available interventions, the majority focus on secondary prevention rather than disease treatment (Walters, 1999; Rotheram-Borus, Song, Gwadz, Lee, Van Rossem, & Koopman, 2003; Lightfoot, Rotheram-Borus, & Tevendale, 2007). Moreover, these programs have been validated in developed countries such as the United States, and may have little applicability to resource-poor settings where the majority of street children reside. In addition, significant barriers for street children include poverty, social vulnerability, and the inherent risks of living on the street, which severely restrict the agency these children have over their own behaviors, negating the efficacy of solely behavioral change approaches. For example, Kissin et al. (2007) show that even when youth are knowledgeable about behaviors facilitating HIV transmission, participation in these behaviors remains common. Furthermore, knowing one's HIV status does not necessarily prevent risky behavior. Evidence from Canada suggests that street youth who are aware of their HIV-positive status continue to be sexually active, and use condoms inconsistently. These two studies are in

contrast to Mclelland et al. (2006) who showed that female sex workers significantly reduced high-risk sexual behaviors after receiving a positive HIV diagnosis.

In terms of treating extant HIV cases, a relatively new treatment option termed DAART (directly administered antiretroviral therapy) has been shown to be both well accepted by HIV patients and also effective when used in conjunction with drug rehabilitation services for injection drug users (Garland et al., 2007; Strathdee & Patterson, 2006; Lucas et al., 2006). For example, Lucas et al. (2006) found that injection drug users enrolled in rehabilitation services and receiving DAART in addition to methadone therapy had lower viral loads than injection drug users self-administering highly active antiretroviral therapy (HAART). DAART has also been used in resource-poor settings with positive results in adherence to medicine and reduced disease symptoms (Farmer et al., 2001). Further, Mukherjee, Ivers, Leandre, Farmer, and Behforouz (2006) found that employing DAART in Haiti was highly cost-effective and increased total program expenditure by only \$100/patient/year. However, at present this treatment strategy has not been fitted to street children populations. Furthermore, drug-addicted HIV-positive street youth need access to drug rehabilitation services, in addition to treatment, in order to reduce secondary transmission, and to maximize treatment options (including DAART).

Currently in Managua, services for street youth are offered by at least five non-profit charity organizations. These foundations supply food, temporary lodging, and rehabilitation services. Additionally, some of these organizations also offer HIV prevention information and accompaniment to medical services. However, at present, HIV testing is not provided by any of these programs, nor is there existing capacity to house and treat HIV+ street youth (Quadekker, van der Leest, & Gorter, 2003; ICAS, 2008).

Future Directions:

Despite promising data from DAART interventions, treating HIV-positive street children remains a significant global challenge. Perhaps first and foremost, identifying HIV-positive youth is a formidable task. Street youth live transient lifestyles characterized by poverty, social marginalization, high levels of stigma, and lack of familial support, resulting in difficulties identifying and maintaining contact with this population. Drug-addicted children are even more difficult to find and incorporate into programs because of their increased social marginalization compared with their non drug-using peers. Moreover, even when these youth are successfully engaged in HIV prevention programs, in some countries HIV testing is unavailable to minors (under the age of 18) without an adult caregiver present; effectively barring street children from these services. Finding a solution to this predicament is a current focus of the Central American Institute of Health (ICAS) in Managua, Nicaragua. Based on the DAART model modified for resource-poor settings proposed by Farmer et al. (2001), ICAS is working to create a system in which drug-addicted street children are assigned a case worker who will accompany them to an initial HIV testing and then, should the test result in a positive diagnosis, maintain contact with the child for continuing care, rehabilitation, and integration into the country's existent HIV treatment services.

To accomplish this goal, ICAS will use a voucher system pioneered by their service provision programs during the 1990s. The basic structure of this system is as follows: 1) a specific number of private, public, and NGO-run clinics are contracted and provided training in the treatment of certain conditions, 2) vouchers for specific health services are given to

underserved individuals (e.g. prostitutes, street youth, etc.), 3) the individual takes the voucher to any one of the contracted service providers, 4) the service is provided with no charge to the patient, and 5) the service provider returns the used voucher to ICAS to redeem an agreed upon compensation for the services rendered (World Bank, 2005). Additionally, service quality is ensured due to the training provided to each of the contracted health care providers. Specifically, ICAS is focusing on street youth addicted to inhalant drugs (predominantly glue), who form a population of approximately 300 in Managua. These youth are especially at risk for prostitution, risky sexual behaviors, and exploitation. This project is still in the development stage, but is anticipated to improve the situation of HIV-positive drug-addicted street children living in Managua.

Finally, although an abundance of data exist which support focusing on street children as an important bridge population for HIV spread, no HIV treatment programs have yet been targeted at this population. Moreover, education and behavior change interventions have had ambivalent results in reducing HIV risk activities in street children populations. A program specifically targeted towards HIV testing and provision of care for HIV-positive street youth has the potential to affect much greater improvements in health than primary or secondary prevention interventions alone (Farmer et al., 2001). Focusing on drug-addicted youth in particular is also effective due to their increased participation in high-risk behaviors compared to other street youth. Ultimately, curtailing HIV infection in this population will provide long term health benefits by preventing HIV transmission into the general public.

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