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Substance Abuse and HIV/AIDS in the Caribbean: Current Challenges and the Ongoing Response

Iliana Alexandra Angulo-Arreola, MPH Candidate[1,2], Francisco I. Bastos, MD, PhD[1], and Steffanie A. Strathdee, PhD[3]

Abstract

The Caribbean and Central America represent a formidable challenge for researchers and policy makers in the HIV field, due to their pronounced heterogeneity in terms of social, economic, and cultural contexts and the different courses the HIV epidemic has followed in the region. Such contrasting contexts and epidemics can be exemplified by 2 countries that share the island of Hispaniola, the French Creole-speaking Haiti, and the Spanish-speaking Dominican Republic. Haiti has experienced the worst epidemics outside of sub-Saharan Africa. Following a protracted economic and social crisis, recently aggravated by a devastating earthquake, the local HIV epidemic could experience resurgence. The region, strategically located on the way between coca-producing countries and the profitable North American markets, has been a transshipment area for years. Notwithstanding, the impact of such routes on local drug scenes has been very heterogeneous and dynamic, depending on a combination of local mores, drug enforcement activities, and the broad social and political context. Injecting drug use remains rare in the region, but local drug scenes are dynamic under the influence of increasing mobility of people and goods to and from North and South America, growing tourism and commerce, and prostitution. The multiple impacts of the recent economic and social crisis, as well as the influence of drug-trafficking routes across the Caribbean and other Latin American countries require a sustained effort to track changes in the HIV risk environment to inform sound drug policies and initiatives to minimize drug-related harms in the region.

Keywords

the Caribbean, substance misuse, HIV/AIDS, cocaine, commercial sex

Introduction

Even though the annual number of HIV infections worldwide declined on average from 3.0 million (2.6-3.5 million) in 2001 to 2.7 million (2.2-3.2 million) in 2007, the Caribbean has the second highest HIV prevalence after sub-Saharan Africa. The latest epidemiological data on the Caribbean show that the epidemic has stabilized in most countries, but certain countries of the Caribbean region have faced various obstacles in their efforts to curb local epidemics (ie, Haiti, Puerto Rico). In general, HIV epidemics in this region have progressed from being predominantly concentrated among men having sex with men (MSM) to epidemics that are increasingly affecting heterosexuals. In some countries, there has been a recent "feminization" of HIV epidemic, mainly attributed to unprotected heterosexual intercourse. Despite this trend, the high burden of HIV infection among MSM and ongoing risk behavior, especially among young MSM, underscores the extent to which this population continues to play a significant role in several national epidemics.[1-3]

Understanding the HIV epidemic in the Caribbean represents a formidable challenge for researchers and policy makers in the field of HIV/AIDS, due to its pronounced heterogeneity in terms of social, economic, and cultural contexts and the different courses the HIV/AIDS epidemic has followed in the region. Such contrasting contexts and the impact on local epidemics can be exemplified by 2 countries that share the island of Hispaniola, the French Creole-speaking Haiti, and the Spanish-speaking Dominican Republic. Haiti, one of the poorest countries worldwide, has experienced the worst epidemic outside of sub-Saharan Africa in the context of a protracted

[1] Oswaldo Cruz Foundation (Fiocruz), Rio de Janeiro, Brazil
[2] Fulbright Scholar, Rio de Janeiro, Brazil
[3] University of California, San Diego School of Medicine, San Diego, CA, USA

Corresponding Author:
Iliana Alexandra Angulo-Arreola, MPH Candidate, 2012 Oswaldo Cruz Foundation (FIOCRUZ) at P.O. Box 532104, San Diego, CA 92153, USA
Email: alexandra.angulo@gmail.com

economic and social crisis. Since the beginning of the epidemic, Haiti faced strong prejudice against its nationals[4] especially those living in the United States or migrants en route to the United States, who were then labeled a "risk group." Indeed, there even was a "Haitians" exposure category used in the first *Morbidity and Mortality Weekly Report* (*MMWR*) issued by the Centers for Disease Control and Prevention (CDC) at the beginning of the AIDS epidemic.[5] In one of the most embarrassing episodes in terms of the US response to the HIV epidemic, 190 Haitians seeking political asylum in the United States in the 1980s were detained at the US Naval Base of Guantanamo (Cuba) because of their HIV status.[6] Over the years, committed health professionals and activists launched a comprehensive response to the epidemic in Haiti. In the context of dire poverty, political instability, and structural violence, much has been achieved in the prevention and treatment of the dual epidemic of HIV and tuberculosis, as well as in overcoming substantial barriers posed by poverty, social, and gender inequality, discrimination, the lack of health infrastructure and reliable transportation.[5,7] On the other hand, in the Dominican Republic, the epidemic has been relatively under control since its inception, in the context of a modest, but thriving economy. Although the sustainability of the response to the Dominican HIV epidemic remains an issue, the response to the local epidemic can be viewed with optimism and hope.[8]

This article illustrates the heterogeneity of the HIV epidemic in the Caribbean region. Since injection of illicit drugs is still relatively uncommon in this region, the main link between substance abuse and HIV acquisition is indirect, through the exchange of sex for drugs, or the disinhibitive effects of drugs and alcohol on unprotected sex. Strategically located en route between coca-producing countries in Central and South America and North America, the Caribbean countries are transshipment routes for illicit drugs, especially cocaine. The impact of such routes on local drug scenes has been heterogeneous and dynamic, depending on a combination of local mores, drug enforcement, and the broad social and political context.[9] It is well known that in cities on drug transit routes, "spillover" of illicit drugs creates local drug consumption markets.[10,11] In some Caribbean countries (eg, Bahamas, Barbados, Dominican Republic, Jamaica), burgeoning cocaine and crack epidemics[12] have spawned a complex interrelationship between illicit substance use and commercial sex, which has become inextricably linked to the heterosexual HIV epidemic in the region.

The majority of Caribbean countries lack resources for developing and/or maintaining optimal HIV surveillance to accurately determine the number of people affected, as well as the proximal and distal factors underlying individual epidemics.[1] Since epidemiological studies addressing the intertwined epidemics of substance use and HIV infection in the Caribbean are scarce, any attempt to write a comprehensive review poses a challenge.[13] We present a summary of existing knowledge on the role of substance abuse and related risk behaviors on the HIV epidemic in the Caribbean region. We review data from peer-reviewed papers and "gray literature" (ie, nonindexed in the available bibliographic databases), which include reports from international health agencies (eg, Joint United Nations Programme on HIV/AIDS [UNAIDS], the World Health Organization [WHO], and the Pan American Health Organization [PAHO]).

Methods Used to Retrieve Information

Available literature on HIV/AIDS in the Caribbean exhibits great variability. For example, there is a relative abundance of literature from Puerto Rico and the Dominican Republic and a scarcity of peer-reviewed references from Cuba. In this sense, reviews must combine the search of standard databases, for example, Medline or Scopus, local databases, for example, LILACS (Literatura Latino-Americana e do Caribe em Ciências da Saúde), and Scielo (Scientific Electronic Library Online), as well as gray literature. Searches were conducted in the 4 languages spoken in Latin America and the Caribbean, available in such databases (English, Spanish, Portuguese, and French).

Information was gathered by thoroughly reviewing major bibliographic data banks, Web sites of international institutions and regional networks working with substance misuse and HIV/AIDS, and peer-reviewed abstracts from conferences and meetings. Even with the resources to the above-mentioned sources of information, data were entirely lacking for some countries or were extremely sparse in others. Thus, we have highlighted trends in HIV and substance abuse in the most affected countries, and we point out cases where data still remains fragmentary and/or outdated in others.

This review includes the following countries: Puerto Rico, Dominican Republic, Antigua and Barbuda and the West Indies, Bermuda, Barbados, Jamaica, Haiti, Cuba, Saint Kitts and Nevis, the Bahamas, Saint Vincent and the Grenadines, Saint Lucia and Trinidad and Tobago, and the US Virgin Islands. The reviewed countries are members of the following organizations: the Pan Caribbean Partnership Against HIV/AIDS (PANCAP), in charge of achieving universal access to HIV and AIDS prevention, treatment, care, and support services (except for Puerto Rico and the US Virgin Islands); the PAHO the agency responsible for working to improve health and living standards of the countries of the Americas; and the Caribbean Epidemiology Centre (CAREC) administered by the WHO and the PAHO which are dedicated to providing health information and disease prevention to the Caribbean (except Cuba, Haiti, Puerto Rico, and US Virgin Islands).

The Role of Substance Abuse in Local HIV Epidemics

Substance abuse is the use of illegal drugs, prescription medications, over-the-counter drugs, or alcohol for purposes other than those for which they are meant to be used, or in excessive amounts.[14] The main drugs used and abused in the

Caribbean are alcohol, marijuana, cocaine, and to a lesser extent, heroin. Cocaine can take the form of cocaine clorohydrate; base cocaine (free-base) and crack; and paste base. In contrast, heroin can be in the form of a white or brown powder, which can be snorted or smoked, or black tar, which is commonly liquefied by heating and then injected. Routes of administration depend on the type of formulation. Routes of cocaine and heroin administration include intranasal (sniffing); smoking or aspiration of fumes (ie, free-basing or "chasing"); and injecting. In most Caribbean countries, injection drug use remains rare.[9,15,16] However, crack cocaine smoking, as well as noninjection drug use has been increasing[17] in some countries, such as the Bahamas. In Haiti, combinations of marijuana and crack cocaine are referred to as "juicy lucy," as "black joint" in Martinique, as "spranger" in Dominica, St. Kitts, and Nevis,[18] and as "season spliff" in Jamaica.[19]

According to the United Nations International Drug Control Program (2002), the Caribbean has yet to experience a major epidemic of amphetamine and ecstasy use, compared to North America, where these are major drugs of abuse. However, there is a growing concern due to its increasing popularity among teenagers, since consumption of stimulants may increase due to spillover effects in local markets, as drugs and their precursors are shipped to the United States. In the Cayman Islands, 2.3% of students aged 12 to 18 years reported lifetime use of "ice" or crystal methamphetamine (2000). In Jamaica (1997), 3.4% of 11th graders had used amphetamines at least once in their life. In Haiti, prevalence of amphetamine use in the prior month among street children of age 11 to 19 years was 9.5% and 11.7% among those aged 15 to 18 years. Lifetime use of ecstasy in the Caribbean ranges from 1% to 2%. In the Dominican Republic, among school students of age 12 to 20 years (2000), 1.2% used ecstasy in their lifetime. In the Cayman Islands, 1.6% of 16-year-olds used ecstasy in their lifetime (2000).[20]

Heterosexual transmission accounts for the majority of the cases of HIV in the Caribbean. Various social and cultural factors play an important role in the fast spread of the epidemic in some contexts. Some of these include gender inequalities, such as women's economic dependence on men and their inability to negotiate the use of condoms. Although the most critical social factors that have fueled the heterosexual epidemics in the Caribbean relate to culture (ie, machismo, traditional gender roles) and behavior (ie, young people having unsafe sex at an early age),[21] an important neglected factor has been the role played by substance use and abuse. The disinhibition effects of alcohol and drug use increase the likelihood of high-risk behaviors and in some cases can compromise the immune response.[22,23] The addictive and intoxicating effects of many drugs can alter judgment and inhibition and lead people to engage in impulsive behaviors and unprotected sex.[24,25] Below, we discuss HIV risks associated with injection drug use and noninjection drug use, drawing from the international literature and available data from the Caribbean region.

Risks Associated with Injecting Drug Use

While injection drug use is not the predominant risk factor for HIV infection in most of the Caribbean countries, cocaine remains the most frequently injected drug,[26] which mirrors trends in most South American countries. In contrast, heroin predominates as the major drug of abuse among injecting drug users (IDUs) in most countries outside the Caribbean and South America. This is an important observation, since cocaine injection tends to be associated with greater HIV risk behaviors than heroin. In particular, cocaine is often injected many times a day and is also associated with chaotic behaviors and trading sex.[27] The high frequency of injection may also lead cocaine injectors to neglect safer injection techniques. Cocaine can also be a sexual stimulant, and therefore cocaine users may be more likely to engage in risky sexual behavior.[28]

Sharing needles and syringes is a highly efficient means of HIV transmission that often leads to rapid spread of the virus in IDU networks.[1] Apart from needles/syringes, commonly shared injection paraphernalia include cookers, water, filters, spoons, ampoules, and other containers. Environmental and social factors that can influence risk behaviors include availability of syringes at needle exchange programs, pharmacies or over-the-counter; availability of drug abuse treatment, such as methadone and buprenorphine maintenance treatment; and access to harm reduction materials such as bleach kits, condoms, and educational material. Risky injection drug practices are also related to the cultural and social context under which individuals interact, as well as to individual factors and biomedical aspects related to dependency on psychoactive substances, such as withdrawal. For example, police pressure and societal stigma can create the need for IDUs to inject in secrecy and rapidly. In such cases, such as in Puerto Rico, shooting galleries exist where IDUs can inject in groups, purchase drugs, and rent or buy syringes in exchange for a share of one's drug supply.[29,30] Such situations can serve as virtual incubators for HIV infection, since the same used syringe may be used repeatedly by multiple people, especially when there are few legal sources of sterile needles and syringes.

Compared to other drug users, IDUs are also more prone to coinfection with HIV and hepatitis viruses, since hepatitis C virus (HCV) and hepatitis B virus (HBV) are readily transmitted through parenteral routes (ie, subcutaneous, intravenous, and/or intramuscular injections).[31,32] HCV has also been associated with sharing of injection paraphernalia. A study of 702 IDUs in metropolitan Chicago during 1997 to 1999 found that 70% of the participants reported sharing cotton, cookers, and/or rinse water. Such sharing practices may be an important cause of HCV transmission between IDUs,[33-35] since HCV is transmitted more efficiently through parenteral routes than HIV.

There are only a few countries in the Caribbean where injection drug use has played a critical role in the HIV epidemic, most notably in Puerto Rico and to some extent in Cuba, the Dominican Republic, and Barbados. As in other regions of the world, IDUs are overrepresented among the homeless,

incarcerated, and those who engage in the exchange of sex for drugs, money, shelter, or other commodities.[29,36] Injection drug use also tends to be more commonly observed among young adults and some subgroups of MSM, such as male sex workers (MSWs).

Risks Associated with Noninjection Drug Use

The risk of HIV transmission among non-IDUs (NIDUs) is much lower than that among IDUs, since parenteral HIV transmission is much more efficient than sexual transmission. However, in most regions of the world, HIV prevalence tends to be higher among NIDUs than the general population for several reasons. First, NIDUs who exchange sex for money or drugs may have high levels of unprotected sex, which poses a major risk of HIV transmission and sexually transmitted infections (STIs). Given the importance of this issue in the Caribbean region, we discuss this more fully in the next section. Second, NIDUs are more likely to have IDU sex partners than the general population, among whom the burden of HIV infection is usually greater. Since condom use is often low among IDUs and their sex partners, sexual exposures are the most important risk factors for NIDU populations.[37-40] In settings where there is high prevalence of ulcerative STIs among NIDUs (eg, syphilis, chancroid, HSV-2), the risk of HIV transmission through a single unprotected sex act may be increased severalfold.[41,42] In a recent study conducted in New York City, HIV prevalence was nearly identical among current injectors and heroin and cocaine users who had never injected, which was attributed to sexual mixing between IDUs and NIDUs.[43] Third, there is a possibility of HIV transmission through contaminated paraphernalia used for snorting and inhaling cocaine/crack and heroin (ie, straws, dollar bills, spoons, etc). The potential risk of HIV transmission through the sharing of noninjection drug paraphernalia may not be obvious and deserves comment. Snorting, free-basing, and inhaling cocaine, crack, or heroin on a frequent basis can give rise to lesions and injuries that compromise the mucosa in the oral and nasal region, which could increase the susceptibility of acquiring HIV. Crack smokers, for example, are prone to have blisters, sores, and cuts on the lips, which could facilitate oral transmission of HIV.[44,45] Cocaine snorting is also associated with nose blisters and sores. Although the literature examining causal associations between sharing contaminated noninjection paraphernalia and HIV transmission risks is mixed,[46-48] a causal association has been demonstrated between this transmission route and HCV.[49-51] Indeed, high prevalence of HCV and HCB viruses are common among NIDUs.[52,53] Unlike HCV, HBV is transmitted readily through unprotected sex.[54] To the best of our knowledge, data respecting HBV infection among NIDUs in the Caribbean has been limited to anecdotal reports.

Hepatitis B virus is usually prevalent among populations where unprotected sex with multiple partners is common and where anti-HBV vaccination remains uneven, as is the case of most IDUs and NIDUs, especially those from poorer social strata, in both high-income[55] and middle-income countries.[56] High HBV prevalence among NIDUs are due in large part to unprotected sex, but additional risk factors associated with sharing of noninjection paraphernalia warrant further study.[56]

Availability of Harm Reduction Programs

According to the International Harm Reduction Association (IHRA), throughout the Caribbean region there are 79 sites providing abstinence-based drug-dependence treatment. In terms of opioid substitution therapies (OSTs), both methadone and buprenorphine are legally available across the Caribbean but are only prescribed for pain relief, except in Puerto Rico where methadone maintenance treatment is available. Abstinence-based drug-dependence treatment is available in most of the Caribbean countries. Other services include voluntary HIV testing and counseling, HIV prevention, treatment and care, HCV testing and treatment, STI prevention and treatment, and also limited non-IDUs-targeted HCV services.[57] Non-OST drug-dependence treatment is available in prisons in 5 Caribbean countries: the Bahamas, Barbados, Belize, Saint Vincent, and the Grenadines, and the Cayman Islands.[57] Methadone substitution has been piloted in 1 prison in Puerto Rico, but this initiative is yet to be replicated in other prisons.[58,59] Given that injection drug use is uncommon in most Caribbean countries, it is not surprising that needle and syringe exchange programs (NSPs) are only available in Puerto Rico. However, because of the critical role that NSPs play—not only in the prevention of HIV transmission but also providing education, access to sterile noninjection paraphernalia, vaccinations for HBV and overdose prevention—other countries in the Caribbean should consider implementing these programs as part of a comprehensive prevention plan.

The Organization of American States (OAS) and Inter-American Drug Abuse Control Commission (CICAD) created the Demand Reduction Program more than 20 years ago to develop policies to prevent and treat drug use. This program also offers technical assistance, training, and cooperation both nationally and multinationally to enhance the capacity of governments and nongovernmental organizations (NGOs) to deliver substance abuse prevention and treatment programs. In the Caribbean region, Barbados, Belize, and Surinam have embarked on the development of quality standards of care; Bermuda and the Cayman Islands have in place a system for accreditation of drug counselors, but the region as a whole is largely lacking in quality standards and regulatory authority. CICAD also provides training of staff and personnel of rehabilitation centers for prisoners who are drug users. Other efforts by this organization have included financial support and technical assistance for pilot programs of drug treatment in prisons in Guatemala and Saint Vincent and the Grenadines. Since 1996, in Barbados, CICAD has provided short training courses for drug treatment counselors in the Caribbean. In the University of West Indies, a certificate program in addiction studies currently offers an online certification in substance abuse and prevention. The Inter-American Observatory on Drugs has a program examining the social and economic costs of drugs to

society. This program is currently being conducted in Barbados, Costa Rica, El Salvador, and other countries of Latin America. Data collected through this program will be used for various purposes, including advocating for drug treatment instead of incarceration for minor drug offenses. It is important to note that all of these programs and trainings have been limited by the availability of resources.[60]

Intersection between HIV/AIDS, Substance Abuse, and Sex Work

In regions of the world where there are high rates of poverty and an ample supply of illicit drugs, there is often considerable overlap between drug use and sex work (SW), which together can become a major driver of HIV transmission. The Caribbean region is a case in point, where some drug users enter into SW to finance their drug dependence, and others turn to stimulants to cope with the stress associated with SW.[26,61] In this section, we primarily focus on female sex workers (FSWs), given the availability of data on this topic, relative to the scant information available on male and transsexual sex workers in the region.

Various studies in the Caribbean region have found that the risk of HIV infection is higher in FSWs than in the general population.[2,62-64] For sex workers who are also IDUs, unprotected intercourse with concurrent sexual partners and sharing injection paraphernalia greatly increases their risk acquiring and/or transmitting HIV. Compared to MSWs, FSWs in Latin America and the Caribbean appear to be at a greater disadvantage to negotiate the use of condoms. In particular, women who charge the least and/or are alcohol and/or drug dependent are at greater risk of contracting HIV, since condom use in this group is rather low, not only with their customers but also with their steady partners.[65-67] In terms of the overlap between injection drug use and SW, a study in 2 Mexican border cities with the United States found that FSWs who were also IDUs had higher STI prevalence, engaged in riskier behaviors, and were more vulnerable to having unsafe sex with clients compared to other FSWs.[68]

Male sex workers also experience high levels of HIV risk, and those who are IDUs are subject to 2 potential transmission routes: unprotected anal sex and parenteral transmission through needle sharing. In some cases, MSWs are bisexual and have both paying and nonpaying male and female partners who in turn may be exposed to HIV and STIs. In the context of drug dependency and intense cravings that are typified among cocaine addicts, male and FSWs may be more likely to comply with demands for unprotected sex for higher pay in an effort to quell their withdrawal symptoms.[61,68] Even if sex workers do not use drugs themselves, their risk of exposure to HIV might be higher when their partners are drug users; women drug users in particular are known to have greater overlap in their sexual and drug using networks relative to men.[68,69] For example, in Puerto Rico, women who are crack users, have an IDU partner, and engage in SW were found to be at higher risk of acquiring HIV.[70]

A characteristic that emerged with the crack epidemic in the 1980s is the tendency of sex workers who are also drug users to exchange sex for drugs. Although data on the intersection of sexual tourism and drugs in the Caribbean are scarce, in other parts of Latin America there are a number of studies that have focused on such interactions. For example, in Tijuana, Mexico (border city with the United States), sex tourists will offer or request sex workers to use drugs (injection drugs, alcohol, and noninjection drugs) during SW, sometimes even offering the drugs in exchange for sex.[71,72]

The mobile nature of sex workers in some Caribbean countries complicates HIV prevention in the context of SW and drug use. A study conducted in the US Virgin islands found that compared to FSWs who were not illicit drug users, those who were illicit drug users engaged in SW in a significantly greater number of countries and were more likely to work in locations outside the US Virgin Islands.[61] The intersection of multiple risk factors for HIV among sex workers who were also drug users in the region include unprotected sexual activity with multiple partners, violent victimization, and migration between high and low HIV prevalence areas. In this context, mobility may act as a major driver of HIV transmission, as has been noted elsewhere.[73]

Although few interventions to reduce HIV transmission among FSWs in the Caribbean have been rigorously evaluated, perhaps the most important is the 100% Condom Campaign. This environmental–structural intervention campaign was first implemented in Thailand in 1991 by the government which required universal condom use in all brothels.[74] Female sex workers were periodically tested for STIs, and these tests were used to determine whether sex establishments were complying with the program. Noncompliant brothel owners were subject to sanctions and ultimately closure in the case of persistent noncompliance. A modification of this approach was tested in 1998 in Santo Domingo and Puerto Plata, 2 cities of the Dominican Republic. The intervention included 5 components: solidarity and collective commitment (ie, promoting a sense of collectivity); environmental cues (ie, having posters, providing condoms at locales); clinical services (ie, monthly testing); monitoring and encouraging adherence (ie, informing sex brothel owners of their status in terms of compliance with intervention); and policy and regulation (ie, meetings of sex brothel owners to inform them about their responsibilities if noncompliant with the study). In Santo Domingo, the community solidarity model was implemented, among 288 FSWs significant increases in condom use with new clients were seen. In Puerto Plata, where the intervention included solidarity combined with government policy, increases in condom use were seen with regular partners, as well as reductions in STI prevalence and significant increases in sex workers' verbal rejections for unsafe sex as well. This study showed that interventions that combine community solidarity and sound government policy showed positive initial effects on HIV and STI risk reduction among FSWs.[75,76] Further analysis of the same findings documented that such integrated set of intervention were cost-effective, compared to standard

interventions lacking the comprehensiveness and structural character of the above-mentioned interventions.[77]

The Role of Sexual Tourism in the Americas

Sexual tourism generally evokes the image of older men traveling to developing countries. While sex tourists tend to be male, in the Caribbean islands, female sex tourists are increasing, who may seek sexual pleasure usually at a cheaper price than what they could pay in their home country. The multiple dimensions of sex tourism include travel by the sex seeker or the sex provider to another country, with the intention to have sex with strangers during travel (business purposes or holiday). The sexual exchange can involve direct monetary reimbursement or indirect reimbursement (paying for dinner, drinks, etc). In some cases, the sexual provider may not view the encounter as a transaction. The length of time of such relationships can vary from minutes to years, and the status of these relationships can be long-term or a first-time meeting. Sexual encounters also may vary from voyeurism to having vaginal or anal intercourse.[78]

Sexual tourism, a multibillion dollar industry, supports a large workforce on a global scale. People who benefit from sexual tourism go beyond the sexual seeker and the sexual provider and include those working for the travel and tourism sectors, from taxi drivers to airlines, hotels, bellboys, restaurant employees, bartenders, waiters, among others. Excluding escorts working for elite agencies and higher wages, most sex workers are exposed to social stigma, discrimination, poverty, marginalization, violence, disease, and sexual and substance abuse.[79,80] In some cases, sex workers are victims of human trafficking, especially young girls. Sex tourism has established itself in areas where laws and government surveillance are less restrictive.[81] Lack of economic power combined with government support to increase tourism as a development strategy have created the proper conditions for the surge of sexual tourism in the past years. This dependency on tourism has undoubtedly led a number of countries in the Caribbean to be vulnerable to high levels of HIV prevalence and incidence, including the Bahamas,[82] Barbados,[83] Antigua and Barbuda,[84] Bermuda,[85] the Dominican Republic,[86] Turks and Caicos, Jamaica (Montego Bay and Kingston),[3,87] and St. Martin and Tobago.[88]

High-Risk Populations, Bridging, and the Feminization of Epidemics in the Caribbean

A bridging population is a group that has a high risk of contracting a certain disease, due to its proximity or contact with a high-risk group. The bridging population then may function as a link to other low-risk groups and hence increase the low-risk group's probabilities of contracting a certain disease.[89] Some potential bridge populations include IDUs, NIDUs, SWs, and their clients, MSM who are IDUs, FSWs who are IDUs, and bisexual men. High-risk behaviors among FSWs and their clients include unprotected sex and/or sharing needles with lovers/regular partners, clients, and acquaintances.[90,91] Such findings have been made evident in different contexts, such as Latin America[68] and sub-Saharan Africa.[92] Unlike sub-Saharan Africa, where the epidemic has been driven by unprotected heterosexual intercourse since its inception, the epidemic in many countries of Latin America and the Caribbean was initially concentrated among males, including gay and bisexual men, male IDUs and hemophiliacs, with bridging toward the general population and a progressive feminization over the years.[93]

Feminization of HIV epidemics is a regional rather than a global phenomenon, affecting mainly poor regions of the world. In the last few decades, increases in poverty have mainly affected women and girls and this feminization of poverty has translated into the feminization of HIV/AIDS. The harsh conditions under which more and more families are living force them to seek other means of income by having all members of the family contribute. In some cases, children are "turned out" to exchange sexual favors to obtain money or other goods.[94] The feminization of some HIV epidemics in Latin America and the Caribbean also finds its roots in the unequal power relations, discrimination, and violence that women face. Findings suggest that an increase in HIV infection among women may also be partially attributed to males who have unprotected sex with younger women, as well as commercial sex workers (CSWs) and/or with other men.[92,95-102] Feminization of a local HIV epidemic may affect certain age groups more than others, varying from country to country. Despite showing a decline in their urban epidemics, Haiti and the Dominican Republic are 2 countries, in which HIV prevalence among 15- to 24-year-olds was higher for females than for males during 2005 to 2007.[103] Other countries with increasing proportions of female HIV cases are Antigua and Barbuda, Saint Kitts and Nevis, and Trinidad and Tobago.

Regional and cultural differences also contribute to the feminization of the epidemic, with unequal socioeconomic development and high population mobility further promoting the spread of HIV in the Caribbean. HIV prevalence has reached rates of 1% or higher in the general population in at least 12 Caribbean and Central American countries: the Bahamas, Barbados, Belize, the Dominican Republic, Guatemala, Guyana, Haiti, Honduras, Jamaica, Panama, Suriname, and Trinidad and Tobago.[104] Gender inequalities stemming from cultural and traditional practices also play an important role in such feminization. Subtle teachings encourage women to act as inferiors, promoting submissive behaviors in women, who out of anger will impose (men and women) the same ideas and teachings in the next generation. This not only prevents women from demanding their sexual rights but also prevents men from sharing their true feelings about their sexual desires since they must behave as "machos." Machismo also compromises the ability of homosexual and bisexual individuals to declare their sexual preference, because of fear of stigma and rejection by society. Societal pressure on young people to get married and have children leads many MSM to lead double lives. Such covert

practices have promoted high-risk behaviors among MSM and in this context homophobia also has an indirect role in increasing HIV vulnerability among women. In the Dominican Republic for example, Padilla (2007) reported that men who are married sometimes engage in SW with other men. In such cases, wives are unaware of their husband's prostitution and/or homosexual behavior, which increases the wives' risk of acquiring HIV, given the inconsistent use of condoms by men during SW and with their female partners.[105] The disempowerment of women in the Caribbean and other Latin countries, especially those who depend economically on their spouse or partner, compromises women's ability to negotiate condom use. Some women will not request that their husband use a condom because of fear that their partner might think she is having a relationship with someone else. Special attention should be paid to the challenges and obstacles to be faced within these vulnerable populations in order to curb the epidemic and to prevent bridging of the epidemic to the general population.[80,106]

Features of the HIV Epidemic in the Caribbean

The contexts under which the Caribbean HIV epidemics have evolved are based on a variety of factors. For example, one of the most obvious issues in the Caribbean region, as well as the rest of Latin America, is the unequal distribution of wealth, where a small minority of people has the majority of the resources and the rest of the population is left with few resources to share. Cultural traditions and practices are still tied to the historical presence and power of the Catholic Church (ie, its objection to condom use and needle exchange programs), the residual effects of colonization, and for some countries, a certain degree of isolation as a result. There is also the lack of educational campaigns, due to scarce resources in the region, which promotes erroneous and inconsistent knowledge of HIV/AIDS and increases stigma and discrimination against populations at most risk. Besides gender inequalities, social class inequalities play an important role in disempowering impoverished populations, especially among women and children, who lack the resources to demand their rights and escape from oppressive or abusive relationships. The absence of political leadership and lack of trust in such authorities have promoted violations of human rights and in some cases, contributed more power to drug cartels who may have control of complete cities, in their fight for routes all over the Americas. Finally, despite the risks posed by practices such as migration, SW, and human trafficking, people whose governments have failed to protect them may continue to live as modern day slaves with little to no control over their lifestyle and behaviors.

As previously mentioned, the Caribbean region is considered a bridge between North and South America. Due to its strategic geographic position, it is a transshipment region for drugs that are destined not only to the United States but to other world markets.[107] Two interacting trends that have promoted an increase in drug consumption and the development of the HIV/AIDS epidemic in the Caribbean and Latin America (including Central America) have been the increase in crack use at the end of the 1990s and an increased availability of opium derivatives such as heroin. The majority of the heroin that is transported through the Caribbean region originates in Colombia. As a consequence of its role in the transport of illicit drugs such as cocaine and heroin, local consumption markets have emerged along these Caribbean routes, a situation that has been observed in other regions such as South-East Asia,[11] Africa,[108] and northern Mexico.[10]

In the Caribbean, the HIV/AIDS epidemic has evolved from the most vulnerable populations, such as MSM, IDUs, CSWs, and prisoners, to a transmission pattern driven by heterosexual contact, affecting mainly the younger populations and women in particular. As a result, some epidemics are becoming increasingly generalized (ie, affecting the general population beyond core risk groups).[3,28] The main exception is Cuba, where the epidemic has remained concentrated among MSM. Injection drug use plays a minor role in the HIV epidemics in the Caribbean region, with the exception of Puerto Rico where the largest group of heroin users is concentrated and where high-quality heroin is found at low prices. It is estimated that in Puerto Rico, there are more than 10 000 IDUs, followed in second place by Cuba with 5000 to 10 000 IDUs and in third place by the Dominican Republic with less than 5000 IDUs.[2,109-111] Information about injection drug use in the rest of the Caribbean countries is not known or has been underreported. Only anecdotal information has been available from the IHRA in regard to an increased consumption of heroin injection among upper classes in Jamaica and Trinidad and Tobago.[111]

In the Paragraphs Below, We Discuss the Characteristics of the HIV Epidemic of Each Country in the Caribbean

Puerto Rico. Puerto Rico has one of the most active economies in the Caribbean region. As a commonwealth member of the United States, it enjoys duty-free access to the United States and other tax incentives and has had extensive investment by US firms since the 1950s. The main sources of income are dairy production and other livestock products, as well as tourism which has been a traditional and important source of income.[112] As of 2009, Puerto Rico has an estimated population of 3 971 020, with white (mostly Spanish origin) accounting for 76.2%, black 6.9%, Asian 0.3%, Amerindian 0.2%, mixed 4.4%, and Other 12%.[112] The population living below poverty level is 44.6%.[113]. In 2002, more than half of all HIV infections were linked with injecting drug use, and approximately one quarter were due to heterosexual contact.[114] In 1981, 4639 (66%) of all AIDS cases reported the primary mode of transmission was injecting drug use, followed by 8% attributed to heterosexual contact with an IDU. The proportion of AIDS cases attributed to IDU declined from 70% before 1988 to 59% in 1991, and the proportion of cases[115] attributed to heterosexual transmission increased from 5% to 18%. From 2000 to 2004, HIV prevalence among people who injected drugs was more than 50.2% and among people having

unprotected heterosexual contact was 24.3%. These were the 2 most prevalent transmission modes,[111,116] followed by MSM with 16.6%. Between 1990 and 2002, there were 28 701 accumulated AIDS cases reported.[116] Mortality rates due to AIDS decreased 64%, after being among the top 10 mortality causes for most of the 1990s, but remained higher among men with 76.4% of the cases reported. During the same period, most cases (43.4%) were diagnosed among persons 30 to 39 years of age, with equal distribution among men and women.[111]

In 1996, of 1332 IDUs tested[117] in a 1996 survey in San Juan, Puerto Rico, HIV prevalence was 28.8%. In a study of 412 noninjecting heroin users in Puerto Rico, females were at higher HIV risk than males. Some of the reasons included greater vulnerability to violence and severe symptomatology of posttraumatic stress disorder as well as biological factors that make women more vulnerable to contracting infectious diseases.[118] High levels of depression have also been found to be associated with injection drug use and having unprotected intercourse among FSWs in Puerto Rico.[119]

Given the proximity of Puerto Rico to New York City and the influence both have had on each others' cultures and certainly on drug trends, various studies among IDUs from Puerto Rico and New York City have been conducted. In Bayamon, Puerto Rico, and East Harlem, New York City, factors that promote participation in HIV risk behaviors include influence of peer norms on sharing of injection paraphernalia such as indirect sharing of cookers, cotton, rinse water, and back/front loading (ie, 2 modalities of syringe-mediated drug sharing). Pooling money to buy drugs, use of shooting galleries, and syringe sharing were also associated with indirect sharing in both locations.[30] In Puerto Rico, programs to reduce high-risk sex behaviors among IDUs and crack smokers are a continuing challenge for HIV prevention.[120] High-risk behaviors for IDUs in Puerto Rico include early initiation of injection drug use,[29,121] and for Puerto Rican women drug users, in particular, low education, unemployment, and alcohol use.[119]

Although only few studies on HCV related to injection drug use have been conducted in Puerto Rico, reports of HCV incidence have been high. In a study with 400 injection drug users living in San Juan's metropolitan area, HCV prevalence was 89%. Hepatitis C virus infection was found to be associated with long-term injection of illicit drugs, injecting in a shooting gallery, tattooing in prison, and self-reported STIs.[122] Lifetime cocaine and heroin use, and a history of imprisonment also have been found to be key risk factors in an earlier study.[123] Hepatitis C virus in Puerto Rico is an emerging public health concern and requires further investigation for prevention and treatment planning.[123,124]

In addition to having implemented NSPs and OSTs as mentioned above, it is important to mention that Puerto Rico has taken the lead in the Caribbean in implementing behavioral interventions that have proven successful in other settings, using motivational interviewing strategies to encourage IDUs to seek treatment and reduce drug use as well as high-risk HIV-related behaviors.[125] Despite the close ties to the US mainland as well as access to the latest medical technology, treatment and medication for HIV/AIDS and the existence of prevention programs such as NSPs and OSTs are still scarce. Moreover, IDUs in Puerto Rico continue to face prejudice and discrimination and are often denied health services.[126,127]

Dominican Republic. The Island shared by the Dominican Republic (conquered by Spain) and Haiti (conquered by France) was discovered in 1492 by Columbus. After several attempts to achieve independence, it was not until 1844 (after 22 years under Haitian control) that the Dominican Republic gained its independence.[128] During the 1990s, the Dominican Republic experienced economic growth because of an increase in free zones (ie, special zones that offer tax reprieves to promote foreign investment) and tourism. However, urban poverty grew from 47.9% in 1992 to 66.5% in 1999, due mainly to the lack of investment in education, health, and social welfare.[86] It is not surprising then that this country has high levels of inequity in income distribution, just like the majority of the Caribbean countries.[129] The population size was estimated at 9 650 054 as of 2009, with an ethnic background composition of 73% mixed, 16% white, and 11% black. The poorest half of the population receives less than one fifth of Gross National Product (GNP), while the richest 10% receives nearly 40% of the national income.[128]

Heterosexual intercourse is reported to be the primary form of transmission for HIV, accounting for 81% of infections in the 15- to 44-year-old age group for both sexes. Among adults, the male to female ratio[130] in 2004 was 8:1. Although prevalence by sex was higher for men than for women, in the poorest neighborhoods the opposite occurs, with women having a higher prevalence than men. High HIV prevalence is believed to be linked to tourism, the existence of free zones, a high migration rate, port establishments, and poverty.[86]

According to PAHO, there were approximately 88 000 HIV-infected people living in the Dominican Republic in 2003. In 2002, the second leading cause of death was due to communicable diseases, mainly AIDS and tuberculosis (21.6%). Among women 15- to 49-year old, the leading cause of death was due to AIDS (18.3%); for men in the same age group, AIDS ranked third. In the group of 15- to 29-year-olds, HIV seroprevalence was higher among women than men. Also in 2002, HIV prevalence for the country was 1%; but for the poorest neighborhoods[86] of the country, the prevalence was 5%. Most HIV infections have been acquired sexually.[131]

In a recent research study in the Dominican Republic among 71 drug users, more than 30% were crack cocaine users, 11% used heroin, and 45% reported ever injecting illicit drugs.[132] Populations of IDUs in the Dominican Republic and Puerto Rico inject more frequently and have greater injection-related risk behavior than similar populations in the United States.[133] Structural interventions have been carried out targeting FSWs, including stigma reduction initiatives, policy changes to include protection of CSWs (implemented in the city of Puerto Plata), and interventions at the community level aiming to improve skills for risk communication, social support, and collective responsibility. The combination of policy changes and

increased community solidarity has been associated with higher levels of protective behavior and pronounced reductions in STI prevalence over time, compared to interventions without the policy change component.[75]

Although there are no NSP or OST harm reduction programs in the Dominican Republic, a substantial number of drug users seek treatment in the Dominican Republic for drug rehabilitation.[111] During 2003 to 2005, the Dominican Republic developed health promotion policies which included policies on AIDS and on the control of drugs and controlled substances.[86]

Antigua and Barbuda, West Indies. Antigua, Barbuda, and the uninhabited island of Redonda became independent from Great Britain in 1981. The population in this region lives in 6 parishes: Saint John (capital), Saint George, Saint Peter, Saint Phillip, Saint Paul, and Saint Mary. The economy depends on tourism, accounting for nearly 60% of gross domestic product (GDP) and 40% of investment,[134] making it one of the main sources of employment. The increase in cruise ship passenger arrivals has stimulated tourist-related activities (including formal tourism sector—entertainment and hospitality, as well as informal SW) and has contributed to a minor increase in economic growth.[84] The estimated population in Antigua and Barbuda is 85 632 as of 2009 with an ethnic composition of 91% black, 4.4% mixed, 1.7% white, and 2.9% Other.[134]

Although the epidemic initial started in the homosexual population, today the epidemic is largely driven by heterosexual contact. Determinants of the epidemic in Antigua and Barbuda include sex tourism, a small but growing prostitution scene, and an overall low level of condom use.[135] For the period of 2000 to 2002, the leading cause of death among 20- to 59-year-olds was AIDS, with 9.8% accounting for all the deaths in this group. During the same period, women had the highest HIV prevalence in the group of 25- to 29-year-olds.

For the period of 2001 to 2005, 55.1% of all the new AIDS cases in all age groups were male and 44.9% were female. Initiatives to control the epidemic during 2003 to 2005 have included a social marketing program on condoms, school-based AIDS education for youth, programs to ensure safe injections in health care settings, programs for men who have sex with men, CD4 count testing every 3 months, and public education to address the issues of stigma and discrimination.[84]

In Antigua, a study comparing 50 Caribbean clients and 100 non-Caribbean clients at a private addiction center found both Caribbean and non-Caribbean clients to be equally likely to be polydrug users as well as to use alcohol as their primary drug. Thirty percent of Caribbean clients used cocaine (30% versus 11%) and marijuana (12% versus 0%) compared to non-Caribbean clients. Non-Caribbean clients were more likely to use heroin (30% versus 6%).[136] No prevalence data on IDUs are available for the country.[57,137]

Bermuda. Bermuda is the oldest self-governing British overseas territory. The territory has 9 parishes: Sandys, Southampton, Warwick, Paget, Pembroke, Devonshire, Hamilton, Saint George's, and Smith's. Pembroke Bermuda has one of the highest GDP per capita in the world, estimated in 2004 to be above US$ 65 500. The economy is primarily based on international business and tourism and has presented steady growth in recent years.[85] The estimated population size as of 2009 is 67 837 people. In 2000, 54.8% of the population was black or mixed black, and 34.1% was white, 4.3% Other and 0.4% unspecified.[138] Black Bermudian households are overrepresented among the low-income households.[85]

From 1982 to 1986, injection drug use was the most commonly reported HIV transmission category, accounting for 74% of all HIV cases. Although injection drug use remained one of the major modes of HIV transmission until the 1990s, sexual contact subsequently has become the most prominent form of transmission, followed by injection drug use. According to PAHO, 62% of overall cases are due to sexual contact, 31% from injection drug use, and 7% from other routes.[85] The age group of those 50 years old and older represent 12% of all new HIV infections, in which 80% of the cases are among people who identify as black and only 12% among those who identify as white.[85] During 2001 to 2002, HIV/AIDS was among the 2 leading causes of death for males and females aged 20 to 59 years old. From 1989 to 2002, HIV/AIDS incidence declined; and from 2004 to 2005, the number of new cases reported annually remained at 11 cases per year. Between 1987 and 2005, 305 persons tested positive for HIV infection. The group that has been most affected are men of age 25 to 44 years. By the end of 2005, males accounted for 75% of all cases, with a male–female ratio[85] of 3:1.

In relation to substance abuse during 2002 to 2005, reports from Bermuda's police services and the Epidemiology and Surveillance Unit of the Ministry of Health and Family Services showed that 22 deaths were due to drug or alcohol overdose. In 2005, a health and behavior survey conducted with adults who consumed alcohol found that 67% consumed 1 or more drinks in the last month, and on drinking days, 77% of alcohol consumers drank 3 or more drinks at 1 time.[85]

Barbados. Barbados was first settled by the British in 1627. Through most of the 20th century, its economy was based on sugar (which relied on slave work until 1834, when slavery was abolished), as well as rum and molasses production.[139] In 2003, Barbados' economy recovered from the global slowdown that had affected the world economy in 2001. This improvement in the economy was reflected in an increase in tourism (up 6.9%) as well as in the agriculture, construction, and retail services. In 2002, approximately 38% of the poor lived in the largest urban parish of St. Michael and 20% lived in rural parishes. As of 2009, the estimated population was 284 589 which is mainly composed of black with 90%, followed by 6% Asian and mixed, and 4% white.[139] In 2005, out of a population estimate of 270 000 people, approximately 35 000 people were living below the poverty line.[83]

The population of Barbados is considered at high risk of HIV because of the context of increasing violence and illegal drug use coupled with increasing migration and free movement of labor policies. Both MSM and CSWs are 2 of the

most affected populations.[140] Information available up to March 2005 shows that there were 34 new HIV cases, compared with the 60 reported for the same period in 2004. The number[83] of cases of AIDS reported declined for both males and females in 2005.

A retrospective study of HIV-infected patients between April 2004 and March 2006 found that 58.8% of the 352 participating patients were males, 14.2% were MSM, 12.6% had smoked marijuana and/or cocaine, and none of them were IDUs.[141] Common drugs used in Barbados include marijuana, alcohol, and cocaine to a lesser extent. As in Puerto Rico, to some degree injection drug use has been influential in the HIV epidemic in Barbados,[127] but updated information on such populations is virtually absent for this country and no reports on injection drugs are available.[57]

Jamaica. Slavery in Jamaica was abolished in 1834, at which time many slaves became small farmers. In 1958, Jamaica joined other British Caribbean colonies and formed the Federation of the West Indies. In 1962, Jamaica left the Federation gaining full independence. In the 1970s, the country experienced a surge in violence due to deteriorating economic conditions, with gangs affiliating with major political parties and creating a network of organized crime involved in international drug smuggling and money laundering. The rampant violence and drug trafficking further aggravated poverty levels.[142] As of 2009, the estimated population in the country was 2 825 928, with an ethnic composition of 91.2% black, 6.2% mixed and 2.6% Other or unknown.[142] In 2002, 19.7% of the population were living under the poverty level.[143]

Jamaica is the largest English-speaking island in the Caribbean Sea. Jamaica's geographic proximity to both North and Central America places the island in a strategic position for exploitation by international drug markets and underground economic activity in the trade of criminalized commodities.[87] An increase in tourism has been considered a driver of the local HIV epidemic.[144] There is an active prostitution scene, especially in its main urban areas, such as the Kingston Metropolitan Area, which are plagued by the criminal activity of gangs, who exploit sex workers and participate in drug trafficking and other illicit activities, such as gambling and control of workers' unions. Crack cocaine has been spreading in recent years in such settings and has been associated with increased rates of unprotected sex and multiple partnerships among both CSWs and women in general.

The primary modes of HIV transmission are heterosexual sex (62%-68%), mother-to-child transmission (8%), and homosexual or bisexual transmission (6%). Less than 2% of cases in total are attributed to injecting drug use.[144,145] Jamaica has one of the highest numbers of AIDS cases and deaths in the Caribbean and a significant number of HIV-infected individuals have a concomitant STI.[100] The HIV/AIDS epidemic poses a serious threat to the productive sector, since the majority of HIV/AIDS cases occur among the working and reproductive age group. The HIV epidemic in Jamaica is generalized, with an adult prevalence rate of 1.5% and a male-to-female ratio of 1.3:1. HIV/AIDS is among the 3 leading causes of death, with a 1.5% prevalence rate among adults and is the second leading cause of death among the age group of 30 to 34 years for both men and women. According to PAHO (2007), the rate of HIV infection is increasing more steadily among women than among men in recent years. The principal risk factors fueling the epidemic are low levels of consistent condom use in the context of multiple sex partnerships, the relatively high prevalence of other STIs, bridging between the general population and male and female SWs and bisexuals, and crack/cocaine use.[87,146]

During 1982 to 2005, of 7542 people living with HIV/AIDS (PLWHA), reported lifetime use of crack and cocaine was 8.7%, with 1.1% reporting injection drug use. HIV seroprevalence[147] among substance abusers in 2001 was reported at 5.7%. Local estimates document that 19% of the reported cases have been among FSWs, with an additional 7% associated with crack cocaine among women not working in the sex industry.[148] Programs to prevent drug abuse by the National Council on Drug abuse target youth with both high and low literacy levels, parents, the community at large, the workplace, and service clubs. Activities include research on substance abuse, training and health promotion, social mobilization, and advocacy.[87]

Haiti. Haiti was the first nation to end slavery and the first country to gain independence (1804) in the Caribbean and the adjacent region of Latin America. Ironically, the vast majority of Haitians continue to live under precarious conditions, in poverty and marginalization. Haiti is considered the poorest country in the Americas, and not surprisingly the country has a drastically unequal income distribution, with 4% of the population having 66% of the nation's wealth and 80% of the population living under the poverty line.[57,149] Based on 2009 estimates, the number of people in Haiti is 9 035 536, with an ethnic composition of 95% black, and 5% Mulatto and white.[150] An estimated 80% of the population in 2003 lived under the poverty line.[143]

The Haitian epidemic is generalized, with the reproductive age group for both men and women being the most affected. The most common mode of transmission is through heterosexual contact.[151] Haiti has a high adult HIV prevalence, estimated at 2.2%. There were 120 000 people living[63,150] with HIV/AIDS as of 2007. Haiti faces the worst AIDS epidemic outside Africa and bears the greatest burden of HIV in the Western hemisphere.[151] HIV/AIDS is one of the top 5 leading causes of death, with no differences between the sexes.[149] In 2003, AIDS was the leading cause of death among 20- to 49-year-olds, comprising 14.5% of deaths. Estimates for HIV prevalence among women and men of ages 15 to 59 years are 2.2% to 2.3% and 2%, respectively. Among children of age 5 to 9 years, HIV/AIDS is among the 5 leading causes of death in both sexes.[149]

Haiti has a prevalent prostitution scene in its main urban areas, primarily composed of low-paid sex workers clustering in the streets of its capital, Port-au-Prince. The former international sex industry is on the verge of collapse after social and

political turmoil.[7] The very violent gangs from Cité Soleil and other slums have been involved in drug smuggling, prostitution, and other criminal activities. Relatively little is known about the interrelationship between drug trafficking and prostitution in Haiti.

In Haiti, drug rehabilitation services are offered by the Association for the Prevention of Alcoholism and other Chemical Addictions. The program follows the 12-step approach of Alcoholics Anonymous. The most prevalent types of addictions[152] treated during 2000 to 2006 were alcohol (27%), marijuana (19%), crack cocaine (30%). No injecting drug use has been reported for this country.[57] However, the devastating earthquake that occurred in Haiti in late 2009 may influence drug trafficking, drug use behaviors, and HIV transmission risks in unforeseen ways.

Cuba. From the point of its discovery and all through the Spanish colonization, great numbers of African slaves were taken to the island to work in the sugar and coffee plantations. In 1898, with the help of the United States, Cuba gained its independence from Spain but was occupied by the United States in the wake of the Spanish-American War, achieving full independence in 1902 subsequent to the adoption of a constitution modeled on that of the United States and provisions regarding US security interests. Until 1959, when the Communist revolution succeeded, Cuba had been under the control of the military and corrupt governments. In 1961, the United States began its embargo against Cuba, and in 1990 Soviet subsidies came to an end as the Soviet Union collapsed.[153] Cuba's estimated population as of 2009 is 11 451 652. According to information from 2002, 65.1% of the population are white, 24.8% are Mulatto and Mestizo, and 10.1% are black.[153] Information about the percentage of the population living under poverty line is not available.

Despite the political, social, and economic problems all through the history of Cuba, it is impossible to deny Cuba's successful development and implementation of targeted strategies to prevent HIV/AIDS that have been the result of civic cooperation from various sectors of the government.[154] This was not always the case, since measures initially taken by the Cuban government were controversial and questioned by the international community. The 1982 decree of Law 54 which was a prevention and control measure for infectious diseases, allowed for the isolation of individuals and suspension or limitation of individuals' activities, if they were suspected of having a communicable disease that posed risk to the general population. Between 1986, when the first case of HIV appeared in Cuba, and 1994, people diagnosed with HIV were quarantined in sanatoriums. In 1994, this law was relaxed, but those who tested positive were still isolated for a period of 8 weeks. Thereafter, HIV-positive patients could leave, but many would stay since all the services were free and they were generally well cared for.[155]

Cuba's epidemic is considered the smallest of the Caribbean. The main mode of HIV transmission is by unprotected MSM sex.[156,157] According to the Pan-American Health Organization at the end of 2005, there were 6967 reported HIV cases in the all of Cuba; 2806 had developed into AIDS.[158] The number of PLWHA[153] is approximately 6200 and the number of HIV/AIDS-related deaths is less than 100. The estimated prevalence rate in the population of 15 to 49 years age group is still under 0.1%. In the age group of 15 to 24 years, the prevalence dropped from 0.07% in 2001 to 0.05% in 2005. Of all the reported cases, 80% occurred in men.[158]

Cuba's strategy to control the epidemic and its success stems from the involvement of multiple sectors in the prevention and control strategies. Some of the areas of the government and civil society that are involved include the tourism industry, which makes sure to inform tourists about infection risk; culture, which includes Cuban television; the commercial sector; women's organizations in charge of educating Cuban women; as well as the ministry of work and social security.[154] Other key strategies taken by Cuba to control the epidemic include the involvement of groups of MSM and transvestites (men who cross-dress as women but do not espouse a female gender identity) that have organized to increase awareness on the importance of preventing HIV/STIs. They have also managed to sensitize decision makers on issues of sexual diversity. Intolerance to sexual minorities is still a great problem, especially to transvestites and transsexuals, but efforts are focused on incorporating sexually diverse people in a society where there is still a lack of knowledge and understanding on these issues.[157]

According to IHRA, there are 8255 IDUs with a 0.1% adult HIV prevalence; there are no reports on the existence of NSP or OST harm reduction programs. Cuba has the second largest group of IDUs among the Caribbean countries.[57] In a cross-sectional study with 60 HIV-positive Cuban women of age 15 to 49 years who were compared with a control group of 60 HIV-negative women, acquisition of the virus by injection drug use accounted for 3.3% of the infections in the HIV-positive group, while infection by heterosexual accounted for 96.7% of the cases.[159] The misuse of alcohol and illicit substances has been reported in the flourishing sex tourism on the island, fostered by the recent economic collapse and the introduction of a 2-tier economy, based on both Cuban pesos and US dollars. There are reports that many women left regular employment to join the dollar-driven sex industry in recent years.[160]

Saint Kitts and Nevis. Saint Kitts and Nevis gained their political independence from Great Britain in 1983. The economy is mainly based on services and secondary activities such as manufacturing and construction.[161] The population estimate is 40 131 of which the majority is black, with some British, Portuguese, and Lebanese.[162]

The main mode of HIV/AIDS transmission cannot be classified in major exposure categories, given the relatively low numbers of cases.[163] From 1984 to the end of 2004, there were 261 HIV-positive tests reported. The number of reported HIV-positive cases varied from 9 in 1991, to 34 in 1996. From 1998 to 2005, the number of females testing positive increased, so that by 2005 the male-to-female ratio of persons testing positive was 1:1.6, compared to 1.5:1 in 1998. Among females, the

group of 25- to 44-year-olds is the most affected by the epidemic. For males, HIV infection has concentrated among the 15- to 24-year-olds and 45 and older age groups.[161]

A survey conducted in 1998 to 1999 with adolescents of age 16 to 19 years found that of the 341 students 4% had used cocaine, tobacco, marijuana, heroin, or cigarettes, and 46% of them drank alcoholic beverages at least once.[161] No injecting drug use was reported in Saint Kitts and Nevis.[57]

Bahamas. The Commonwealth of the Bahamas gained independence from the United Kingdom in 1973. Native-born Bahamians represent 89% of the population. The country is characterized by extreme regional disparities in population distribution.[82] The estimated population as of 2009 was 309 156, composed of 85% black, 12% white, and 3% Asian and Hispanic.[164] In 2004, the percentage[143] of the population living under the poverty line was 9.3%.

Heterosexual contact is the main mode of HIV transmission,[21] with a 3% prevalence rate among 15- to 49-year-olds (2007).[165] HIV/AIDS was the leading cause of mortality in 200 for children of age 5 to 9 and 10 to 19, accounting for 28.6% of all deaths. Among adolescents of age 14 to 24 years, there were 3 HIV/AIDS cases registered during 1999 to 2003. For the group of adults 20 to 64 years of age the leading cause of death for both men and women was HIV/AIDS, with 33.7% and 33%, respectively, during the period of 1999 to 2000. The cumulative HIV infection cases up to December 2005 were 10 479; incidence cases for HIV declined by 56.1% from 659 in 1994 to 289 in 2003. The greatest change was seen in the group of 20- to 49-year-olds.[82] According to estimates available for 2007, which are the most recent, there were about 6200 PLWHA residing in the Bahamas.[164]

A drug survey conducted among secondary school students in 2002 found alcohol to be the most popular substance in grades 10 and 12. Tobacco use was more popular among 10th grade students. On the other hand, the popularity of marijuana increased with grade, becoming more popular among 12th graders.[82] Crack use in the Bahamas has been found to be associated with HIV infection among pregnant women[166] and among people seeking treatment of STIs.[12] No injection drug use has been reported in the Bahamas,[57] including for HIV transmission; however, this is believed to be underreported.[82]

Saint Vincent and the Grenadines. Saint Vincent and the Grenadines gained political independence from Great Britain in 1979. In 1996, 37.5% of the population was poor, and 25.7% were classified as indigent poor.[167] In 2009, the estimated population was 104 574, with 66% black, 19% mixed, 6% East Indian, 4% European, 2% Carib-Amerindian, and 3% Other.[168]

In 2002, there were 60 cases of HIV infection, 81 in 2003 and 108 in 2004, showing an increase in incidence from 2002 to 2004. Males accounted for 59% of the cases.[167] Results from a survey conducted by the PAHO in 2001 with adolescents of age 10 to 14 years found the most common drugs used weekly or daily were marijuana, followed by inhalants, cigarettes, and alcohol.[167] No injection drug use has been reported for this country. No OSTs or NSPs are available.[57]

Saint Lucia and Trinidad and Tobago. Saint Lucia attained political independence from the United Kingdom in 1979. Tourism is an important contributor to the economy,[169] accounting for 13.6% of real GDP in 2005. Saint Lucia has approximately 160 267 habitants (2009).[170] The composition of the population is 83% of African descent, 12% of mixed ancestry, followed by 3% East Indian descent and 1% white. According to the PAHO, 25.1% of the population was considered to be poor, with 29.6% living in rural areas and 17.4% living in urban areas. Poverty[169] was slightly higher among males (25.5%) than among females (24.7%).

The twin-island nation of Trinidad and Tobago gained independence in 1962 and became a republic within the Commonwealth of Nations in 1976. At the national level, 21% of households in Trinidad and 26% in Tobago were designated as poor. Population groups characterized as poor were those who were uneducated or undereducated, the unemployed or underemployed, unskilled or semiskilled workers, and female-headed households and single-parent households with an average monthly income ranging from US$95 to US$160 (at the current exchange of TT$6.27 = US$1). The population is ethnically diverse, with 41% of East Indian descent, 40% of African, and 19% of other groups, including Chinese, European, and Middle Eastern.[171]

Its geographical location, access to global markets through increased tourism, strategic maritime industries, and increased local production of cannabis have made Trinidad and Tobago a transshipment point for the international drug trade.[172] Although Trinidad and Tobago's economy is not tourist dependent, its HIV/AIDS epidemic has increased in the region as a consequence of the increase in tourism.[99]

Heterosexual transmission is the primary mode of HIV infection. As in other Caribbean countries, there has been an increase in HIV cases among women and those 15 to 24 years of age.[99] Saint Lucia and Trinidad and Tobago[63] have experienced one of the most serious HIV epidemics in this region. HIV prevalence in Trinidad and Tobago is 2.6%.

In Saint Lucia since the start of the epidemic there have been 3 cases among the 10- to14-year-olds and 19 among the 15- to 19-year-olds. From 2002 to 2004, AIDS accounted for 5% of deaths among the 20- to 59-years-old.[169] The Ministry of Health in Saint Lucia opened an HIV/STI clinic for street-involved people who use crack, which is the only targeted program to increase testing for and treatment of HIV, STIs, and HBV infection for those who use drugs in the region.[111] The homeless are at high risk due to the synergy of mobility, psychiatric disorders, and substance use, particularly crack. A study of 74 homeless in Saint Lucia and Trinidad found that 95% of the sample reported crack cocaine use within the previous 30 days, 25% of the sample reported being HIV positive and approximately 40% had a history of trading sex for crack or money.[173] In Castries, St Lucia, 2007, a comparison study of the prevalence of HIV and other STIs among crack cocaine

users and noncrack cocaine users found drug users to be more likely to report unprotected sex than nondrug users. This study also reported that female drug users were more likely to exchange sex for money or crack compared to nondrug users.[173] Crack use has also been found to be associated with HIV/AIDS in male drug users seeking treatment of STIs in Trinidad.[174]

Although AIDS cases have decreased by 34% in Trinidad and Tobago (most probably due to availability of antiretroviral [ARV] drugs), HIV infections have increased by 37% since the beginning of the epidemic in 1983. The majority of new infections are occurring among females, particularly in those of age15 to 49 years. Incidence has increased from 67% in 2000 to 70% in 2004. The government's HIV/AIDS National Strategic Plan for 2004 to 2008 targeted vulnerable populations, promoting safer sex attitudes, behaviors, and practices. These included young women, youth, MSM, SWs, the prison population, and substance users. During 2000 to 2002, the highest incidence of HIV was in females of 15 to 24 years, males of 24 to 34 years. The following year was marked by a shift toward feminization of new HIV cases in both age groups.[171] No injecting drug use has been reported in Saint Lucia, and the situation is unknown in Trinidad and Tobago.[57]

US Virgin Islands

As in other Caribbean countries, sugarcane (based on slave work) was the main economic engine during the 18th and 19th centuries. In 1917, the United States bought the Danish part of the archipelago (originally under Danish and British control).[175] The population of the Virgin Islands is estimated to be 109 825, composed of 76.2% black, 13.1% white, 1.1% Asian, 6.1% Other, and 3.5% mixed.[175] In 2002, 28.9% of the population was living under the poverty line.[143]

Drug use, commercial SW, and migration each play a role in the spread of HIV. Heterosexual sex is the main mode of transmission, followed by MSM sexual activity. The first reported AIDS case was in 1985. By the end of 2005, there were 62 cases of HIV infection, 33 of them occurring in males and the other 29 in females.[176]

According to the 2002 National Secondary School Survey, 18.3% of students had smoked cigarettes in their lifetime, 3.9% had smoked in the prior 12 months and only 1.3% had smoked cigarettes in the month before the survey. In the same survey, 61.6% of participants reported having tried alcohol in their lifetime, 38.1% consumed it in the past year, and 21% used alcohol in the month prior to the survey. Marijuana and inhalants were the most frequently used illicit substance. The least used drugs in the survey were cocaine, crack cocaine, tranquilizers, and stimulants.[176]

A study of the interplay between substance use and HIV risk among 101 migrant FSWs found that drug users reported a significantly greater number of past-month sexual partners than alcohol-only and nondrug users. Also, illicit drug users were significantly more likely to report unprotected sexual activity, client violence, and sexually transmitted infections. In addition, illicit drug users engaged in SW were more likely to work in locations outside the US Virgin Islands and in a significantly greater number of countries.[61]

Conclusions and Recommendations

A well-functioning HIV/AIDS surveillance system is integral to tracking the local dynamics of the epidemic and for effectively planning prevention efforts. Unfortunately, such a system is missing or underdeveloped for most of the Caribbean.[63,177] Political instability, high levels of unemployment, conflicts between gangs, control over territories and poverty, together with diverse yet taboo engendering cultural and religious beliefs regarding homosexuality and condom use, plus unequal gender roles and structural disparities, all interact in complex ways hindering HIV prevention efforts.[178,179] There is an increasing need to understand how these social and structural factors shape HIV risk. Such broader perspectives call for community actions and structural changes aiming to alleviate inequality, to promote and protect human rights, and to fight stigma, homophobia and discrimination.[180] The distinct differences in regional trends in terms of modes of transmission and burden of disease must also be taken into account in helping regions, nations, and local communities design effective interventions.

The context of social and sexual culture has been an obstacle to HIV education and services in both Latin America and parts of the Caribbean (2000). HIV prevention responses have been diverse, sometimes in harmony with the needs of the most affected populations, but many times influenced by the availability of funds, preconceived assumptions, the political will of governments, and the influence of contrasting social forces (some of them elitist and opposed to any initiative targeting marginalized populations). The health of high-risk and vulnerable groups is directly related to structural factors of wealth disparities, social class, gender, sexual difference, cultural and religious beliefs, and ethnicity.[181,182] In most areas of the Caribbean, social stigma hampers the implementation of effective interventions for SWs, MSM, and drug users. Other obstacles faced are the illegal and clandestine character of drug use as well as SW, which makes IDUs and NIDUs as well as SWs hard to reach; often antidrug and anti-SW regulations fail to prevent human rights violations.[96,182]

Peer educator interventions are an underutilized option for HIV prevention efforts given this context in the Caribbean. Educational interventions that involve members of the HIV-affected community as educators using culturally sensitive materials not only focus on the most relevant problems but also address the issues at their root.[183] Harm reduction interventions, such as NSPs and OST, health promotion and HIV/STI prevention, are successful tools[184] that can be used to educate communities and to promote community involvement, development, and capacity building[185] in order to control the HIV/AIDS epidemic. Structural challenges to overcome include the issue of sustainability and continued funding of the HIV programs and interventions. In the majority of the Caribbean, there

is a need to scale-up financing, profiting both from country resources and from international support, to ensure that any gains made are reinforced and built upon and those successful projects no longer remain as isolated achievements but rather as part of a concerted and comprehensive strategy. This is part of a long-term, visionary response necessary if the epidemic is to be successfully challenged.[103]

HIV in the Caribbean as well as the rest of the world confronts us with issues that are usually considered to be taboo: sexuality, gender inequality, commercial sex, homosexuality, drug use, violence, class oppression, race, ethnicity, among many others.[97] The complex interaction and synergy of these issues pose the greatest obstacle to improved health and services, particularly for those whose lives are at greater risk. More than any other epidemic, HIV/AIDS has demonstrated the adverse consequences for the rest of society when there is a failure to embrace and provide for those most at risk. Enhanced interventions are needed to assist IDUs and NIDUs to promote safer sex practices and strategies to reduce drug and alcohol use and related harm. The interconnections between drug use, SW, social stigma, the expanding tourism industry, and the HIV epidemic urgently require attention by the public health system, economic developers, tourism industry stakeholders, and civil society, in an effort to alleviate the structural conditions[186] that contribute to vulnerability among not only drug users but also other high-risk and bridging populations.

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