



HIV and AIDS in the Americas

an epidemic
with many
faces



UNAIDS

Joint United Nations
Programme on HIV/AIDS



World Health
Organization (WHO)



Pan American Health
Organization (PAHO)

HIV and AIDS in the Americas

an epidemic
with many
faces



Pan American Health Organization
Pan American Sanitary Bureau, Regional Office of the
World Health Organization



UNAIDS

Joint United Nations Programme on HIV/AIDS

© Pan American Health Organization (English original, 2001)

ISBN 92 75 12360 8

This document is not a formal publication of the Pan American Health Organization (PAHO), and all rights are reserved by the Organization. The document may, however, be freely reviewed, abstracted, reproduced or translated, in part or in whole, provided that the source is acknowledged. This document may not be sold or use in conjunction with commercial purposes.

The views expressed in documents by named authors are solely the responsibility of those authors.

Acknowledgements

HIV and AIDS in Americas: an epidemic with many faces was

prepared and produced by Elizabeth Pisani, Paloma Cuchí

(UNAIDS/PAHO), Fernando Zacarias (PAHO), Bernhard

Schwartlander (UNAIDS), Karen Stanecki (USBC), Euclides

Castilho, Eduardo Fernandez-Zincke (PAHO), Dionne Patz

(PAHO), Stefano Lazzaris (WHO) and Txema G Calleja (UNAIDS).

This document was reviewed by the members of the Monitoring the

AIDS Pandemic (MAP) Network and the Latin American and

Caribbean Epidemiological Network for HIV/AIDS (LAC EpiNet) in

Rio de Janeiro, Brazil, November 4-5, 2000 during the *Foro 2000*,

Latin America and Caribbean STD/AIDS.

*This report would not
have been possible
without the support and
valuable contributions
of our colleagues in
national AIDS
programmes and
research institutions
around the world.*

Meeting of Monitoring the AIDS Pandemic (MAP) & Epidemiology Network for Latin America and the Caribbean (EpiNet)

The Forum 2000, 1st Forum, and 2nd Conference of Horizontal Technical Cooperation on HIV/AIDS and STI in Latin America and the Caribbean being held in Rio de Janeiro, Brazil, 6-11 of November 2000. Forum 2000 brings together researchers, scientists, health professionals, governmental and non-governmental organizations, international organizations, people living with HIV and AIDS, students and others involved in the issue to one of the major discussion forums on HIV/AIDS and STI in Latin America and the Caribbean.

Jointly with this meeting, UNAIDS, PAHO/WHO and MAP organized the Meeting of the Networks of Monitoring the AIDS Pandemic (MAP) and of the Epidemiology Network for HIV/AIDS in Latin America and the Caribbean (EpiNet). The meeting took place from 4 to 5 November 2000. The purpose of the meeting was to discuss and present the developments on second generation surveillance in the Region, discuss the epidemiological situation in the Region that resulted in this report for the Forum 2000. The specific objectives were:

- * Update and future perspectives on second generation worldwide and in Latin America and the Caribbean, including the projects of implementation of surveillance of second generation in Mexico and the Dominican Republic;
- * Hold the regional meeting of MAP and prepare the report on the epidemiological situation for Latin America and the Caribbean;
- * Update on the progress of the EpiNet for Latin America and the Caribbean;
- * Discuss the models for the estimates of HIV/AIDS in Latin America and the Caribbean;
- * Review the methodological progress in the behavioral monitoring;
- * Update on the new methodologies of screening and the application for surveillance of HIV

This report provides information that can be used by international bodies, to briefly review the most important aspect of the history of the epidemics today, recognize the current status of and trends within this epidemic, and take immediate action to affect the course of these epidemics in the future.

Table of content

2	Introduction
2	A global perspective
4	The Caribbean small countries, big epidemic
7	Mexico HIV is driven by men
8	Central America a high tide of infection, and still rising
10	The Andean Area limited data suggest HIV is low, for now
12	Brazil treatment brings the death rate down, but new infections continue
14	The Southern Cone better understanding of risk is needed
15	North America AIDS moves to the margins
16	The other epidemics sexually transmitted infections and tuberculosis
17	Low risk, high reward successes and failures in HIV prevention
25	The forgotten populations facing up to neglect and risk
25	Men who have sex with men behavior, not identity, spreads the virus
28	Injecting HIV a continuing problem with a well-established solution
31	Young people with help, early sex can also be safe sex
34	HIV at the margins spreading along the fault-lines in society
37	Better understanding for a better response improving HIV surveillance
39	Treatment for people with HIV and AIDS more than just a dream
43	Protecting the next generation babies need not be born with HIV
45	The challenge continues
47	Bibliography
55	List of participants

Introduction

As the HIV epidemic enters its third decade, the challenges it poses to families, to societies, to governments and to science continue to grow. The more we learn about HIV and the behaviors that spread it, the more we are forced to recognize the diversity of the global pandemic. Nowhere is this more true than in the Americas, especially in Latin America and the Caribbean, where the levels, patterns of spread and responses to the epidemic are probably more varied than in any other geographical Region of the world.

This report seeks to paint a picture of that diversity. It reviews what is known about the HIV epidemic in different countries and sub-regions, and looks at information about risk behaviors, both in the general population and in particular groups whose behavior may expose them or their partners to high risk of infection. Also, gaps in our knowledge and information systems are identified, and suggestions are made for improving data collection and analysis. Finally, the report discusses some of the major challenges facing the countries of the Region as they confront AIDS. These include the increasing demand for treatment as new therapies are developed, and the need to maintain prevention efforts.

This document is intended principally as an epidemiological review. It does not attempt to describe the wide variety of responses to the epidemic that have been implemented by communities and by countries. Many of these responses are described in documents available from national AIDS programs, contacts for which are given at the end of this document. Others are documented in the UNAIDS Best Practice Collection, available on the internet. Although some information is given about the United States and Canada, the bulk of the report focuses on the Latin American and Caribbean countries of the Region.

A global perspective

In global terms, the HIV epidemic in the Americas is relatively well contained. According to UNAIDS/WHO/PAHO estimates of infections in adults aged 15 to 49, around one person in 200 in North America and Latin America are infected with HIV at the turn of the century—an HIV prevalence rate of around 0.56 percent. Nearly four times that proportion is estimated to be infected in the Caribbean, where 1.96 percent of adults in the most sexually active age bracket are thought to be living with HIV. While the Caribbean subregion is the second worst affected in the world, it still lags far behind sub-Saharan Africa, where one adult in 12 is infected with the virus that leads to AIDS.

In the United States and Canada widespread access to antiretroviral therapy has dramatically decreased AIDS mortality but new infections have not decreased appreciably and thus HIV prevalence has increased with approximately 900,000 persons now living with HIV.

Figure 1. Estimated number of people living with HIV and AIDS in different regions around the world at the end of 1999

Region	Epidemic started	Adults and children living with HIV/AIDS	Adults and children newly infected with HIV	Adults and prevalence rate (*)	% of HIV-positive adults who are women	Main mode(s) of transmission (#) for adults living with HIV/AIDS
Sub-Saharan Africa	late '70s - early '80s	25.3 million	3.8 million	8.8%	55%	Heterosexual
North Africa & Middle East	late '80s	400 000	80 000	0.2%	40%	Heterosexual, IDU
South & South-East Asia	late '80s	5.8 million	780 000	0.56%	35%	Heterosexual, IDU
East Asia & Pacific	late '80s	640 000	130 000	0.07%	13%	IDU, heterosexual, MSM
Latin America	late '70s - early '80s	1.4 million	150 000	0.5%	25%	MSM, IDU, heterosexual
Caribbean	late '70s - early '80s	390 000	60 000	2.3%	35%	Heterosexual, MSM
Eastern Europe & Central Asia	early '90s	700 000	250 000	0.35%	25%	IDU
Western Europe	late '70s - early '80s	540 000	30 000	0.24%	25%	MSM, IDU, heterosexual
North America	late '70s - early '80s	920 000	45 000	0.6%	20%	MSM, IDU, heterosexual
Australia & New Zealand	late '70s - early '80s	15 000	500	0.13%	10%	MSM
TOTAL		36.1 million	5.3 million	1.1%	47%	

* The proportion of adults (15 to 49 years of age) living with HIV/AIDS in 2000, using 2000 population numbers.

Heterosexual (heterosexual transmission)

IDU (transmission through injecting drug use)

MSM (sexual transmission among men who have sex with men)

Source: UNAIDS/WHO

The Latin American and Caribbean Region, with eight percent of the world's population, is home to 4.9 percent of the people living with HIV at the beginning of the 21st century. Around 1.3 million people in Latin America and another 360,000 in the Caribbean are now living with HIV. Many of these men, women and children will die over the next decade, joining the 557,000 people that have already died of AIDS in the Region since the epidemic began two decades ago. In 1999 there were over twice as many new HIV infections as there were AIDS deaths. Indeed, some 567 people were infected with HIV in Latin America and the Caribbean every day of 1999—an ominous record with which to enter a new century.

Due to the wide diversity of HIV epidemics these regional figures mask huge differences in epidemic levels and in patterns of transmission. The next section gives more information about HIV prevalence and AIDS in different sub-regions of the Americas.

The Caribbean small countries, big epidemic

HIV is severely affecting the populations of several Caribbean countries. Although small geographically, the Caribbean is composed of over 6 million people. Some countries are worse affected by the epidemic than any other country in the world outside of sub-Saharan Africa. In some parts of Haiti and the Dominican Republic, for example, HIV testing in pregnant women attending antenatal clinics suggests that more than one in 12 adults aged between 15 and 49 are living with HIV. At the other end of the spectrum lie St. Lucia, the Cayman Islands and the British Virgin Islands, where less than one pregnant woman in 500 have tested positive for HIV in recent surveillance studies.

Haiti is the most-affected country in the Region. In some areas of the country as many as 13 percent of pregnant women tested anonymously for HIV in 1996 were found to be HIV positive. Overall, the country estimates that around 10 percent of adults in urban areas and four percent in rural areas are infected with HIV. The vast majority were infected during unprotected sex between women and men. Many of those infected early on in the epidemic have already died. In Haiti, as in most heterosexual epidemics, both HIV infection and deaths are concentrated in young adults—women and men with children to raise and aging parents to support. The country estimated that 5.4 percent of adults are currently infected with HIV, and that 190,000 Haitian children had been orphaned by the end of 1998 because of AIDS.

Guyana has also been hit harshly by HIV. In 1996, 7.1 percent of pregnant women tested for HIV were found to be infected. Pregnant women are generally thought to represent members of the sexually active population with no especially high risk of contracting HIV, but the rate among pregnant women in 1996 was actually slightly higher than the rate recorded a year earlier in female patients being treated for sexually transmitted infections (STI). People who have contracted an STI must by definition have had unprotected sex with someone who also has other partners, so they are typically thought to represent those at higher risk of HIV infection. The similarity between the rates in the “high risk” and “low

risk” groups suggests that a very high proportion of Guyana’s population may be exposed to the risk of HIV infection.

In overwhelmingly heterosexual epidemics such as Guyana’s, the people at highest risk of becoming infected with HIV are usually the people with the highest turnover of sexual partners—typically sex workers. In a recent study among female sex workers in the capital, Georgetown, an astronomical 46 percent of street and brothel-based women were found to be infected with HIV. Worryingly, over a third of the women in the study said they never used condoms with clients, while nearly three-quarters did not use condoms with regular partners. It is therefore highly likely that at least some of these sex workers will infect their husbands or regular partners with HIV, and any clients who choose to have unprotected sex are also highly likely to be exposed.

A final warning signal in Guyana comes from blood donors. Most countries in the Caribbean and the rest of the world ask potential blood donors about their sexual and injecting behavior, refusing to take donations from people whose behavior puts them at high risk of HIV infection. Prevalence rates in blood taken from donors is therefore usually rather low—below 0.5 percent in most Caribbean countries for which data are available. In Guyana, by contrast, 3.2 percent of men and women giving blood in 1997 tested positive for HIV, up from 0.9 percent in 1989 and 1.5 percent in 1993. In Turks and Caicos, too, high infection rates among blood donors—2.5 percent in 1996—suggest both high HIV prevalence in the population and that pre-screening policies for blood donors have not been successful.

In several areas of the Caribbean, there is a much more marked difference between high and low risk populations. Just one percent of 2,041 pregnant women tested for HIV in Trinidad and Tobago between 1995 and 1996 were living with the virus, for example, one sixth of the level recorded among 479 STI clinic attenders in San Fernando (Trinidad) in 1996.

Jamaica reported HIV prevalence of 1.5 percent among 1,231 pregnant women tested in 1998, up from 0.98 a year earlier. Meanwhile among STI clinic attenders, HIV prevalence was 7.1 percent in 1998, versus 6.4 percent a year earlier. A 1995 survey among female sex workers in the country registered HIV prevalence at 11 percent in the island as a whole, and at more than twice that rate in the tourist epicenter of St James.

Infection among STI patients in St Vincent, at two percent, was also four times higher than in pregnant women when surveillance was last conducted in 1995. It is interesting to note that even at these relatively low levels of HIV prevalence, the virus may be putting a strain on health services. It is reported, for example, that 30 percent of hospital admissions in St Vincent are HIV related.

In the Bahamas, HIV prevalence among STI patients countrywide was 7.2 percent in 1995. This was exactly double the HIV prevalence found in pregnant women in the same year. It should be noted that, unlike most screening of pregnant women where blood samples are taken anonymously and results cannot be linked to the individual, results from pregnant

women in the Bahamas come from 3,503 women who chose to be tested after counseling. Barbados, which operates a similar system, recorded HIV prevalence of one percent in 1996.

Probably the best data on HIV infection in the Caribbean comes from the Dominican Republic, which has conducted systematic HIV surveillance in pregnant women, STI patients and sex workers every year since 1991. While there is some fluctuation in rates among the higher risk groups—probably linked to differences in the individual who come to the clinics where testing takes place, rates among new mothers show a slow upwards trend, doubling in the six years for which surveillance results are available.

While there are some variations in prevalence throughout the country, the national average of HIV prevalence among pregnant women in 1997 was 1.7 percent. This average was over five times higher than the prevalence rate recorded in 1991, when sentinel surveillance began in this population. In sentinel surveillance among sex workers in 1998, an average of 5.5 percent of women across the Dominican Republic tested positive for HIV, compared to 3.3 percent in a smaller number of sites seven years earlier. In some areas of the country the HIV prevalence rate among sex workers was over 10 percent in 1998.

Cuba screens all blood donors for HIV since 1986, and since 1987, all pregnant women, people diagnosed with STIs and their partners, and those who go to health centers and request testing. From January to mid-November, 2000, 0.009 percent of 519,586 blood donors, 0.005 percent among 172,310 pregnant women, 0.033 percent among 146,062 STI patients and their sexual contacts¹, and 0.09 percent among 67,558 that requested testing at health centers were HIV positive.

While most HIV in the Caribbean subregion spreads during sex between women and men, other modes of transmission are also recorded. HIV prevalence is known to be very high in sub-populations of men who have sex with men. In Puerto Rico, many people are infected with HIV because they share needles or syringes while injecting drugs. Over half of all the cases of AIDS reported since the beginning of the epidemic in Puerto Rico have been in injecting drug users, although the proportion seems to be diminishing over time.

1 Refers to syphilis and blennorrhagia cases.

Mexico HIV is driven by men

Since HIV first surfaced in Mexico, it has been driven largely by unprotected sex between men. Studies among men who have sex with other men have shown that some 14.2 percent are infected with HIV. This compares with very low HIV prevalence in heterosexuals, including among commercial sex workers and STI patients. Between 1990 and 1997, HIV infection was found in just 98 of over 28,000 female sex workers tested for the virus in 18 states—a prevalence rate of 0.35 percent. Similarly low rates were found in a 1995 investigation among sex workers in Mexico City. Among 1,398 female sex workers at an STI screening and treatment clinic, HIV prevalence was just 0.14 percent. These low rates could not, however, be attributed up to high rates of condom use, since it was clear from the high prevalence of other STIs that many of these women were having unprotected sex with men at risk of infection. Some 43 percent of the women in the sample were infected with bacterial vaginosis, 15 percent with candidiasis and large numbers with STIs including syphilis, trichomoniasis and chlamydia. Efforts to increase condom use among sex workers could avoid a potential HIV epidemic as we have seen in Thailand.

Not surprisingly, HIV infection rates in pregnant women are even lower than in sex workers. As part of a program to reduce the transmission of HIV from mothers to infants, 6,300 pregnant women in Mexico were counseled and offered voluntary testing for HIV between 1996 and 1998. The overwhelming majority opted to be tested, and HIV prevalence was found to be just 0.09 percent. This suggests that fewer than one in every 1,000 women of childbearing age is infected with HIV compared with one in every seven men who have sex with other men.

Because sex between men continues to drive the Mexican HIV epidemic, the country estimated at the end of 1999 that there were around 6 infected men for every infected woman. Overall, the national AIDS program estimates that from 116,000 to 174,000 Mexicans were living with HIV at the end of the 1990s—an adult prevalence of 0.28 percent. Even though prevalence rates are comparatively low, the impact of the epidemic is marked. Among 25 to 44 years old in Mexico, AIDS is the third most common cause of death in men and the sixth most common in women.

Central America a high tide of infection, and still rising

Of all of continental Latin America, the northern countries of Central America appear to be the hardest hit by HIV. However there is considerable diversity even within the isthmus. In Honduras, Guatemala and Belize, the epidemic appears to be heterosexually driven and rising rapidly. In Costa Rica, on the other hand, HIV is concentrated among men who have sex with men, and seems to be contained at rather low levels. Many of the countries in Central America have limited data on HIV prevalence in potential high-risk groups. While Honduras concentrates over 50 percent of cases reported from this region, AIDS case reports are incomplete, reflecting trends in infection of several years ago and are hard to interpret. Data now suggests that the epidemic is increasing in all countries.

By far the best data of HIV prevalence in Central American come from Honduras, where four out of every five infections are contracted during unprotected sex between men and women. The country has recently undertaken a series of studies which give a good picture of HIV prevalence and levels of risk behavior in different population groups.

A large study undertaken in 1998 showed that 1.4 percent of over 2,700 pregnant women tested positive for HIV nationwide. Another 6 percent tested positive for hepatitis B, which shares the same routes of transmission as the virus that causes AIDS, and is therefore a good indicator of exposure to risk. In the HIV epicenter of San Pedro Sula, HIV infection among pregnant women has fluctuated between two and five percent for several years. The worst is probably yet to come in Honduras. In 1997, a weighted estimate for the country as a whole put HIV prevalence among pregnant 15 to 19 year old women at 1.5 percent. Since many people in this age group will become infected in years to come, it is almost inevitable that prevalence in the sexually active population will rise further in the future. In some ethnic sub-groups, HIV prevalence rates are already far higher than the general population figures would suggest.

HIV prevalence is also high among sex workers in Honduras. Sentinel surveillance among female sex workers in San Pedro Sula showed that one in five was infected with HIV, with less than one half that rate among sex workers in the Tegucigalpa, the nation's capital. In studies in five cities undertaken in mid 1998, and average of 10 percent of sex workers were HIV positive. Women who said they had used a condom with their most recent client were 40 percent less likely to be infected with HIV, syphilis or hepatitis B than women who had not used a condom with the most recent client.

Honduras is one of the few countries with good data on men. A study of night-watchmen undertaken in two cities in Honduras at the start of 1999 recorded HIV prevalence at 0.5 percent. A surprisingly high 11 percent of respondents said they had had anal sex with other men, but most also reported heterosexual sex. In a similar study of truck drivers in Honduras, HIV prevalence was 1.1 percent in early 1999.

Recently, Belize has started to challenge Honduras as one of the worst affected countries in the Americas. Less than one percent of pregnant women attending antenatal services in Belize District tested HIV positive in 1994. Just a year later, prevalence had risen to 2.5 percent. In one health center in the sample, at Port Loyola, HIV prevalence was recorded at 4.8 percent.

In Guatemala, infection rates vary widely by location. Recent studies, 1998-1999, recorded no HIV infections among either pregnant women or sex workers in highland cities. In the coastal city of Puerto Barrios, by contrast, 11 percent of sex workers tested HIV positive. In the capital, 4.7 percent of sex workers and 0.9 percent of pregnant women tested positive for HIV in unlinked anonymous testing of blood samples taken for syphilis screening.

Recent studies in Costa Rica recorded low prevalence rates in sexually active women, including sex workers. Unlinked anonymous testing among 800 pregnant women in the capital, San Jose, registered HIV infection rates of 0.25 percent in 1997, compared to 0.13 percent in a similar study in the coastal city of Limon. Voluntary testing of registered sex workers recorded rates similar to those in pregnant women—0.25 percent. This figure probably underestimates the true level of infection among sex workers, because women who know they are infected or think they might be may avoid testing for fear of losing clients and thus their livelihood. In Costa Rica, male to male sex contributes more to the spread of HIV than in other countries in Central America. Studies of HIV prevalence among men who have sex with other men in Costa Rica in 1993 recorded infection rates between 10 and 16 percent.

In Panama nationwide, HIV prevalence is relatively low in the general population, at least among women. However other sites, such as the Metropolitan, San Miguelito (both among the most densely populated) and the Chiriqui Regions, HIV seroprevalences as high as 0.75-0.87% have been recorded among pregnant women. Among registered sex workers screened for HIV positive test results ranged between 0.3 and 0.9 percent for the 1992-1997 period.

There is virtually no recent data available on HIV prevalence in Nicaragua. Fewer than 500 cases of HIV have been reported to the health authorities, of which 57 percent are in heterosexuals. Intravenous drug users account for another 10 percent. However without any kind of HIV surveillance, there is no way of knowing what proportion of cases have been reported, or whether completeness or reporting differs for different transmission groups.

In El Salvador, 6 percent of STI patients tested HIV positive in 1995-1996, but HIV infection among 2195 women of reproductive age in maternity hospitals in 1996 was just 0.5 percent.

The Andean Area A hidden but growing epidemic

The Andean Area seems to be relatively little affected by HIV to date, although there is no room for complacency since risk behavior is well established in several countries. Relatively comprehensive data are available for Colombia and Peru, while far less information is available for Bolivia, Ecuador or Venezuela.

Colombia estimated that 67,000 people were living with HIV in the country in 1998, but the pattern of infection seems to vary between regions. In the highlands, HIV is spread principally in unprotected sex between men, while at the coast the epidemic is largely driven by sex between men and women. These different patterns are reflected in sentinel surveillance studies among pregnant women. Just 0.1 percent of women in Bogota tested HIV positive in sentinel surveillance in 1996, compared to 0.4 percent in the coastal city of Cali. The regional health department for Colombia's Atlantic coast reports that one quarter of all registered HIV cases are among women, and that nearly one half say they are housewives with a stable partner.

A large national campaign to promote counseling and voluntary HIV testing in the mid 1990s led to 130,000 Colombians being tested for HIV. The overall seroprevalence rate was 0.24 percent. In general, people choose to be tested for HIV because they think they may have been exposed to the risk of HIV infection. This means that people at voluntary testing centers generally have a higher risk profile, and higher real HIV prevalence, than the general population.

Sentinel surveillance among men and women at STI clinics in Colombia has recently shown HIV infection at around 1.1 percent. Among female sex workers, prevalence has recently ranged between 0.2 and 1.4 percent. Results of surveillance in 1999 showed a worrying rise in infection in most of the eleven cities studied—0.1 to 0.7 percent of pregnant women in tested HIV positive, and between 0.4 and 1.7 percent of STI patients were infected.

Men's virtual monopoly on HIV infection in Colombia has long since been broken. In 1997, there were 37 reported HIV and AIDS cases among men for every one among women. By 1995, the male:female ratio had decreased to 5:1 seems to be undergoing a feminization of the epidemic. Data to 1998 show sex ratio of reported HIV cases falling from 37:1 in 1987 to 5:1 in 1995 and 3:1 in 1998.

In Peru, an estimated 44,200 people were living with HIV in 1999. In 1998, 3,990 pregnant women in the capital, Lima, were tested anonymously for HIV in sentinel surveillance. Some 0.23 percent were HIV positive. In addition, 0.23 percent of blood donors tested positive in 1998. No clear trends in infection can be detected over the three years in which sentinel surveillance in this group has been undertaken. Among sex workers, as among women in the general population, HIV prevalence was found to be higher in cities than rural areas. An ongoing study of sex workers in the country has found 1.6 percent HIV prevalence among more than 1,400 sex workers in Lima and 0.6 percent in more than 1,700 sex workers in the provinces.

AIDS case reporting suggests that men in Peru are between four and seven times more likely to be infected with HIV than women, with most of the excess infection being passed on in sex between men. However a recent serological study among men in their 20s, shows infection rates similar to those recorded among pregnant women. Of 1,274 men tested in three cities in Peru, just three were HIV positive, giving a total prevalence of 0.23 percent. The highest rate was found in the coastal city of Chiclayo, where 0.4 percent tested positive. In the Amazon city of Iquitos, 0.23 percent of tested men were infected. None of the 405 men tested in the Andean city of Cuzco were HIV positive.

In Bolivia regular sentinel surveillance among pregnant women and first year university students in two cities between 1992 and 1996 found no HIV infection. In 1997, just 0.5 percent of 980 pregnant women in Cochabamba tested positive for HIV.

Among more than 1,000 registered sex workers tested in late 1998 in Santa Cruz, 0.3 percent were HIV positive. In Bolivia, sex workers are supposed to register and to carry a health card that contains details of regular screening and, where necessary, treatment for HIV. Since women who have tested positive for HIV are not permitted to work as sex professionals, people who know their HIV status often shift to unregistered sex work. Sex professionals under the age of 18 are also not permitted to register. These women may be at higher than average risk of HIV infection because they are physiologically more susceptible than older women, they may be less able to negotiate safe sex with clients, and they may be more likely to have untreated STIs. It is therefore highly likely that the HIV rate recorded among registered sex workers significantly underestimates the true prevalence among sex workers in Bolivia.

Ecuador appears not to have produced any regular data surveillance for HIV since 1993, when 3.5 percent of nearly 1,400 STI patients attending a clinic in the country's largest city, Guayaquil, tested positive for HIV. In the capital, Quito, 0.5 percent of STI patients were HIV positive in 1992. The only recently available data is from blood donors in 1999 where 0.2 percent tested positive.

Venezuela has had little systematic HIV surveillance, although the country itself estimates between 50 and 100,000 of its people are living with HIV. A 1996 study of 893 men and women in mining communities in Bolivar state found that 1.0 percent were HIV positive—a rate higher than had been expected. STI rates in this population were also very high; one person in five was infected with one or more sexually transmitted infections. Over 16 percent of the whole sample tested positive for syphilis. Risk behavior in this community was common—a series of HIV and STI prevention workshops which covered over 2,000 people including miners, indigenous people and female sex workers, disclosed that over 90 percent had never seen or used a condom.

In the same year, testing of 407 blood samples taken from prisoners in Venezuela showed a prevalence rate of 2.46 percent.

Brazil treatment brings down death rate but new infections continue

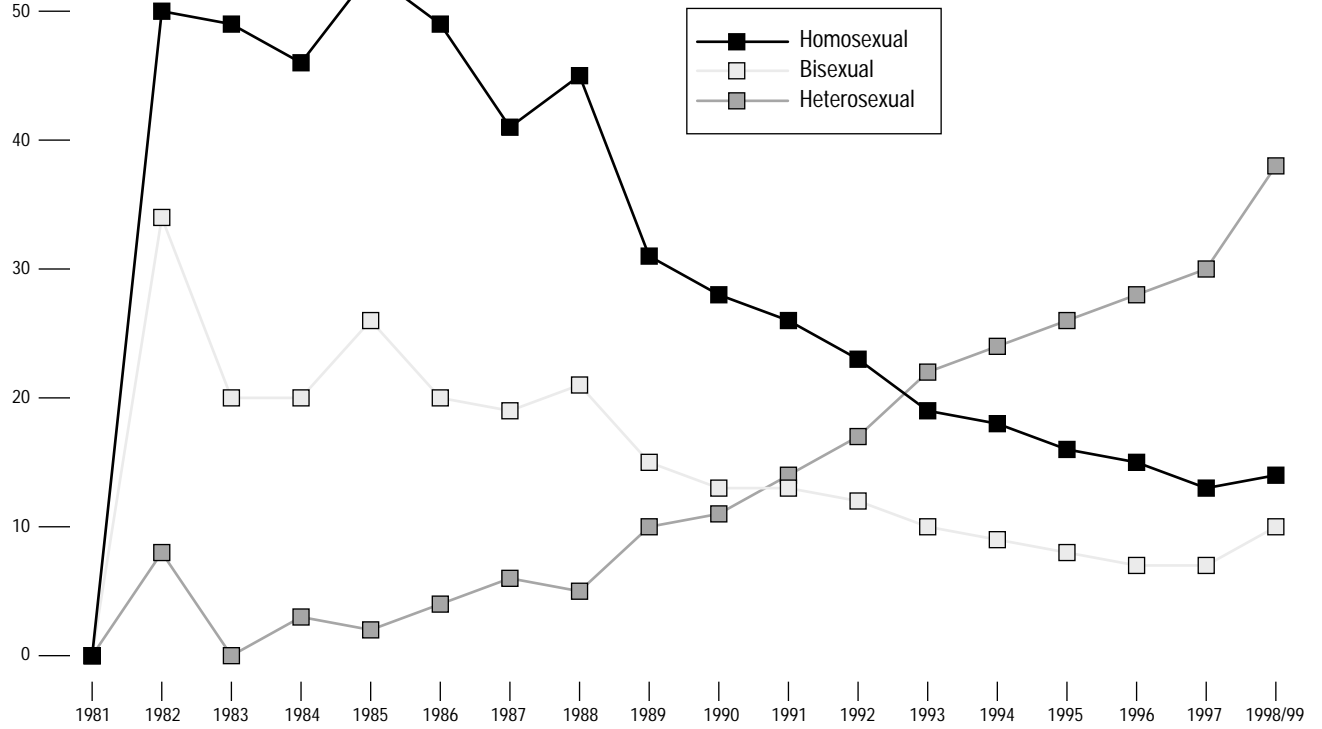
The most populous country in Latin America and the Caribbean, Brazil also has the largest number of people living with HIV. The country estimates 540,000 people were living with HIV and AIDS by the end of 1999. That number appears set to grow in coming years as the provision of life prolonging treatment brings down the number of deaths faster than prevention efforts cut new infections.

Sixty percent of those currently living with HIV are believed to be concentrated in the major urban areas of Sao Paulo and Rio de Janeiro. AIDS case reporting suggests that the vast majority of early infections were in men who had sex with other men. But as Figure 3 shows, that picture has changed drastically in recent years, with unprotected sex between men and women now accounting for more AIDS cases than ever before. This does not mean that other risk behaviors can be neglected. Recent studies show that men who have sex with men and injecting drug users continue to be highly exposed to the risk of HIV infection, and this may especially be the case in parts of the country, such as the impoverished North-East, where access to AIDS prevention information and services is relatively limited. Risk behavior in these groups is described at greater length in the document.

Aiming to improve its understanding of the dynamics of the HIV epidemic, Brazil began sentinel surveillance for HIV in 1994 in pregnant women, STI patients and hospital emergency rooms. The country has confirmed that there is a wide regional variation in infection. Among pregnant women aged 13 to 24, HIV prevalence rates varied between 1.7 percent in the Southeast in early 1997 to 0.2 percent in the North a year later. In the country as a whole, HIV prevalence among 6290 pregnant women aged 13 to 24 tested anonymously in March 1998 was 0.4 percent. In STI clinics, 3.7 percent of male and 1.7 percent of female clients tested HIV positive in the same month. Among patients in hospital emergency rooms, 1.7 percent of men and 1.2 percent of women tested HIV positive.

In the last few years, Brazil has vastly expanded the provision of life prolonging antiretroviral therapy to people living with AIDS, and death rates have decreased as a result. In 1995, AIDS was the second most common cause of death in both men and women aged between 20 and 50.

Figure 3. Distribution of reported AIDS cases by mode of transmission, Brazil 1981-1999



Source: National AIDS program, Brazil

The Southern Cone better understanding of risk is needed

In common with many countries in the Americas, the countries of the Southern Cone have depended largely on AIDS case reporting to track the AIDS epidemic. While this gives retrospective information about trends in infection, it means that very little is known about the distribution of HIV at the end of the 1990s.

Chile does perform sentinel surveillance in pregnant women and STI patients, and has found little or no HIV infection in the general population in several areas of the country, including the capital Santiago, where risk behavior is thought to be highest. Among pregnant women between 1992 and 1999, prevalence never surpassed 0.1 percent. Among patients presenting at clinics for treatment of STIs, HIV infection ranged from zero in some regions to a high of 3 percent in the capital in 1999. STI rate among women consulting STI clinics in 1996 ranged from 0 to 1.96% in Santiago.

In Argentina, no unlinked anonymous testing takes place, but a very high proportion of pregnant women attending antenatal clinics choose to be tested for HIV so that they can receive help in preventing transmission of the virus to their baby if necessary. Among over 66,000 women tested in 2000, 0.56 were HIV positive. Among people with sexually transmitted infections—usually considered a high-risk group for HIV infection—HIV prevalence of 3.6 percent was found in 2000. Samples from people with STIs were only tested for HIV after counseling and at the patient's request. HIV rates measured among consenting STI patients may underestimate the true levels of infection among those with highest risk.

In Uruguay, similarly low rates were recorded among over 12,000 workers tested in 1997. Just 0.26 percent of samples tested were positive for HIV. Similarly, figures from an unlinked study in Montevideo in 2000 draw a 0.23% seroprevalence in women and 0.24% in men among 12,000 workers from the public and private sector, ages between 16 and 70. Other general populations, such as pregnant women from low-income strata showed figures of 0.23% in 2000. Prevalence among those with high-risk behaviors showed quite a different picture, with HIV prevalence among 250 transvestites working in Montevideo and neighboring cities of 21%.

North America AIDS moves to the margins

In North America, widespread access to advanced antiretroviral therapies has improved the survival chances for people infected with HIV, but the gains made when therapy first became widespread seem to be dwindling. There is little evidence that new HIV infections are falling. Indeed there is some evidence that death postponing therapy is leading to complacency and that risk behavior is actually on the rise in the gay community and perhaps elsewhere. Overall, however, it is clear that both the HIV and the AIDS epidemics are becoming increasingly concentrated in ethnic minorities and disadvantaged sections of the population.

In the United States, around 40,000 people become newly infected with HIV every year; over two thirds of them men. The U.S. Center for Disease Control and Prevention estimates that one half of the new infections in men and close to two thirds in women occur in the Black population, even though this group makes up under a one fifth of the U.S. population. One quarter of all new HIV infections are among injecting drug users, and some 42 percent of people infected every year are infected in sex between men. Heterosexual sex without condoms accounts for most of the remaining infections. With 0.8 percent of adults estimated to be HIV positive, the United States has the highest prevalence of any developed country.

In Canada, heterosexual contact and injecting drug use are increasing as primary risk factors in reported HIV cases. The sex ratio of newly reported HIV cases, which was 9.4 infected men for every infected woman between 1985 and 1994 shot down to 1.5 by 1998. Overall HIV prevalence is very low, however.

Though sex between men dominated in the first decade of the epidemic in Canada—accounting for 75 percent of reported HIV cases between 1985 and 1994—it accounted for just 36.5 percent in 1998. In contrast, injecting drug use—which was reported as causing nine percent of HIV infections between 1985 and 1994—caused between 29 and 33.5 percent of HIV infections reported in each of the years between 1995 and 1998. Sex between men and women, too, became more predominant, rising to 16 percent of HIV cases reported in 1998 from six percent in the first decade of reporting. Overall HIV prevalence is very low, however.

It seems that the effect of therapy on death rates may be approaching a threshold. In the United States AIDS deaths decreased by 42 percent between 1996 and 1997, but by only one half that proportion between 1997 and 1998.

The other epidemics sexually transmitted infections and tuberculosis

HIV and AIDS do not come alone. They bring with them other diseases, known as opportunistic infections, which feed on the weakened immune system that HIV produces. One of the most common of these is tuberculosis, or TB. Indeed, a person carrying the TB bacillus has 5 to 10% lifetime risk of developing active TB (0.2% a year). An individual co-infected with HIV/TB has a 30 to 50 % lifetime risk of developing active TB (8 % a year). Countries badly affected by HIV usually also suffer an onslaught of TB.

In Latin American and the Caribbean, it is estimated that between three and five percent of TB cases are directly attributable to HIV infection, even in countries with relatively low HIV infection in the general population. In Uruguay some 6.1 percent of TB patients recently tested positive for HIV. In Guatemala the rate was 5.0 percent and in Belize, 4.0 percent. Mexico, Honduras and El Salvador have all measured HIV prevalence at around three percent in TB patients, according to Pan American Health Organization records. PAHO's TB control programme estimates that 400,000 people in the Americas and Caribbean are infected with both HIV and TB.

In Colombia, nine percent of TB patients tested HIV positive in a study of 166 patients undertaken in 1993. Among over 300 TB patients tested in the city of Cali between 1996 and 1997, some six percent were HIV positive. A similar rate was found among 272 patients with respiratory tract infections in Bogota in 1995.

Worryingly, there is evidence that drug-resistant strains of TB are not uncommon. In a study conducted in hospitals in Peru, for example, 15.4 percent of 1,500 patients who had never been treated for TB were found to be resistant to at least one anti-TB drug. The rate of drug resistance in 458 patients who had previously been treated was more than twice as high, at 36 percent.

HIV is also frequently associated with other sexually transmitted infection. This is partly because they share the same major modes of transmission, and because people infected with another STI are much more likely to contract or pass on HIV infection during unprotected sex than people who have no other sexual infection. Since bacterial STIs are curable, they can often be treated relatively promptly, especially in men (in women many STIs can persist for long periods without any obvious symptoms, and so are less likely to be treated right away than the symptomatic infections more often experienced by men). This means that an active sexually transmitted bacterial infection is a better marker of recent risk behavior than HIV, which may reflect risk which took place five, ten or more years ago.

For all of these reasons, STIs are often mentioned jointly as HIV. But they are an important public health problem in their own right, and deserve attention even in countries where HIV prevalence is, for now, low.

In most countries, information on STIs in the population is poor, and information on treatment poorer still. However it is generally believed that a high proportion of infected men (and an even higher proportion of infected women) do not seek prompt treatment for their infections. For example, in a study of 1,367 men in their 20s in three cities in Peru, between 12 and 16 percent said they had experienced an STI in the previous year. However between one third and two thirds of those who had had symptoms sought no treatment for their most recent episode of infection.

In a study of truck drivers in Honduras, a quarter of the men questioned said they had had an STI in the previous year—mostly gonorrhoea. Most of these men went to a private clinic or pharmacy for treatment, and several said they self-treated. Just one quarter went to government health services for treatment, and yet it is information gathered at government clinics that drives most of the policy decisions made in the area of prevention and treatment programs.

For some bacterial STIs as for TB, a worrying pattern of drug resistance is emerging. In a slum area in Haiti, between 40 and 45 percent of pregnant women in a 1995 study were suffering from an STI. Fully 90 percent of gonococcal strains tested were resistant to the antibiotics that are commonly used to treat them. Not surprisingly, there is a strong correlation between HIV and other STI infection in Haiti. In regular sero-surveillance, 27 percent of men and 24 percent of women with a classic STI are also infected with HIV.

Low risk, high reward successes and failures in HIV prevention

HIV prevalence data gives an idea of where the epidemic is today. But it is behavioral data which can help predict where the HIV epidemic will be tomorrow. Behavioral data acts as an early warning system for societies, signaling patterns of risk and suggesting where prevention efforts need to be strengthened.

This section of the report focuses on what we know about behavior among the majority of adults in Latin America and the Caribbean who are heterosexual and would not generally be considered to be at an elevated risk of HIV infection. The next section of the report, takes a look at behaviors and levels of HIV prevalence in people whose behavior may put them at higher than average risk of HIV infection—youth, young people, men who have sex with other men, men and women who inject drugs, and members of marginalized populations.

Behavioral data in several countries show that sex with a single, regular partner is the norm in most countries, at least among women. However, a significant proportion of adults in many countries have casual partnerships, and multiple partners are not uncommon. In almost every country where data are available, men are far more likely to have casual partners than women. Since it is not sex but unprotected sex that exposes people to HIV and STI infections, condom use is extremely important in determining how likely infection

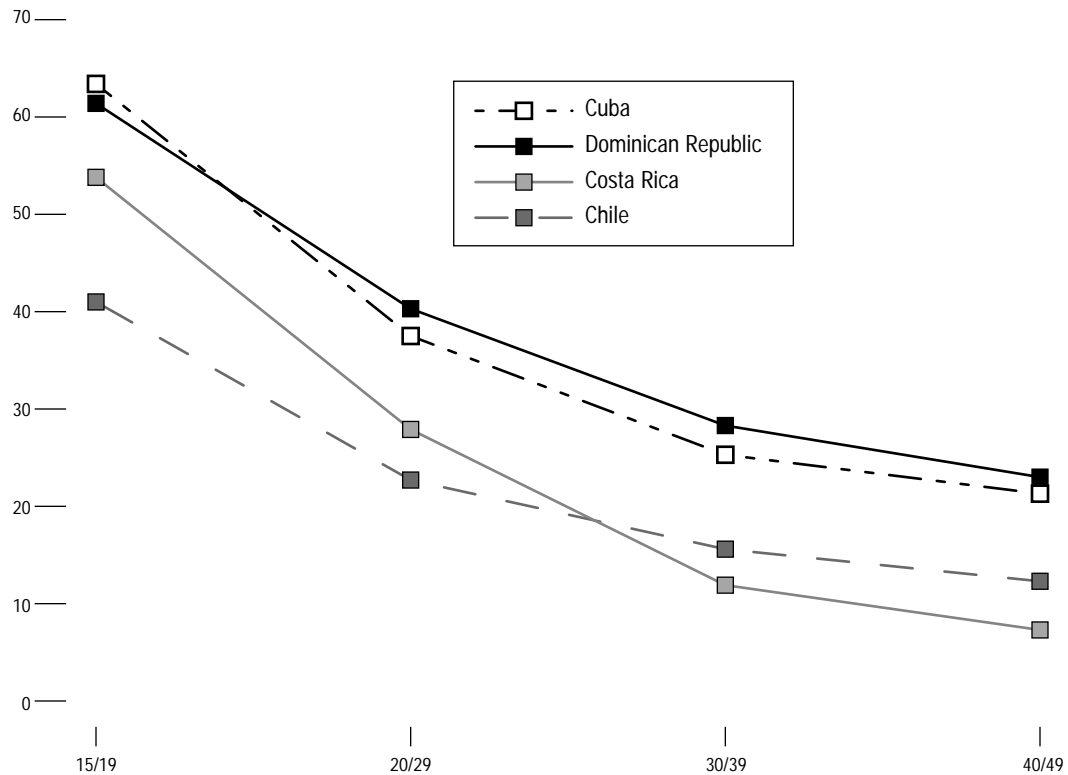
is to spread through a population. Condom use varies enormously between countries, between sexes and between different age groups. In general, men are more likely to use condoms in casual relationships than women are, and younger people are more likely to use them than older people.

Recent studies of sexual behavior in a number of countries show that it is not safe to assume that almost all adults are sexually active. Surveys of sexual behavior among men and women aged 15 to 49 in five countries reveal that in Chile, Costa Rica and the Dominican Republic, over a quarter of adults have had no sex at all for a year or more. Indeed in the Dominican Republic, 41.5 percent of women in a household-based study said they had not had sex in the preceding year. Among the women who had had sex in the previous year in all three countries, 90 percent or more had sex only with a regular partner. In Cuba, where risk behavior was higher on a number of measures, 14 percent of sexually active women had had casual sex in the year preceding the study. Household-based studies in Barbados in 1992 and 1999 showed the proportion of women who had not had sex in the last year rose from 30.3% to 41.5%.

Men were more likely both to be sexually active and to have casual partners in the same studies, with over half of the sexually active men in the Dominican Republic saying they had had casual sex in the past year. In Chile this proportion dropped to 29 percent, and in Mexico 14 percent of sexually active men said they had at least one casual partner in the preceding year.

Figure 4 shows the proportion of sexually active men and women in four of the countries studied who had had one or more casual partners in the last 12 months.

Figure 4. Percentage of sexually active people with casual partners, by age

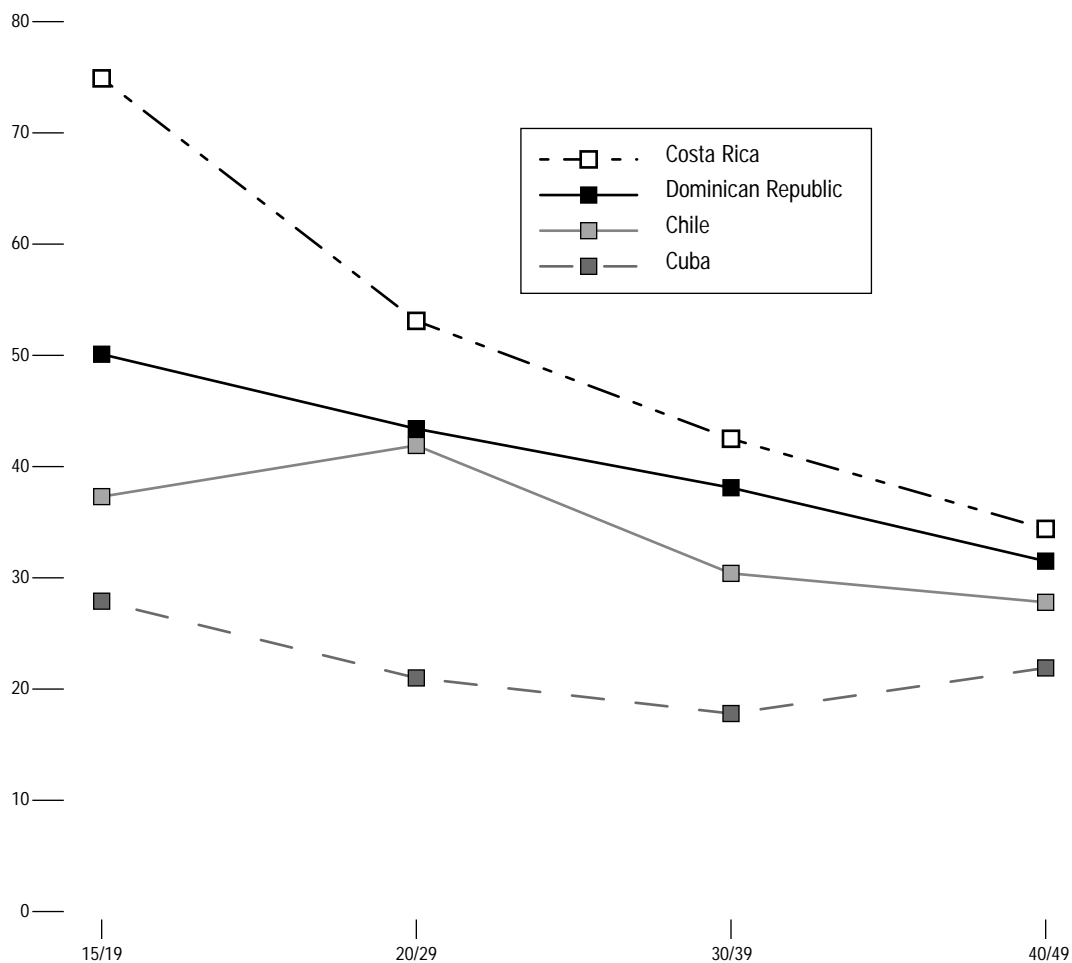


Source: PAHO/NAPs. Peruga A, Child R, Arredondo A, Santin M, Torres R, León E, M Hernández, Cuchi P, et al. Análisis de indicadores seleccionados de la encuesta de indicadores de prevención en 5 países (Chile, Costa Rica, Cuba, México y República Dominicana).

It is not surprising that the rates of casual partnerships are highest in the youngest age groups. Young people are far less likely to be married than older people, so high proportions of those who are having sex are likely to be having it with casual partners. But as mentioned, their exposure to HIV and STI infections is determined as much by condom use as by sexual activity. As Figure 5 shows, while young people may be more likely to have casual partners, they are also more likely to have used a condom with their most recent casual partner in three of the four countries studied depicted in figures 4 y 5². Condom use in risky sex also rises with educational level in all countries studied.

2 Mexico is not included in the graph because the sample for this study did not include women.

Figure 5. Percent of people with casual partners using condoms, by age



Source: PAHO/NAPs. Peruga A, Child R, Arredondo A, Santin M, Torres R, León E, M Hernández, Cuchi P et al. Análisis de indicadores seleccionados de la encuesta de indicadores de prevención en 5 países (Chile, Costa Rica, Cuba, México y República Dominicana). 2000.

The inter-country comparison provides food for thought for those designing prevention programs. Nearly three times as many teenagers with casual partners in Costa Rica used condoms as teenagers in Cuba.

Cuba provides an interesting illustration of the differences in risk behavior by sex. Among 3,564 adults surveyed in randomly-selected households in the island in 1996, nearly half of all sexually active men but just 14 percent of sexually active women had a casual partner in the previous 12 months. Of those who did have casual partners, 23 percent of men and 14 percent of women said they had used a condom with their last casual partner. Despite these relatively high levels of risk, 90 percent of Cubans surveyed felt they were at no risk or at low risk of HIV infection. Since HIV prevalence in the general population in Cuba is believed to be exceptionally low, they are probably right, for now. But the potential for the rapid spread of other sexually transmitted infections and, ultimately of HIV cannot be ignored given the prevalence sex risks found among adults.

Brazil shows similar patterns of sexual networking, but somewhat higher levels of condom use. In a study of close to 5,000 factory and other workers in Brazil, knowledge of AIDS and other STIs, their symptoms and how to prevent their spread was impeccable. However, over a quarter of the 3,746 men in the study said they had multiple and casual partners (compared to just 3.2 percent of 1,140 women). Indeed, 17.6 percent of the men in the study said they had had two or more partners in the previous month. Of all the men and women in the study with multiple partners, just under a quarter always used condoms, although a more encouraging 39 percent always used them with non-regular partners. Some 13.5 percent of the people who had multiple partners and never used condoms said they thought they were at little or no risk of being infected with HIV, even though 97 percent of respondents in the study said infection could best be avoided through condom use.

In another study of sexual behavior in Brazil, 71 percent of women said they had sex with only one partner in the previous year. Men were far more likely to have two or more partners—just 46 percent of sexually active men in the study had stayed with a partner in the previous year. However much of this casual sex is protected by condom use. Over two thirds of both men and women in the study said they used condoms in casual relationships. Nearly half said they had used condoms for the first time within the last five years, suggesting that HIV prevention campaigns are indeed having an impact. According to Brazil's national AIDS programme, condom sales in Brazil rose from 2.9 million units a year in 1992 to 269 million in 1997.

Rises in condom use have also been recorded on the Caribbean coast of Nicaragua, following an active HIV prevention and condom promotion campaign conducted between 1991 and 1997. Among people who had sex with more than one partner over the last year, condom use rose from 35 percent in 1991 before the prevention campaign began to 55 percent in 1994 and to 71 percent in 1997.

Many studies of sexual behavior try to understand why people choose not to use condoms with casual partners in an age of AIDS. Across the world, most people who don't use condoms in casual sex say they trust their partners. This is a common response even among people who have multiple partners themselves. However in some cases, condoms are simply not available in the right place at the right time. In a study among 1,367 men in their 20s in three cities in Peru, 16 percent said they had had sex with prostitutes in the previous 12 months, and up to 70 percent reported some

type of casual sexual partner. While a third of men in all sites said they thought about using a condom the last time they had sex with a casual partner, the percentage that actually did use one ranged from 17 to 22 percent. A high proportion of those who didn't use a condom said they simply didn't have one handy. Information such as this can help to pinpoint the need for wider distribution of condoms in locations and at times that are easily accessible to people likely to have casual sex, as well as information reinforcing the need of using condoms at all times.

Studies among men in several countries suggest that substantial proportions pay women for sex. Condom use with sex workers varies, but is generally higher than with other types of partners. For example, in a study among 200 night-watchmen in Honduras, 12 percent said they had paid a professional for sex in the previous six months. One quarter of the respondents said they always used condoms in sex with sex workers. In contrast, while close to 70 percent of the night-watchmen surveyed said they had sex with domestic servants, only four percent always used condoms with this group.

In another Honduran study among a more mobile and theoretically more risk-prone group—truck drivers—the risk profile was rather different. Despite their mobile occupation, 91 percent of some 447 men said they had sex with regular partners in the previous six months. Since 18 percent reported sex with sex workers and 23 percent reported sex with domestic workers, it is clear that some men must have partners in several of these categories. Indeed, 37 percent of these men said they had had sex with two or more partners in the previous six months. Alarming high 40 percent of the men said they never used a condom with sex workers, and two thirds never used a condom with a domestic worker.

In Honduras, sex workers themselves report far higher levels of condom use. However, there is rarely a match in reported condom use between sex workers and their clients. Because small numbers of women typically interact with larger numbers of male clients, a single sex worker who does not use condoms will translate into several clients who report not always using condoms with sex workers. But the mismatch in Honduras—where 80 percent of street-based sex workers in five cities in Honduras said they always used condoms compared with a maximum of 25 percent in any group of male clients—suggests that sex workers may be over-reporting consistent condom use. Certainly there was no shortage of biological evidence of risk in this study. Some 10 percent of the 699 sex workers included in the study tested positive for HIV, and 15.2 percent were infected with syphilis.

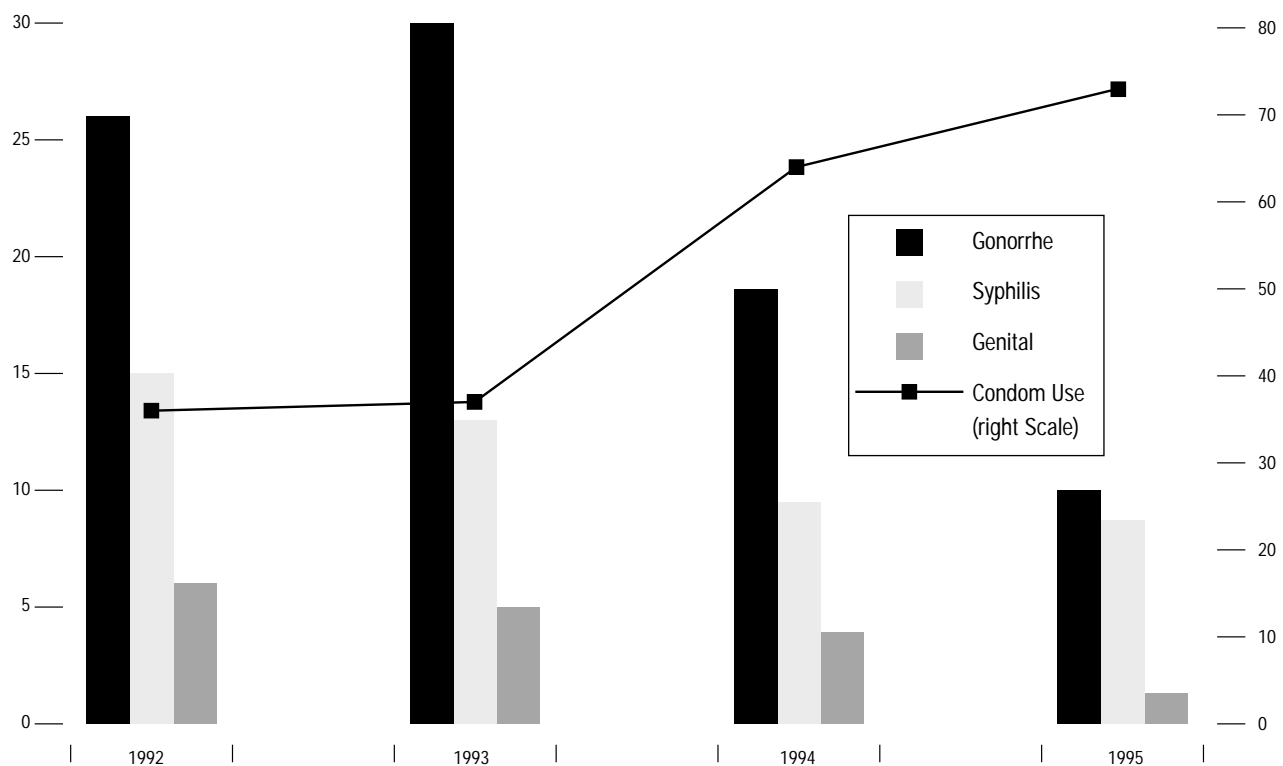
The high levels of condom use reported by sex workers in brothels in the Peruvian capital Lima, on the other hand, were more believable when compared with biological markers of risk. Sex workers in the study reported that three quarters of all their male clients used condoms. STIs were very low in this group of sex workers, suggesting that high proportions of the women did indeed protect themselves against STIs and HIV. None of the 158 sex workers tested were infected with HIV. Among sex workers who don't use condoms, most say they are afraid of losing clients.

“Sometimes they put (a condom) on: I never ask them to, and most of them don’t like it... For prevention, of course you have to use condoms, but clients don’t like it and if you insist on it, your business goes to hell,” claimed a sex worker in one study in Iquitos, Peru.³ In fact, qualitative studies in other countries show that men are more willing to contemplate condom use in commercial sex than generally supposed. Most soldiers in a study of the military in Venezuela expressed a distaste for condoms, saying they would not usually volunteer their use. However most said that they would be prepared to use a condom in commercial sex if the sex worker proposed it.

Active prevention program among sex workers and their clients can and do work. The “Proyecto contra SIDA” project in the Bolivian city of La Paz, for example, aimed to promote condom use and STI screening and treatment among sex workers in 25 brothels. As Figure 6 shows, prevalence of classic STI fell dramatically between 1992 and 1995, with gonorrhoea and syphilis roughly halving and prevalence of genital ulcer disease diving from 5.7 to 1.3 percent. At the same time, the proportion of women reporting consistent condom use during the past month rose from just over a third to nearly three-quarters. Women who reported using condoms consistently were significantly less likely to be suffering from gonorrhoea, syphilis or trichomoniasis than women who said they had never or rarely used condoms in the previous month. By the end of the intervention period, HIV infection in these sex workers was still just 0.1 percent.

3 Quoted in: Cáceres C. SIDA en el Perú: imagenes de diversidad” UPCH, Lima, 1998

Figure 6. Prevalence of sexually transmitted infections and consistent condom use among sex workers in La Paz, Bolivia, 1992-1995



Source: Levine W, Revollo R, Kaune V et al. Decline in sexually transmitted disease prevalence in female Bolivian sex workers: impact of an HIV prevention project. AIDS 1998, 12: 1899-1906

The forgotten populations facing up to risk at the margins. Facing up to risk and neglect

In most countries in the Latin America and the Caribbean for which information is available, the highest rates of HIV infection are found in sub-populations of people whose behaviors leaves them extremely vulnerable to contracting the virus. These sub-populations include men who have sex with other men, men and women who inject drugs, prisoners, street children and other marginalized groups, including some ethnic minorities. Youth, whose sexuality is often ignored in planning prevention and care services, can also be considered to be at higher than average risk of HIV infection.

In many countries in Latin America and the Caribbean, there is no information at all about infection levels or risk behaviors in sub-populations especially vulnerable to HIV infection. This is unlikely to be because such risk behavior does not exist. It is, rather, because it has been overlooked, deliberately or otherwise. Homosexual behavior is illegal in many countries of the Region and injecting drug use is illegal in all of them. Besides being illegal, these behaviors are widely frowned on and frequently denied, sometimes even by the people who engage in them.

Because members of sub-populations with high risk behavior are also part of the wider population, the behaviors that expose them to HIV infection may also eventually expose the men and women with whom they interact, even when those men and women do not share the risk behavior. Societies should therefore be driven by self interest—as well as by moral obligation—to provide information and services that meet the needs of sub-populations at high risk of contracting or passing on HIV.

This section reviews what is known about risk behavior and HIV infection in some of the most important sub-populations with higher than average risk of exposure to the epidemic throughout the Americas.

Men who have sex with men behavior, not identity, drives the virus

Much has been written about the diversity of populations of men who have sex with men in the Western Hemisphere. In some countries -- principally the United States and Canada -- gay culture is well established; it is relatively easy to reach men in these communities with information and services that help them reduce the risk of HIV infection. However, in most of Latin America and the Caribbean, a predominantly macho culture has stunted the development of gay identities as has led to widespread denial of male-male sex, at a societal and sometimes at a personal level. Getting appropriate HIV prevention services to men who have sex with men but who do not consider themselves gay has proven a major challenge in many countries.

Despite increasing infection rates in women, male-male sex remains the biggest single cause of new HIV infections in several countries, including Canada, the United States and Mexico. Sentinel

surveillance among gay men in the U.S. city of San Francisco currently shows HIV prevalence at around 15 percent. A similar infection rate has been recorded in Mexico. In HIV prevalence studies in Mexico between 1991 and 1997, 14.2 percent of 7,747 homosexual men tested positive for HIV. Interestingly, sex with other men seems to put Mexican men at greater risk of contracting HIV than even injecting drug use. In a large multi-year surveillance study in several cities in Mexico, drug injectors who had sex with other men were 3.3 times more likely to be infected with HIV than drug injectors who did not report sex with men. What's more, 5.9 percent of male drug injectors in Mexico tested positive for HIV—a rate three times higher than in female drug injectors. Since there is no evidence that female drug injectors are less likely to share injecting equipment than their male counterparts, it is plausible to assume that the extra risk of infection in men is associated with sexual infection. While Argentina has little in the way of sentinel surveillance among men who have sex with other men, homosexual activity continues to loom large as a driving force in the AIDS epidemic. In mid 1999 over one quarter of all AIDS cases in Argentina were associated with sex between men.

Even in countries where HIV transmission is believed to be overwhelmingly heterosexual and where proportions of men and women infected are similar, sex between men is a major risk factor for HIV. In a study of truck drivers in four cities in Honduras, men who said they had had anal sex with other men were six times more likely than exclusively heterosexual men to be infected with HIV, syphilis or hepatitis B. Another study that focused on men who were identified as having sex with other men in Honduras found HIV prevalence of 8.0 percent, compared with 0.5 percent in male night-watchmen in the same cities, and 1.1 percent in truck drivers.

In the Caribbean, too, HIV infection rates among men who have sex with other men are very high, although this population has been somewhat ignored in prevention efforts because in numerical terms sex between men contributes far fewer new HIV infections than sex between men and women. A study in Suriname in 1998 recorded HIV prevalence of 18 percent in men who have sex with men. In Jamaica, the rate rose from 9.6 percent in 1985 to 15 percent in 1986. In the decade that followed, it doubled to 30 percent. A small study in the Caribbean island of Margarita, Venezuela, found that one quarter of 40 men who had sex with men were HIV positive.

It is clear from the limited studies that exist that male to male sex is far from uncommon throughout the Region. In a study of over 2,300 male university students in Bogota, for example, one in 10 reported a history of homosexual activity. In addition, 18.2 percent of 630 MSM tested HIV positive in Bogota in 1999. Among 1,367 men in their 20s in three cities in Peru, 14 percent in two cities and 4 percent in the third said they had had anal sex with another man in the last year. Condom use was very low in these relationships: between 60 and 77 percent of those having anal sex had never used a condom in sex with another man. It is perhaps not surprising, then, that HIV prevalence among men who have sex with other men is high in Peru. In one ongoing study of close to 4,000 men who report sex with other men in the capital, Lima, HIV prevalence has been measured at 13.8 percent. Among 1,400 men who had sex with other men in the provinces, 4.9 percent tested positive for HIV.

Male sex workers appear to be especially vulnerable to HIV infection—an ongoing study in Montevideo, Uruguay, has found an HIV prevalence of 21 percent among 200 tested.

Clearly, then, male-male sex is a high-risk activity throughout the Region. However, the countries that have addressed the issue with active prevention programs have recorded some successes. In the Colombian capital of Bogota, for example, high rates of sexual activity with multiple partners remains common, but condom use in anal sex is high, too. In a 1996 study among 425 men who have sex with men, nearly three quarters of respondents said they had sex with two or more men in the two years preceding the study, and 29 percent reported six or more partners. While over half of the respondents said they had penetrative anal sex, 55 percent of them said they always used a condom in anal sex with casual partners. Among men who said they did not currently have a regular partner, three-quarters reported that they had used a condom the last time they had anal sex. These rates of protected sex, on a par with those recorded in countries where the gay community is far less marginalized, constitute a major achievement for HIV prevention initiatives.

Brazil, too, has seen condom use increase in sex between men, even as levels of sexual activity rise. The proportion of men reporting anal sex with other men in the last six months in a series of studies in Rio de Janeiro rose between 1989 and 1995, from 67 to 76 percent. Encouragingly, however, the proportion of anal sex protected by condom use rose dramatically, more than doubling from 34 to 69 percent in the same time frame. These successes notwithstanding, men who have sex with other men in Brazil continue to become infected with HIV at an alarming rate. One study among those practicing male to male sex in Sao Paulo measured new HIV infections at two percent a year between 1994 and 1997, while half that level of new infections was recorded among men in Belo Horizonte over the same period.

These cities are among those where prevention campaigns have been most active. In the poor northeastern Brazilian city of Fortaleza, men are far less informed of the dangers of unprotected sex with other men, in the better-informed South. While studies in southern cities estimate that nine out of 10 men who engage in male-male sex are well informed about AIDS, a study of 400 men who have sex with men in Fortaleza found that 43 percent of respondents did not have the minimum acceptable information for prevention. Men in the study averaged 14 partners over the previous year. Since these men were recruited to the study in bars and parks known as gay cruising joints, these finding probably represents an overestimate of the true levels of sexual networking among the larger population of men who have sex with other men in Fortaleza. These very high levels of casual sex between men are a cause for concern nonetheless, not least because condom use in these high-risk partnerships was low. Some 44 percent of the 400 men in the study reported anal sex without a condom in the six months preceding the survey.

The 1995 Fortaleza study—together with a number of other studies in the Region—raises another issue likely to cause concern from an epidemiological point of view. While only 15 percent of the men in a small convenient sample identified themselves as bisexual, 23 percent said they had had sex with a woman in the previous year, most of it unprotected.

Two thirds of the participants who had had unprotected sex with a woman had also had unprotected anal sex with a man. Similarly, a 1996 study of 425 men who have sex with men in Colombia found that 14 percent also have female partners. This overlap of risk behavior provides a classic “bridge” for HIV, allowing it to pass from a population that engages in high risk sex between men into a population of heterosexuals with no more than average exposure to the risk of HIV.

HIV prevention activities are well established in the gay communities of North America. However, there now worrying evidence that the advent of therapy may have led to complacency about HIV, and that this complacency is leading to rises in risky behavior. A study among gay men in the U.S. city of San Francisco, for example, showed that while just over one third of gay men reported they had had unprotected anal intercourse in 1993 and 1994, the percentage had risen to one half three years later, after effective therapy became available. A high proportion of these men did not know their partners’ HIV status. This is all the more concerning because as drugs allow people infected with HIV in this population with historically high risk behavior to live longer, the absolute number of gay men living with HIV is probably rising in the United States. While it is possible that antiretroviral drugs reduce the likelihood that an infected person will pass on the virus, this effect has not been clearly demonstrated. For now, it must be assumed that higher infection rates in potential sex partners means higher risk of infection in any unprotected sex with a partner whose HIV status is not known.

Injecting HIV a continuing problem with a well-established solution

Sharing drug-injecting equipment without sterilizing it between users is an extraordinarily efficient way of spreading HIV. Where equipment sharing is common, HIV infection can race through drug injecting populations with unparalleled speed. In some countries, HIV prevalence among injecting drug users has been known to explode from nothing to over 50 percent in under a year.

It has been demonstrated that if large-scale prevention programs, including needle exchange programs, can be implemented before HIV rises above five percent or so among injecting drug users, then prevalence may be contained at low levels indefinitely. Yet “harm reduction” programs for injecting drug users are extraordinarily politically sensitive in almost every country in the Americas. For example, at least six government-funded studies of HIV infection in drug users in the United States have concluded that needle exchange programs significantly reduce the incidence of HIV among drug users, without encouraging drug use. Despite these studies, however, federal funding of needle exchange programs in the United States remains prohibited because of political opposition to harm reduction measures. One study has estimated that failure to implement widespread needle exchange program in the United States between 1987 and 1995 will cost the country at least 244 million dollars in medical care for HIV cases that could have been prevented.

Needle exchange programs have been in place in several major cities in Canada since the late 80s (Vancouver, Toronto, Montreal). Needle exchange programs have been shown not to promote HIV transmission among injection drug users by promoting the formation of high risk sharing networks. Rather, they have been shown to attract high-risk injection drug users and thus are a key focal point for the provision of interventions to this hard to reach population group. One of the major lessons learned is that needle exchange programs should not be viewed as a panacea but must be provided within a comprehensive framework of counseling, support, ongoing education and access to drug treatment programs to reduce HIV transmission rates.

Studies of HIV prevalence among drug injectors in Latin America and the Caribbean are few and far between. In some countries, however, HIV prevalence among drug users appears to be at containable levels if needle exchange and other prevention programs are implemented as a matter of priority. In a study of over 17,000 men and 31,000 women recruited on the streets, in bars, in HIV counseling centers and in other locations in 16 cities in Mexico between 1990 and 1997, 6.2 percent of men and fewer than one percent of women admitted to being drug injectors. In 1997, 5.9 percent of people who said they were drug users and agreed to HIV testing after counseling were HIV positive. Without active prevention, this proportion is bound to rise quickly in years to come, judging from risky injecting practices reported by drug users. Seventy percent of drug injectors said they shared syringes, and only a third cleaned them between users.

In other parts of the Region, there is evidence that HIV is already widespread rife in networks of drug injectors. In Puerto Rico, HIV prevalence among drug injectors has been recorded at levels between 30 and 45 percent. AIDS case reporting suggests that drug injecting is a major source of HIV infection in Argentina (40 percent) and Uruguay (26 percent). In Uruguay, one third of all AIDS cases reported to date are in drug injectors, and 40 percent of all babies infected with HIV are to mothers who inject drugs.

Studies in a number of cities in Brazil suggest very high levels of HIV among injectors, ranging from 25 percent in one study in Rio de Janeiro to three times that level in Sao Paulo. The national AIDS programme reports that the on average half of all drug injectors in Brazil are infected with HIV. The potential for further spread is unmistakable. A behavioral study of 400 drug injectors in Rio de Janeiro showed that 31 percent share syringes. While over two thirds say they clean them between users, the majority does so only with water—by no means an effective protection against the spread of HIV. In another study of 168 drug injectors in the same city, over half said they shared syringes. Similar risks exist in Uruguay, another country where injecting is common. In a study among 216 injectors, over 40 percent said they shared syringes. In Argentina, three quarters of injectors in a recent study in Buenos Aires said they had shared syringes in the past, the vast majority without adequate cleaning between users.

One of the factors that increases the risk of HIV infection among drug injectors in Latin America is the choice of drugs. While in Europe, North America and Asia the most commonly injected drug is heroin, in South America it is cocaine. Cocaine users typically inject much more frequently than heroin injectors. The demand for clean needles is

therefore higher, as are the risks of acquiring or passing on HIV. In studies in Argentina and Brazil, between 75 and 83 percent of drug injectors use cocaine.

While injecting drug users are often forced to survive on the margins of society, they are part of our societies nonetheless. Drug injectors have husbands and wives, girlfriends and boyfriends, babies and children. Many of these other people do not inject drugs themselves, but most will be put at risk of HIV infection because of their partner's (or their parent's mother's) injecting behavior. Fully 83 percent of injectors studied in Rio said they do not use condoms with their regular partners, and 63 percent never use them even with casual partners. This immediately puts any non-injecting partners at high risk of sexual exposure to HIV, while infants of drug injectors will be at high risk of acquiring HIV in the womb, at birth or during breastfeeding. In a recent study of drug injection in Buenos Aires, 58 percent of injecting respondents said they had a single regular sex partner, while a further 25 percent had multiple partners or casual partners, or both. Forty two percent of the entire sample never used condoms, and 59 percent did not use them with live-in partners. This is extremely alarming given the high HIV prevalence in this group. Of the 70 percent of the sample who said they had been tested for HIV, 57 percent were HIV positive.

Perhaps the greatest danger of a spill-over from drug injectors to the general population comes through men and women who sell sex to support finance their addiction. Among the highly HIV-infected population of drug users in Buenos Aires mentioned above, one third of male respondents and two thirds of the small fraction of female respondents said they had exchanged sex for drugs at least once. In a study among drug injectors in Rio de Janeiro, one third of respondents said they had had sex in exchange for money or drugs. Over 85 percent of the total study sample of 168 drug users in the study were men, meaning that at least some must have had at least three behaviors that exposed them to high risk of HIV—drug injection, commercial sex and sex between men.

In Canada, over one third of male drug injectors in a study in 1994 said that they had had sex with other men in the previous three months in exchange for money, goods or drugs. The overlap appears to increase the risk of infection. In a study among 212 male injecting drug users in Quebec City, HIV prevalence was 28.6 percent among injectors who were also male sex workers, compared with 9.7 percent for men who did not report sex work.

Clearly, greater efforts to reduce both drug injection and the risk of HIV infection in people who do choose to inject drugs are needed throughout the Americas. National AIDS programs in some countries, such as Argentina, are actively supporting non-governmental organizations in their efforts to prevent HIV infection among drug injectors, their sexual partners and their infants. These efforts should be applauded, but above all they must be expanded.

Young people with help, early sex can also be safe sex

In the religious-dominated cultures of the Americas, still some parents promote an ideal of delaying sex until marriage and then a single, lifelong partner for their children, especially their daughters. There is plenty of evidence of a yawning growing gap between that ideal and the reality of young people's lives. Nonetheless, the predominantly conservative social and sexual culture has made it difficult to face up to reality, both at a national and at a family level. This means that young people are often deprived of the information and the services they need to protect themselves from HIV.

Studies in country after country make one point abundantly clear: young men and women are having sex, often from their early teens. In Venezuela, a study conducted by the government in the early 1990s determined that one quarter of young people had sex for the first time between the ages of 10 and 14, and another two thirds had sex for the first time while still in their teens. In a 1996 study of over 31,000 high school and 22,000 university entrants in Mexico, 17 percent of 15 year-old boys said they had already had sex, and five percent of girls said the same. By the time students entered university at age 18, half of the men and a fifth of women questioned said they were sexually active. In a household-based study in Lambayeque in Peru, some 37 percent of nearly 900 boys aged 12 to 19 were sexually active, about three times as high as girls. A study among university students in Colombia showed even higher levels of sexual activity. A massive 78 percent of over 4,000 students said they had already had sex. In El Salvador, one fifth of over 5,600 adolescents questioned said they were sexually active.

Young people in the English-speaking Caribbean appear to initiate sex at a particularly young age, which may help explain the high rate of HIV prevalence in this region. Youth studies conducted between 1990 and 1999 in Barbados, Jamaica and Trinidad and Tobago show median age at first sex ranging between 13 and 15 years. In each case, males were found to start having sex earlier than females; median and mean ages at first sex were lower for males. The proportion of males reporting they had sex as early as 10 years old was 45% in Barbados in 1990, 20% in Jamaica in 1994, 21% in Jamaica in 1996 and 16% in Tobago in 1999. We can expect that males over-report their sexual experience to some extent; even if this is true the results suggest that males are under intense social pressure to prove their virility from a very young age."

So there can be no denying that high proportions of young people are having sex. What is perhaps more alarming is the fact that high proportions also seem to be having unprotected sex with multiple partners, thus exposing themselves to the risk of sexually transmitted infections, including HIV. Among Colombian university students, for example, the majority reported between one and four lifetime partners but only one quarter reported frequent condom use. Some 45 percent of men in this sample said they had had sex with a prostitute at least once. In another study of 1,294 Colombian students in three cities, 42 percent of those who were sexually active said they had had sex with more than one partner, and

around eight percent of the sample had had same-sex relations in the previous year. Less than one quarter of those sexually active had used a condom the last time they had sex. In the Lambayeque study, five out of 10 sexually active Peruvian boys and seven out of 10 sexually active girls said they had never used a condom. An even wider disparity in condom use between young men and women was observed among 812 people aged 13 to 24 in the Dominican Republic. While close to half of sexually active men in the study said they had used a condom the last time they had sex, just 17 percent of women said the same. A study of street-based sex workers in Honduras serves to illustrate the extremes of risk behavior among young people. Of 700 sex professionals, over a quarter were teenagers. In a study among over 100 teenage sex workers of both sexes in Bogota, Colombia, 11 percent were infected with HIV, and the prevalence of other STIs was also high for example, some 19 percent were infected with gonorrhea, for example.

Early sex and the risky behaviors that often follow it appear to be taking their toll in some countries, even among those who are not sex professionals. In Honduras, the average age at first sex among men infected with HIV was 13.6. Men who were not infected had started their sexual lives an average of two years later. In Colombia, over 130,000 people across the country chose to be tested for HIV after counseling. Over 40 percent of those who tested positive were sexually active before they were 16.

Teenage girls are especially likely to suffer from early risky sex. They are physiologically more susceptible to HIV than older women, and they may be less likely to be able to negotiate condom use. This is all the more true in relationships with older men. And sex with older men is already riskier than sex with same age partners, because older men are likely to have had more previous sex partners and are therefore more likely to have been exposed to HIV or other STI. In Trinidad, both boys and girls engage in risky sex, according to a 1995 study among 1,500 young men and women aged 15 to 24. Nearly one quarter of sexually active men and women had sex with more than one partner, and fewer than one fifth reported always using condoms. Indeed, two thirds did not use condoms at all. But the big difference was in age mixing. While most young boys had sex with girls their age mates or younger, some 28.5 percent of girls said they had sex with older men. Perhaps as a result, five times more girls than boys aged between 15 and 19 are HIV positive in Trinidad and Tobago. In Jamaica, too, HIV infection is increasingly concentrated among sexually active teenage women. Among pregnant women in 1998, 2.5 percent of 15 to 19 year olds tested HIV positive, compared with 1.5 percent for the whole 15 to 49 year-old age range. Indeed, HIV rates were higher in teenage girls than in any other age group.

In Tobago in 1999, average ages at first sex were 15.2 for girls and 13.1 for boys. While males reportedly initiated sex sooner and had more partners, females were at greater risk as they had substantially older partners. It was found that at the time of first sex, the partners of girls were, at 19.2 years, on average four years older than they were. In contrast, the first partners of males were on average 1.2 years older. Girls were more at risk because their partners were likely to have had considerable sexual experience in terms of length of time since first sex and number of partners. Focus groups which accompanied the survey revealed that materialism plays an important part; girls are attracted to older men who drive cars and have money to buy them fast food and clothes.

The advent of the HIV epidemic has increased the stakes for young people having unprotected sex. But they were already high, especially for girls. Unprotected sex exposes women to pregnancy, and adolescent pregnancy exposes women to all manners of many other health risks. What's more, women who get pregnant in their teens often have to drop out of school or are not allowed to continue in school, reducing their access to information and ultimately damaging their chances of a healthy, financially secure future. In Colombia, childbirth is the number one cause of hospital attendance in girls aged 10 to 14. Among girls aged 15 to 19, the five leading reasons for hospital admission are all related to childbearing, abortion or its consequences. At the beginning of the 21st century, one in every five babies born in Belize is born to a teenage mother. In Honduras, four percent of 2,700 pregnant women surveyed were under 15, and close to one third were teenagers. These figures are by no means unusual—similar rates of teen pregnancy are common in many countries in Latin America and the Caribbean.

Worrying though these statistics are, there is considerable reason for hope. Given access to adequate information and support services, young people are willing and able to delay sex and to make sure that they have safe sex when they do choose to become active. Of the sexually men and women among over 50,000 high school and university students surveyed in Mexico, for example, 42.2 percent of young men and 35.5 percent of young women said they had used a condom the first time they had sex. These levels are similar to those found in European countries that have been aggressively promoting condom use among sexually active teenagers. Similarly high levels of condom use at first sex were found in Brazil, where 48 percent of young people used condoms the first time they had sex, rising to 71 percent in people with higher levels of schooling.

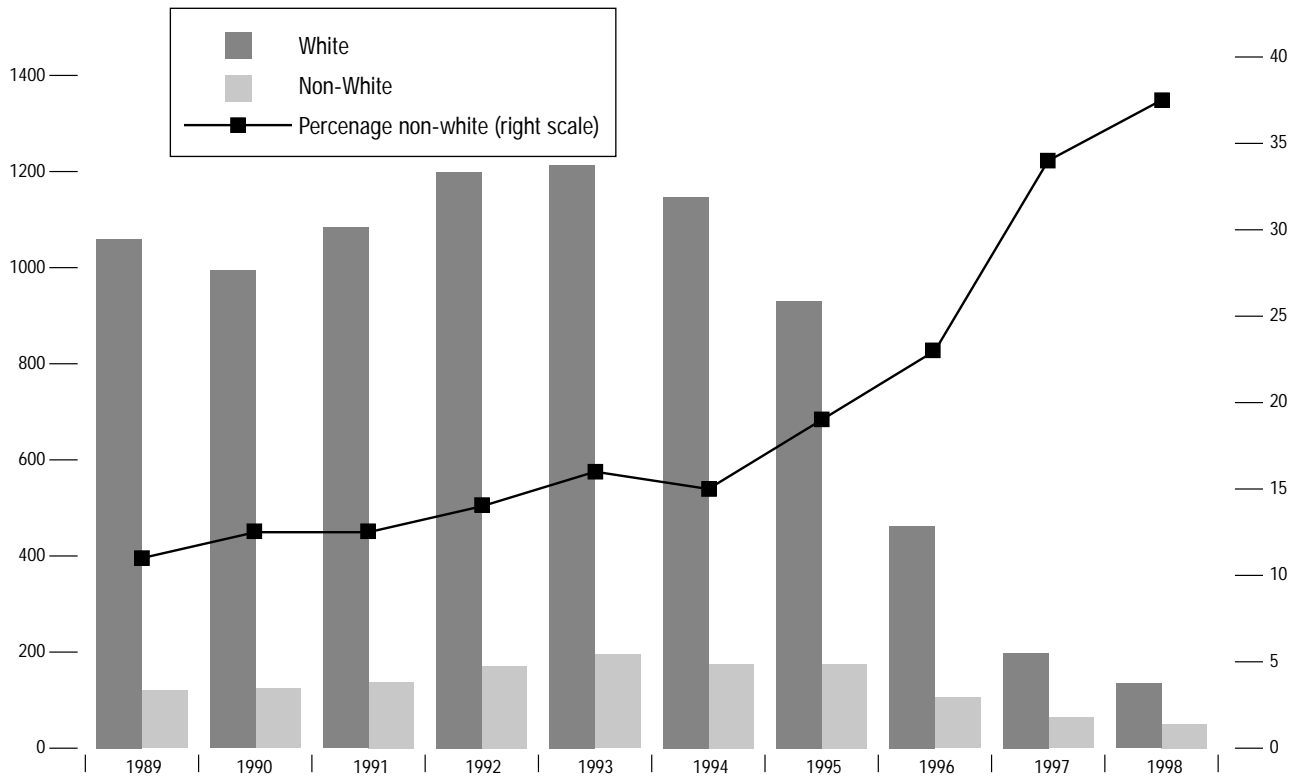
Among teenage men in the United States, sex education and AIDS prevention programs probably contributed to a fall in risk behavior in the early 1990s. Over 1700 men aged between 15 and 19 were questioned about their sexual behavior in surveys in 1988 and 1995. By the second survey, young men reported lower rates of sexual activity, especially at younger ages, and higher rates of condom use. Just over one quarter of 15 year-olds were sexually active in 1995, compared with one third in 1988. Overall, the proportion of teenage men who had unprotected sex in the last year fell from 37 percent in 1988 to 27 percent in 1995.

HIV at the margins spreading along the fault-lines in society

HIV has a tendency to spread along the fault-lines of our societies, highlighting neglected populations and confronting us with inequity and hypocrisy. Some marginalized populations have been discussed in the preceding pages, and of course there is frequently a lot of overlap between groups. Men and women from ethnic groups may have fewer opportunities in schooling and employment than the majority population in many countries, for example, driving them further towards the margins of society and increasing the likelihood that they will become sex workers or drug abusers, or will be driven to support themselves through illegal activity. Over one half of drug injectors in a study in the Eastern U.S. city of Baltimore never graduated from secondary school, for example, and 97 percent were African-Americans. Members of marginalized communities may also have less access to health information and services, increasing their vulnerability of contracting illness, including STIs and HIV, thereby reducing the chances that their illness will get adequately treated.

The concentration of HIV in ethnic populations is usually politically sensitive, and very few countries have published studies that attempt to determine either the extent of the concentration, or the reasons for it. Indeed in some countries it is only recently that data on ethnic origin has been included in routine HIV and AIDS case reporting. In Canada, of the cumulative AIDS diagnoses reported to December 1998, 78,6% have reported ethnicity. Figure 7 shows there is a clear trend among cases where ethnic group is known. A rapidly rising proportion of cases are reported in ethnic minorities.

Figure 7. Number of AIDS cases among white and non-white people in Canada, of those whose ethnicity is know, 1991-1998, with proportion of known cases among people who are not white



Source: Health Canada. HIV and AIDS in Canada. Surveillance report to December 31, 1998. Ottawa, 1999

In the United States, a similar pattern of relatively greater HIV infection among minorities over time is seen. Studies in the United States also demonstrate that members of ethnic minorities are less likely to have adopted safe behavior since active HIV prevention campaigns began than members of the white majority. This suggests the need to design prevention information and services that are culturally appropriate. This may be an indication that prevention information and services do not adequately meet the needs of these populations. For example, unsafe sex fell by 35 percent among white teenagers between 1988 and 1995, compared with a 15 percent fall in black teenagers. Among Hispanics, exposure to risk actually rose over the same period.

One country that has made an active effort to understand the differences in HIV infection in different ethnic groups is Honduras. The results of a study among the population of the Black Carrib minority known as “Garífunas” are distressing. HIV infection in this population is six times the Honduran national average, at 8.2 percent in men and 8.5 percent in women. Among men and women in their 20s, HIV prevalence rose to an astronomical 16 percent. Ignorance could certainly not be cited as a reason for risk behavior in this population: 96 percent of men and 97 percent of women knew about HIV and how it was contracted, and very high proportions cited condom use as the principal way of avoiding infection. This knowledge was not reflected in behavior. Almost 40 percent of Garifuna men said they had had sex with two or more women in the previous six months, compared with 13 percent of women. Among men who had sex with sex workers, three-quarters only used condoms occasionally, or not at all. Clearly, HIV prevention and care programs that address the needs of this minority group are urgently needed.

Another marginalized population that serves as a magnet for HIV is prisoners. Indeed, many people who wind up in prison are there because of activities which are also associated with HIV—principally drug use and prostitution—so the likelihood of infection is almost certainly higher than the national average when someone goes to prison. Some 28 percent of prisoners in Brazil are jailed for drug-related crimes, for example, while in a study of drug injectors recruited in the community in Buenos Aires, nearly two-thirds had been in jail at some time in the past.

Whatever the HIV prevalence among incoming prisoners, violence, dangerous sex and drug taking within prison mean that prevalence is sure to be higher still by the time people are released. In a study among (mostly male) prisoners in Honduras, HIV prevalence was 6.8 percent, compared with 0.5 percent in a group of men more representative of the general population. In Brazil, different prisons have recorded HIV rates of between 12.5 and 17.3 percent. The Ministry of Health estimates that approximately 15 percent of the prison population of around 150,000 people are currently infected with HIV. Epidemiologists calculate that more people die of AIDS in Brazilian prisons than of any other cause, including violence. Still, an estimated 3,500 HIV infected people are released from Brazil’s prison system each year.

Ex prisoners report that injecting drug use is common in prison, but because syringes are hard to obtain and bleach is not available, syringes are commonly shared between dozens

of prisoners without being adequately cleaned. Sex, particularly between men, is also common, and condoms are rarely available. Policies designed to be humane and allowing spousal visits may provide a pathway for the elevated HIV prevalences found in prisons to insinuate themselves into the general population, unless condoms are also provided and their use encouraged. In Honduras, 62 percent of 2,095 prisoners questioned said they had sex in the last 12 months while in prison, mostly with visiting spouses but some with other prisoners. Over 80 percent never used a condom in these encounters. In Brazil, most prisons allow prisoners to have sex during spousal visits, but very few provide condoms. On a positive note, some states in Brazil have taken a lead in changing this situation. The state of Sao Paulo is reported to be providing its 36,000 prisoners with 100,000 condoms a month. While these are ostensibly for spousal visits, the state does not ask any questions about how they are used.

One of the difficulties facing people planning HIV prevention initiatives among marginalized populations is that the threat of HIV may seem very distant compared with the need to survive from day to day. While little quantitative information is available on street children, for example, but it is clear that they are highly exposed to HIV. One study of 60 street children in detention in Belo Horizonte, Brazil, reported that all but one boy, who were aged between 13 and 18, were sexually active, and almost none used condoms. While they knew about HIV infection, its consequences and how to avoid it, this paled in comparison with the other risks in their lives. According to the majority of these boys, the biggest risk in their lives was getting shot or die from other violent causes.

Better understanding for a better response Improving HIV surveillance

As can be seen from the preceding review, a great deal is known about HIV and the behaviors that encourage it spread in the Americas. However, there are still important gaps in our knowledge. Filling those gaps will improve the ability of countries and communities to act to reduce the spread and impact of HIV.

Historically, most countries in the Region have relied on reporting of AIDS cases as a way of tracking the epidemic. This system has several major limitations. Firstly, because it can take a decade or more for a person infected with HIV to develop AIDS, AIDS case reporting gives an idea of trends in new HIV infection rates many years ago. Planning prevention programs on the basis of AIDS case reports is like “shutting the stable door after the horse has bolted”. Secondly, poor diagnostic facilities, confusion about case definitions, reluctance to record the heavily stigmatized disease AIDS as a cause of death and erratic reporting systems have in most countries contributed to a dramatic under-reporting of AIDS cases. The extent of underreporting is hard to estimate, and certainly varies widely throughout the Region. In relatively wealthy Caribbean countries such as Barbados, over 70 percent of AIDS cases are estimated to be reported in a reasonable time frame. In less

developed countries such as Guyana, nine out of 10 cases are estimated to go unreported. A review of the HIV and AIDS surveillance system in Colombia, a country with mandatory reporting of HIV as well as AIDS cases, estimated that reported figures represent as little as one seventh of the true number of cases. A similar review in Trinidad and Tobago concluded that the sensitivity of the AIDS case definition used was between 45 and 50 percent, while in Peru a massive leakage of information was found between different levels of the reporting system.

A third problem has surfaced in recent years, with the advent of combined antiretroviral therapy that altered the previously predictable progression from HIV infection to AIDS. While AIDS remains fatal, life-prolonging therapy can for some HIV-infected people postpone death for an unknown period of time. This means that the timing of the progression from HIV to AIDS and from AIDS to death has become very difficult to predict, so calculating past trends in HIV-infection from current AIDS cases or deaths has become more or less impossible.

Some of these problems can be minimized by shifting from AIDS to HIV case reporting. The problem of completeness of reporting is, however, even greater for HIV than for AIDS. In all but the poorest areas, most people with symptomatic AIDS will come into contact with the health system at some time or other, providing an opportunity for cases to be recorded and reported. The same is not true for people with asymptomatic HIV infection, who can live for many years without having any cause to seek health care.

For these reasons, more and more countries are strengthening their HIV surveillance systems. Instead of relying on reporting of cases that happen to be discovered, active HIV surveillance seeks to test blood, saliva or urine samples from people in different population groups, to determine current levels of HIV infection. Often, these tests are performed on left-over blood taken for other routine screening purposes. The specimens are anonymous, so there is no way of tracing test results back to an individual. This type of unlinked, anonymous surveillance, commonly performed on specimens taken from pregnant women for syphilis screening, produce relatively unbiased results. Because left-over blood cannot be linked to an individual, tests can be performed without asking a person's permission, thus avoiding the likelihood that people who do not want to know their HIV status refuse to be tested.

In at least one country—Argentina—unlinked anonymous testing has been replaced entirely by testing of people who agree to be screened for HIV after counseling. This is because Argentina has passed a law mandating free antiretroviral treatment for anyone with a positive test result. Because high-quality counseling is widely available, many people in Argentina, including almost all pregnant women, choose to be tested voluntarily. This allows the country to continue tracking the HIV epidemic while increasing individual and community awareness of HIV, and opportunities for prevention efforts, through counseling and testing. However, many countries do not yet have the resources to provide these services universally. UNAIDS/WHO/PAHO believe that continued tracking of the HIV epidemic through unlinked anonymous testing of different population groups is an

important public health measure, providing invaluable information a nation's ability to plan prevention and care services for those who most need it.

But how can a country best determine who most needs prevention and care services? The cornerstone of any planning for HIV programs must be behavioral and biological surveillance in groups that may be highly exposed to HIV or other STIs. The behaviors that spread HIV are well known: overwhelmingly, the most important are unprotected sex with non-monogamous partners, and sharing needles or injecting equipment without adequate sterilization. National AIDS programs and their partners (programs, other collaborators and allies) should actively look for groups in which these behaviors are common—sub-populations of drug injectors, men who have sex with other men, young people without access to adequate information or prevention services, prisoners, sex workers and others. Members of these sub-populations are not by definition at high risk of infection—if all drug injectors use their own syringes and condom use with sex partners is high, for example, they may be at no greater risk of HIV infection than other members of the general population. The point is that without seeking them out and asking about their behavior, programme planners will not know if prevention initiatives are needed, or which interventions are likely to be most effective. Behavioral surveillance is also critically important in identifying sexual links between people with very high risk of exposure to HIV and people with lower risk (for example, the wives of men who frequently have unprotected sex with other men). Thorough knowledge of the age groups, in which these behaviors occur, especially for younger ages, provides a critical information.

Behavioral surveillance acts as an early warning system for HIV, and it also tells program planners where biological surveillance for HIV and other STIs is needed. Both types of surveillance provide measures against which future progress in braking the epidemic can be compared. The fact that there is no information on risky behavior in drug injectors or in men who have sex with men in a country does not mean that those practices do not exist, or that there is no HIV epidemic in those populations. A lack of information does, however, probably mean that no carefully planned or effective prevention is taking place in those populations. So if risk behaviors do exist, ignoring them will not make them go away. On the contrary, ignoring them will make them worse.

Treatment for people with HIV and AIDS more than just a dream

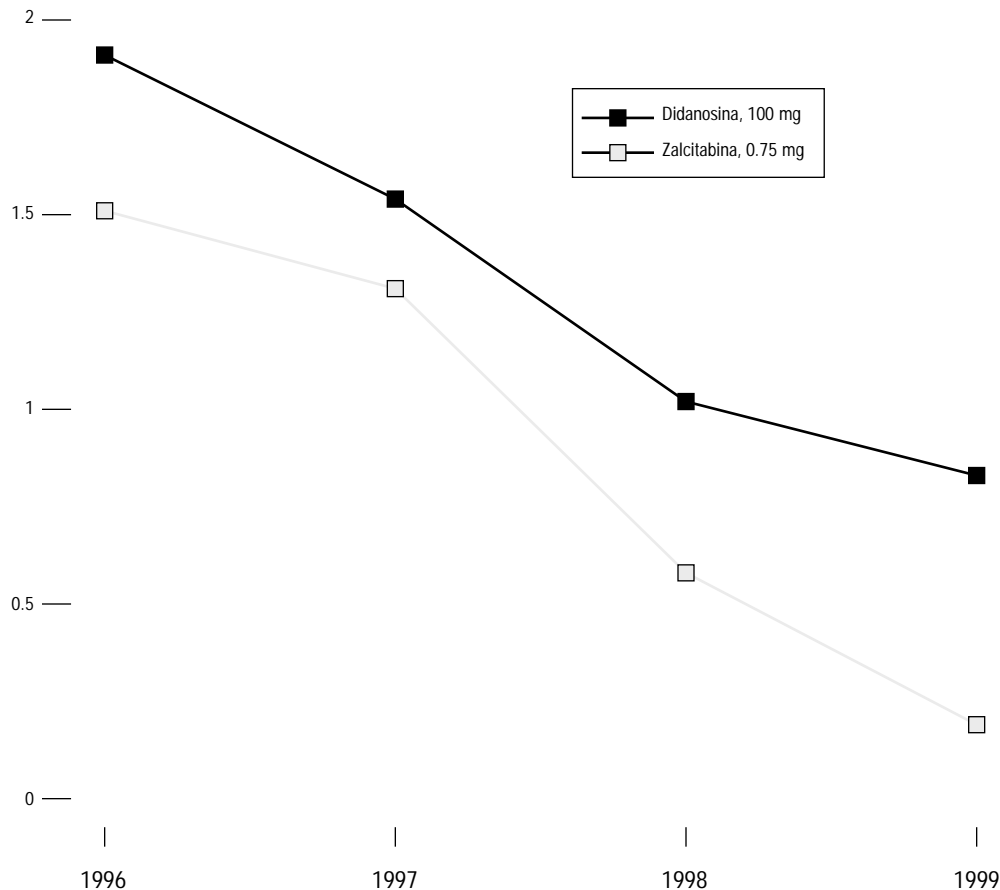
Since effective combination therapy HAART for HIV became available in 1995, many countries in the Americas have worked hard to increase access to these drugs for people living with HIV and AIDS. Indeed, a few countries in Latin America and the Caribbean lead the developing world in providing access to antiretroviral therapy. However there is still a chasm between countries in this regard, with some unable to provide even treatment for common opportunistic infections, while others are legally bound to provide cutting edge

combination therapy to all that need it. There are also concerns that an overemphasis on treatment, at the expense of continued prevention efforts.

The biggest issue for most countries considering the provision of treatment for HIV and AIDS patients is cost. Antiretrovirals are expensive in their own right—between US\$ 1,500 and US\$ 10,000 dollars per person per year depending on the mix of drugs. On top of that comes the cost of sophisticated diagnostic and monitoring equipment to track the progress of infection and to adjust treatment regimens.

Brazil, which has published comprehensive cost and effectiveness data, estimated the average cost of triple therapy with protease inhibitors in 1999 at US\$ 5,644 per patient. Dual therapy costs an average of US\$ 1,412 per patient, according to National AIDS Program figures. However prices are falling as volume and local production rise. Figure 8 shows the unit price of two common antiretroviral drugs over time. A 100 mg capsule of didanosine more than halved between 1996 and 1999, from US\$ 1.91 to 83 cents. Zalcitabine fell even more dramatically, with the cost of a 0.75 mg pill slashed from US\$ 1.51 to just 19 cents over the same period.

Figure 8. Unit cost of antiretroviral drugs in Brazil, 1996-1999



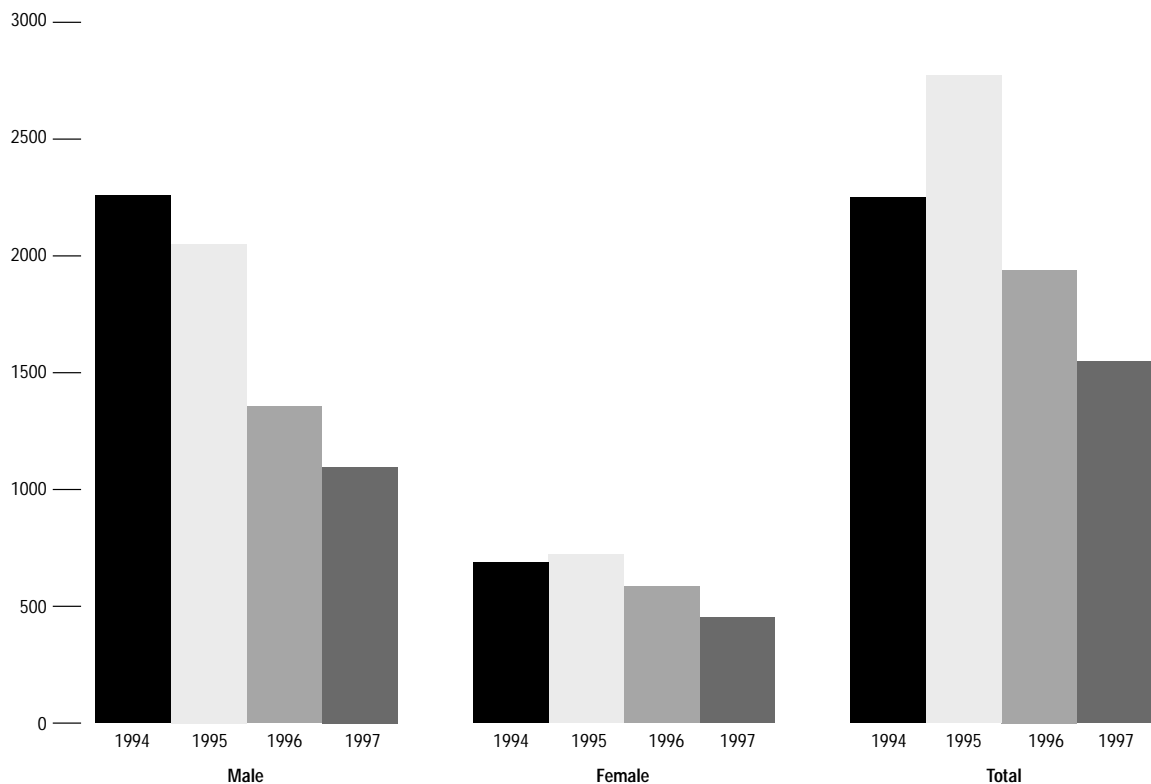
Source: National AIDS Programme, Brazil

The increased local production of antiretroviral drugs has contributed to the fall in prices. While just 28 percent of spending on drugs in 1999 went to Brazilian producers, it is estimated that the proportion will rise to nearly three-quarters by the end of 2000.

But effective therapy produces savings on the balance sheet as well as costs. Brazil estimates it spent US\$ 345 million on AIDS-related therapy in 1999, around 80 percent more than a year earlier and over two and a half times as much as in 1997. However, that spending is believed to have avoided 146,000 hospitalizations from 1997 to 1999, saving an estimated 521 million reales (US\$ 270 million at December 1999 exchange rates) in hospital costs and drugs for opportunistic infections. In 1996 and 1997 two major hospitals in Sao Paulo registered reductions in demand for treatments for HIV-related diseases of between 35 and 42 percent. Demand for treatment for cytomegalavirus, a disease that often affects people with very advanced HIV infection, fell by 60 percent in 1997/98, and there was a 54 percent drop in new cases of TB. The average length of a hospital stay per HIV-infected patient also fell significantly, from 38 days in 1995 to 20 days in 1997.

Less critical illness also means less death, less job and income loss, less stress for individuals, their families, friends and communities. Figure 9 shows the drop in AIDS-related deaths in the Brazilian state of Sao Paulo since therapy became available.

Figure 9. AIDS deaths in São Paulo, Brazil, 1995-1997



Source: Brazil, Ministério de Saúde. Bol. Epi. 01 Dic. 99-Jan. 2000.

Uruguay, which is legally bound to provide treatment for those with HIV and which provides triple combination therapy for four out of five people in treatment, estimates avoiding 1.3 hospitalizations a year for those on treatment, saving an estimated US\$ 1.7 million, against drug costs estimated around US\$ 8 million.

While people living with HIV in Argentina, Brazil, Colombia, Costa Rica and Uruguay all have a legal right to medical care and to receive at least some form of antiretroviral treatment, the application of the laws are in practice somewhat patchy. Other countries have different approaches, including a lottery for access to drugs. In some countries, for example Mexico, antiretrovirals are available to those with social security or with private health insurance, but are many times, out of reach or continuity for people who rely on the public health care system. Mexico's National AIDS Program estimated that 55 percent of over 20,000 people living with AIDS at the end of 1997 did not have social security, and so had no access to affordable antiretroviral treatment. Attempting to redress this imbalance, the Mexican government has joined with non-governmental organizations, private pharmaceutical companies, academic institutions and other partners in an initiative to increase access to antiretrovirals. The initiative, known as FONSIDA, now provides free treatment to all HIV-infected children under 18 as well as to pregnant women who test positive for HIV and are not covered by private insurance or social security. In Venezuela, where virtually no antiretroviral treatment is available in the public health system, one NGO is recruiting people to make monthly donations on their credit cards to finance the provision of antiretrovirals. Indeed NGOs have been increasingly involved in promoting access to drugs in a number of ways. These include legal challenges to current policies, often using constitutional rights to health care as a basis for action. As a result, several countries have passed laws guaranteeing access to HIV-related drugs through the public health system or social security, and a few countries have also obliged private insurers to provide antiretrovirals and other HIV-related therapy.

However, access is not enough. It is essential that systems are in place to ensure the quality of donated drugs, and the continuity of supply to those taking them if an increase in drug resistance is to be avoided.

Antiretroviral resistance is now a major cause for concern in all countries where therapy is available. In a study of 59 HIV positive blood donors in Sao Paulo who had never undergone any kind of treatment related to HIV, 13.5 percent carried strains of the virus that were already resistant to treatment with reverse transcriptase inhibitors.

Access is an issue for marginalized groups even in the countries with the highest per capita spending on health. In a study among drug users in one city in the United States, half of the people who met the criteria for treatment under national guidelines were receiving no antiretroviral therapy at all, and just 14 percent were on triple therapy. People with no health insurance were over four times as likely not to be receiving treatment as people with health insurance. A study in Canada, where access to health care is more equitable than in the United States, showed that just 40 percent of drug injectors were receiving any antiretroviral drugs nearly a year after they became medically eligible. Women were more

than twice as likely not to be receiving any therapy as men. The authors of both of these studies suggest that doctors may not be prescribing therapy to drug injectors because they fear they will not take the medicine as prescribed. Failure to stick to the approved regime can lead to drug resistant strains of HIV, making therapy a less effective weapon against the virus. The authors of the Brazilian study say that doctors should not allow fears about compliance to lead to discrimination in prescribing treatment. After all, they point out, no one knows more about regular consumption of drugs than an addict.

Efforts to provide antiretroviral drugs should be applauded. But it is important that the provision of therapy does not displace prevention efforts. After all, the most effective way of cutting down HIV-related sickness and death is still to cut down on HIV infection itself, and that is still only possible through prevention. Brazil is estimated to have spent over 7 times as much on comprehensive medical care in 1998 as it spent on HIV prevention. Guatemala, where coverage of antiretroviral therapy is extremely low, spent twice as much on curative services related to HIV in 1996 as it did on prevention. Jamaica spends around 2.4 million dollars a year on HIV prevention and care, nearly 60 percent of it on treatment of infected people. In Mexico, three quarters of the estimated US\$ 121.3 spent on AIDS in 1996 was spent on curative services, though over 40 percent of that came from private sources. While it is important to support efforts to expand access to HIV-related therapy, it is absolutely vital that support for prevention efforts expands at least the same rate.

Protecting the next generation babies need not be born with HIV

Around one third of pregnant women infected with HIV will pass the virus on to their infants in the womb, during childbirth or through breastfeeding unless preventive interventions are available. Avoiding breastfeeding can cut the risk substantially. Adding a simple course of oral antiretroviral therapy given to the mother in the last month of pregnancy, can bring the rate of transmission down below one in 10. However these programs depend upon a mother knowing she is HIV infected before delivery. That, in turn, depends on women attending antenatal clinics, being counseled about HIV, choosing to be tested and finding out their HIV status. HIV prevalence rates are rising among women in many areas, especially in the Caribbean and Central America. In the English-speaking Caribbean alone, a child is born with HIV or infected through breastmilk every day. The Dominican Republic estimates that the provision of preventive services for pregnant women could cut the number of infections in children born to HIV positive mothers down from 930 to around 270 a year. By the end of the year 2000, Jamaica plans to provide HIV prevention services—counseling and voluntary testing, with antiretrovirals and breastmilk substitute for pregnant women who test positive. In Honduras, an external needs assessment estimated that some 24,000 women a year attend public antenatal services in the major urban areas. At current prevalence rates, it is expected that some 400 children a year will be born to HIV positive mothers—in the absence of interventions that translates

into 120 HIV positive children. The country is currently planning interventions to cut this number. Guatemala spent some US\$ 34,000 on AZT to prevent vertical transmission between 1995 and 1998—around three percent of the country's total spending on AIDS. In Belize, no services are currently in place to prevent transmission of HIV from mother to child, but the country is aiming to provide universal counseling and voluntary testing within two years for all of the estimated 6,000 women a year who become pregnant.

Those countries that have implemented and monitored programs to reduce HIV transmission from mother to child have recorded successes. For example, the Bahamas, which uses a modified version of a complex regimen used in North America, has recorded a fall of more than one half in maternal to child transmission (MTCT) rates -- from 28 percent to 12 percent—since implementing the program. Some countries in the region use the ACTG 076 regimen to prevent pregnant women from passing HIV onto their infants.

The cost of vertical transmission programs depends both on fertility, which determines the number of women who become pregnant and must be offered testing -- and on HIV prevalence, which determines the number who will need drugs and breastmilk substitutes. While absolute costs will rise as prevalence rises, the cost per infection averted will fall. A study in the Caribbean estimated the cost of providing programs to prevent HIV transmission from mother to child on the order of US\$ 6,300 per infection averted—less than the lifetime cost of treating an infected child.

The success of programs to prevent HIV transmission from mother to child depend to a certain extent on the coverage of antenatal services, and on the acceptability of HIV testing among pregnant women. Coverage of antenatal services varies across Latin America and the Caribbean, although it is generally quite high. Between 75 and 100 percent of women in most Caribbean countries are in contact with a clinic before giving birth, and many deliveries take place in hospital. Almost all pregnant women in the Dominican Republic go to antenatal clinics, for example, and over 95 percent give birth in a hospital. In Haiti, by contrast, 80 percent of women give birth at home, and 30 percent of women receive no antenatal care at all. In Central America, antenatal coverage is patchy, with some areas of Mexico and Guatemala registering rates of under 60 percent. In some Andean countries, especially in rural areas, women may not get any kind of antenatal care.

From the slim information available, the question of acceptability of testing does not loom as a major obstacle to prevention programs for pregnant women in Latin America and the Caribbean. A large preparatory study in Mexico City found very high acceptance rates for HIV testing among pregnant women after counseling. Just 23 out of 6,369 women refused the offer of a test (0.36 percent) even though eight percent thought they were at risk of infection. In fact, they vastly overestimated the risk as a group—just 0.09 percent of all the women tested positive for HIV. These acceptance rates stand in stark contrast to those experienced in sub-Saharan Africa, where up to 70 percent of women turned down the opportunity to find out their HIV status even after being told that free treatment could save the life of their baby if they tested positive.

Several studies of HIV related knowledge suggest that transmission of HIV from mother to child is the least known of the major mechanisms, and that transmission through breastfeeding is particularly poorly known. In a population of nearly 5,000 Brazilian workers of both sexes who were extremely well informed on all the other major means of transmission and prevention, just 57 percent knew that HIV could be transmitted through breast milk.

The challenge continues

Despite the many faces presented by the HIV and AIDS epidemic in the Americas, certain common threads can be drawn—threads that may lead us into a more successful response to the continuing challenges posed by HIV.

Bellow are the main recommendations that this group LAC EpiNet and MAP Networks at the joint meeting held in Rio de Janeiro, November 4-5, 2000:

- * The participants of the meeting expressed their concern about the lack of recent data and that this report is mostly based on data from the mid-90s. Efforts should be made to ensure that surveillance continues on an ongoing basis.
- * Better information is needed to help understand the developing epidemic. Active HIV surveillance and behavioral surveillance should be strengthened throughout the Region, and more attention should be paid to sub-populations with high risk behavior, where infection is likely to be concentrated.
- * More attention should be paid to the lessons of the past. For example, drug injecting prevention, HIV prevention and other harm reduction programs should be implemented immediately, especially in populations where HIV prevalence among drug injectors is still low.
- * Prevention programs should focus on meeting the needs of marginalized populations who have been overlooked by past efforts to promote safer behavior.
- * The principals of Second Generation Surveillance should applied through the region in order to obtain better information on marginalized groups. Even if countries are implementing integrated surveillance, countries need to assure that adequate information about the HIV/AIDS epidemic is collected.
- * The provision of therapy cuts illness and death, and should be expanded as rapidly as possible, and to those in greatest need. However treatment and care programs must never be allowed to displace surveillance and prevention efforts.

- * National AIDS programs need to incorporate surveillance into their strategic plan as part and strengthen the process of monitoring and evaluation, and adequate resources should be especially allocated to surveillance.
- * Surveillance data should be widely disseminated to non-governmental agencies who are participating in preventive efforts, and especially to policy makers, and other beneficiaries in a timely and regular manner.
- * Caribbean and Latin American countries need to develop standardized surveillance indicators and specify the AIDS case definition that is being used.
- * LAC countries should strengthen inter country and intra-regional networks in order to improve data collection, analysis, interpretation and use. It is essential that LAC countries continue to share and exchange experiences to strengthen and build their human resource capacity in surveillance.
- * LAC countries are encouraged to explore and reanalyze already collected data to supplement the local needs in designing and implementing intervention programs.
- * The National AIDS surveillance programs should collaborate with the local institutions and non governmental organizations in the enhancement of HIV/AIDS surveillance system in their countries.
- * Surveillance data should be used to maximize the use of resources in implementing intervention programs for targeted population.
- * Behavioral surveillance data should be collected and analyzed in collaboration with institutions who have the necessary training and experience in this field.
- * LAC countries have to ensure the preservation of public health functions including surveillance activities are strengthened within the process of implementing health sector reform.
- * The valuable contributions of UNAIDS and WHO in the global AIDS surveillance has been noted. It is essential that these international organizations continue their technical leadership and support to LAC countries in the area of HIV/AIDS surveillance.

This document just begins to scratch the surface of the extraordinarily diverse HIV and AIDS situation of Americas. It is the first of what is intended as an annual review of different aspects of this ever-changing and ever challenging epidemic. Comments are most welcome; we look forward to collaborating towards a more comprehensive understanding of the epidemic, and continuing success in the response.

Bibliography

- Aguilar S, Fulladolsa A, Villanueva P et al. Prevalencia del VIH en parturientas y trabajadoras del sexo en cinco ciudades de Guatemala. I Congreso Centroamericano de ETS/SIDA, Honduras, 1999: 202
- Allen, C, McLetchie, K, De Gazon-Washington, A and Chapman-Smith, T. The sexual health needs of youth in Tobago. Family Planning Association of Trinidad and Tobago, Tobago AIDS Society and Caribbean Epidemiology Centre. 2000
- Allman D and Meyers T. Male sex work and HIV/AIDS in Canada. In Aggleton P ed: Men who sell sex. UCL press, London, 1999
- Archibald, C.P., Ofner, M., Patrick, D.M. et al. (1996). Needle exchange program attracts high-risk injection drug users. International Conference on AIDS, 11(1), 244 (abstract no. Tu.C.320)
- Ardila H. Access to treatment for people living with HIV/AIDS in Colombia. Int Conf AIDS 1998. 12: 837
- Arredondo Paz A, Ortiz Nuñez E, León Díaz EM, Peruga A, Santín M, Cuchi P. Sexual behavior in 5 countries in Latin America and the Caribbean. XIII Int AIDS Conf, Durban, South Africa. 2000 (No. abstract LbPp104)
- Avila Figueroa C. Pimer seminario sobre cuentas nacionales de VIH/SIDA. Mexico City, 1999
- Azevedo-Neto RS, Bueno RC, Mesquita F, Haiek R, Maestre M, Almeida LN, Castrignano SB. HIV seroprevalence in IDUs from Santos: general trends and gender analysis. Int Conf AIDS. 1996;11(1):350
- Barrios L. STI-HIV awareness and perception of risk among men enrolled in the Venezuelan army. Int Cof AIDS 1996. 11(2): 342
- Bastos Junior WS, Telles PR, Sampaio CM, Guanabara LP. The relevance of the harm reduction program for injecting drug users in Rio de Janeiro, Brazil. Int Conf AIDS. 1998;12:669-70
- Blume E, Rouillon M, Mazzotti G, Cuellar L, Rosasco A. Working together: an experience among NGOs, private enterprises and the government. Int Conf AIDS, 1994; 10 (1):398
- Brasil. Custo-efetividade da terapia anti-retroviral no Brasil. 1999
- Cáceres C. "SIDA en el Perú: imagenes de diversidad" UPCH, Lima, 1998
- Camara B, Wagner HU, Hopedales CJ, Lewis M, de Groulard M. Evaluation of STD/HIV/AIDS surveillance systems in five Caribbean countries. Int Conf AIDS, 1998; 12:934
- Camara B. HIV prevalence among specific groups—the Caribbean picture. 1999, personal communication.
- Campos M, Martins R, van Zeeland A et al. A multi-institutional street youth prevention programme in Brazil: searching for consensus. Int Conf AIDS, 1998. 12:892-3
- CAREC/PAHO/UNAIDS. Reducing mother to child transmission of HIV in the Caribbean. Trinidad and Tobago, 1998.
- Caricom/UNAIDS/EC. HIV/AIDS and patterns of mobility in the Caribbean: policies and strategic priorities for interventions. Trinidad and Tobago, June 1998

- Castro de Batanjer E, Echeverria de Perez G, Coura JR. An epidemiological approach to HIV 1 and 2 infection among female sex workers and gay men of Margarita Island. *Int Conf AIDS* 1996 11(1):131
- Celentano D, Vlahov D, Cohn S et al. Self-reported antiretroviral therapy in injection drug users. *JAMA* 1998;280:544-546
- Centre for Disease Control and Prevention. HIV/AIDS surveillance report, Vol 11 no 1. Atlanta, 1999
- CONASIDA, Chile, perscom
- Cruz C, Hernandez-Tepichin G, Uribe Z, Teran X, del Rio CH. STDs and HIV prevalence in female sex workers in Mexico City. *Int Conf AIDS* 1996, 11 (1): 130
- de Carvalho HB, Mesquita F, Massad E, Bueno RC, Lopes GT, Ruiz MA, Burattini MN. HIV and infections of similar transmission patterns in a drug injectors community of Santos, Brazil. *J Acquir Immune Defic Syndr Hum Retrovirol* 1996 May 1;12(1):84-92
- de Groulard M, Wagner HU, Camara B. Analysis of the situation on HIV/AIDS in the English-speaking Caribbean. *Int Conf AIDS*, 1998; 12:118
- Dominguez M. HIV sentinel surveillance in female sex workers 1992-1997. *Int Conf AIDS*, 1998. 12:1138
- Dominguez M. HIV sentinel surveillance in pregnant women 1992-1997. *Int Conf AIDS*, 1998. 12:438
- Dourado I, Andrade T, Carpenter CL et al. Risk factors for human T cell lymphotropic virus type I among injecting drug users in Northeast Brazil: possibly greater efficiency of male to female transmission. *Mem Inst Oswaldo Cruz* 1999 Jan-Feb;94(1):13-8
- Dourado I, Andrade T, Montes JC, Azevedo C, Gallo D, Galvao-Castro B. Human retrovirus in a Brazilian city with a population predominantly of African origin: evidences for high prevalence of HTLV and HIV-1 among injection drug users (IDU). *Int Conf AIDS*. 1996;11(2)
- Egger M, Isler M, Borel B, Stoll B. AIDS related knowledge, attitudes and practices on the Caribbean coast of Nicaragua, 1991-1997. *Int Conf AIDS* 1998. 12: 238
- Faas L, Rodrigues-Acosta A, Echeverría de Pérez G. HIV/STD transmission in gold mining areas of Bolívar State, Venezuela: interventions for diagnosis, treatment and prevention. *Rev Panam Salud Publica* 5(1) 1999
- Fajardo C, Garcia-Beral R, Klaskala W, Baum M. High risk sexual practices among university students in Colombia. *Int Conf AIDS*, 1998; 12:208
- Freda R, Durán J, Quast A, Vázquez E. Informe diagnostico de la epidemia VIH entre hombres que hacen sexo con hombres en Argentina. Recomendaciones de prevención. Cedosex, Buenos Aires, 1999
- Ganteaume FR. Access to treatment/care in Venezuela's social security system void. *Int Conf AIDS*. 1998; 12:834.
- Garcia R, Klaskala W, Angulo C, Baum M. HIV and AIDS surveillance in Colombia. *Int Conf AIDS*, 1996, 11(1): 151
- Guerrero G. Revisión de estudios de seroprevalencia del VIH en Panamá. Informe de consultoría para PASCA y el USBC. 1998.

- Harrison LH, do Lago RF, Friedman RK, Rodrigues J, Santos EM, de Melo MF, Moulton LH, Schechter M. Incident HIV infection in a high-risk, homosexual, male cohort in Rio de Janeiro, Brazil. *J Acquir Immune Defic Syndr*. 1999 Aug 15;21(5):408-12
- Health Canada. HIV and AIDS in Canada. Surveillance report to December 31, 1998. Ottawa, 1999
- Honduras. I Congreso Centroamericano de ETS/SIDA, Honduras, 1999: 204
- Honduras. Provision of basic standards of comprehensive care to women of reproductive age infected with HIV/AIDS in Honduras. 1999-2001.
- IBOPE. Sumário analítico dos principais resultados da pesquisa. Os jovens e as drogas: opiniões e atitudes. January 1999. Sao Paulo
- Intercambios. Asociación civil para el estudio y atención de problemas relacionados con las drogas. Prevención del VIH/SIDA en usuarios de drogas. Argentina, 1999
- Izazola JA (Ed). El SIDA en América Latina y el Caribe: una visión multidisciplinaria. SISALAC/FUNSAUD, Mexico DF, 1999
- Kerr-Pontes LRS, Gondim R, Mota R, Martins T, Wypij D. Self-reported behaviour and HIV risk taking among men who have sex with men in Fortaleza, Brazil. *AIDS* 1999, 13: 709-717
- Lacerda R, Gravato N, McFarland W, Rutherford G, Iskrant K, Stall R, Hearst N. Truck Drivers in Brazil: HIV and STD Prevalence, Risk Behaviors, and Potencial for Spread of Infection. *AIDS*, 1997 Sep, 11 Suppl 1:S15-9
- Leon E, Hernández M, Peruga A. Comportamiento sexual y caracterización de la población con conductas de riesgo de infección por el VIH/SIDA, a través de métodos matemáticos: estudio de ciudad de La Habana. La Habana, 1999
- León Díaz EM, Arredondo Paz A, Ortiz Nuñez EC, Peruga A, Santín M, Cuchí P. Occasional sexual partners and condom use in 5 countries of Latin America and the Caribbean. National Commission of AIDS, CONASIDA/Chile and Cuba, XIII Int AIDS Conf, Durban, South Africa. 2000. (Abstract LbPeC7081)
- Levine W, Revollo R, Kaune V et al. Decline in sexually transmitted disease prevalence in female Bolivian sex workers: impact of an HIV prevention project. *AIDS* 1998, 12: 1899-1906
- Liga Colombiana de Lucha contra SIDA. Sexo Gay. Acercándonos a Nuestra Realidad. 1996 Bogotá.
- Ligia RS, Kerr-Pontes, Gondim R, Mota RS, Martins TA, Wypij D. Self-reported sexual behaviour and HIV risk taking among men who have sex with men in Fortaleza, Brazil. *AIDS* 1999, 13:709-717
- Lima ES, Azevedo RC, Manfrinatti MB, Silva JA. Risk behaviors for HIV-1 seroprevalence in a sample of injecting drug users (IDUs) and crack smokers (CSS) in Campinas, Brazil. *Int Conf AIDS*. 1996;11(2)
- Lowndes CM, de Souza V, Bastos FI, Suttmoller F. Sexual behaviour and perception of vulnerability to HIV infection in men who have sex with men enrolled in a cohort study on HIV incidence in Rio de Janeiro, Brazil. *Int Conf AIDS*, 1998; 12: 203
- Lurie P, Drucker E. An opportunity lost: HIV infection associated with lack of a needle exchange programme in the USA. *Lancet* 1997; 348:604-608.

- Lurie P, Fernandes MEL, Hughes V, Arevalo EI, Hudes ES, Reingold A, Hearst N. Socioeconomic Status and Risk for HIV-1, Syphilis and Hepatitis B Infections among Sex Workers in Sao Paulo State, Brazil. *AIDS* 9:S31-S37 (suppl. 1), 1995
- Lutter C, Freire W. Maternal HIV infection and breastfeeding in Honduras: analysis of the need for infant formula. PAHO 1998.
- Micher JM, Silva JS. Nivel de conocimientos y prácticas de riesgo de enfermedades de transmisión sexual. *SIDA-ETS* 1997; 3 (3) 68-73.
- Ministerio de Saúde, Brasil. Boletím: Uso indevido de drogas & DST/Aids, Ano II, no 5, 1998. Brasília.
- Ministério de Saúde, Brazil. DST e AIDS no local de trabalho. Brasilia, 1998.
- Ministry of Health. AIDS in Brazil: a joint government and society endeavour. Brasilia, 1998
- Ministry of Health, Jamaica. Knowledge, Attitude, Behaviour and Practice Study among Adolescents 12-14 years. Prepared for FHI/AIDSCAP in collaboration with the Ministry of Health by Hope Enterprises Limited, Jamaica. 1994
- Ministry of Health, Jamaica. Knowledge, Attitude, Behaviour and Practice Study among Adolescents 12-14 years. Prepared for FHI/AIDSCAP in collaboration with the Ministry of Health by Hope Enterprises Limited, Jamaica. 1994
- Monge E, Ma L, Moraga M. HIV seroprevalence among high and low risk women in Costa Rica, 1997. *Int Conf AIDS*, 1998
- Mora V, Antonio M. Presence of STD/AIDS and drug addiction in 102 minors who are commercial sex workers in Central Bogotá, Colombia. *Int Conf AIDS* 1996. 11(2): 415
- Narvaez A, Kusunoki L, Narvaez B. Diagnóstico de los sistemas de vigilancia de la Region Andina. LAC EpiNet. 2000
- National AIDS Programme, Trinidad and Tobago. Youth response survey: a national survey of knowledge, perceptions and practices among 1500 youth in Trinidad and Tobago subsequent to IEC activities on AIDS. Ministry of Health, Trinidad and Tobago. 1995
- National Surveillance Unit, Ministry of Health/CAREC. Evaluation of HIV/AIDS/STD surveillance. Trinidad and Tobago, March 1997
- Ofner, M., Archibald, C.P., Strathdee S.A., et al. (1996). High-risk behaviours of injection drug users in two large Canadian cities. *International Conference on AIDS*, 11(1), 352 (abstract no. Tu.C.2504)
- ONUSIDA Grupo Temático para Colombia/Ministerio de Salud de Colombia. Infección por VIH y SIDA en Colombia: aspectos fundamentales, respuesta nacional y situación actual. Bogotá, 1999
- PAHO/NMRCDC. Epidemiology of HIV in South America. Collaborative studies with National Programmes. Update October 1999
- Pedrosa L, Martínez F, Hernández P, Magis C, Soler C. Detección oportuna de VIH en mujeres embarazadas. Retos en la prevención de transmisión perinatal. I Congreso Centroamericano de ETS/SIDA, Honduras, 1999: 007
- Pérez Then E, Salvador Quiñones M, Guerrero E, Butler de Lister M. Estrategías para disminuir la transmisión del VIH de madre a hijo. PROCETS, Santo Domingo, República Dominicana, 1999

- Pérez R, Suárez E, Pérez C, Morales A. Epidemiological profile of HIV/AIDS in Puerto Rico: 1981-1996. San Juan, 1998
- Persaud N, Klaskala W, Tewari T, Shultz J, Baum M. Drug use and syphilis. Co-factors for HIV transmission among commercial sex workers in Guyana. *West Indian Med J.* 1999 48(2):52-56
- Rangel A, Telles PR, Bastos FI, Guydish J, Hearst N. HIV risk in IDU's in Rio de Janeiro: psychological predictors & implications for interventions. *Int Conf AIDS.* 1996;11(1):350
- República Dominicana. Programa Control de Enfermedades de Transmisión Sexual y SIDA. Informe de monitoreo 8vo año encuestas seroprevalencias del VIH según población y puestos. Santo Domingo, 1998
- Revigliano M, Reynoso C, Spoleti P and Bortolozzi R. Knowledge and attitudes about HIV/AIDS. A comparative study. *Int Conf AIDS,* 1998. 12:1141
- Reyes O, Baquerizo M, Hearst N. HIV sentinel surveillance in STD patients in Ecuador, 1991-1993. *Int Conf AIDS* 1994. 10(2): 294
- Ricardo G, Castro J, Klaskala W, Baum M. Epidemiological characteristics of HIV serosurvey in Colombia. *Int Conf AIDS,* 1996, 11(2): 348
- Rodrigues LG, Castilho E, Chequer P et al. Interaction HIV/tuberculosis in Brazil: the first 15 years and the future. *Int Conf AIDS,* 1996, 11(1): 167
- Rodriguez CM, Ruiz Badillo AR, Loo Mendez RE et al. Sentinel studies in intravenous drug users in Mexico. *Int Conf AIDS* 1998; 12:1135
- Rossi D, Cymerman P, Ereñú N et al. Prevención del VIH-SIDA en usuarios de drogas. Buenos Aires, 1999
- Saavedra J, Molina R, Gontes M, et al. AIDS care expenditures: Ambulatory care vs hospitalization. *Int Conf AIDS,* 1998
- Sabino EC, Saez-Alquezar A, Barreto C. Prevalence of mutations that confer resistance to RT inhibitors among drug naïve HIV-positive blood donors in Sao Paulo, Brazil. *Int Conf AIDS* 1998. 12: 16
- Sabino EC, Saez-Alquezar A, Barreto C. Prevalence of mutations that confer resistance to RT inhibitors among drug naïve HIV-positive blood donors in Sao Paulo/Brazil. *Int Conf AIDS.* 1998;12:16
- Santarriga Sandoval M, Loo Mendez RE, Magis Rodriguez C, Uribe Ziniga. Females sex workers in Mexico: sentinel surveillance 1990-1997. *Int Conf AIDS* 1998; 12:451-2
- Schechter, M.T., Strathdee, S.A., Currie, S.L., et al (1998). Harm reduction, not harm production: needle exchange does not promote HIV transmission among injection drug users in Vancouver, Canada. *International Conference on AIDS,* 12, 665-6 (abstract no. 33379)
- Scheffer M, Marthe M. AIDS in Brazil's prisons. In Foreman Ed: "AIDS and men: taking risks or taking responsibility." Panos Institute, London 1999
- Schechter, M.T., Strathdee, S.A., Cornelisse, P.G., et al. (1999). Do needle exchange programmes increase the spread of HIV among injection drug users?: an investigation of the Vancouver outbreak. *AIDS,* 13(6), F45-51
- Sierra M, Paredes C, Pinel R et al. Estudio sero-epidemiológico de sífilis, hepatitis B, y VIH en conductores de camiones y rastras de El Amatillo, El Henecán, Puerto Cortés, y Sába, Bastos

- Junior W, Telles P, Sampaio C, Guanabara L. The relevance of the harm reduction programme for injecting drug users in Rio de Janeiro, Brazil. *Int Conf AIDS*, 1998. 12:669-70
- Sierra M, Paredes C, Pinel R et al. Estudio sero-epidemiologico de sífilis, hepatitis B, y VIH en vigilantes nocturnos de San Pedro Sula y Tegucigalpa, Honduras. I Congreso Centroamericano de ETS/SIDA, Honduras, 1999: 186
- Sierra M, Paredes C, Pinel R et al. Estudio sero-epidemiologico de sífilis, hepatitis B, y VIH en hombres que tienen sexo con otros hombres de Tegucigalpa y San Pedro Sula, Honduras. I Congreso Centroamericano de ETS/SIDA, Honduras, 1999: 184
- Sierra M, Paredes C, Pinel R et al. Estudio sero-epidemiologico de sífilis, hepatitis B, y VIH en trabajadoras comerciales del sexo ambulantes de 5 ciudades principales de Honduras. I Congreso Centroamericano de ETS/SIDA, Honduras, 1999: 203
- Sierra M, Paredes C, Pinel R et al. Estudio seroepidemiologico de sífilis, hepatitis B, y VIH en mujeres embarazadas que asisten a control prenatal en las regiones sanitarias Metropolitana, 2, 3, 4, 6 y 7. I Congreso Centroamericano de ETS/SIDA, Honduras, 1999: 184
- Sierra M, Paredes C, Pinel R et al. Estudio seroepidemiológico de sífilis, hepatitis B, y VIH en población Garifuna de El Triunfo de la Cruz, Bajamar, Sambo Creek y Corozal. I Congreso Centroamericano de ETS/SIDA, Honduras, 1999: 205
- Sierra M, Mejia O, Pinel R et al. Estudio seroepidemiologico de sífilis, hepatitis B, y VIH en población privada de libertad de Comayagua, San Pedro Sula y Tegucigalpa, Honduras. I Congreso Centroamericano de ETS/SIDA, Honduras, 1999: 187
- Sonestein F, Ku L, Dubersten Lindberg L, Turner C and Pleck J. Changes in sexual behaviour and condom use among teenaged males: 1988 to 1995. *Am J Public Health* 1998;88: 956-959.
- Soto R, Klaskala W, Zelaya J Baum M. Risk factors for heterosexual transmission of HIV-1 infection among women in Honduras. *Int Conf AIDS*, 1998; 12:443
- Soto, V. Knowledge about STD/AIDS and sexual behaviour of risk in adolescents at Lambayeque, Peru. *Int Conf AIDS*, 1998. 12:
- Strathdee S, Palepu A, Cornelisse P et al. Barriers to use of oral antiretroviral therapy in injection drug users. *JAMA* 1998;280:547-549
- Strathdee S.A., Patrick, D.M., Currie, S.L., et al. (1997). Needle exchange is not enough: lessons learned from the Vancouver injecting drug use study. *AIDS*, 11(8), F59-65
- Systems Caribbean Ltd. Knowledge, Attitudes and Practice Survey to Measure Efficacy of Intervention Strategies on HIV/AIDS. Ministry of Health and National Advisory Council on AIDS, Barbados. 1999
- Telles PR, Bastos FL, Morgado M, Hearst N. Project Brasil-Rio de Janeiro, preventing HIV and addressing risk behaviors among injecting drug users (IDUs). *Int Conf AIDS*. 1998;12:383
- Telles PR, Bastos FL, Guydish J, Inciardi JA, Surratt HL, Pearl M, Hearst N. Nucleo de estudos e pesquisas em atencao ao uso de drogas, State University of Rio de Janeiro, Brazil. *AIDS* 1997 Sep;11 Suppl 1:S35-42
- Then E, Quiñones S, Guerrero E, Butler de Lister M. Estrategias para disminuir la transmision del VIH de madre a hijo. Republica Dominicana. Santo Domingo, 1999
- Trape L, Acosta M, Troglia A et al. Popular survey in Rosario about attitudes towards HIV/AIDS infections. *Int Conf AIDS*, 1998. 12:1170

- Trujillo L, Munoz D, Gotuzzo E, Yi A and Watts DM. Sexual practices and prevalence of HIV, HLTV-I/II and *Treponema pallidum* among clandestine female sex workers in Lima, Peru. *Sex Transm Dis* 1999 26(2):115-8.
- UNAIDS. NGO perspectives on access to HIV-related drugs in 13 Latin American and Caribbean countries. Geneva, 1998
- UNAIDS. Prevention of HIV infection among injectable drug users in the Southern Cone. January 1998.
- UNAIDS Best Practices Collection, "The Thailand Experience." 1998.
- Uribe P, Magis C, Bravo E. AIDS situation in Mexico.
- Vasquez L, Asencios L, Quispe N et al. Surveillance of antituberculous drug resistance in Peru, 1995-96. *Intl Conf Emerg Infect Dis*. 1998; 71
- Veloso VG, Pilotto JH, Azambuja R, do Valle FF, Perez M, Grinsztejn B, Nascimento MI. High prevalence of HIV infection in low income pregnant women in Rio de Janeiro-Brazil. *Int Conf AIDS*. 1998;12:1167
- Walrond, ER, Hoyos MD, and Jones, F. Report on AIDS Related Knowledge, Belief and Practices in Barbados. Faculty of Medical Sciences and Faculty of Social Sciences, University of the West Indies with the National Advisory Committee on AIDS, Ministry of Health, Barbados, 1992
- Walrond, ER, Jones, F, Ellis, H and Hoyos MD. Report on Barbadian School Children: KAP Survey on AIDS. Faculty of Medical Sciences and Faculty of Social Sciences, University of the West Indies with the National Advisory Committee on AIDS, Ministry of Health, Barbados. 1992
- Zayas J, Clará A, Chavarria I et al. Conocimientos, actitudes y practicas sexuales entre los adolescentes escolares de El Salvador y su relacion con las ETS-VIH/SIDA. I Congreso Centroamericano de ETS/SIDA, Honduras, 1999: 109
- Zegarra L, Flores J, Bachelet M. Prevalence of HIV among different risk groups in Cochabamba, Bolivia. *Int Conf AIDS* 1998. 12:

List of Participants

Sergio AGUILAR

3a Calle 50-93 Zona 11
 Colonia Molino de las Flores
 Guatemala, Guatemala
 Josergio@intelnet.net.gt

Caroline ALLEN

Caribbean Epidemiology Centre (CAREC)
 16-18 Jamaica
 Boulevard, Federation Park
 Port of Spain, Trinidad and Tobago
 Allencar@carec.paho.org

Anabella ARREDONDO

Comisión Nacional de SIDA
 Monjitas 689, Oficina 68, Piso 6
 Santiago de Chile, Chile
 Aarre@minsal.cl

Laura ASTARLOA

Programa Nacional de SIDA/ETS
 Secretaría de Recursos y Programas de Salud
 Ministerio de Salud
 Avenida 9 de julio 1925, piso 8
 1332 Buenos Aires, Argentina
 Astarloa@msal.gov.ar

Draurio BARREIRA

Esplanada dos Ministérios
 Broco G Sobreloja—Sala 106
 Brasília, Brasil
 draurio@aids.gov.br

Ruben BERRIOLO

Programa Nacional de SIDA
 Av. 18 de julio N° 1892, 4° piso—Anexo A
 Montevideo, Uruguay
 Pnsida@adinet.com.uy
 Mserra@mospub.uy

Claudio BLOCH

Programa Nacional de SIDA/ETS
 Secretaría de Recursos y Programas de Salud
 Ministerio de Salud
 Avenida 9 de julio 1925, piso 8
 1332 Buenos Aires, Argentina
 cbloch@msal.gov.ar
 bloch@connmed.com.ar

Enrique BRAVO

Consejo Nacional de Prevención y Control del
 SIDA(CONASIDA)
 Calzada de Tlalpan 4885, 2° piso
 Colonia Toriello Guerra
 CP 14050, México, DF, México
 cinvesti@prodigy.net.mx

Carlos CACERES

Lima, Peru
 Ccaceres@upch.edu.pe

Euclides CASTILHO

Faculdade de Medicina da USP
 Depto. Medicina Preventiva
 Av. Dr. Aranaldo 455
 Sao Paulo, SP 01246-903
 Castil@usp.br

Paloma CUCHI

UNAIDS/PAHO
 525 23rd Street, NW
 Washington DC 20005
 USA
 Cuchipal@paho.org

Carlos DEL RIO

Emory University
 69 Butler Street, SE
 Atlanta, GA 30303
 USA
 cdelrio@emory.edu

Theresa DIEZ

PAHO/Brazil

Marisela DUVAL PEREZ

Dirección general de Epidemiología
C/Biblioteca Nacional, Edif. 6, Apto. 3B, El Millón
Santo Domingo, República Dominicana
Nelson.rmeg@codetel.net.dr

Morris EDWARDS

National AIDS Programme Secretariat
Hadfield Street and College Road
Georgetown, Guyana
Aids@sdnp.org

Jafmary FELIZ FERRERAS

C/Fernando Arturo Soto N° 39
Urbanización Marien Km 8
Carretera Sánchez
Santo Domingo, República Dominicana
JAF031410@hotmail.com

Txema G. CALLEJA

UNAIDS
20, Avenue Appia
CH-1211 Geneva 27
Switzerland
callejaj@who.ch

Norma GARCIA DE PAREDES

Apartado 55-1949 Paitilla
Panamá, Panamá
Nquinter@pananet.com
Nquinter18@hotmail.com

Ricardo GARCIA

UNAIDS
Organización Panamericana de la Salud
Carrera 13 N° 3276, Piso 5°
Bogotá, Colombia
Rgarcia@col.ops-oms.org

Yitades GEBRE

2—4 King Street
Oceana Building, Ministry of Health
Kingston WI, Jamaica
ygebre@epi.org.jm

Gladys Alicia GUERRERO DELGADO

Depto. Epidemiología
Ministerio de Salud
Corregimiento de Ancón, Edif. 261
Panamá, 1928 Zona 9A, Panamá
Glamaise@pty.com

Ernesto GUERRERO

UNAIDS/Dominican Republic
C/o UNDP
Avenida Anacaona 9, Mirador del Sur
Apartado 1424
Santo Domingo, República Dominicana
Eguerrero@onu.org.do

Rosalinda HERNANDEZ

Villa Universitaria
Bloque A #404
Tegucigalpa, Honduras
Rosalinda.hernandez@usa.net

Jose-Antonio IZAZOLA

SIDALAC
Iniciativa Regional sobre SIDA para América
Latina y el Caribe
Jaizazola@infosel.net
jizazola@lucas.funsalud.org.mx

Lourdes KUSUNOKI

Programa Nacional de Control de SIDA y ETS
Ministro de Salud
Av. Salaverry s/n, Jesús María
Lima, Perú
Lkusunoki@minsa.gob.pe

Peter LAMPTEY

Family Health International
2101 Wilson Blvd.
Arlington, VA 22201
Plampzey@fhi.org

Steffano LAZZARI

WHO
20, Avenue Appia
CH-1211 Geneva 27
Switzerland
Lazzaris@who.ch

Luiz LOURES

UNAIDS
20, Avenue Appia
CH-1211 Geneva 27
Switzerland
Louresl@unaids.org

Rebecca MARTIN

1600 Clifton Raine
Mailstop E'46
Atlanta, GA 30333
Rmartin@cdc.gov

Fabio MESQUITA

Programa Nacional de DST/AIDS
Ministerio da Saude, Bloco G—Sobreloja
Esplanada dos Ministérios
70.058-900 Brasilia, DF, Brazil

Alberto NARVAEZ

Ecuador
Anarvaezo@hotmail.com

Cesar NUÑEZ

PASCA
Cnpasca@inteln.net.gt
c.nunez@tfgi.com

Rolando Enrique PINEL GODOY

Col. Las Colinas 5ta Avenue Sur
#3335, Representación OPS/OMS Honduras
Tegucigalpa, Honduras
Pinel@hon.ops-oms.org

Bernhard SCHWARTLANDER

UNAIDS
20, Avenue Appia
CH-1211 Geneva 27
Switzerland
Schwrtlanderb@unaids.org

Manuel Antonio SIERRA SANTOS

UIC, Facultad de Ciencias Médicas
Universidad Nacional UNAH
Tegucigalpa, Honduras
Vic@interdata.hn

Karen STANECKI

International Programs Center
US Census Bureau
Washington, DC 20233-8860
Kstaneck@census.gov

Laura TORRES DE THOMAS

Dpto. Epidemiología
Caja de Seguro Social
Calle 17, Edificio Administrativo
Panamá, 4777 Zonas Panamá
Lthomas@sinfo.net

Rigoberto TORRES

Ministerio de Salud Pública
Dirección de Epidemiología
23 y N Vedado
Habana, Cuba 10600
Rigo@hesp.sld.cu

Joshua VOLLE

Family Health International
2101 Wilson Blvd., Suite 700
Arlington, Va 22201
USA
Jvolle@fhi.org

Barry WINT

6 Salisbury Avenue
Kingston, Jamaica
Barryw@doctor.com

Fernando ZACARIAS

PAHO
525 23rd Street, NW
Washington DC 20037
Zacariaf@paho.org

Enrique ZELAYA

UNAIDS/Centroamerica
Zelayaen@gut.ops-oms.org



Pan American Health Organization
Pan American Sanitary Bureau, Regional Office of the
World Health Organization

525 Twenty-third Street, N.W.,
Washington, D.C. 20037, U.S.A.
Fax: (202) 974-3695
www.paho.org