

# Monitoring and Evaluation: Brazilian National STD/AIDS Program

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Brazil is the largest country in South America, with an extension of 8,511 million square kilometers, a population of 163 million people estimated from the 1995 National Census (IBGE, 1998), and a growth rate of 1.38 for 1996. Of the total population, 51% are women and 49% are men. From the perspective of the Epidemiological Surveillance System, the first AIDS case was identified in Brazil in 1982, though this is a retrospective diagnosis. The earliest cases were transmitted among men having sex with men. What followed was transmission through injecting drug use (1983) and the bridging to heterosexual partners. Since then, infections have occurred through all routes including sexual, injecting drug use, and mother to child. Considering the latency period of HIV infection, we can infer that the virus was introduced in the country in the late 70s, initially disseminated in the main metropolitan areas of the Southeastern region, then carried to other metropolitan areas during the first half of the 1980s. Although cases have been registered in all States and the Federal District, the large majority of the 135,000 cases reported to the Ministry of Health (MOH) by September 1998 were concentrated in the South and Southeast regions.

The National STD/AIDS Program is part of the Secretariat for Health Policy of the MOH. The Program Coordination Committee has the responsibility of formulating policies and guidelines, and implementing strategies, providing technical assistance and financial support, and monitoring and evaluating results of program activities. Program activities are currently carried out in association with 27 states, the Federal District, and 43 municipalities selected based on HIV/AIDS priority criteria, and there are plans to expand to 80 municipalities by 1999. Activities are also conducted in partnership with more than 300 nongovernmental organizations (NGOs) throughout the country as implementing agents. Program implementation follows the principles guaranteed by the constitution: 1) decentralization; 2) the use of epidemiology to define priorities; 3) broadening of preventive activities, emphasizing the integration of prevention and care; 4) complementary participation of private services; 5) free and universal access to all levels of the health system.

The overall objective of the Brazilian National STD/AIDS Program is to reduce morbidity and mortality due to STDs and to HIV/AIDS, and to improve the quality of life of people living with HIV/AIDS. To achieve these goals, the program includes six major components: prevention, assistance and care, surveillance and forecasting, institutional development, research and vaccine development, and human rights. The main intervention strategy being implemented to reduce transmission of HIV/AIDS and other STDs is to promote safe practices related to sexual, parenteral, and vertical forms of transmission, ensuring access and quality, as well as proper diagnosis and treatment services. In order to assure sustainability of a decentralized strategy, the program proposes to strengthen public and private institutions responsible for STD and HIV/AIDS prevention and treatment at the state and municipal levels.

This paper presents the national experience with monitoring and evaluating HIV/AIDS prevention and control efforts in Brazil. From the perspective of the monitoring and evaluation process, it includes multiple sources of information, which are presently being considered as baseline data for development and application of evaluation strategies and prevention indicators. The data and background information are being presented and analyzed within a historical perspective of main events at different time periods and important contextual changes.

## Context of the Program: Analysis of Main Events

To evaluate the impact and effectiveness of prevention and control strategies implemented by the Brazilian National STD/AIDS Program is both a challenge and a compromise with the public. In democratic societies, evaluation processes provide the opportunity to improve strategies and actions and redirect distortions of public health policies, making them more visible and egalitarian. In the health field, evaluation processes are even more opportune and necessary since you are dealing most of the time with adverse and unpredictable situations related to the life and well being of the population and to the development of a society.

For the Brazilian National STD/AIDS Program, monitoring and evaluation has always been an essential management tool for making informed decisions during the process of planning and program implementation. It also provides the necessary conditions for replication of strategies and best practices within a continuous and dynamic process aimed at intervention. Thus, evaluation becomes an integral part of a democratic process, and consequently, an exercise of citizenship and social control in respect to government actions and public policies.

The National Program is composed of technical coordination units that report directly to the general coordination committee. The National Program is responsible for:

- Establishing technical norms and standards for the implementation of the various program activities;
- Establishing priority areas of intervention according to epidemiological trends of various subgroups;
- Guiding executing agencies toward compliance with technical standards and rules applicable to the performance of activities;
- Monitoring and evaluating projects;
- Preparing technical reports;
- Providing technical support as required; and
- Promoting intersectorial associations and partnerships with the private sector.

The **prevention component** has the specific goals of preventing infection by HIV and other STDs; reducing the individual and collective impact of HIV infection; and identifying associated risk and vulnerability factors to HIV/STD infection. The main strategies being used are:

- information, education and communication (IEC) and mass media campaigns;
- AIDS education in the workplace;
- harm reduction for the prevention of HIV infection among injecting drug users (IDUs);
- behavior change interventions for more vulnerable groups or segments of the population at greater risk of infection;
- acquisition and distribution of condoms;
- access to counseling and voluntary testing for HIV; and
- establishment of inter- and intra-sectorial coordination for better use of available resources.

The goals of the **care and treatment service component** are to reorganize the existing health service structure by introducing new forms of care for those with STD/HIV/AIDS; to distribute resources in a manner that ensures greater efficiency and better quality of service; and to promote integration between prevention and provision of care. The strategies are to provide clinical services for those with HIV/AIDS and STDs; to structure and implement accessible community support, therapeutic services, day hospitals, and home-based assistance; and to provide last-generation treatment therapies and medication for all.

Specific goals of the **surveillance component** are to improve surveillance of AIDS cases and deaths and to establish surveillance for HIV/AIDS and other STD infections throughout the country. The strategies include implementing sentinel surveillance for HIV, AIDS, STD and HIV/TB infections, and to providing reliable projections and estimates to support decision-making and priority setting.

AIDS has experienced different contexts since the first recognition of the problem by public authorities in the 1980s. These changing contexts resulted in dynamic processes of the main epidemiological characteristics and trends. Examining these changing contexts from the perspective of the type of sexual exposure, we see that the largest share of reported cases, 69%, were among male homosexuals/bisexuals. However, by 1996, homosexuals/bisexuals comprised only 44% of reported cases.

The principal form of HIV/AIDS transmission in Brazil continues to be sexual transmission, where the male:female ratio dropped from 28:1 in 1985, to 7:1 in 1988, and 2:1 in 1997/98. The most affected age group since the beginning of the epidemic has been the 20-49 year olds, which accounted for 71% of the total AIDS cases reported by May 1998. Throughout the period, there has been an increase in the relative frequency of younger (20-29 years) patients, with a trend towards stabilization since 1991. Thus, the epidemic in Brazil is considered mostly a sexually transmitted epidemic and concentrated in the major metropolitan areas.

Another trend is the high rate of HIV/AIDS infections among IDUs in the country. Of the total number of AIDS cases reported to the MOH, 25% are IDUs. Twenty-six percent of the female cases reported are IDUs or sexual partners of IDUs. In spite of unsatisfactory available data on illegal drug consumption in the country, the geographical distribution of AIDS cases associated with injecting drug use again shows the predominance of the South, Southeast, and Central regions, with 97% of total AIDS cases associated with injecting drug use. In São Paulo 23.2% of cases are IDUs; in Santa Catarina 36.5%, in Paraná 20.8, and Mato Grosso do Sul 23.2%. In some cities such as Santos (São Paulo) and Itajaí (Santa Catarina) the HIV prevalence among IDUs reaches the alarming rate of more than 60%.

The data collection instrument adopted by the MOH for AIDS case notification does not include variables that measure patients' social economic level directly. However, the educational level is available and is used by proxy for socioeconomic status. While at the beginning of the epidemic most of those affected had at least a secondary school education, by 1996-97, more than 60 percent of all reported cases were in people who only had primary school education or no formal education at all. Taking schooling and the male-to-female ratio into consideration, during the period 1993 to 1997, there were 1.8 cases in men for every case in women among illiterate AIDS patients. The educational level of men and women with AIDS who were infected heterosexually or through drug-injecting is lower than that of men who have sex with men (MSM).

The trend seen in Brazil is that the traditionally marginalized populations, which bear the largest burden of endemic diseases and illnesses due to starvation or the lack of clean water and waste disposal, are increasingly becoming infected with HIV. As an additional aggravating factor, the natural difficulties faced by this social class in having access to health services and information in general, and to health information in particular, should be stressed. Priorities imposed by needs and geared towards daily survival hinder actions aimed at prevention through the adoption of safe practices and early diagnosis.

It is possible to summarize the new trends of the epidemic in Brazil that are presently directing the development of new prevention strategies as follows:

- Increased participation of women and a consequent increase in vertical transmission;
- Increased heterosexual transmission;
- Geographic expansion to municipalities with less than 100,000 people; and
- Poorer and more socially vulnerable segments of the population being affected by the epidemic.

#### Early Years: 1980 - 1984

In the beginning of the 1980s, AIDS was little known in the country, even among health professionals. It was perceived as an isolated event, restricted to specific social segments, and thus not as a public health priority. Thus, it was not included on the official government agenda. This period is characterized by the sensationalist and alarmist way the media referred to the epidemic, generating panic, fear, stigma, and discrimination, similar to what was happening in other parts of the world. At the time, the main activities launched aimed at fighting the discrimination and broadening possibilities for actions by social movements organized around the issue, including in their agendas the struggle for the human rights and social well-being of people living with AIDS. Responding to this initiative from civil society, the state gradually adopted as a governmental priority the establishment of policies for combating the epidemic.

#### 1985-1989

In May 1985, through the Ministerial Ordinance #236, the MOH established guidelines for the AIDS Control Program and gave an organizational structure for its management at the national level. At first, government actions focused on epidemiological surveillance, medical care, and dissemination of warning and non-discrimination messages through mass media campaigns. Funds were clearly scarce, but there was political commitment and willingness to respond to the epidemic. In 1987, the National Commission for AIDS, composed of representatives from the scientific community and the organized civil society, was created. Only in 1988, however, with the inclusion of the STDs, was the National Program created.

#### Institutionalization and Consolidation: 1990 – 1998

In 1990, the Organic Health Law, a milestone in the creation of the Unified Health System, was approved, consolidating and moving forward the process of health sector reform in the country. However, the most important event in this period was that people living with AIDS started to get organized for their legal and human rights, questioning the epidemic not only as a technical challenge in the health sector but also as a political issue involving the Brazilian society. In the mid and late 80s, some well known artists, celebrities (Cazuza, Sandra Brea), and professionals from the political and human rights arenas, including Herbert de Sousa (Betinho), came forward with their HIV+ status. This helped the general public understand that AIDS is not just a concern for homosexual/bisexual men, but rather that anyone, regardless of their sexual preferences or sexual identity, can become infected with HIV and get sick with AIDS.

Another important mark for the period was the celebration of The World Bank loan agreement for financing STD/AIDS control and prevention activities, the so-called “Project AIDS I,” which covered the years 1994-1998. The project represented a total of US\$250 million (US\$160 million from a loan and US\$90 million as national counterpart) and enabled consolidation of program activities and the development of several prevention strategies covering many areas and different

target populations throughout the country. It also made possible the establishment of different services and types of care.

With the purpose of advising the National Program in its deliberations and validating the National Program's policies and resolutions, several commissions and committees were created, each having different spheres of activities. All of the groups included representatives from different government, scientific, and academic institutions, as well as from civil society. The most important advisory groups include:

- the National AIDS Commission, which advises the MOH in evaluating AIDS prevention and control activities given the complexity of the medical, scientific, social, and legal aspects of the epidemic;
- the Vaccine Committee, which advises the MOH in the different phases of development of vaccine trials for AIDS prevention and treatment given the country's participation in the efforts carried out in several regions of the world;
- the Research Steering Committee, which judges and selects behavioral and epidemiological research proposals for financial support; and
- the Committee for the Evaluation and Selection of NGO Projects.

Based on the trends shown by surveillance studies and the system for reporting AIDS cases to the MOH, advisory committees on specific population groups were created in the early 90s to advise political guidelines for certain populations such as sex workers, MSM, indigenous people, low-income women, and confined populations, among others.

With the expansion of the national laboratory network and the use of new anti-retroviral drugs, additional advisory groups were instituted and included the following:

- the Advisory Committee on the Isolation and Characterization Network;
- the Advisory Committee on the System of Quality Assurance of Laboratory Tests for STD and HIV/AIDS; and
- the Advisory Committee on the Networks for Viral Load and CD4+ T Lymphocytes Counting.

To summarize, all of the committees evaluate and advise on the standardization and evaluation of the quality of laboratory procedures. They also advise on any other guidelines for appropriate STD and HIV/AIDS prevention, diagnosis, and treatment.

### **Monitoring and Evaluation of Inputs and Outputs: Interaction with Contextual Factors**

An early prevention strategy implemented in the country was the establishment of a network of free and voluntary HIV counseling and testing centers. These centers were introduced in the country in 1988 at major cities such as São Paulo, Rio de Janeiro, and Porto Alegre, and expanded to other areas through the years. The major objective of these centers is to guarantee access to anonymous, confidential, and cost-free serological testing for HIV for everyone who wishes to know their status. Today, there are 125 centers available throughout the country. Supervision and monitoring visits conducted by national coordination staff noted the need to adapt procedures and demanded from the service. These included having the multidisciplinary technical support team act as a prevention service by means of their counseling activities and by providing information through community outreach. Condom distribution is also available. At the present time, some centers have adopted the practice of anonymous tests only for those who wish to remain anonymous. Evidently, confidentiality of test results is maintained at all times. Table 2

attached to this document shows data on the number of HIV tests conducted and the number of positive test results from counseling centers throughout the country by region. Of the 125 centers, information is available for 90, which report 285,759 tests registered, 19,014 positive results and a prevalence of 6.65%.

Another early strategy used was communication and information mass media campaigns on television radio networks, outdoors, and bus doors. The first campaigns (late 80s) focused on dissemination of objective information on the forms of transmission for public awareness of situations which were of higher risk for contracting HIV. In the mean time it was learned that pure information about unprotected sex and sharing of contaminated needles did not produce the desired results since behavior change is not a result of a purely rational process.

In the early 90s, the national campaigns begin to utilize informative messages which brought AIDS prevention closer to the real contexts of the general population, moving from the initial “high risk group” concept to the high-risk behavior one. The message was that anyone who does not engage in preventive practices and harm reduction is at risk of becoming infected. Today, there are about 3 or 4 national mass media campaigns each year, which are supported by regional and local campaigns. In addition, information to the general public is also provided at major cultural and sports events geared specifically to youth. These events vary from national soccer and beach volleyball tournaments to specific cultural celebrations such as carnival.

Complementary IEC materials are also produced by the National Program or by implementing agencies for specific segments of the population including sex workers, MSM, street children, indigenous populations, prison inmates, low-income women and adolescents. Condom promotion and free distribution directed to low-income segments of the population and individuals who engage in high-risk behavior such as sex workers, MSM, adolescents, and drug users has always been part of the program’s policy for prevention and control of STDs and HIV.

The National Program increased condom purchases considerably during the past three years with a total distribution of 70 million between 1996 and 1997 and purchases totaling 200 million in 1998. Furthermore, there has been a considerable increase in the number of condoms by the private sector as well, with a total of 100 million in 1994, 155 million in 1995, 210 million in 1996, and 260 million in 1997. Thus, we can conclude some behavior change has occurred in sexually active population as a consequence of the various prevention efforts implemented in the country.

The National Program detected a great need for inter-sectoral government responses for the implementation of effective policies and strategies on AIDS prevention and assistance. Some examples are coordination with the Ministry of Justice when working with confined or prison populations and IDUs on harm reduction and needle exchange programs, as well as the creation of the National Human Rights Network. For example, an important inter-sectoral response, which was a major educational preventive strategy implemented, was the establishment of a teacher-training program on sexuality, STD/AIDS, and drug abuse. The objective has been to prepare teachers from the public school system to participate in sex education and prevention of STDs and drug use. Brazil has 200,000 primary and secondary public schools, 1,317,000 teachers, and 30 million students between the ages of 4 -19 within the public school system. Considering this population and the potential for AIDS prevention, the National Program developed a long-distance training project which reached teachers of adolescents aged 14-19, and teachers of children aged 4-12 with video programs. These programs were presented to the teachers through the open TV channel of a Public Broadcasting Foundation linked to the Ministry of Education. Teacher manuals and supportive materials for children were also produced with the

participation of a team of multidisciplinary specialists. 52,000 schools have been reached directly, as have 1,400 supervisor units and 143,537 teachers with 67 programs from 1995 to 1997. The programs were repeated at 3 different times during the day to reach morning, afternoon, and evening professionals. A multi- sectoral approach for AIDS prevention can maximize the possibility of decreasing vulnerability factors through the improvement of social conditions and by providing an environment conducive to behavior change. In this respect Brazil has developed several strong partnerships over the past 5 years with international agencies, NGOs, and the public and private sectors.

Brazil is part of the Horizontal Technical Cooperation Group supported by UNAIDS and coordinated by the National Program in 1997. This initiative brought important gains through technical–scientific research for appropriate regional solutions for Latin America and the Caribbean. The activities undertaken by this group provided the opportunity for evaluation of AIDS programs, strategic planning, policies on HIV/AIDS therapy, vertical transmission of HIV, networks for epidemiological surveillance, counseling activities, and promoting the expansion and diversification of exchanges between countries through internships, visits, and conferences. At this time, bilateral cooperation was also undertaken with other Portuguese speaking African countries in partnership with the Brazilian Ministry of External Relations.

The United Nations Theme Group on HIV/AIDS was formed in September 1997 with the main role of serving as a channel of coordination among the UN agencies that are co-sponsors of the Joint United Nations Program on HIV/AIDS and work in support of the National Program priorities. The Theme Group in Brazil is composed of co-sponsoring UN agencies represented in the country by UNICEF, WHO, UNDP, UNESCO, UNFPA, and the World Bank. In addition to the UN group, Brazil counts with the participation of the European Commission, FAO, USAID, and UNDCP, whose participation and involvement in the theme group provides an opportunity for broader coordination among the international partners who are developing or intend to develop activities related to STD/AIDS in their countries. In addition, Brazil has technical cooperation agreements for scientific and technical exchange with the National Program of France and the Universities of Johns Hopkins, San Francisco, Berkeley, and Harvard. This collaboration includes mostly organization of international conferences, participation in training courses, seminars, and research projects.

### **Monitoring and Evaluation of Sexual Behavior and other Proximate Determinants**

Studies for HIV, STD, and risk behavior surveillance are important tools for understanding the dynamics of transmission, the impact of the epidemic, and the effects of control and prevention interventions in the population. This information has always been considered by national officials for policy and program development and for setting priorities at regional and local levels regarding risk behaviors of both general and specific segments of the population. To exemplify, we will discuss data from a 1996 study of 19,492 18-year-old army conscripts from different parts of the country. This study was repeated in 1997 with 10,000 conscripts. The 1996 study demonstrated the existence of aspects which, while not having a negative bearing on the adoption of preventive measures, may lead to discriminatory attitudes. For instance, questions related to public bathrooms and swimming pools as a source of HIV infection, which were thought to be well known by the general population had a 40% affirmative reply. The fact that blood donation was classified as having a “moderate” average risk of AIDS transmission provides important information about the need to reinforce correct information such as blood transfusion with non-tested blood versus blood donation as mode of transmission. Early in the epidemic, the fear of donating blood created serious problems for the country’s blood banks. Through surveys, information can also be gathered on the social, cultural, and educational level of the sampled

population to compare with other segments. The surveyed population of army conscripts was mostly of elementary school education for both years.

Analysis of the 1997 results pertaining to the means of dissemination of information showed that schools were considered to be good vehicles of communication. Subjects further reported to trust information given by health professionals but also reported family members and the school as having greater influence on their use of condoms. Of the total sample, 85% reported having initiated their sexual activity but only 37% to 42% responded that they always used condoms. Of those who responded that they used condoms with their girlfriends, only 54% said they used them every time.

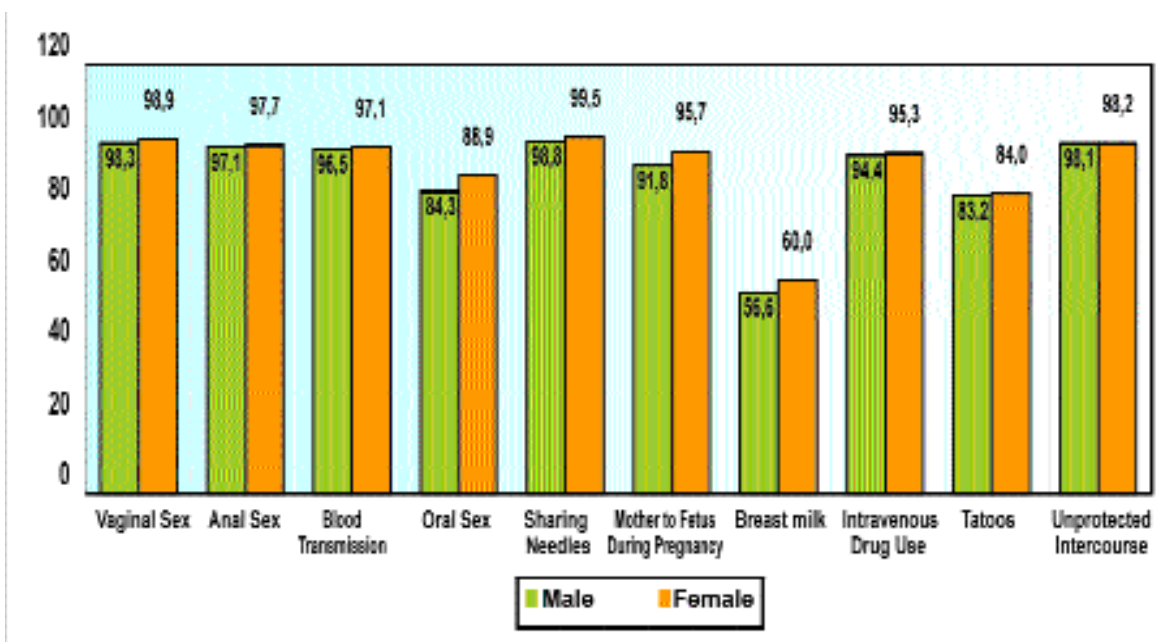
Data showed that the average level of knowledge for those who have access to information through television is similar to the general average. This result is not surprising since TV is the most important vehicle for mass media communication in the country, being present in the daily lives of the majority of the Brazilian population.

Another major factor is the population's origin. Individuals from urban areas have higher levels of knowledge than individuals from rural ones. Thus far, the AIDS epidemic in Brazil has been concentrated in the urban areas which, as a consequence, have been exposed to greater amounts of information and benefited from the implementation of wider educational and preventive interventions.

Youth knowledge about STD/AIDS has also been examined. One study with 400 out-of-school youth (13 years old on average) showed that 74% had basic knowledge allowing them to exercise safe practices ("Learning to Live with STD/AIDS"–1996–Federal University of Minas Gerais).

Two other studies on information and knowledge about STD/AIDS are worthy of mention. The first, carried out in 1995, was a telephone survey of the general adult (18-49 years old) population in Brasília, which showed a significant level of knowledge. Blood donation, use of public bathrooms and insect bites no longer had a high level of affirmative answers. Another study carried out in the capitals and metropolitan regions of 14 Brazilian states also showed high levels of knowledge and information in the surveyed population (4,893 industry workers).

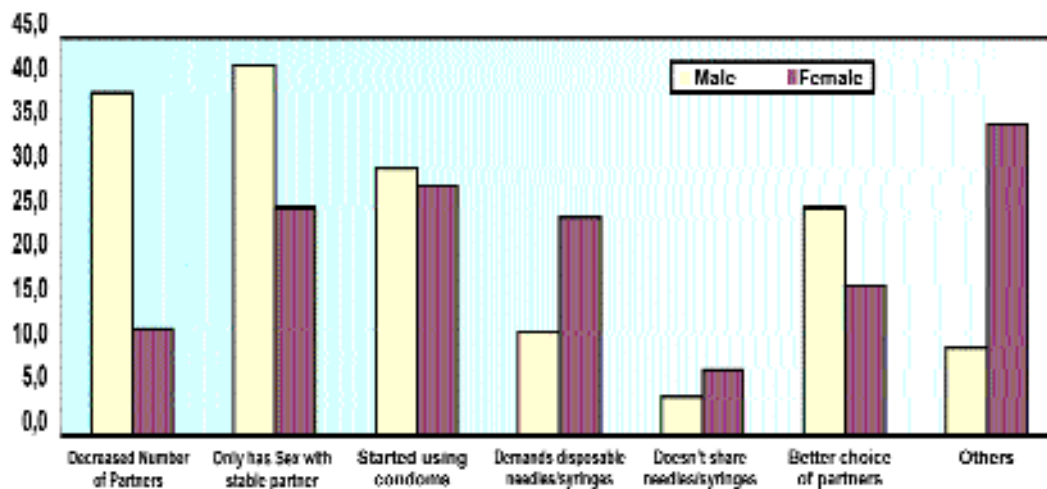
#### **Percentile Distribution of Workers Giving Correct Answers on the Means on Transmission of AIDS, According to Gender. Brazil, 1997**





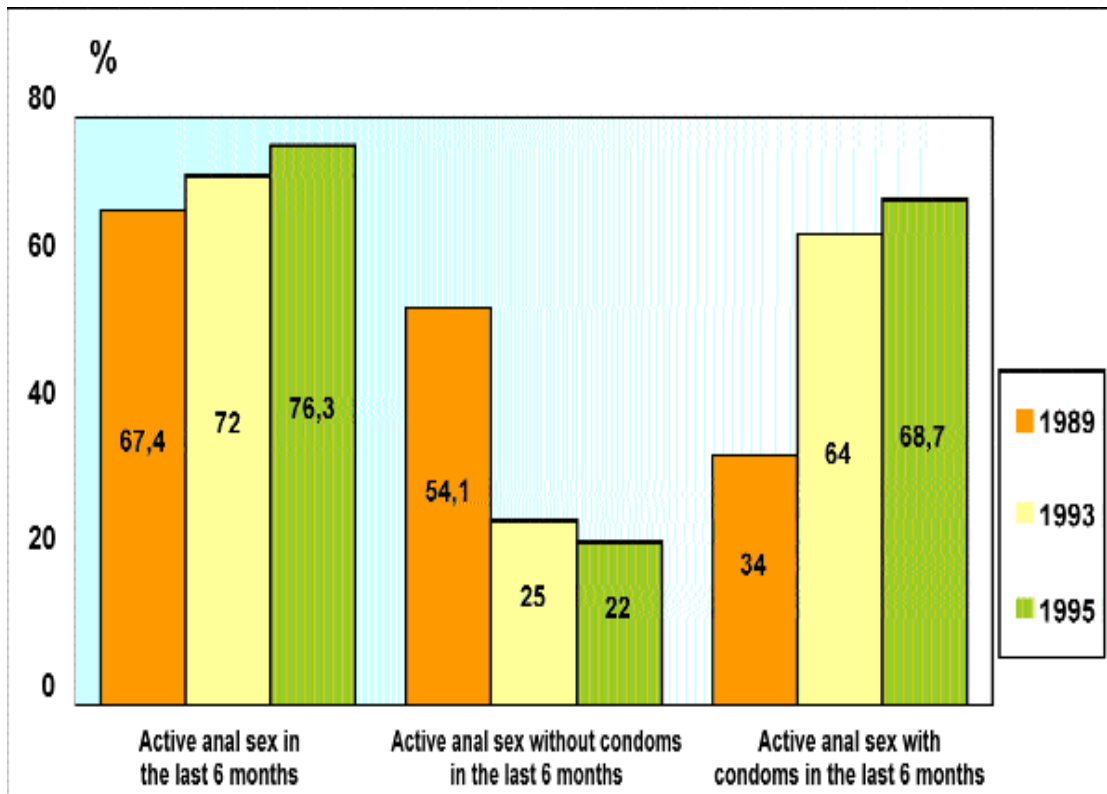
Sexual behavior of the population is one of the major areas of concern when taking into consideration behavioral surveillance. It is believed that the analysis of the meanders and contours of sexual behavior is one of the major steps towards assessing the type of educational and preventive interventions required for promoting the adoption of safer practices and attitudes. Studies of the general population have indicated that the Brazilian population has changed its behavior after the advent of AIDS and now demonstrates safer practices, such as increased condom use, decrease of occasional sex partners, and decrease of needle/syringe sharing.

**Percentile Distribution of Workers According to Gender and Behavior Change.  
Brazil, 1997**



A study with 627 IDUs in the period 1994-1996 showed that 53% reported the adoption of safer practices after learning the modes of HIV transmission (Project Brazil, 1994-1996). Some of the more frequently mentioned changes are the non-sharing of needles/syringes with other IDUs (71%) and the non-use of intravenous drugs in a group (85%). This population showed levels higher than 50% of adequate knowledge about unprotected intercourse. Data from another survey of 300 IDUs and crack users showed an 8.2% change of behavior in HIV+ individuals and 41.7% in HIV- individuals (Survey on the Use of Intravenous Drug and Crack and the Spread of HIV in Metropolitan Campinas–Corsini Center–1995). On the other hand, behavior changes towards safer sex seen in some specific groups, such as sex workers and MSM, are not found in the same degree in the general population. This is seen in a 1995 study in which 19% of the group surveyed reported the use of condoms in the previous four weeks. As to specific population groups, the study “Prevalence of Syphilis, Hepatitis and HIV among Low-Income Female Sex Workers in Downtown São Paulo,” carried out in 1996 by São Paulo State Program on STD/AIDS, shows that 97.8% reported the consistent use of condoms in their sex relations with clients. However, this figure is relative, falling to 33.7% when the use of condoms with stable partners is considered. In the population of MSM, a survey carried out in Rio de Janeiro provides data on sexual behavior and condom use between 1989 and 1995 which demonstrates the importance and positive impact of direct segmented prevention work as seen in figure below.

# **Sexual Practices and Behavior Change Among Men Who Have Sex with Men Rio de Janeiro, 1989-1995.**



Looking at the STD/AIDS data from the national Demographic and Health Survey 1996 for Brazil, we can see a clear gender difference in reported condom use during the last time the person had sex. The percentages vary from 7.5 to 13.2 for females, and from 29.6 to 35.4 for males. It is also interesting to note that the higher percentages are directly linked to the younger age groups and those with higher educational levels. We could probably infer that information campaigns and sexual health education programs in schools are reaching youth.

Since 1993, a Research Steering Committee has been involved in the process of selection and approval of funding for basic or applied research in the areas of epidemiological surveillance, diagnosis, search and treatment of cases, and behavior interventions. The Committee is required to use evaluation criteria which strives for originality, methodological appropriateness, meeting extrinsic (coverage, impact, and relevance to the prevention and control of STD/AIDS) and intrinsic (technical-scientific value, staff and institution training, magnitude of the local counterpart, and feasibility) criteria. In this selection process, the Committee has always benefited from the opinions of ad hoc consultants. From 1993 to May 1998, more than US\$6 million were invested in joint projects with several institutions in the different areas. In Table 1 attached to this document you will see selected studies carried out over the last four years by NP-STD/AIDS in partnership with other institutions. The table shows not only the diversity of the target populations studied, but also that of the executing institutions and their areas of knowledge. The titles of the work are self-explanatory, at least in regard to the populations targeted and the nature of the studies.

## **Monitoring and Evaluation of HIV and STD epidemics**

The use of sentinel studies to monitor the trend of HIV infection begun in 1992 in Brazil. Prior to this, individual isolated studies were conducted with different methodologies. The first strategy used was the funding and follow-up of individual projects fully developed at local levels but obeying the national program's guidelines. While it had an important role on the growth of the understanding of HIV prevalence in specific population groups, this strategy encountered several difficulties. The first one pertaining to the large number of sentinel sites in the South and Southeast regions which meant an under representation of other regions with less resources. Another difficulty encountered was the number of transversal studies: of the 44 projects funded in 1996, only 8 made a second study, three a third, and one a fifth. Given this situation and the need for more accurate data on the behavior of HIV infection in the country, a National Sentinel Network was created for the purpose of monitoring the prevalence of HIV infection in the general and high-risk populations using 8-week transversal studies every 6 months. Eighty-three sites participated in the first study, and 149 in the second and third. A fourth study started in October 1998, with 200 sites involved. The method used was unlinked anonymous testing on excess serum collected in the service routine. Two hundred samples are collected in each site from the age group of 13 to 49 years of age. The surveillance sites are selected according to the following criteria:

- STD diagnosis and treatment services, maternities that are part of the congenital syphilis elimination project, and emergency care units;
- Service units that have the capacity to collect serum samples within 8 weeks, fractionated from the samples collected for routine exams;
- Services which are technically capacitated to identify, fraction, and properly store samples; and
- Services which have joined the new project which specifies the need to carry out new sampling every 6 months.

Another source of information on HIV prevalence for the general population is the data from blood donor records at the blood donation centers and blood banks. The National Program also monitors the prevalence of HIV in segments of the population who attend the Testing and Counseling Centers. Presently, there are 125 of them throughout the country.

Estimated numbers of HIV infected people in the country have indicated prevalence between 338,000 and 484,000 in individuals between 15-49 years of age infected with HIV in 1996. The maximum estimates by gender are 284 thousand in males and 200 thousand in females. Sixty per cent of the infected live in geographical areas considered high-risk such as São Paulo, Rio de Janeiro, and the Federal District. Fifteen years after the epidemic began, the Southeast macro-regions continue to account for the greatest absolute number of cases and the highest rates of incidence and prevalence of the disease. São Paulo is the State where the incidence rate is highest and alone accounts for over 50 percent of all cases occurring in the country.

Preliminary results of sentinel surveys of HIV seroprevalence indicate median prevalence varying between 3.4% to 5.3% in politrauma patients seen in emergency services in 1997. Other sentinel seroprevalence surveys indicate between 0.3% to 3.1% among pregnant women in 1995; between 0.3% and 13.3% in patients seen in STD clinics in 1995; and between 1.9% and 2.6% per thousand blood donors in 1996. The highest prevalence has been found in sites in the Southeast and South, with the exception of blood banks, whose higher prevalence occur in the Northeast.

A study carried out in some Brazilian cities in 1996 showed HIV prevalence among IDUs to vary between 29% and 71%.

Although blood screening is not universal in the vast majority of developing countries, including Brazil, the transmission secondary to the use of contaminated blood and/or blood products has shown an important decrease. In 1984 in Brazil, cases which had acquired HIV through blood transfusions accounted for 27% of blood-related cases and 3% of all cases diagnosed in that year. In 1994, however, this component accounted for less than 10% of cases in this category, or 2.8% of the total. This change of profile is also due to the inclusion of growing numbers of individuals that acquired HIV by sharing needles and syringes when using intravenous drugs. The first records of cases among IDUs were in 1983.

In 1985, the first case of perinatal transmission was reported in the country. Every year since then, the frequency of this type of transmission has increased, accounting for 3.6% of the total number of patients diagnosed in 1996. Perinatal transmission, which accounted to 25.0% of all pediatric cases in 1984-87, corresponded to approximately 90% of such cases diagnosed in 1994. It should be noted that the proportional increase of perinatal transmission, in addition to reflecting a real increase in its occurrence, might be influenced by improvement in diagnosis based on the accumulated knowledge in this field in the country.

### **Recent Changes in the AIDS Epidemic in Brazil**

Since 1990 the profile of the AIDS epidemic in Brazil has changed, mainly due to trends in incidence in the Southeast and South regions. While the Southeast, though harboring approximately 70% of AIDS cases in Brazil, has an annual increase of 0.55 cases per 100,000 population, the South has an increase of 1.33 cases per 100,000 population per year. This evolution in the epidemic is matched by a clear change in the profile of exposures when comparing the 1987-92 and 1993-97 periods. The main factor to be highlighted is a jump in the relative proportion of cases reported in the heterosexual category. In the North/Northeast, the greater proportion of heterosexuals still coexists with the maintenance of the figures of homosexual/bisexual participation (approximately 45% of cases). In the other regions, however, there was an important decrease in the proportion of notified AIDS cases in the later category, while a significant proportion of cases classified as IDUs remained constant.

Despite the fact that STDs vary greatly in their prevalence, transmissibility, and severity of morbidity, controlling them is based in efforts to reduce the frequency of unprotected sexual contact between infected and susceptible individuals, and reducing the average duration of infection by searching for and curing infected individuals. The systems of information on STDs must deal with the epidemiological heterogeneity of these diseases, employing complementary methods in their studies in order to compose a panorama of the occurrence of these diseases in a determined population group.

### **Status of STD Control**

An enhanced surveillance project of STDs is being implemented at the present time and has as its objectives the assessment of the incidence of urethritis in men and the assessment of genital ulcers in both sexes (including the etiologies). The project will also determine the prevalence of gonococcal and chlamydial cervicitis in symptomatic women in health services selected by the National Program in collaboration with the states and municipalities.

# PREVALENCE OF SYPHILIS FOR BRAZIL

STD / IRT	STUDIED POPULATION	STUDIED NUMBER	YEAR	PREVALENCE	UF
SYPHILIS (serologic test)	Pregnant women <sup>1</sup>	481	1990	5.2%	SP
	Pregnant women <sup>2</sup>	2,909	1983	3%	SP
	Pregnant women <sup>2</sup>	3,859	1983	9.4%	SP
	Blood donors <sup>3</sup>	62,814	1989	4.1%	GO
	New born <sup>4</sup>	3,664	1993	5.6%	SP
	Convicts <sup>5</sup>	57	1996	14%	SP
	Prostitutes <sup>6</sup>	600	1995	45%	SP

<sup>1</sup> Vaz et al (1990);

<sup>2</sup> Cunha et al (1983);

<sup>3</sup> de Andrade et al (1989);

<sup>4</sup> Guinsberg et al (1993);

<sup>5</sup> Tellini et al (1996); 6 Lurie et al (1995);

## **Monitoring and Evaluation of AIDS Care, Support, and Treatment**

A specific goal for care and support was to reorganize the existing health service structure by introducing new forms of care for those with STD/AIDS so as to distribute resources for greater efficiency and quality, and to promote integration between prevention and the provision of care and assistance. The strategy used for the past few years has been to provide proper diagnosis and treatment services for those with STDs and HIV/AIDS; and to structure and implement accessible specialized ambulatory care, day hospitals, and therapeutic home care with community support and therapeutic services.

In 1992, the process of hospital accreditation by the MOH and the expansion of the network for hospital care for AIDS patients were initiated. At the same time, professionals were trained and funds were transferred to states and municipalities to implement alternative care to assure access of quality care and better use of human and financial resources. With the growth of the HIV/AIDS epidemic among women of reproductive age, the reduction of vertical transmission has become one of the principal goals of the National Program. Several actions have been undertaken such as offering HIV tests to pregnant women on a voluntary basis as well as HIV counseling, and providing proper clinical care for infected mothers and newborns.

Clinical care and training in STDs is another relevant aspect of the health care initiative. The network of patient care for STDs consists of 700 units and 34 reference and training centers distributed throughout the country. These units also carry standard medication for the treatment of non-viral STDs. Primary health care networks and community-based health services have also become engaged in STD/HIV/AIDS prevention and control activities within their routines. STD diagnosis and treatment is being carried-out by the Community Health Agents Program and the Family Health Program using the syndromic approach and aiming to eliminate congenital syphilis as a public health problem and reduce the vertical transmission of HIV. The activities of the community health agents are especially effective in providing families in remote areas with information and education in a culturally appropriate and sensitive way.

These community programs involve 4,853 nurses, 1,739 doctors, and 62,307 community health agents who together serve about 38 million people.

Concerning anti-retroviral treatment for HIV infection: zidovudine (AZT) tablets have been available for distribution in the public health system since 1991. In the years following, the health network also made available injectable and pediatric AZT, didanosine (ddi), zalcitabine (ddC), lamivudine (3TC), and estavudine (d4T). From 1996 onward, the Brazilian Government consolidated its policy for AIDS medications and provided free access to the anti-retroviral drugs, including protease inhibitors. At present, about 58,000 patients are receiving anti-retroviral medications, with 55% of them in therapeutic regimens that include protease inhibitors. The distribution and logistic control of drugs is made possible through 101 points throughout the country and is managed by a computerized system that includes the use of magnetic cards by patients. The System of Logistic Control of Medication and the System of Control of Laboratory Exams make-up the national system and enables the registration of patients, the supervision and control of stock, and the distribution of medication with access to the information on CD4 and Viral Load Exams.

Approximately 66 thousand deaths secondary to AIDS were reported to the MOH by 1995. In 1995 alone, there were 15 thousand deaths, and the disease became the 11th cause of death (8th among males and 20th among females). When analyzed by age, in 1995, AIDS was the second leading cause of death for both sexes combined in the 20-49 age group. The main result of the 1993-98 period was a marked decrease in mortality from AIDS in the country's two largest metropolitan areas, São Paulo and Rio de Janeiro, due to better care, supportive services, and free and universal access to anti-retroviral drugs guaranteed by law. The onset of free and universal distribution of specific drugs to people living with AIDS was the most significant outcome of the fight of social movements at that time, together with the consolidation of a national network of human rights in STD and AIDS. In practice, this meant the recognition of the right of HIV-infected people to have access to the most advanced resources and therapeutic supplies.

### **Information System and Review of Prevention Indicators**

The Brazilian health information system is still inadequate in respect to the integration of databases and databanks, providing difficult grounds for comparisons and cross sectional analyses of the available indicators from different sources. The national AIDS information system is composed of:

- the "Notification Information System of Diseases for AIDS and Syphilis";
- the "Mortality Information System";
- the "Hospitalization Information System";
- the "Ambulatory Information System"; and
- the Public Health Medical Care Research.

The Unified Public Health System Data Service manages integration of these systems. Furthermore, the AIDS program developed an information system for STDs at selected sites called the "STD Improved Surveillance System." This system is organized by STD reference facilities, providing representative national coverage. HIV surveillance is conducted from the HIV sentinel surveillance network as previously explained. Complementary data are obtained from other institutions that may be health or non-health related institutions. Demographic and socioeconomic data are obtained from the Brazilian Institute of Geography and Statistics, from demographic census, the National Residential Surveys, the Family Income Surveys, and

Demographic and Health Surveys. Another source of information is the socioeconomic data obtained from the National Institute of Economic and Social Research.

In respect to data on the expenditures invested by states and municipalities for AIDS prevention and health care, the Annual Budget Programs are important sources since they allow for financial monitoring and evaluation of decentralized units in the national territory. (See Table IV attached.) As for the use of prevention indicators (PI), Brazil has been using the GPA/WHO PI concept for monitoring and evaluating the National Program. In addition to the PI indicators, some intermediate process and impact indicators have been developed for the country as follows:

### Impact Indicators

<b>Impact objective: Reduce the incidence of HIV/AIDS/STD infection.</b>	<b>Observations on baseline data compilation</b>	<b>Date</b>	<b>Baseline</b>
Syphilis prevalence in Army Force conscripts	Anonymous (unlinked) sero survey	1996	0,53%
HIV prevalence in Army Force conscripts	Anonymous (unlinked) serosurvey	1996	0,5 <sup>(1)</sup> %
Syphilis prevalence in puerperal women	Serosurvey conducted at selected maternity hospitals.	1998	( <sup>2</sup> )
HIV prevalence in clients with STD between 20-24 years of age.	Sentinel survey conducted at selected STD facilities	1997	4,0%
HIV prevalence in parturient women age 20 - 24 years old.	Sentinel survey conducted at selected maternity hospitals.	1997	1,8%
HIV prevalence of individuals age 20-24 who attend emergency hospital facilities.	Sentinel survey conducted at selected emergency hospital facilities.	1997	4,1%

(2) Information available end of 1998

(<sup>1</sup>) Estimated prevalence, final data Sept. 1998

### Intermediate Impact Indicators

<b>General Objective: reduce the incidence of HIV/AIDS/STD infection</b>	<b>Observations on baseline data compilation</b>	<b>Date</b>	<b>Baseline</b>
Proportion of people 15 to 30 years old that know condoms as a means of AIDS prevention	Survey in 13.283 homes, representing the following country regions: South, Central West, East, Northeast, North (urban area), Central West, West, Rio de Janeiro and São Paulo, including 12.611 women 15 to 49 years old; and 2.950 men 15 to 59 years old. (BEMFAM)	1996	Men 87% Women 86%
Proportion of male youth between 17 - 19 years old sexually active who refer condom use in every sexual encounter	Transversal survey with 9.844 conscripts of the Army Forces.	1997	37%
Proportion of persons, age 14 – 30 years old who refer condom use in their last sexual intercourse	Survey in 13.283 homes, representing the following country regions: South, Central West, East, Northeast, North (urban area), Central West, West, Rio de Janeiro and São Paulo, including 12.611 women 15 to 49 years old; and 2.950 men 15 to 59 years old. (BEMFAM)	1996	Women 18% Men 52%



## Monitoring Indicators

<b>Overall objective: Reduce incidence of HIV/AIDS/STD infection</b>	<b>Observations on baseline data</b>	<b>Date</b>	<b>Baseline</b>
Number of condoms sold in the country	Data from secondary sources, agencies, national production, and importation to the country	1998	158.094.574 (1995) 215.961.454 (1996) 228.420.635 (1997)
Average condom prices	Data from secondary sources, regulatory agencies, national production, and importation to the country	1998	US\$ 0,70, varying from US\$ 0,35 to US\$ 1,25 <sup>3</sup>
Amount of condoms distributed by the National AIDS/STD Program /MOH.	Activity report, estimated needs 192 million for specific segments of the population, including adolescents, and 58 million for lower income pop. Socioeconomic class D & E, w/ total of 250 million	1998 1997	60 million (estimated) 20 million
# of prevention projects implemented promoting safe sex practices and health promotion for drug users	Activity report	1997	19 <sup>4</sup>
# of areas which have implemented harm reduction projects	Evaluation survey of harm reduction projects developed with the support of NP-DST/AIDS, in 10 states of the country	1998	55
# of projects for safe sex promotion among sex workers	Activity reports	1997	14 <sup>5</sup>
# of projects implemented for the promotion of safe sex practices among MSM	Activity reports	1997	11 <sup>6</sup>
Percentage of elementary, junior high and senior high public schools included in the long distance training program	Activity report		

<sup>(3)</sup> average price of condom is provided by the official commerce agency which controls prices

<sup>(4)</sup> projects implemented by NGOs only

<sup>(5)</sup> projects implemented with NGOs only

<sup>(6)</sup> projects implemented by the states and municipalities to be included

Percentage of teachers from public schools trained through the long distance projects	Activity reports		
Number of people counseled at the testing and counseling centers CTA <sup>7</sup>	Reports from CTA (under the process of data collection, expected to be complete by 08/98)	1998	Available data by august 1998
Number of people tested at the CTA <sup>8</sup>	Activity reports 1995 reporting units = 38 1996 reporting units: 70 1997 reporting units: 63	1995 1996 1997	46.534 75.194 75.779
# of existing CTA	Activity report	1995 1996 1997	46 80 103
Proportion of people tested for HIV at CTA who have returned for results and counseling	Activity reports from testing centers, CTA (data gathering under process – concluded by August 1998)	1998	Data available by august 1998
Proportion of sentinel sites collecting samples according to established norms by the NP-DST/ AIDS	Activity report	1998	75%
Average time period to obtain testing results of blood samples by cohort	Activity report	03/97 10/97	15 months 9 months

<sup>(7)</sup> this indicator will not reflect the number of people who had access to the testing centers

<sup>(8)</sup> the availability of people tested for the first time will be looked at

## Monitoring Indicators

<b>Overall objective: Improve quality and coverage of treatment and care in HIV/AIDS &amp; other STD</b>	<b>Observations on baseline development</b>	<b>Date</b>	<b>Baseline</b>
No. of people annually followed at the ambulatory services of the public health service network	Situational diagnosis of SAE registered and monitored by the PN-STD & AIDS, with standard self applied questionnaires, obtaining a rate of 70,3% of response. Registered units; 66	1998	39.782
No. of people annually followed at the ambulatory services of the public health service network	Situational diagnosis of SAE registered and monitored by the PN-STD & AIDS, with standard self applied questionnaires, obtaining a rate of 70,3% of response. Registered units; 66	1998	39.782
Proportion of labs. That received external quality control panels for tests anti-HIV, with 100% right responses	External evaluation of public health network laboratories	06/97	20,5%
		03/98	90%
		06/98	97,8%
Proportion of labs that received external quality control panels for tests for qualification of viral load with 100% right responses	External evaluation of public health network laboratories for viral load	02/98	31,25
		06/98	55%
Average time for the return of test results of anti-HIV tests at the Counsel. testing centers - CTC	Under situational diagnosis assessment of CTC		

## Interaction between Monitoring and Policy Making

Regarding the evaluation policy of the National Program, the challenge at present is to improve the surveillance system and generate baseline data that will allow for the measurement of effectiveness and impact of prevention and control actions through time. It is important to point out that evaluation does not consist of technical instruments themselves, but is considered a construction of valuable tools to assist decision making regarding government public policy. Within this perspective, the Brazil program understands evaluation as a continuous process of data collection and verification of the degree of coherence between the presented results and the proposed objectives, as well as the actual changes generated from the initial situation or starting point. This comprises two stages: physical and financial monitoring, then evaluation of results and impact. Evaluation activities for physical and financial outcomes are based on previously defined criteria and parameters and looks at the extent to which the projected results and expected outcomes have been achieved.

For impact evaluation, special studies are designed to establish the cognitive, attitudinal and behavioral effects of the interventions on the general population or on specific segments of the population that are considered to be at high risk. In this respect, the National Program has adopted different evaluation strategies and methodologies, which can be summarized as follows:

- Evaluation of cost effectiveness of care and treatment services for people living with AIDS;
- Evaluation of the cost of prevention, condom distribution, and communication;
- Evaluation of different behavior intervention methodologies;
- Multicentric evaluation of the acceptability of the female condom;
- Different knowledge, attitude, practice and behavior surveys, with vulnerable and at-risk segments of the population to measure behavioral changes;
- Diverse number of studies with focal groups representing populations in vulnerable and high-risk situations;
- National sexual behavior population survey;
- Epidemiological studies, prevalence studies, and incidence and case-control studies;
- Evaluation of social mobilization and mass media campaigns;
- Qualitative evaluation of counseling practices and testing services from the perspective of the client as well as the service provider;
- Condom sales and market research including national production, overseas purchase, and commercialization;
- Assessment and evaluation studies of patient adherence to treatment with anti-retroviral drugs and care facilities;
- Evaluation and analysis of NGO regarding their role, prevention strategies, level of sustainability, broadness, integration of actions with government agencies, and technical profile of their staff.

Continuous monitoring and evaluation allows for redirecting annual plans and determining the adjustments necessary for ensuring that Program objectives are achieved. (See Table IV attached for Planning and Management Cycles.)

### **Monitoring and Evaluation: Interaction between National Program and Donor Assistance**

Discussions on the monitoring and evaluation strategies for the National Program have taken place with some support agencies such as the World Bank, USAID, UNDP, and UNAIDS. These have been participatory and range from MAP meetings and development of more accurate Epidemiological Fact Sheets and country profiles, to development of specific monitoring indicators and evaluation project designs for the new loan project. For the next four years of program implementation, other international agencies such as UNESCO and UNICEF will be participating in the monitoring and evaluation process. In addition, the National Treasury has provided independent auditors to evaluate expenditures and administration of funds by the Program. Since 1996, the planning process has been developed within a logical framework in the context of strategic planning, and management objectives have been based on the CEPAL framework model of program planning and management.

## **Conclusion**

Positive lessons learned from reviewing Brazil's National Program and its' response to the AIDS epidemic are:

- 1) National programs should strengthen social support systems and facilitate participation of vulnerable groups in the planning and implementation of prevention interventions and care and social support programs.
- 2) Nongovernmental actions including the private sector should be supportive and complementary to government actions and interventions.
- 3) Community leadership and participation are essential elements in building positive and supportive environments conducive to behavior change.
- 4) Intersectoral government integration can and should engage in productive partnerships to optimize both human and financial resources as a participatory and effective response to the epidemic. Multi-sectoral approaches for AIDS prevention can maximize the possibility of decreasing vulnerability factors through the improvement of social and programmatic conditions of the population.

At the present time, a new project under a second loan agreement with the World Bank is about to begin. Its main proposals are based on a situational analysis of the current epidemiological profile and trends of STDs and AIDS in the country, as well as the government's principles and guidelines of decentralization and universal health provision. It resulted from a broad participatory process involving state and municipal health managers, NGOs, areas of common interest in the MOH which intersect with the STD/AIDS Program, social control in the country's Unified Health System, and the main agencies of international technical cooperation mentioned earlier in this paper. The main challenges are now reduction of the incidence of AIDS in the most vulnerable segments of the population, particularly in the low-income strata; eradication of congenital syphilis; and assurance of the civil rights and a better quality of life for people living with HIV and AIDS. Within prevention efforts, the foremost concerns are activities related to the control of STDs for HIV/AIDS prevention, the development of community capacities, the integration of interventions into comprehensive approaches, the prevention of mother-to-child transmission, and the promotion of vaccine research.

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