

Epidemiology of Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome in Injection Drug Users in Argentina: High Seroprevalence of HIV Infection

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The aim of this study was to compile published data and to describe the prevalences of human immunodeficiency virus (HIV) infection among injection drug users (IDUs) in different populations studied in Argentina from 1987 through 1999. Twenty-two studies of HIV infection in the IDU population were selected, and 6 subject groups were defined: outpatients, prisoners, children in rehabilitation institutes, hospitalized patients, IDUs receiving drug treatment, and female sex workers. The median prevalence of HIV infection among 1506 outpatients (5 studies) was 64.0%; among 175 prisoners (1 study), the prevalence was 35.4%; among 446 children in rehabilitation institutes (4 studies), the prevalence was 48.1%; among 136 hospitalized patients (2 studies), the prevalence was 49.5%; among 2708 IDUs receiving drug treatment (7 studies), the prevalence was 39.0%; and among 26 female sex workers (2 studies), the prevalence was 47.0%. Prevalence of HIV infection was high among IDUs in Argentina, ranging from 27% to 80%.

At the beginning of 1980, when AIDS and its etiological agent were first described, HIV/AIDS cases in Argentina were mainly associated with men whose main risk of infection with HIV was having sex with other men (MSM) [1]. Later on, it was demonstrated that transmission via blood was also an important risk factor for HIV infection, particularly through injection drug use and behavior such as the sharing of injection drug paraphernalia [1–3]. In Argentina, injection drug use has been the major route of HIV transmission over the past several years [3, 4]. Some published studies indicate a high prevalence of HIV infection among injection drug users (IDUs) [5, 6].

In Argentina, 20,713 AIDS cases were officially reported from 1982 through September 2001; however,

23,000 cases were estimated to have occurred. Eighty percent of people with AIDS in Argentina live in large urban areas, such as Buenos Aires City and its surroundings, Buenos Aires Province, Rosario City (Santa Fe Province), and Córdoba Province. The male-to-female ratio among persons with HIV/AIDS has decreased considerably, from 20.4:1 in 1988 to 3.2:1 in 2000. Most AIDS cases occurred in persons 20–39 years of age [3]. Injection of drugs was found to be the main mode of transmission among the total reported AIDS cases (39% of AIDS cases), followed by MSM (24.9%) and heterosexual transmission (23.9%) [3].

During the second half of 2000, HIV serological testing was done in different populations from sentinel sites in Argentina. The median of the prevalences among HIV-infected pregnant women was 0.7% ($n = 96,011$); among those seeking a medical evaluation of possible sexually transmitted disease, 4.2% ($n = 3220$); among those seeking a medical evaluation for other reasons, 3.2% ($n = 27,011$); among prisoners, 17.5% ($n = 2017$); among blood donors, 0.2% ($n = 131,286$); among female sex workers, 1.7% ($n = 415$); among

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Clinical Infectious Diseases 2003;37(Suppl 5):S338–42

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1058-4838/2003/3712S5-0002\$15.00

MSM, 14.9% ($n = 561$); and among IDUs, 45.9% ($n = 157$) [7].

A survey carried out in 1999 by the Secretaría de Programación para la Prevención de la Drogadicción y Lucha contra el Narcotráfico estimated that the number of drug users in Argentina was ~671,584. Of these, it was estimated that 10% were IDUs [8]. On the basis of HIV seroprevalences among IDUs as obtained from several studies, it was estimated that between 12,137 and 34,538 IDUs were infected with HIV [3]. The aim of the present study was to compile published data and to describe HIV prevalence among IDUs from different populations studied in Argentina during 1987–1999.

METHODS

HIV seroprevalence studies were compiled by means of an extensive search in indexed journals (with use of the PubMed, National Library of Medicine database) as well as in abstract books of results presented at HIV/AIDS conferences. Studies were selected for inclusion if the following information was available: number of persons with serologic studies performed; number of persons infected with HIV or prevalence of HIV; time and place of study; source of population (setting) where participants were studied; sex distribution; and age range. Only data related to IDUs were obtained from the sources analyzed.

Data obtained from the selected studies were described for each mentioned variable. Prevalences were compared with data from those studies that had ≥ 30 participants. The confidence intervals of prevalences were obtained with a significance level of 95%. Prevalences and trends were compared and analyzed by use of the χ^2 test. When rates were compared among groups, the median and minimum and maximum values were presented with the aim of diminishing the dispersion effect of the data compared. Data were analyzed by Epi Info, version 6.04 (Centers for Disease Control and Prevention) [9].

RESULTS

From the 38 publications we found regarding the seroprevalence of HIV infection in IDUs in Argentina, 22 studies containing the required information were selected.

Groups

Six groups were defined according to the characteristics of both the population and the place where HIV testing for IDUs was performed: (1) “outpatients”: persons seeking an evaluation of possible HIV infection or other sexually transmitted diseases at outpatient clinics on the grounds of self-reported risk exposure (6 studies) [10–15]; (2) “prisoners”: inmates studied at prisons (1 study) [16]; (3): “children in rehabilitation institutes”: children secluded in rehabilitation institutes (4 studies)

[17–20]; (4) “hospitalized patients”: patients hospitalized for diseases other than AIDS (2 studies) [18, 21]; (5) “IDUs receiving drug treatment”: IDUs attending rehabilitation centers for IDUs (7 studies) [12, 18, 22–26]; and (7) “sex workers”: female street sex workers (2 studies) [27, 28].

The number of persons in each study group ranged from 9 to 949. Of the studies conducted, 10 were done during 1987–1991 and 12 during 1992–1999. Among the 19 studies in which data on the number of months of study duration were available, the mean duration (\pm SD) was 30.6 ± 48.6 months, the median was 18 months, and the range was 3–216 months. No significant differences were observed regarding the duration among the groups studied ($P > .05$; $df = 18$; Kruskal-Wallis test). Information on the ages of participants was obtained for only 10 of the studies. The range was 12–72 years of age, and the median was 16–29 years of age. Data on distribution by sex was available in 13 of the 22 studies analyzed. In 3 studies, 100% of participants were female outpatients, including pregnant women and female sex workers. In the remaining 10 studies, males accounted for 67.0%–97.3% of participants. The geographic distribution included 3 studies carried out in the Buenos Aires area (Buenos Aires Province), 3 studies in Rosario City (Santa Fe Province), and the remaining 16 studies in the city of Buenos Aires.

Outpatients. One study was not included in the comparison of prevalences because < 30 persons were studied. The participants in this study were pregnant IDU outpatients ($n = 19$) who showed an HIV prevalence of 21.1% [14]. The 5 remaining studies were conducted between 1987 and 1997. In 4 of them, the mean duration of study (\pm SD) was 66.8 ± 99.6 months (range, 12–216 months). The prevalences of HIV infection observed in this group ranged from 47.4% to 82.0%. The significant difference observed for 4 degrees of freedom was generated by prevalences of 47.4% and 82.0%, described in 1997 [15] and 1995 [12], respectively. However, no trend among rates was observed (figure 1).

Prisoners. We selected only 1 study of prisoners, which was conducted during 1987. Among 175 subjects, who had a mean age of 29 years, 71.0% were male. The prevalence for HIV infection in this population was 35.4%.

Children in rehabilitation institutes. Four studies between 1988 and 1995 were analyzed, with a mean (\pm SD) study duration of 24.2 ± 12.3 months (range, 8–38 months). No significant difference in terms of trend was found (figure 1). A separate analysis of the last 2 enrolled groups of adolescents in the same institutes showed a significant decrease in HIV prevalence, from 60.0% in 1992 [19] to 31.9% in 1995 [20] (figure 1).

Hospitalized patients. Two studies conducted between 1987 and 1989 were analyzed; the mean study duration (\pm SD) was 17.5 ± 10.6 months (range, 10–25 months). We analyzed IDU patients with hepatitis hospitalized at an infectious diseases

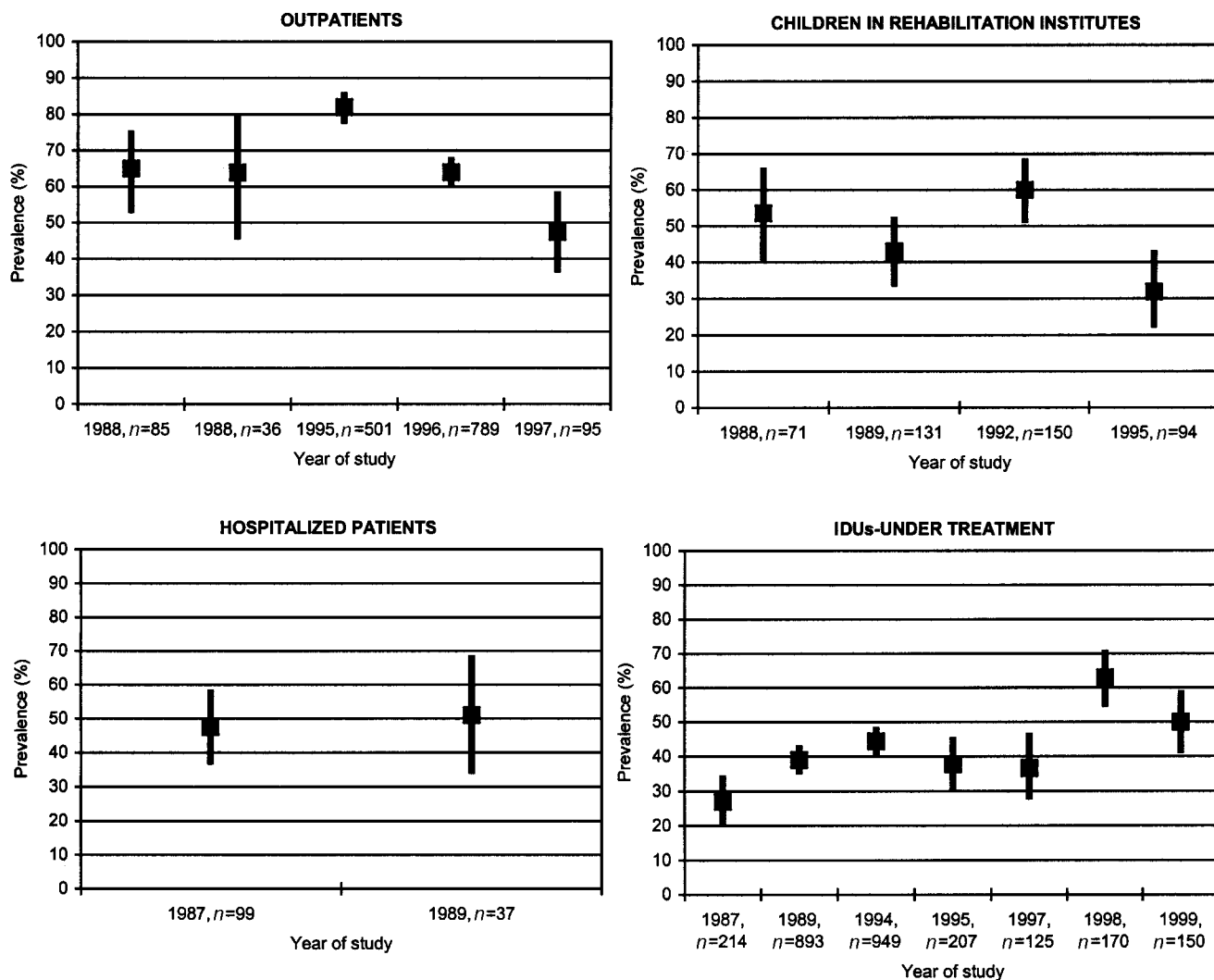


Figure 1. Prevalences of HIV infection among injection drug users and children in Argentina, 1988–1999. Bars indicate 95% CIs.

hospital and IDU patients secluded in a neuropsychiatric hospital. The differences between prevalences of HIV infection were not statistically significant: the prevalences were 47.5% [21] and 51.0% [18], respectively ($P < .05$) (figure 1).

IDUs receiving treatment. We analyzed 7 studies conducted between 1987 and 1999. The median study duration (\pm SD) in 5 studies was 22.2 ± 31.4 months (range, 4–84 months). Figure 1 shows that prevalences of HIV infection in the studies analyzed ranged from 27.0% in 1987 [22] to 50% in 1999 [26]. We found differences in prevalences among the 7 studies analyzed. Although the lowest prevalence was observed in 1987 (27.0%) and the highest rates were observed in 1998 (63.0%) [25] and 1999 (50%), no trend was observed in prevalence during this period.

Sex workers. Two studies that corresponded to IDU female sex workers were selected [27, 28]. The prevalences of HIV infection were 44.0% ($n = 9$) and 50% ($n = 17$), respectively.

Comparison of Prevalences among Different Groups

Table 1 shows the comparison of HIV seroprevalence for each of the 5 study groups. Outpatient studies showed a prevalence of 64.0%. The rate of infection was significantly higher than in other studies, in which prevalence was 39.0% among IDUs receiving treatment, 48.1% among children in rehabilitation institutes, and 49.5% among hospitalized patients ($P = .0001$).

Among males with AIDS in Argentina, 45% were IDUs (figure 2). We estimated the frequency of risk factors on the basis of data on the route of transmission among females reported to have AIDS in Argentina [7] and data from a study of infected children and their parents from Buenos Aires City. [29] It was estimated that 50% of women had acquired the infection through heterosexual contact and 12% through sex with a male IDU partner; 31% of women were themselves IDUs, and 7% showed blood transfusion as a possible route of transmission (figure 2).

Table 1. Seroprevalence of HIV infection in injection drug users (IDUs), by study group, Argentina, 1987–1999.

Study group	No. of studies	Sample size, no. of participants	HIV seroprevalence, % (minimum–maximum)
Outpatients	5	1506	64.0 (47.4–82.0)
Prisoners	1	175	35.4 (28.5–43.1) ^a
Children in rehabilitation institutes	4	446	48.1 (31.9–60.0)
Hospitalized patients	2	136	49.5 (47.5–51.0)
IDUs receiving treatment	7	2708	39.0 (27.0–63.0)

^a 95% CI; $\chi^2 = 152.3$; $df = 4$; $P = .0001$.

Among children who developed AIDS, it was estimated that 3% acquired the infection through blood transfusions and 95% were children whose mothers were infected with HIV (data was missing for 2%). Of these children, 48% were born to mothers who had acquired HIV through the sexual route, 7% by blood transfusion, 11% by having sex with an IDU partner, and 29% as a result of injection drug use (figure 2).

DISCUSSION

From the literature consulted, we selected 22 studies addressing the prevalence of HIV infection in IDUs conducted in Argentina, mostly from abstracts presented at congresses and a few from scientific journals. The prevalence of HIV infection in IDUs was high in each case, varying between 27% [22] and 80% [12]. The higher prevalence found in the outpatient studies may be attributed to the fact that this population presented a self-screening skew because of their interest in knowing their HIV serostatus as a result of a self-reported risk exposure. Comparison of prevalences in the other groups does not show any statistical difference among hospitalized patients, children in rehabilitation institutes, and IDUs receiving treatment who are challenged to undergo HIV testing. The lowest prevalence of HIV infection found was observed in adult prisoners (35.4%), whereas the prevalence among children in rehabilitation institutes was 48.1% (table 1). One hypothesis is that the lower prevalence in the HIV-infected adult population is due to the increase in specific mortality in this group.

Prevention programs [17] (E. Casanueva, personal communication) may have had a positive impact on the reduction of HIV transmission in children in rehabilitation institutes from 60% to 31.9% [19, 20]. In these studies, it was also demonstrated that HIV infection among noninjecting drug users also diminished in the same population from 8.3% to 2.7% between 1992 and 1995 ($P < .001$) [19, 20].

The prevalence of HIV infection observed in pregnant women [14] and in female sex workers [27] was significantly higher among those who were IDUs (50% vs. 9%) and higher than the general population of pregnant women (0%–0.7%) [3]. On the other hand, the risk factor of injection drug use is

associated with approximately 40% of children living with HIV/AIDS in Argentina as a result of being born to either mothers who are IDUs and are infected with HIV or mothers infected with HIV via partners who are IDUs.

In acknowledging the methodological limitations of this analysis, it is important to point out that the prevalence of HIV was high among IDUs in those studies conducted during 1987–1999. Although the prevalence of HIV infection varied according to the group analyzed, it still remained high over the time. Injection drug use is the main risk factor associated with HIV

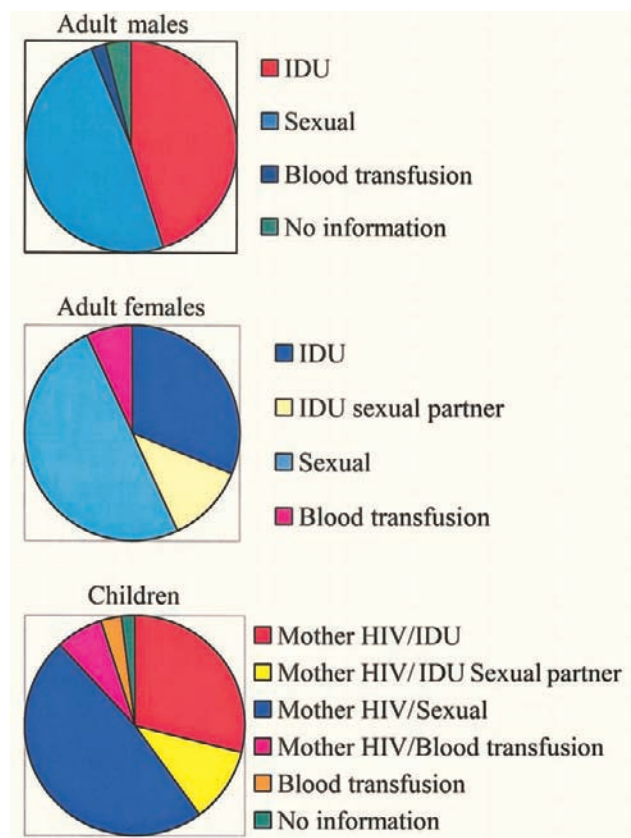


Figure 2. Distribution of HIV-transmission risk factors for adults (by sex) and children with AIDS in Argentina. Based on data from [7, 28]. IDU, injection drug user; mother HIV, mother who is HIV-infected.

infection in Argentina. The IDU population has a high rate of HIV infection. Consequently, sustained programs are highly essential to effectively diminish both the consumption of drugs and the prevention of HIV transmission in this population.

Acknowledgment

We thank Gustavo J. Pérez for help with translation.

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