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HIV incidence and molecular characterization of new diagnoses in Argentina. A Global Fund Project

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Objective

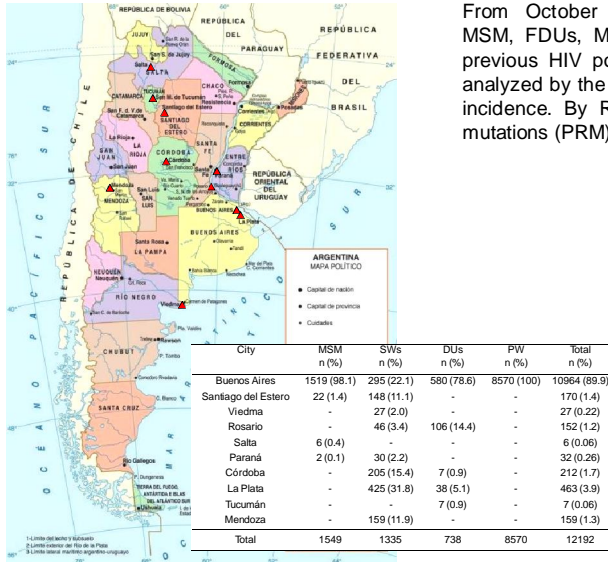
The objective of this study was to estimate HIV incidence and characterize subtypes and resistance profiles among recently diagnosed individuals from different at-risk populations (men who have sex with men (MSM); female and male drug users (FDUs and MDUs); female, male and transvestites sex workers (FSWs, MSWs and TSWs)) and pregnant women (PW) from ten cities from Argentina (Buenos Aires, Santiago del Estero, Viedma, Rosario, Salta, Paraná, Córdoba, La Plata, Tucumán and Mendoza) in the context of a Global Fund Project (Sub-project N°112).

Methods

From October 2006 to September 2008, HIV prevalence surveys were conducted among MSM, FDUs, MDUs, FSWs, MSWs, TSWs and PW. Volunteers older than 18 years old without previous HIV positive diagnosis were interviewed and tested for HIV. HIV positive samples were analyzed by the Standardized Testing Algorithm for Recent HIV Seroconversion (STARHS) to estimate incidence. By RT-PCR and partial sequencing of HIV *pol* gene, antiretroviral primary resistance mutations (PRM) were identified and HIV subtype was determined.

Study population

A total of 12,192 volunteers were incorporated to the cross-sectional HIV prevalence surveys: 1,549 MSM, 1,335 SWs (men, women and trans), 738 DUs (men, women and trans), and 8,570 PW. Overall, most of the volunteers (89.9%) were recruited in Buenos Aires city, involving individuals from the city itself and the surrounding areas.



Cross sectional HIV prevalence survey

HIV diagnosis was performed in all the volunteers. Among the 12,192 self-reported HIV-negative or unknown status volunteers enrolled at the surveys studies, 303 individuals were HIV positive. Figure 1 shows the HIV prevalence in the different groups stratified by group. In SWs, very important differences were observed between genders. Trans SWs had higher prevalence as compared with men ($p < 0.0001$) and women ($p < 0.0001$), and men had also a significantly higher prevalence as compared with women ($p < 0.0001$).

HIV incidence

Annual HIV incidence was estimated by testing 262 HIV-positive serum samples from the different surveys studies. Overall, 57 samples were found to be recent infections. Results by group are shown in Figure 1.

Prevalence of transmitted drug resistance HIV-1

A total of 214 newly HIV diagnosed individuals were successfully sequenced. Of these, 18 (8.4%) had PRM. Results by group are shown in Table 1. No statistically significant difference was observed on PRM among different groups. The group detected with recent infection by STARHS was compared with those with established infection without significant difference on PRM neither in the overall group nor stratifying by group or gender. Most patients had PRM associated with one group of drugs only (61.1%), mainly NNRTI (45.4%) and, to a less extent, NRTI (27.3%) and PI (27.3%). The most prevalent PRM was K103N (44.5%), followed by M184V (33.3%) and M41L (22.2%).

Subtype characterization

Phylogenetic analysis showed that 124 (57.9%) samples were subtype B, 84 (39.3%) were inter-subtype BF recombinants, 5 (2.3%) were subtype C and one (0.5%) was subtype F in *pol* region. Results by group are shown in Figure 2.

Conclusions

Given the high HIV prevalence and incidence found in this study, it is imperative to have a well documented molecular profile of the epidemics in these groups. The high incidences observed in most of them make them suitable for considering them as potential volunteers in vaccine trials.

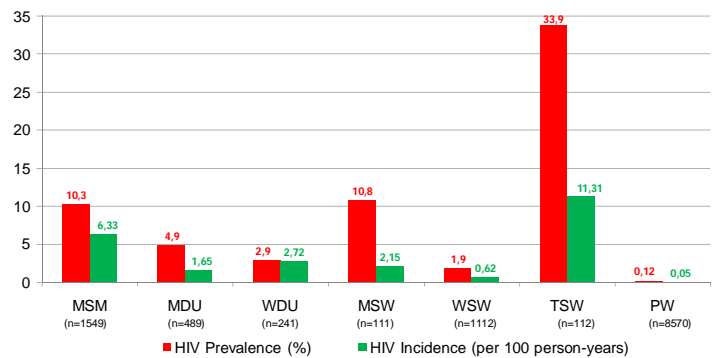


Figure 1. HIV prevalence and incidence among self-reported HIV-negative or unknown status volunteers enrolled at the surveys studies stratified by group, Argentina, 2006-2008.

Table 1. Primary resistance mutations prevalence among newly HIV diagnosed individuals stratified by group and gender, Argentina, 2006-2008.

	MSM	MDU	WDU	MSW	WSW	TSW	PW
n/total	10/135	2/13	1/3	1/11	0/16	4/30	0/6
%	7.4	15.4	33.3	9.1	-	13.3	-

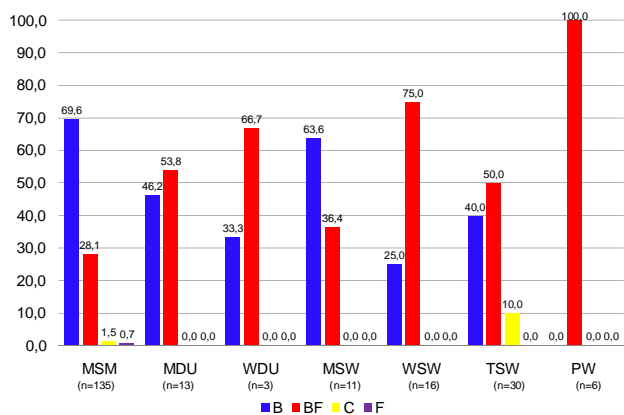


Figure 2. HIV subtype frequency among volunteers enrolled at the surveys studies stratified by group, Argentina, 2006-2008.