

## **Respondent driven sampling: An effective methodology to estimate vulnerability to HIV transmission in sex workers of Santos, Brazil**

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The HIV/AIDS epidemic had posed to scientists and researches many and constant challenges in all levels. Some population groups still present high vulnerability for the infection. Users of drugs, men who make sex with men and sex workers belong to groups of difficult access and the prevention programs directed to them frequently have difficulties to be implanted and evaluated, due to the special needs these persons present of not be identified from fear of discrimination.

The concern in having access to these groups in valid statistical samples made a group of scientists to develop a type of sampling based on nets of contacts. This methodology called Respondent Driven Sampling (RDS) elaborated by Douglas Heckathorn, starts with the identification, for the researchers, of the first participants of the study, called “seeds”, that have the function of initiating the election of other members. The recruitment expands in waves, where Wave 1 is formed by the participants indicated for the seeds, Wave 2 for the participants indicated for the components of Wave 1, and thus each recruitment is a link of the chain. Each participant is recruited through coupons identified by numbers.

This process continues until the sample reaches the projected size. With exception of the seeds all the participants are recruited by persons of the group, meaning that they are effectively participating of a social net. This system guarantees the participation of people not reached for another type of methodology.

The RDS is based on the principle that the social nets are long enough to reach a sufficient number of waves or cycles of recruitment that guarantee a final sample with characteristics and representative behaviors of the group to be studied. The point where the sample presents stability is called “balance”.

The context of HIV vulnerability in the city of Santos constitute a big challenge to prevention activities. The fact to shelter the biggest port of Latin America with intense movement of trucks, ships of load and passengers, produces a concentration of commerce of the sex, beyond intense circulation of sex workers between the main cities of the state of São Paulo. Santos was considered the Capital of the AIDS with the highest AIDS prevalence rate in the period 1989-1993.

Diverse studies to estimate HIV prevalence in sex workers of the city and the context where the infection occurred were developed. All of them found similar situations of HIV prevalence and a vulnerability context that involved intense sex commerce activity and constant use of drugs between sex workers.

In 2001 a census verified that sex commerce in Santos was concentrated in historical center area next to the port, in the streets, hotels, nightclubs, and in agencies distributed in places next to the beach. In recent years a change in this profile can be observed, the reduction of sex workers in the streets and the concentration in two nightclubs of the center. The sex workers who act in the city are still a group that need special attention of

public health in assistance and prevention. The RDS appears as a chance of a new approach with this segment.

The present work had the purpose of studying the net of social interaction of sex workers in the city of Santos, their vulnerability conditions and HIV prevalence infection and evaluating RDS applicability for monitoring HIV.

The conclusions were that Santos sex workers presents vulnerability to the HIV similar at the observed at the epidemic initiation in 1986, 5.8%. The 175 accessed sex workers did not communicate, despite of the proximity of the places where they work, constituting two distinct nets, workers of nightclubs and workers of streets/hotels.

The main factors of vulnerability were to work in the streets, to have few years of schooling, precarious dwelling, early age of beginning sexual life and commerce of sex, to be non-white persons and to use drugs, specially crack. Despite of the similarity of exposition, the poorest women presented a higher prevalence to the HIV.

The research had three innovative aspects: the sampling technique directed for the people interviewed (RDS), the use of the software RDSAT for analysis, and the use of the fast test.

The sampling technique was efficient to obtain the number of participants in short space of time reducing the costs of the project.

The use of the RDSAT also was effective to know the formation of the sex workers nets and the visualization of the most vulnerable areas.

The accomplishment of fast test in field was one of the positive points of this study. For the majority of the participants the great incentive to the participation was the possibility to receive the diagnosis of HIV in few minutes. The perception that the practice of their work means risk for HIV infection, is assimilated by the women, expressed by the fact that almost all of them had already carried out the test.

A limitation of the analysis in this study was the impossibility to identify significant risk factors, described in literature, because of the size of confidence intervals generated by the RDSAT.

The RDS constitutes an important strategy for access sex workers.