

FHI's Experience in Estimating the Size of Sub-populations at High Risk for HIV

Estimating the size of hard-to-reach populations is important to effectively plan, implement, monitor and evaluate HIV/AIDS prevention and care programs. Estimates provide a better understanding of the burden of disease, which in turn helps shape more informed programs and policies. *National* estimates are needed for policy formulation, while *local* estimates are sufficient for programming purposes. The estimates can also help determine program coverage of certain high-risk groups. Several methods have been used to estimate hard-to-reach populations. Each approach has limitations and advantages and no single method is ideal.

The most common methods are: 1) census and enumeration method, 2) population survey methods, 3) multiplier methods, 4) nomination methods, 5) capture-recapture methods, and 6) a combination of the multiplier method and one or more of the other methods. A guiding principle that Family Health International follows in conducting population estimation exercises is “first do no harm.” Although individuals who are at high risk for HIV are frequently marginalized by society because of illicit and/or illegal activities, many estimation techniques require that these individuals be identified in some way. But FHI recognizes the importance of maintaining the rights and well being of high-risk groups for the sake of size estimation.

Global and Regional Activities

FHI organized a size estimation workshop with USAID, UNAIDS, WHO and UNDCP in Indonesia in April 2002. Representatives from donor organizations, FHI field offices and other partner agencies attended. The workshop proceedings and outcomes are captured in the report, *Estimating the Size of Populations at Risk for HIV: Issues and Methods*, which is available at www.fhi.org. This 56-page report is being translated into French, Spanish and Russian.

FHI actively participates in a USAID-led working group on assessing methodologies for estimating the size of populations, such as sex workers, injection drug users, men who have sex with men, orphans and vulnerable children.

Country Activities

Baltic Sea Region: The Implementing AIDS Prevention and Care Project (IMPACT) helped the Centre for Drug Misuse Research of the University of Glasgow undertake a capacity building exercise in size estimation in 2002. (IMPACT is funded by USAID and managed by FHI.) The exercise focused on female sex workers (FSWs) and injection drug users (IDUs) in Estonia, Latvia and Lithuania. This effort was designed to generate denominator data in populations and areas where IMPACT supports interventions and to develop local capacity to replicate the exercise elsewhere in the region. A report of this exercise outlines several methods for estimating the size of populations, and makes

recommendations about improving data collection for further research on estimating population sizes. It also highlights key findings and lessons learned in each country. For instance, it notes that if one of the assumptions of the capture-recapture method is not achieved, the exercise results in underestimation: The estimate of IDUs in Ida Viruma and Tallin, derived from the multiplier method, generated about 5,000 IDUs, while the capture-recapture method applied in the same cities produced a much lower number of 344 IDUs. Based on the hidden nature of injection drug use, it was felt that one of the method's key assumptions (e.g. equal probability to be sampled) was not met, making this estimate invalid.

Cambodia: To plan HIV prevention interventions among FSWs, IMPACT conducted a census of commercial sex establishments in the provinces of Phnom Penh, Kapong Cham and Kandal in 1998. This study was implemented in collaboration with Population Services International (PSI). The purpose was to collect data on the number of commercial sex establishments, freelance sex workers' access points, sex workers, freelance sex workers and informal sex workers (beer promotion workers, masseuses, lounge hostesses, dance hall partners or bar hostesses). Research teams collected socio-demographic characteristics on nationality, price for sex, and condom use. Results showed a total of 7,346 sex workers were working in 1,302 establishments/freelance areas covered in the census. Twice as many sex establishments existed in Phnom Pen (878) than in the other two cities combined (424).

Ethiopia: To estimate the number of FSWs in Addis Ababa, the IMPACT Project supported a census exercise in collaboration with the Addis Ababa City Administration Health Bureau in 2002. Initial work included a geographic mapping and complete enumeration exercise. It also incorporated limited qualitative data collection on socio-demographics of the sex worker population, which was conducted in 304 urban locations. The locations, or *kebeles*, were subdivided to simplify the enumeration. Sex workers were divided into two broad categories, establishment-based sex workers and street-based sex workers. Qualitative data was gathered by conducting interviews with sex workers and key informants. The study estimated 8,134 establishment-based sex workers (nearly 87% of whom were in bars, hotels and brothels) and 258 street-based sex workers. In Amhara, Oromia and Southern Nations Regional States, FHI is working with the Regional Administration Health Bureaus and HIV/AIDS Prevention and Control Offices to estimate the size of high-risk groups including sex workers, and truck drivers and their assistants. This is being done with a combination of the PLACE method (Priorities for Local AIDS Control Effort was developed by the University of North Carolina and consists mainly of geographic mapping for "hot-spots") and the capture-recapture method.

Ghana: As part of an effort to develop and expand HIV prevention interventions and STD services to FSWs in Ghana, IMPACT supported an enumeration activity to estimate the number of *roamers* (street-based and mobile female sex workers) in Accra-Tema, Sekondi-Takoradi in mid-2003. The methodology employed: 1) geographic mapping that consisted of dividing each city into "clusters" (identified sex work sites), and direct counting of the roamers present, 2) indirect counting of roamers from key informants, and 3) sampling by the capture-recapture method that consisted of a series of two captures conducted two weeks apart. Estimates produced by the different methods vary considerably, with results from the capture-recapture method showing a total of 3,297 roamers, while results from the direct and indirect counting methods show 1,884 and 2,679 roamers, respectively. The report makes several recommendations about improving data collection for further research on estimating population sizes. The results will be used for future programming for sex workers in Ghana.

Indonesia: In 2002, the Government of Indonesia, with FHI's help, undertook an exercise to estimate the HIV infection burden in the country. Estimating the sizes of the high-risk groups and the number of persons living with HIV/AIDS in Indonesia involved a series of consensus-building and technical

meetings. The following sub-populations were included in the estimation exercise: IDUs; non-injecting partners of IDUs; FSWs; clients of FSWs; wives of clients of FSWs; male sex workers; regular female partners of male sex workers; transvestite sex workers (Waria); clients of transvestite sex workers; regular male partners of transvestites sex workers; men who have sex with men (MSM); prisoners; street children. Representatives from these groups participated in shaping the enumeration activity, which was conducted through a combination of methods and included use of existing data, depending on the risk-group. The national estimate of all high-risk groups in this study was an average of 16,013,508, including 8,222,253 clients of sex workers, 233,039 female sex workers and 1,149,809 MSM. In total, the national estimate of PLHA (people living with HIV/AIDS) was 110,800, which leads to an estimate of 0.1% of HIV prevalence in Indonesia.

Nepal: To provide information for a behavioral surveillance survey and for program planning purposes, two organizations, independent of each other, conducted estimations of IDUs in Katmandu Valley with FHI support. One was done by New ERA, a nonprofit, non-governmental research organization, and the other by the Center for Research on Environment Health and Population Activities (CREHPA). The methodology used by New ERA included mapping and a full census. At each site visited, three activities were performed to obtain an estimation of IDUs:

- IDUs who were seen were contacted and interviewed whenever possible to verify that they were in fact injection drug users. The number of persons contacted and interviewed was noted.
- Besides those IDUs who were directly contacted, the number of other IDUs seen also was noted. Local informants verified these persons as current IDUs.
- Different informants were asked to estimate the numbers of IDUs who frequent the particular localities in addition to those contacted and/or observed.

Field workers combed all corners, yards, courtyards, streets, and lanes in the Katmandu Valley.

As CREHPA's objective was to conduct a qualitative focused, ethnographic study that incorporated size estimation, the methodology was slightly different. The main tools included informal interviews with NGOs working with IDUs, key informant interviews, social mapping, and observation of the injecting/sharing behaviors. The two data sets of New ERA and CREHPA were later merged to arrive at a final estimated number of IDUs in Katmandu Valley. The following steps were taken for calculations: 1) two separate lists of the sites were prepared, one of sites covered only by New ERA and the other of those covered only by CREHPA; 2) with the help of the maps of the locations and sites of IDUs, all the common sites noted in both organizations' maps were marked, and numbers of IDUs estimated by the respective organization were noted; 3) in the common sites, the greatest number of IDUs estimated either by New ERA or CREHPA was taken as the final number. This method yielded 4,399 IDUs (4,261 men and 138 women) in 291 sites in Katmandu, Lalitpur and Bhaktpur.

Madagascar: The IMPACT Project and a female sex worker association undertook a participatory mapping and enumeration exercise in 2001 as part of a project to define services for HIV prevention and sexually transmitted disease to FSWs. IMPACT and the FIVMATA (Fikambana'ny Vehivavy Mpandeha An-Tsambo) trained FSWs as field workers to complete a social and geographic mapping of sex work sites in the Diego-Suarez area. Subsequently a capture-recapture exercise was done, distributing an educational brochure as the method of tagging. Based on this exercise, it was estimated that a population of about 2,700 FSWs exists in Diego-Suarez.