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Key Populations in sub-Saharan Africa: Population Size Estimates and High Risk Behaviors

Abu S. Abdul-Quader,

Division of Global HIV/AIDS, Center for Global Health, Centers for Disease Control and Prevention, Atlanta, GA, USA

Eleanor Gouws-Williams,

UNAIDS Regional Support Team for Eastern and Southern Africa, Johannesburg, South Africa

Sheila Tlou,

UNAIDS Regional Support Team for Eastern and Southern Africa, Johannesburg, South Africa

Linda Wright-De Agüero, and

Division of Global HIV/AIDS, Center for Global Health, Centers for Disease Control and Prevention, Atlanta, GA, USA

Richard Needle

Division of Global HIV/AIDS, Center for Global Health, Centers for Disease Control and Prevention, Atlanta, GA, USA

The expansion of antiretroviral treatment and other biomedical and behavioral interventions has slowed HIV transmission in a number of countries in sub-Saharan Africa. However, populations at high risk of HIV infection including men who have sex with men (MSM), sex workers (SWs) and people who inject drugs (PWID) have limited access to and uptake of these interventions due to structural factors, legal barriers, stigma and discrimination. Other challenges related to populations at high risk of HIV infection include the lack of accurate population size estimates to help measure program coverage and program reach, lack of good quality epidemiologic data on HIV prevalence and related behaviors at the national and sub-national levels, and lack of real time analysis of programmatic data to guide programming for an AIDS free generation. Increasingly, major funding agencies such as the President's Emergency Fund for AIDS Relief (PEPFAR) and The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) have recognized population size estimates as an integral part of national and sub-national level strategic planning, target setting and for assessing HIV program results. Program implementers, policy makers and funding organizations have supported population size estimation activities and bio-behavioral surveys among MSM, PWID and SW in a number of countries, including countries with generalized as well as concentrated epidemics, to target and strengthen HIV prevention, care and treatment programming.

This special supplement reports on results from population size estimation studies and bio-behavioral surveys conducted among populations at high risk of HIV infection in six countries in sub-Saharan Africa (South Africa, Ghana, Kenya, Zanzibar, Mozambique and Uganda) during the last five years. The seven papers focus on different populations, including MSM, SW, PWID and migrant workers, using different population size estimation methods and study settings. Konstant and colleagues enumerated sex workers in twelve locations across South Africa using mapping and wisdom of the crowd methods. ‘Hotspots’ were mapped and sex workers counted and interviewed by the study team. These data were combined with information from the existing literature and feedback from local experts providing services or interacting with the SW community to calculate national estimates. Quaye et al., used multiple methods to estimate the size of the MSM population as part of the Ghana Men’s Study, collecting data through both the formative assessment phase for an integrated bio-behavioral survey (IBBS) and as part of the IBBS itself. The investigators used six different methods, including a literature review, mapping with census, unique object multiplier, service multiplier, wisdom of the crowd, and modified Delphi methods to generate size estimates from 16 locations (4 IBBS sites and 12 other locations). Data from the 16 sites were analyzed and consensus reached at a stakeholder meeting on the estimated total MSM population size in Ghana.

Other studies in the supplement report on HIV prevalence and risk behaviors among populations at high risk of infection. Three studies, using respondent-driven sampling to recruit study participants, report on HIV prevalence, service utilization, and risk behaviors among female sex workers (FSW) and PWID in Nairobi and Zanzibar. Helgar Musyoki et al., found high levels of HIV testing and re-testing within the past 12 months among FSW in Nairobi among whom HIV prevalence was nearly 30%. Tun et al., conducted a similar cross-sectional study among PWIDs in Nairobi to assess HIV prevalence and risk behaviors. HIV prevalence was estimated at approximately 19%. In a third study, Matiko et al., reports on two rounds of behavioral and biological surveys, conducted in 2007 and 2012, among PWID in Zanzibar. HIV prevalence among PWID was 16.0% in 2007 and 11.3% in 2012; 73.2% had injected drugs for seven years or more in 2007 versus 36.9% in 2012. Duration of injection drug use for five years or more was associated with higher odds of HIV infection in both time periods.

The paper by Baltazar et al., reports on findings from a survey among Mozambican migrants working in South African mines. This was the first such study in Mozambique to assess the prevalence of HIV and related risk behaviors among this population and also to assess use of and access to prevention and health care services by these workers in South Africa.

The final paper by Schwitters, et al., reports on violence among FSWs in Kampala, Uganda, and estimates prevalence of rape and client-initiated gender-based violence (GBV) and associated risk. Nearly one half (49%) of FSWs reported having been raped at least once in their lifetime and 82% of FSWs experienced client-initiated GBV.

Each paper provides a snap shot of the epidemic among populations at high risk of HIV infection and the need to more closely examine their role in fuelling the HIV epidemics in sub-Saharan Africa. Data from South Africa and Ghana highlight the importance of

population size estimation activities, the limitations of the different methods and the value of using multiple methods for estimating the size of key populations. The three studies among FSWs and PWIDs from Kenya and Zanzibar underscore the need for the development, implementation and expansion of appropriate high impact interventions to address the high rates of HIV among these populations. Migration for economic opportunity is common in sub-Saharan Africa and, as the study of Mozambicans working in South African mines explores, exposes migrant workers to social and economic vulnerabilities which facilitate higher risk behaviour. The paper on violence against FSWs in Uganda demonstrates the importance of conducting investigations and the need to address GBV through changes in social norms, policies and programs tailored for vulnerable, stigmatized populations.

WHO's *Consolidated Guidelines on HIV Prevention, Diagnosis, Treatment and Care*¹ clearly lays out what needs to be done for populations at high risk of HIV infection. Studies providing estimates of population sizes can support the targeting and scope of interventions and bio-behavioral surveys provide needed data on the prevalence of HIV, associated risk behaviors and other socio-economic vulnerabilities and practices such as violence. These data can improve the development, implementation, targeting and expansion of interventions and promote change in discriminatory laws and policies, in health service delivery and violence against key populations.

¹World Health Organization – Consolidated Guidelines on HIV Prevention, Diagnosis, Treatment and Care, July 2014, Geneva, Switzerland.