

It all starts here: Estimating the size of populations of men who have sex with men and transgender people

POLICY BRIEF

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Background

Over the past two years it has become increasingly clear that scaling up services to most-at-risk populations (MARPs) around the world, particularly in concentrated epidemics, has to be prioritized if universal access to HIV prevention and care is to be achieved. An important challenge to reaching MARPs is that they are often marginalized, stigmatized and discriminated against. Partly as a result of this, and partly as a result of self-segregation, there is often a lack of information about these groups. If active efforts to significantly increase prevention, care and treatment service coverage for these vulnerable populations are to be made, we need to get to know their characteristics, including an estimation of the number of people that need these services.

Gay and other men who have sex with men (MSM¹) and transgender persons (TG) in the Asia Pacific are one key vulnerable population that is at present being prioritized in the region. Early planning exercises have been hampered by limited knowledge of the size and other characteristics of this

population. This policy brief addresses different approaches to assess the number of TG and MSM in countries in the region, information which is essential for planners and policy makers in planning the kinds of efforts and approaches as well as the amount of funds needed to scale up coverage.

When planning for scaling up services for MSM and TG, one of the key problems is that they are often presumed to be a homogeneous group, whereas in reality they represent a range of diverse identities and differing levels and forms of social and sexual association. These differences are important in terms of their implications for HIV risk and vulnerability, and should be taken into consideration where resources are scarce, ensuring that those with the highest need are covered first. Programming sensitively for MSM and TG therefore implies recognizing and understanding their diversity, and identifying the needs of specific sub-groups. Sensitive programming then consists of the use of an appropriate combination of strategies and approaches and prioritization of those groups most in need, without neglecting the others, in order to effectively reach universal access.

Box 1: The problematic situation that this document intends to change

In the context of an international commitment to universal access for HIV prevention and care, funding and programmatic decisions are being made in regard to MSM and TG HIV services and coverage is based on poor size estimations. This includes GFATM, donors, and governments. Policies are also being made based on poor estimates and each country seems to approach this issue in its own way, producing size estimations which vary considerably. Because funding and budgeting decisions are being taken based on this number, we need a set of approaches and techniques that can provide reasonably accurate size estimations in order to change, for the better, the programming and resource allocation targeting MSM.



¹ "Men who have sex with men" (MSM) is an inclusive public health term used to define the sexual behaviors of males having sex with other males, regardless of gender identity, motivation for engaging in sex or identification with any or no particular 'community'. The words 'man' and 'sex' are interpreted differently in diverse cultures and societies as well as by the individuals involved. As a result, the term MSM covers a large variety of settings and contexts in which male to male sex takes place. (From the APCOM website: www.msasia.org)

Box 2: The main audiences that this document intends to reach

This document is aimed at all policy makers and public health planners in government (national, provincial and local), bi-lateral and multi-lateral donors (GFATM, PEPFAR, etc), UN-system representatives, epidemiologists and community programme managers involved in the national HIV responses and MSM strategic framework for planning and costing in the Asia Pacific Region.



Objectives of this Brief

The main objectives of this policy brief are to:

- Explore key issues relating to the diversity of MSM and TG and implications for size estimation exercises
- Identify other key considerations for the estimation of sizes of populations of MSM and TG
- Make key recommendations on how MSM and TG diversity, population sizes and risk levels of MSM and TG sub-groups can and should be taken into account for sensitive programming in Asia and the Pacific.

It is important to highlight that, in general, size estimations are not an easy task to undertake. Technical and methodological expertise and considerations are needed which are beyond the scope of this brief. Here we aim to discuss why such accurate, technically sound estimates are needed, summarize key concepts about options for size estimations, and provide references to more in-depth resources related to size estimations.

The social drivers of vulnerability to HIV among MSM and transgender persons in the Asia Pacific Region

Around the world, MSM and TG are most severely affected by the HIV/AIDS epidemic compared to other groups [1]. MSM and TG from the Asia Pacific region are not an exception; and concerns about the worsening HIV epidemic among MSM and TG in this region have been expressed [2]. Two systematic reviews about HIV prevalence in low and middle income countries found that Asia has some of the highest HIV prevalence figures for MSM (i.e. around 40%) and TG (close to 60%) [3, 4]. Likewise, the highest rates of unprotected anal sex among MSM were reported in Asian countries. A meta-analysis also conducted in low and middle-income countries to assess the overall pooled effect of being a MSM and TG, as compared to heterosexual men, on the risk for HIV acquisition found that the highest HIV prevalences among MSM were found in Asian countries such as Myanmar and Thailand [5].

Vulnerability to HIV depends on at least three groups of related influences:

- 1) being part of sexual networks with high HIV prevalence and high partner turn-over (so that the likelihood of pairing with a partner living with HIV is higher);
- 2) low quality and coverage of HIV prevention and care services and programmes (in total numbers of persons and in terms of population groups covered); and
- 3) social environmental influences that limit the ability of certain groups to fulfil their rights and needs.

Environmental influences involve at least three distinct but interrelated elements:

- (a) legal frameworks that criminalize same-sex practices or transgender identities or that limit the rights of sexually diverse people or fail to protect them against discrimination;
- (b) state practices (i.e. as resulting from the action of civil servants or other Government-funded personnel, for example in health services) that, may be hostile or unwelcoming towards sexual minorities, and create barriers to access to services, and
- (c) cultural norms with regard to sexual diversity, which often lead to the stigmatization of sexually diverse people (often called homophobia) and condone discriminatory practices towards such people by the majority.

An appropriate response to the concentrated HIV epidemics in MSM and TG in the Asia Pacific Region

MSM and TG constitute a very diverse group, with equally diverse needs, based on the distinct risks they face and vulnerabilities affecting them - including frequency of sexual activity, number of partners, sexual practices and behaviors, transactional sex and the use of alcohol or drugs. Combined with service coverage / access and environmental factors described above, the diversity of MSM and TG becomes clear (for example, in certain contexts discrimination may be higher against TG people).

MSM and TG people are also diverse with regard to the way they describe themselves ('self-identification') and the extent to which they do, or do not participate in 'communities' of MSM and TG. Covering the specific needs of each population implies some basic knowledge in order to develop tailored strategies and approaches to reach out to each of these sub-populations. For example, some MSM self-identify as heterosexual, despite having occasional or frequent sexual contact with other men; other MSM and TG self-identify with a culturally / historically defined category (e.g. *kathoey* in Thailand, Cambodia and Laos, *hijra* in Pakistan, India and Bangladesh, *fā'afafine* in Samoa etc). This has implications for the ways in which each of those groups can be reached. For example, heterosexually identified men who are bisexually active but do not participate or feel part of urban MSM communities will not be effectively reached through MSM community-based outreach services. Therefore general health services must be prepared to ask the right questions in order to offer these men a comfortable space to share their experiences, if such services are going to meet their needs. Likewise, transgendered persons involved in sex work might be reached with a different approach than transgendered persons who are beauticians or artists.

So, a first step to plan an appropriate response to MSM and TG in a specific country is to reasonably understand their characteristics: what are the main types/identities/situations in which male to male sex occurs and what are the main groupings / communities that exist; how different types of MSM and TG lead their lives, and what are the main environmental and legal obstacles to reach different types of MSM and TG. Knowledge of these elements will help determine the best way to reach these populations. In some cases, ethnographic studies are available that can help provide ideas about the landscape of sexual diversity in a particular setting. Otherwise, this learning process can be conducted through the use of rapid ethnographic techniques such as Rapid Assessment and Response (RAR, [6]) or Dynamic Contextual Analysis (DCA, [7]), which combine secondary sources, key informant interviews, short surveys and brief periods of participant observation. These techniques can complete a mapping process that leads to a general perspective on sexual diversity in a population.

Estimations of the sizes of MSM and TG subpopulations are one key element in such overall assessment, in the same way as national censuses estimate poverty and health coverage. Like a census, the key purpose of size estimations and measurement of coverage is to provide key input for programming, planning and budgeting. In the next sections we will review general approaches and techniques for estimating population sizes.

Estimating population sizes: Initial considerations

Size estimation exercises can be conducted using either primary or secondary data.

The first and simplest approach implies looking at pre-existing empirical estimates of the prevalence of male to male sex in a population, derived from studies published for the specific country (or region or city) of interest. If studies are not available for that country, one option is to use trends for the (sub)region. Typically those estimates will suggest that a proportion of (biological)men in the general population engage in sex with other men. In this case, we will simply derive the estimated MSM and TG population size by multiplying the proportion of men reporting sex with other men provided by existing research to the total number of adult men in the particular country/area of interest. Advantages of this approach are obvious: by means of a simple mathematic formula based on existing data, estimates of the MSM population can be quickly obtained. Disadvantages include that there may be a broad range of estimates; the option for a particular one may not be straightforward and may even be subject to political debate (i.e. activists may use higher estimates for the prevalence of male to male sex than policy makers). Moreover, the way sub-populations of MSM and TG have been derived from such estimations is usually not well described.

The following table summarizes estimates of the proportion of biological males who report sex with other biological males in the Asia Pacific region, taken from data reported in two recent systematic reviews [3, 4].

Values in each cell represent the lowest and highest estimates from the pool of best-available estimates. In Table 2 the estimates of the 2005 review [3] were applied to the male adult populations of countries in South Asia, yielding the number of adult biological males from those countries who are estimated to have had sexual activity with other biological males (lifetime and last year).



Table 1: Estimates of male-male sexual activity in Asia, 2006 and 2008

Asia Pacific Region ²	Definition of the proportion of men who are MSM and TG			
	2005 Review [3]		2008 Review [4]	
	Had male same sex contact at least once in his lifetime	Has had male same sex contact in the past year	Had male same sex contact at least once in his lifetime	Has had male same sex contact in the past year
East Asia	3-5%	NA	4-19%	NA
South Asia	6-8%	7-8%	8-34%	7%
South East Asia	7-12%	4%	NA	NA
Central Asia*	6-27%	NA	3%	NA

*This data includes the central Asian countries, following the WHO geographical stratification

NA: no studies, or no new studies (for the 2008 review), providing estimates were found for the timeframe specified by the review

If estimates are too broad or of limited quality, a second approach consists of justifying the selection of one of those estimates based on technical considerations. For example, a particular study might have had a better study design, used more sensible questions, prevented social desirability bias, or distinguished between subpopulations such as MSM and transgender persons. Again, several assumptions about the similarity between the populations in the reference study and our target populations are required that often cannot be verified.

A third approach is to conduct an independent population size estimation based on primary data. This is the preferred option if available estimates are considered inappropriate (for example because they do not account for the complexity of the target population), and if resources are available. The advantage of this approach is that estimates will be made based on our own perception of the population and its sub-sets; the data can be truly local and 'owned' by a broad range of stakeholders, which can also help in advocacy efforts. The main disadvantages are time, cost and the fact that in many locations the technical capacity to conduct size estimations is limited. In the next section we will briefly review technical options for population size estimation using primary data collection.

Technical approaches to population size estimation, and populations for which they are most appropriate

UNAIDS and WHO recommend a number of techniques to estimate the size of most-at-risk populations. In general, size estimation studies require technical expertise. A variety of methods have been used, and each of them has strengths and weaknesses. In all of them, a degree of modeling is implied, which requires the estimation of a key parameter as well as several assumptions.

Size estimations can be conducted at different levels (country-wide, region, city, etc) and may serve different purposes. For instance, nation-wide estimations are intended for resource allocation and city-level estimations may be useful for careful local-level planning, for assessing equity of access among different sub-populations of MSM as well as for monitoring and evaluation of ongoing interventions.

A first approach, widely used, is to conduct or integrate additional questions into existing household-based probability surveys. Examples are the Demographic Health Surveys that are conducted every few years in many countries. Here, men in the households can be asked about their male-male sexual practices, which require culturally-adapted, validated instruments. Sensitive questioning implies, for example, recognizing that sexual activity between men may be not referred to by the respondent as 'sex' but, for example, as 'play'. For capturing sexual activity with feminized men and transgender people an appropriate, culturally relevant label should be used (as men may not view transgender persons as 'men' and hence may not count such activity as sexual activity with 'other men'). Most importantly, household surveys are likely to structurally underreport male to male sex (as well as other stigmatized behaviors, like drug use) on grounds of social desirability. Another major problem is that socially-excluded groups may not live in general residence areas but in specific ghettos, and household probability samples may miss them. This approach would be suitable to find and estimate the number of masculine MSM and of those feminized men who are not or less marginalized (i.e. performing more respected professions and functions). Interviews must be conducted in private, confidential settings, to reduce under-reporting. The use of the internet for data collection becomes an option in some settings with high internet connectivity, as well as computer-assisted self-interviewing.

² Low and middle-income countries included in each region are: East & Pacific Asia: American Samoa, Cambodia, Fiji, Indonesia, Kiribati, Malaysia, Marshall Islands, Micronesia, Fed. Sts., Mongolia, Myanmar, Northern Mariana Islands, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Thailand, Timor-Leste, Tonga, Vanuatu, Vietnam; South Asia: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka; South East Asia: China, Korea, Dem. Rep., Lao PDR; Central & Eastern Europe & Central Asia: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, FYR, Moldova, Poland, Romania, Russian Federation, Serbia and Montenegro, Slovak Republic, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan

The Multiplier Method and the Capture-Recapture Method are probably the two most broadly used approaches to estimate the sizes of populations at risk for HIV. Roughly, they rely on the simultaneous availability of two estimates from different sources; their overlap is then used to model statistical predictions about the total number in the population.

- In the case of the *Multiplier Method*, one key parameter (such as a known-count of the actual population who received care, as reported from official records), is compared to the proportion of people who report using services from another source (for example, via a survey conducted through Respondent-Driven Sampling (RDS³), Time-Location Sampling (TLS⁴), or a good sentinel surveillance study that includes questions about service use).
- In the case of the *Capture-Recapture Method*, subjects are identified in two separate samples (e.g. time-location sampling conducted in two locations), and a strategy to ensure unique identification of a particular subject is utilized. Then, the level of overlap of subjects across the two independent samples is used to model the size of the reference population (i.e. the larger the population size, the smaller the overlap). For example, if 200 MSM are sampled in a study in setting A, and later 300 MSM are sampled in setting B, and if 100 MSM were recruited at both settings, then the estimated number of MSM in the area of people who attend settings A and B is 600, as derived from standard formulae.

Overall, these approaches can work for gay-identified (or feminized) MSM and transgender persons. Limitations

include the network characteristics of samples obtained through RDS (e.g. If networks of certain characteristics (ethnicity, language) are less likely to enroll members of other networks, then the estimates are expected to be biased), or the non-random presence of people in specific times and locations. In fact, the internet is increasingly important as a mediator among men who seek sex with other men, and many of the men who use it cannot be found in venues frequented by other groups of MSM where some studies are conducted.

Another alternative approach, still under development, is the Network Scale-Up Method, which is based on social network theory. In essence, general population surveys are used to ask people about their knowledge of people of several characteristics or subpopulations such as people with the same first name or the same profession (whose size can be estimated from other, independent sources), or who belong in a group vulnerable to HIV such as MSM, drug users or sex workers (whose size is unknown). Then, participants' knowledge of people from known categories allows us to estimate parameters that can subsequently be used to estimate the number of people/group sizes from the unknown categories. This method works better for visible characteristics (e.g. men who cross-dress, people of specific skin colors), and less efficiently with not visible, stigmatized characteristics (e.g. male-male sexual practices among non-feminized men, HIV sero-positivity). In those cases it is very convenient to estimate the extent to which these characteristics are disclosed within social networks, since that will allow for correction of potential underestimations of population sizes.

Table 2: Estimated MSM and TG population sizes for selected Asian countries, based on data on the prevalence of male to male sexual behavior collected in 2005 [3]

Country	Total population*	Male population aged 15-64*	Estimated number of men who had sex with other males in the past year	
			Lower limit	Upper limit
			7%	8%
Afghanistan	33,609,937	9,147,846	640,349	731,828
Bangladesh	156,050,883	47,862,774	3,350,394	3,829,022
Bhutan	691,141	198,357	13,885	15,869
India	1,166,079,217	381,446,079	26,701,226	30,515,686
Maldives	369,031	78,598	5,502	6,288
Nepal	26,469,569	7,692,134	538,449	615,371
Pakistan	180,800,000	48,214,298	3,375,001	3,857,144
Sri Lanka	19,238,575	6,285,118	439,958	502,809

³ **RDS** is a sampling approach used to reach hard-to-reach populations. It combines characteristics of the classical snowball sampling approach while gathering data about the members of the sample, the referrals (i.e. who refers whom), and characteristics of the social network. Using such information in the analysis, the collected sample is likely to provide an unbiased estimate of the parameter of interest.

⁴ **TLS** is a sampling approach used to reach hidden or hard-to-reach populations such as MSM, or injection drug users. It relies on the ethnographic recognition of places frequented by the target population, and time spots where their visits occur. Participants then are recruited from a sample of time-locations (e.g. site A from 18 to 20hr; site B from 21 to 23 hr; etc).

Box 3: The expected effect of this document

This brief is aimed to serve as an advocacy tool for improving policy decisions around MSM and TG persons and HIV in the Asia Pacific Region, by raising awareness of the importance of accurate estimations of MSM and TG population sizes. It tries to provide a key set of guidelines to support policy-making within National AIDS Programmes and the development of strategic plans for responding to the MSM and TG HIV epidemic.

Additional Resources

Further information about size estimation methods can be found in the following links:

http://data.unaids.org/Publications/External-Documents/EstimatingPopSizes_en.pdf

http://www.epidem.org/Publications/Amsterdam%20Report_July%202009.pdf

Summary

Recent commitments to scale up HIV prevention and care services targeting gay, other MSM and transgender persons towards universal access has revealed inconsistencies regarding the sizes of such populations in the Asia Pacific region. Accurate size estimations are needed for appropriate costing, resource allocation and, ultimately, target set-up, monitoring and evaluation. Here we have presented a number of considerations to plan a more comprehensive response to the needs of MSM and TG. First, a mapping exercise of the subpopulations, their networking arrangements and characteristics should be conducted, usually through applied ethnographic methods. Then, evidence-based size estimates should be produced. When local estimates exist in the published literature and they are deemed valid, then they could be used to produce specific estimates for the target populations. When estimates exist but their range is broad or their quality is uneven, and particularly when time or resources are limited, one approach is to select the most appropriate secondary source to guide the estimation process, bearing in mind the need to justify such selection. Finally, when no satisfactory estimate is available and time and resources are not a problem, a new estimation should be produced.

While a comprehensive estimation is desirable, the focus should always be around risk level and accessibility. For instance, urban-rural differences might affect the estimation. Key

concepts about sexual identity and sexual behavior (male same-sex contacts, sex with males and females, frequency, use of protection, etc) have to be appropriately considered.

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For additional information on HIV among MSM and TG in Asia Pacific, please go to the APCOM website at <http://msmasia.org>