HIV Risk among Men who Have Sex with Men (MSM) and the Misallocation of HIV Prevention Investments in Countries with PEPFAR Partnership Frameworks

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I. Introduction

Men who have sex with men (MSM) are found, in most places, to be disproportionately at risk of HIV infection. Across low- and middle-income countries, MSM are 19.3 times as likely to be living with HIV or AIDS than the general adult population [1]. In Latin America, MSM are 33.3 times as likely as reproductive-aged men to be HIV positive, in Asia this figure is 18.7, and in sub-Saharan Africa it is 3.8 [2]. Evidence from recent years suggests that HIV epidemics among MSM in low- and middle-income countries are rapidly growing. A recent multi-country meta-analysis of sero-surveillance data found a comparatively high HIV prevalence range of 0 to 32.9 per cent in these countries, with estimates surpassing 12 per cent in 13 of the 38 countries surveyed [1]. In Latin America, approximately half of all HIV infections are believed to have resulted from unprotected anal intercourse between men and in Asia this figure is estimated to be the same by 2020 if the status quo is maintained [3, 4]. Sizeable HIV epidemics among MSM have not only been found in countries with concentrated epidemics. Seven of the nine countries with generalized epidemics included in the aforementioned meta-analysis reported HIV prevalence estimates of above 12 per cent [1].

Despite early indications of a disproportionate HIV burden, HIV programs worldwide have historically focused away from delivering prevention and care services to MSM. It is estimated that presently only 1 out of 10 MSM around the world are reached through prevention programming [5]. In 2008, investment in MSM programming was found to represent only 2.1 per cent of global HIV spending [6]. An assessment performed in 2009 determined that investment in MSM programming would, in some countries, need as much as a 25-fold increase to ensure that urgent needs are met [7]. It is not uncommon for more conservative countries to declare no investment at all in HIV activities for MSM, sometimes accompanied by a denial of the existence of MSM altogether.

It is in this context that in 2009 the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) launched its Partnership Frameworks, non-binding agreements signed by both the U.S. and partner

countries that outline financial and programmatic commitments regarding each country's national AIDS response during a five-year term [8]. Unlike many other harmonization initiatives, Partnership Frameworks are high-level and are usually signed by senior government officials in the U.S. and heads of state or cabinet ministers in partner countries.

Among the apparent motivations to launch the Partnership Frameworks was the appeal of negotiating key aspects of the national response in a manner akin to traditional bi-lateral diplomacy [9]. The process of signing the agreement typically attracts international attention and involves public addresses, press conferences, and other ceremonial acts more commonly reserved for matters of international security. This feature grants Partnership Frameworks an unprecedented, and possibly unanticipated, opportunity to negotiate greater programmatic attention to MSM and other neglected populations. However, any parties involved in this negotiation have an implicit responsibility to be well informed about transmission dynamics in that country.

The milestone UNGASS Political Declaration on HIV/AIDS (2011), which set a broad agenda for the world's ongoing response to HIV through lengthy consensus building, included the concession that country-level "prevention strategies do not adequately reflect infection patterns or sufficiently focus on populations at higher risk" [10]. It would be misdirected to demand that spending align perfectly with modes of transmission since national AIDS authorities must consider a wider range of factors before determining budget allocations (e.g., technical capacity, epidemiological trends, financial support that carries spending requirements). Rather, an assumption made in this paper is that budget allocations must aim to reflect epidemiological patterns in the absence of a reasoned and evidence-based argument to the contrary.

A recent surge in available data on HIV prevention, modes of transmission, and resource expenditure by beneficiary population presents an opportunity to determine the degree of equity in HIV resource allocation. Such information, while potentially useful for the conduct of advocacy and epi-

demic response planning, is unavailable at any regional or global level. This paper will describe our effort to determine the degree of alignment between the HIV burden borne by MSM, henceforth described as the share of national HIV infections that are among MSM, and the share of national HIV prevention expenditure that target MSM.

Partnership Frameworks offer a chance to understand the extent to which these milestone agreements align country-specific HIV transmission dynamics—and the programmatic priorities we may infer from these dynamics—with expenditure and other concrete expressions of health policy. A basic content analysis of current Partnership Frameworks will complement data on expenditure and transmission dynamics to estimate the extent to which the Partnership Frameworks consider MSM when describing the national epidemic and establishing priorities.

II. Methods

We conducted a descriptive analysis of national resource spending on HIV prevention activities that target MSM in 37 countries with Partnership Frameworks: Angola, Antigua and Barbuda, Bahamas, Barbados, Belize, Botswana, Costa Rica, Dominica, Dominican Republic, Democratic Republic of the Congo, El Salvador, Ethiopia, Ghana, Grenada, Guatemala, Honduras, Jamaica, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nicaragua, Nigeria, Panama, Rwanda, Saint Kitts and Nevis, Saint Lucia, South Africa, St. Vincent and Grenada, Suriname, Swaziland, Tanzania, Trinidad and Tobago, Ukraine, Viet Nam, and Zambia. Nineteen of the aforementioned countries are included in either the Caribbean Regional Partnership Framework or the Central America Region Partnership Framework while the other 18 have direct bilateral agreements.

At the center of our analysis are three indicators:

1. Share of HIV prevention resources spent on MSM programs

This indicator is calculated as follows:

$$\frac{\begin{array}{c}Total\ public\ and\ private\ expenditure\ directed\ towards \\ HIV\ prevention\ programs\ for\ MSM, USD\end{array}}{Total\ public\ and\ private\ national\ HIV\ prevention\ expenditure, USD} = p_{expenditure}$$

Most HIV expenditure data were obtained using the Joint UN Programme on HIV/AIDS (UNAIDS) AIDS Info Database, where data sources include bi-annual Country AIDS Progress Reports and National AIDS Spending Assessment (NASA) Reports, or were obtained directly from the Country AIDS Progress Reports and NASA Reports not yet entered into the AIDS Info Database [11]. Expenditure estimates extracted from NASA Reports are intended to be an aggregate of funding from bi-lateral multi-lateral institutions, public funding (including non-reimbursable funds obtained through development banks), and foundations. Out-of-pocket or other types of private spending are not tracked via NASA [12].

The NASA Reports are organized according to three dimensions: finance, provision, and consumption. Financial resources targeted to specific beneficiary populations are considered a dimension of consumption. Specifically, Indicator BP.02.03 aims to quantify "the resources specifically allocated to a population as part of the service delivery process of a programmatic intervention," regardless of its effectiveness or effective coverage [12]. The resources are targeted to a particular beneficiary group so long as that group is the primary beneficiary of the program. That is, when the target group is unknown or when there are multiple target groups, the expenditures are labeled as "non-targeted."

At the time of writing, only 40 countries had submitted at least one report since 2001 and only two had submitted one in the past year [13]. There appears to be a move towards instead reporting on only a subset of NASA indicators via bi-annual Country AIDS Progress Reports, an exercise in which 113 countries (of 192 UN member states) took part in 2008-09. Only 49 of these countries reported spending data on MSM from this period [11]. The

NASA data used in this paper are the most recent available at time of writing. They are dated between 2005 and 2007 for 13 per cent of the 37 countries included in this analysis and between 2008 and 2011 for the remaining 87 per cent.

2. Share of HIV infections that are attributable to sex between men

This study proposes an alternative method of estimating this figure, performed only as a substitute for the 14 countries that lack an official estimate. The indicator, "MSM share of infections," was calculated as follows:

$$\frac{[No.of\ adult\ males] \times [MSM\ prevalence] \times [HIV\ prevalence\ among\ MSM]}{No.\ of\ adults\ living\ with\ HIV} = p_{burden}$$

The estimated number of adult males was obtained by querying the UN Population Division's World Population Prospects online database for the medium-variant estimate of males aged 15-49 in 2010 (consistent with the age parameters of most estimates of HIV prevalence among MSM) [14]. Estimates of the number of men and women above the age of 15 living with HIV and national HIV prevalence among MSM were obtained using the AIDS Info Database [11]. Estimates of lifetime experience of sex with another man ("MSM Prevalence") are consistent with those used in the World Bank's milestone publication, "The Global HIV Epidemics among Men Who Have Sex with Men," and originate from a recent meta-analysis of size estimation studies [15, 16].

3. Investment Equity Ratio (IER)

This further study proposes a simple indicator to quantify the degree of alignment between the share of HIV infections that are due to sex between men and the share of national HIV prevention expenditure spent on targeted interventions for MSM. For the sake of simplicity, we will call this indicator, the "Investment Equity Ratio (IER)." It is calculated as follows:

$$\frac{p_{expenditure}}{p_{burden}} \times 100 = IER$$

Perfect alignment between the MSM share of HIV burden and the MSM share of HIV prevention resource expenditure would yield a score of 100; whereas perfect *non*-alignment would yield a score of 0. Higher scores may be interpreted as better alignment and thus might be *loosely* interpreted as higher equity in HIV response expenditure. The data necessary to calculate the IER were only found for 21 of the 37 countries in this analysis. Malawi, while having the necessary data, was the only country excluded due to having an estimate of the share of HIV prevention resource expenditure that exceeded the MSM share of HIV burden.[1]

Finally, all existing Partnership Frameworks underwent a basic content analysis to determine the extent to which they are inclusive of MSM. All 21 documents were searched using text recognition software for the following terms: "MSM," "males who have sex with males," "men who have sex with men," "homosexual," "same sex," "sex between men." Occasionally, the term MARP(s), or most at risk population(s), is used and is sometimes meant to be inclusive of MSM. However, uses of these term were not considered in this analysis since it is often uncertain when and if the term is meant to refer to MSM. The context surrounding each mention of MSM was then explored to determine whether MSM were described as an important risk group in the country; and to find if there are indications of intending to conduct HIV prevention interventions targeted at MSM or structural interventions (e.g., stigma reduction, improving the legal or policy environments).

[1] Malawi was also the only country where share of MSM resources expenditure was, in its absence, substituted by the share of resource expenditure directed to "most at risk populations," which include injecting drug users, sex workers, and MSM. It is unclear what portion of the amount reported benefited MSM and so the value might be interpreted as an overestimation.

III. Results

Epidemiological overview (Refer to Table 1)

A thorough review of the latest available serological surveillance data found that HIV prevalence among MSM ranges from 3.4-58.2 per cent among the 32 of 37 countries (86 per cent) that had such a figure. These 32 countries produced a median HIV prevalence estimate of 15.4 per cent. Broken down into regions, however, the median estimate was 5 per cent higher in Latin America and the Caribbean (12.5 per cent) than in sub-Saharan Africa (17.5 per cent). The HIV prevalence ratio associated with engaging in male-to-male sex varies by an even greater degree between regions. The median prevalence ratio was 19.3 in Latin America and the Caribbean and was 2.5 in sub-Saharan Africa, an expected mirroring of distinct transmission dynamics.

Similarly, the median proportion of HIV infections estimated to be among MSM was found to be 10.6 per cent in Latin America and the Caribbean while it was 5.0 per cent in sub-Saharan Africa. The median proportion of HIV infections estimated to be among MSM across the 32 countries for which this figure was available was 6.5 per cent. Men who have sex with men in Malawi were found to be the least affected by HIV transmission *relative* to non-MSM. An estimated 0.1 per cent of people currently living with HIV in Malawi, equivalent to about 886 in 2011, were found to be MSM.

Only 23 of the 37 countries (62 per cent) reported the amount spent on HIV prevention activities for MSM at least once since 2005. Six of those 23 countries (22 per cent) reported zero as the amount spent on these activities. The median expenditure across the 23 countries during the fiscal year most recently reported was just over USD 47,000; with an upper bound of USD 983,353 in Guatemala—a country whose overall HIV expenditure represents only one percent of cumulative HIV resources across the 37 countries. The median MSM expenditure estimate of USD 47,000 corresponds to 0.3 per cent of the median HIV prevention expenditure across the 37 countries. Overall,

Figure 1: MSM Share of HIV Infections vs. MSM Share of HIV Prevention Expenditure, including Malawi

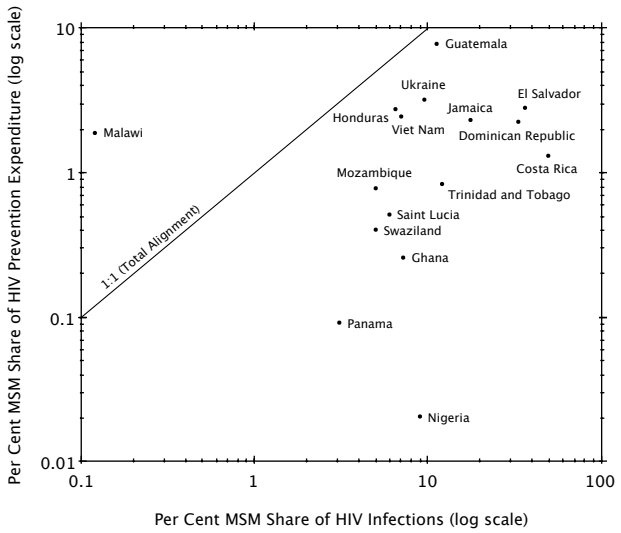
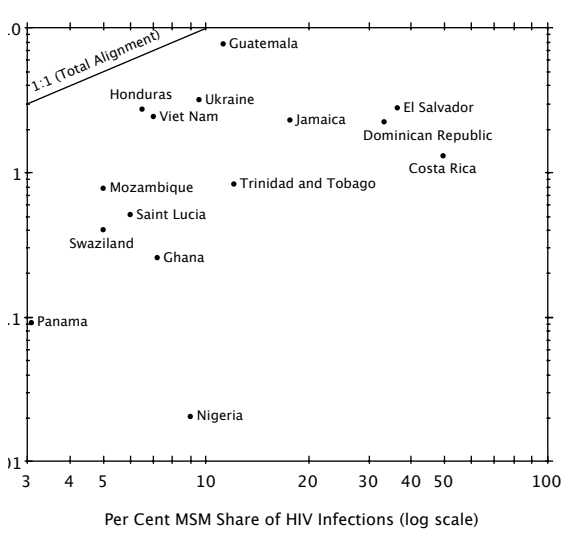


Figure 2: MSM Share of HIV Infections vs. MSM Share of HIV Prevention Expenditure, not including Malawi



Ukraine spent the greatest share of HIV prevention resources on programs that benefit MSM: 3.2 per cent, or USD 519,364 (2010). Within Latin America and the Caribbean, Honduras spent the greatest share: 2.8 per cent, or USD 398,001 (2008); and within sub-Saharan Africa, Malawi spent the greatest share of its prevention resources on most-at-risk populations: 1.9 per cent, or USD 335,436 (2008). In Malawi's case, this figure serves, for the purposes of our analysis, as a high estimate of spending on MSM programs given the absence of disaggregated data and considering that its latest NASA mentioned the provision of HIV prevention services to MSM.

IER analysis results (Refer to Tables 1 and 3, and Figures 1 and 2)

With the tentative exception of Malawi, all countries are considered to under-invest in HIV prevention programs for MSM. The 21 remaining countries that under-invested—but still invested an amount greater than zero—were found to have a share of infections due to sex between men that was between 1.3 and 437.1 times greater than the share of HIV prevention expenditure that benefited MSM. This corresponded to an IER range of 0-64.2. The median IER score across the 21 countries was 6.8; within Latin American and the Caribbean it was 7.8, which corresponds to a dollar

value of USD 92,295; and within sub-Saharan Africa it was zero. Six countries—all in sub-Saharan Africa—were found to have IER scores of zero. Of the four sub-Saharan African countries that reported spending an amount greater than zero on HIV prevention for MSM, the median IER score was 5.8, which corresponds to a dollar value of USD 118,194.

Median per capita investment on MSM programs was USD 3.23. This contrasts significantly with recent estimates of per capita investment needed to achieve full coverage of prevention services [15]. These estimates, developed in partnership with the World Bank, ranged from USD 22-50, depending on several factors such as local cost of service delivery, geographic isolation, and existing infrastructure [15]. Belize, which spent USD 40.08 per capita in 2010, and Swaziland, which spent USD 45.32 per capita in 2009, were the only countries that exceeded the ranges of recommended per capita spending within their respective regions [15]. For those 15 countries that reported an investment amount greater than zero, full service coverage was, on average, 9.2 per cent funded. Another way to interpret this is that funding for HIV prevention activities that benefit MSM must increase, on average, at least 10 fold to enable full service coverage.

Content analysis results (Refer to Table 2)

Of the 21 Partnership Frameworks that correspond to the 37 countries in this analysis, just over half acknowledged MSM in one way or another. The following three findings were also made: (1) one-quarter went as far as to describe MSM as a "most at risk" or "key affected" population; (2) one-quarter described the need for or intention of initiating or continuing structural interventions (e.g., altering the legal or policy environment, homophobic stigma reduction campaigns, etc.); and (3) just over half described the need for or intention of initiating or continuing HIV prevention activities that target MSM. Ten countries were found to not have *any* of the above three elements and three countries had all three. A "moderately strong" Pearson's correlation coefficient of 0.26 was found between the existence of "anti-sodomy or anti-homosexuality laws" and describing the "need

for or intention of initiating or continuing structural interventions" in the corresponding PF. Weak correlations were found between the former and findings (1) or (3).

Limitations

There are two major limitations to estimating the share of national HIV infections that may be attributed to sex between men. These are: (1) estimating the prevalence of sex between men; and (2) obtaining a reliable estimate of national HIV prevalence among MSM. The former, frequently referred to as "MSM population size estimations," are heavily contested because of common methodological limitations and occasional ideological biases. Several methods are suggested to estimate most-at-risk population sizes, each with strengths and weaknesses. A majority of studies employ a capture-recapture method because it is generally less costly, time consuming, and labor intensive as compared to performing a census or enumeration [17]. Several assumptions have to be met in order for capture-recapture exercises to generate a reliable population size estimate. Perhaps most challenging to satisfy, given the hidden nature of MSM behaviors in most countries, is the assumption that the selected sample is representative of the population.

Moreover, variations within and across countries in what behaviors constitute sex between men or in how gender is defined affect how individuals interpret survey questions [16]. Differences in recall periods are also a source of inconsistency across studies. In the absence of better alternatives, data on lifetime experience of sex with other men obtained through capture-recapture studies are useful for informing policy and estimating risk of HIV acquisition [16, 17].

Experts caution against the practice of using MSM population size estimates in conjunction with HIV prevalence data that are usually estimated from samples of MSM selected from high-risk sexual networks [16]. For instance, Viet Nam has reported 16.7 per cent as the national HIV prevalence among MSM since its 2010 Country AIDS Progress Report, even though it is a composite drawn

from surveillance data in only two cities: Ho Chi Minh City and Ha Noi [18, 19]. Applying this prevalence estimate to the national estimated number of MSM would likely overestimate the number of HIV-positive MSM in Viet Nam since behaviors vary within cities and between urban and rural areas [20]. Thankfully, Viet Nam also reported 4.0 per cent in 2012 as the mean HIV prevalence for MSM its most recent national sero-surveillance exercise that spanned eight provinces [21]. This value was used instead of 16.7 per cent in this study since there is a greater likelihood that it more closely approximates the true national HIV prevalence among MSM. Several other countries are known to report HIV prevalence estimates from metropolitan areas as "HIV prevalence among MSM" when submitting Country AIDS Progress Reports [22].

Estimating the country-level HIV burden borne by MSM is critical for HIV response planning. Despite the aforementioned limitations, a case can be made that a rough estimation of this indicator is better than none at all. Moreover, some amount of the overestimation of sexual risk among MSM may be corrected by the underestimation of the prevalence of sex between men [15].

IV. Discussion

Notwithstanding the limitations of this type of analysis (see section, *Limitations*, above), there does appear to be evidence of substantial nonalignment between country-specific HIV transmission dynamics and HIV prevention expenditure distribution. These findings suggest an urgent need to revisit national HIV budget allocations in the absence of reasoned arguments for not spending commensurately with disease burden. There also does not appear to be much association between epidemic scenario (e.g., generalized, concentrated) and IER score, a finding consistent with long-standing claims that HIV investment is not commensurate with HIV risk more broadly [10].

Among the remarkable statements made in the 2011 UNGASS Political Declaration on HIV/AIDS came in the form of a concession: that country-level "prevention strategies do not adequately re-

flect infection patterns or sufficiently focus on populations at higher risk" [10]. Despite this claim being commonly made by advocates of most at risk populations, attempts to quantify this inadequacy or nonalignment are rare. Tracking resources to MSM programming alongside sound epidemiological surveillance provides valuable strategic information for response planning as well as for more evidence-based advocacy.

Stigma and discrimination targeted at MSM, common in most low- and middle-income countries, present significant barriers to health, health access, and health service delivery. A review of multidisciplinary literature suggests that stigma—frequently referred to as homophobia—and discrimination act as an underlying cause of the disproportionate risk of infection among MSM [23-25]. Laws and policies that criminalize consensual sex between adult men often generate direct and severe challenges to health service delivery and uptake. A study that surveyed MSM in Botswana found that 20.5 per cent of the 117 respondents felt afraid to seek health services because of their sexual orientation [26]. In 2007, a legal review found criminalization laws and policies in 85 countries and in more than half of African countries [27]. The effects of stigma and discrimination and such policies are far-reaching and are believed to promote continued programmatic neglect [15].

The finding that the existence of legal penalties against homosexual behavior is "moderately" correlated with expressing interest in structural interventions might thus be seen as reassuring signal of the *right* countries having an interest in improving harmful legal and policy environments. Simultaneously, a fairly weak relationship is also apparent between the existence of such legal penalties and IER score, commitment to scale up targeted HIV interventions for MSM, or level of spending on HIV prevention activities for MSM.

The tide is said to be shifting and key donors have begun to make commitments to funding such activities worldwide. Notably, the Global Fund to Fight AIDS, Tuberculosis and Malaria launched the Sexual Orientation and Gender Identities (SOGI) strategy in 2009 to create large funding opportuni-

ties, which can either bypass or work alongside country governments, specifically for MSM programming [28]. The new strategy prompted a new mandate for the participation of "affected and infected communities" in its Country Coordinating Mechanisms (CCMs), a historically exclusive decision-making mechanism for countries to request support from the Global Fund [15]. Because the Global Fund is one of the largest funders of HIV/AIDS activities worldwide, these policies generate powerful incentives for greater country-level attention to MSM.

The United Nations family of agencies has emerged as an important leader in urging all countries and partners to strengthen their focus on HIV prevention activities for sexual minorities and promoting the view that human rights for sexual minorities are central to the global HIV response. Since 2009, several influential figures (e.g., UN Secretary-General Ban Ki-moon, U.S. Secretary of State Hilary Clinton, and U.S. President Barack Obama) have made public statements articulating their support for decriminalization of consensual sexual acts between adult men. Other recent milestones include the 2011 UN General Assembly Special Session (UNGASS) Political Declaration on HIV/AIDS, which for the first time recognized the inadequate focus on men who have sex with men, and a long-awaited World Health Organization (WHO) guidance document on the prevention and treatment of HIV and other sexually transmitted infections (STIs) among MSM [4, 10].

Introducing MSM into a national AIDS strategy is a delicate matter. Political backlash after implementing health services that target MSM is possible in countries that espouse conservative views regarding sexuality. Beyrer et al. are right to note that "mainstreaming must be carefully evaluated and cannot be assumed to be an improvement in rights or care" [15]. They recount an experience in Senegal in which health outreach workers were arrested on suspicions of homosexual acts apparently in response to the Ministry of Health's pledge to address HIV among MSM. Both social and political contexts must be carefully evaluated with stakeholder involvement to ensure that all possible negative consequences are weighed against any possible advancement in health or rights. That is, a paucity of expressed commitments to address HIV among MSM may be appropriate for at least

some Partnership Frameworks. However, there exists a strong case for the progressive realization of human rights of lesbian, gay, bisexual, and transgender persons that would impel incremental advancements in a country's attention to MSM in even the most intransigent of places.

Opportunities for influence and accountability

A central purpose of the Partnership Frameworks is therefore to more closely involve the national government and a greater range of stakeholders, including civil society and key donors such as the Global Fund, in the planning process. It ultimately aims to harmonize the efforts of all governments and donors and strengthen the capacity of governments to plan, oversee, manage, and finance their national AIDS strategies [8]. Unlike many other harmonization initiatives, Partnership Frameworks are high-level and are usually signed by senior government officials in the U.S. and heads of state or cabinet ministers in partner countries.

Beyond harmonizing the AIDS response, Partnership Frameworks are a chance to ensure that national AIDS strategies are evidence-based and aligned with priorities at both the national and global level. Policy reforms could include the establishment of legal protections or greater programmatic attention to an under-served group such as MSM. The specific commitments agreed upon by the U.S., the partner country and key stakeholders are identified through a painstaking negotiation process led by the U.S. head of mission. Like in any negotiation process, and especially one led by an external actor, there lies an important opportunity to bargain for certain outcomes. As the largest donor to global HIV/AIDS efforts, the U.S. wields considerable leveraging power. One can presume that placing an issue on the U.S. agenda will have an impact on what is contained in the final agreement. There is no evidence of MSM, or even most at risk groups more generally, in the otherwise comprehensive guidance document used in the development of Partnership Frameworks [8].[2]

[2] Men who have sex with men are however addressed in a PEPFAR technical guidance document on combination HIV prevention for MSM published in 2011. The document is meant to assist country missions in devel-

The authors of this paper contend that Partnership Frameworks offer an unprecedented opportunity to elicit clear commitments that could alter the course of the HIV epidemic. Although PEPFAR has shown more interest in responding to HIV risk among MSM in recent years, it has yet to push hard on redressing barriers that in most cases preclude effective HIV prevention. That over half of the 37 countries with Partnership Frameworks maintain laws against homosexuality, recognized as an important determinant of HIV risk, speaks to the magnitude of this lost opportunity.

The need for a stronger evidence base

Knowing the estimated proportion of all HIV infections that are attributable to sex between men in any given country is useful to understand the nature of that country's epidemic. Given that it roughly approximates disease burden, this indicator provides a foundation from which to develop more reasoned budget allocations. As this paper demonstrates, such an indicator may help reveal or describe an inefficient use of resources when, for example, large shares of spending target a group that represents a small share of all HIV infections. Beyond equipping national AIDS authorities with important strategic information for national AIDS strategy development, this indicator could serve as an advocacy tool for community-based organizations to demand greater programmatic attention.

In places where it is available, modes of transmission data are occasionally drawn from "estimates and projections" exercises that apply mathematical models to existing national HIV data, usually as a way to predict the impact of policy alternatives. More frequently, countries may report the cumulative number of HIV cases recorded in its official registry for which sex between men was explicitly given as a suspected mode of transmission. The latter is more susceptible to underestimation since it relies on an individual's willingness to disclose their personal sexual history—a presumption that is especially difficult to make in places that criminalize sex between men. More "estimates and pro-

oping comprehensive national AIDS strategies. Whether or not this will lead to the recognition of MSM in future Partnership Framework guidance documents is unclear.

jections" exercises are especially imperative in countries with a relatively low level of engagement in HIV prevention activities for MSM.

Conclusion

The authors of this paper find that there is evidence of gross misallocation of HIV prevention resources across countries with considerable geographic and epidemiologic differences. Even while using conservative estimates of the prevalence of homosexual behavior among men, as this study has done, the case for greater alignment between spending and need can be made in most countries with relative ease. Partnership Frameworks, among other bilateral and multilateral channels, may be leveraged to promote evidence-based spending that is commensurate with disease burden. Most importantly, the pursuit of a stronger evidence base must not preclude taking action on what has become an increasingly salient aspect of global HIV epidemics.

Table 1: HIV prevalence, size estimations, and expenditure in the 37 countries with Partnership Frameworks

Country	HIV prevalence (ages ≥15 years), %		HIV Prevalence Ratio (MSM vs. General)	MSM share of national infections, %	Est. no. of HIV-positive MSM	MSM prevention expenditure, USD	Share of HIV prevention expenditure, %
	MSM	General					
Region: Caribbean							
Antigua and Barbuda*	-	0.1	-	-	-	-	-
Bahamas	14.0	2.8	17.5	***4.1***	267	-	-
Barbados*	19.6	0.9	22.3	20.5	394	-	-
Belize*	-	2.3	-	-	-	66,297	2.6 (2010)
Dominica*	26.7	0.8	35.6	35.8	194	-	-
Dominican Republic	6.1	0.8	7.6	33.3	17,960	122,931	2.3 (2008)
Grenada*	5.1	0.1	51.3	6.5	30	-	-
Jamaica*	38.0	1.8	21.1	***21.4***	6,839	118,292	2.3 (2010)
Saint Kitts and Nevis*	-	0.5	-	-	-	-	-
Saint Lucia*	3.4	0.3	12.1	6.0	32	3,107	0.5 (2007)
St. Vincent and Grenadines*	29.5	2.5	11.8	10.0	67	-	-
Suriname	6.7	1.0	6.7	***5.3***	191	-	-
Trinidad and Tobago*	20.4	1.5	13.6	***11.2***	1,570	47,083	0.8 (2006)
Region: Central America							
Costa Rica	10.9	0.3	218.0	***45.4***	4,358	14,894	1.3 (2010)
El Salvador	10.8	0.6	24.0	36.4	11,635	455,795	2.8 (2010)
Guatemala	7.6	0.8	9.5	***12.2***	7,302	983,353	7.8 (2008)
Honduras	7.0	0.7	10.0	6.5	2,405	398,001	2.8 (2008)
Nicaragua	7.5	0.2	37.5	7.0	539	-	-
Panama	22.9	0.8	27.6	3.1	616	10,975	0.1 (2010)
Region: Sub-Saharan Africa							
Angola*	8.2	2.1	3.9	5.0	9,000	-	-
Botswana*	19.7	23.4	0.8	***0.8***	2,221	0	0.0 (2008)
Democratic Rep. of the Congo	31.1	2.6	12.1	***21.2***	92,278	0	0.0 (2009)
Ethiopia	-	1.4	-	-	-	-	-
Ghana*	25.0	1.5	16.7	7.2	15,976	31,211	0.3 (2010)
Kenya*	18.2	6.2	2.9	15.2	197,600	0	0.0 (2008)
Lesotho*	11.6	23.3	0.5	3.0	8,695	0	0.0 (2006)
Malawi*[1]	21.4	10.0	2.1	0.1	886	335,436	1.9 (2008)
Mozambique	67.9	11.3	6.0	5.0	60,000	205,176	0.8 (2005)
Namibia*	12.4	13.4	0.9	***0.8***	1,483	-	-
Nigeria*	17.4	3.7	4.7	9.0	311,343	11,931	0.0 (2008)
Rwanda	-	2.9	-	-	-	-	-
South Africa	9.9	17.3	0.6	9.0	506,700	-	-
Swaziland*	16.7	26.0	0.6	5.0	1,002	272,027	0.4 (2009)
Tanzania*	12.3	5.8	2.1	***1.6***	25,611	0	0.0 (2005)
Zambia*	32.9	12.5	2.6	1.0	8,600	0	0.0 (2006)
Region: Others							
Ukraine	6.4	0.1	80.0	***9.5***	21,948	519,364	3.2 (2010)
Viet Nam	4.0	0.5	8.0	***7.0***	17,537	1,056,976	2.3 (2010)

Note:

Countries marked with * currently have anti-sodomy or anti-homosexuality laws in place.

Values marked in ***bold-italic*** were found using the methods described and are not official estimates (*see "Construction of a missing indicator").*

[1] The expenditure amount reported for Malawi was described as being directed to "most at risk populations," which include injecting drug users, sex workers, and MSM. It is unclear what portion of the amount reported benefited MSM.

Table 2: Partnership Frameworks content analysis results

	Acknowledgement		Planned activities		
Partnership Framework	**No. of times MSM are mentioned**	**MSM are described as key affected population**	**Structural interventions for MSM**	**HIV prevention for MSM**	**Anti-sodomy or anti-homosexuality laws**
Region: Caribbean	5	Yes	Yes	Yes	No
Region: Central America	7	Yes	Yes	Yes	No
Dominican Republic	3	Yes	No	Yes	No
Angola	1	No	No	No	Yes
Botswana	-	No	No	No	Yes
Democratic Rep. of the Congo	1	No	No	Yes	No
Ethiopia	-	No	No	No	No
Ghana	10	Yes	Yes	Yes	Yes
Kenya	8	No	Yes	Yes	Yes
Lesotho	-	No	No	No	Yes
Malawi	-	No	No	No	Yes
Mozambique	1	No	No	Yes	No
Namibia	7	No	Yes	Yes	Yes
Nigeria	1	Yes	No	Yes	Yes
Rwanda	1	No	No	Yes	No
South Africa	-	No	No	No	No
Swaziland	-	No	No	No	Yes
Tanzania	-	No	No	No	Yes
Zambia	-	No	No	No	Yes
Ukraine	1	No	No	Yes	No
Viet Nam	-	No	No	No	No
Correlation coefficient with "anti-sodomy or anti-homosexuality laws"	-	0.03	0.26	-0.14	-

Table 3: Investment Equity Ratio (IER) results

Country	IER Score (0-100)
Botswana	**0.0**
DR Congo	0.0
Kenya	**0.0**
Lesotho	**0.0**
Tanzania	**0.0**
Zambia	**0.0**
Nigeria*	0.2
Costa Rica	***2.6***
Panama	3.0
Ghana*	3.6
Dominican Republic	6.8
Trinidad and Tobago*	***6.9***
El Salvador	7.8
Swaziland*	8.1
Saint Lucia*	8.6
Jamaica*	***13.2***
Mozambique	***15.6***
Ukraine	***33.6***
Viet Nam	35.0
Honduras	***42.5***
Guatemala	***69.5***

Note:

Countries marked with * currently have anti-sodomy or anti-homosexuality laws in place.

Values marked in *bold-italic* were found using the methods described and are not official estimates (*see "Construction of a missing indicator").*

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