

Chapter 7

HIV/AIDS Among Sexual and Gender Minority Communities Globally



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7.1 Introduction

This chapter describes the impact HIV/AIDS has had on sexual and gender minority (SGM) communities globally. Research challenges specific to SGM communities related to HIV/AIDS are discussed, including research ethics; strategies for enumeration, recruitment, and sampling; and cross-cultural issues. We discuss the disproportionate risks and vulnerabilities facing certain SGM groups, focusing on intersecting structural, interpersonal, and individual-level risk factors, and highlighting some differences in regional contexts. We include promising HIV/AIDS interventions for SGM populations at structural, interpersonal, and individual levels. We also discuss chronic disease among SGM people living with HIV. Finally,

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we point out major gaps in knowledge about SGM communities and explore future directions for HIV research and practice for SGM people globally.

The key assumption underlying this chapter is that there are diverse sexual orientations and gender identities among populations everywhere; there is no evidence of regional or geographic absence of such diversity. We also know of no methodologically sound data that suggests that there are regional differences in why people choose to have or not have consensual sex in terms of procreation, pleasure, and or needs (e.g., transactional sex to meet material needs). However, there are regional differences in the nomenclature used to describe SGM people as well as how sexual orientations and gender identities are expressed outwardly (Reisner et al., 2016b). Moreover, there are regional differences in the existence of punitive and protective laws, general social acceptance, and celebration or condemnation of sexual and gender diversity. Further, what does vary is the level of need, access to education and commodities, and the prevalence of HIV or community viral load in sexual networks. Taken together, drivers of HIV epidemics have little to do with individual behaviors. That is, globally, individual sexual behaviors do not vastly vary, while HIV incidence does; therefore, the differing HIV rates cannot be explained by individual sexual behaviors alone. Rather, these health outcomes are the result of intersecting structural, social, and network-level determinants.

7.1.1 Subpopulations

When considering HIV among SGM people, the sub-populations with the highest HIV risks are gay, bisexual, and other cisgender men who have sex with men (MSM), and transgender women who have sex with cisgender men.¹ In turn, most available data are about those two groups, as is most of the discussion in this chapter, but other SGM people are also at risk in certain circumstances.

7.1.1.1 Sexual Minority Men

Gay, bisexual, and other cisgender MSM (many of whom do not identify as gay or bisexual) face substantial risk for HIV due to a variety of biological and socio-structural factors. A meta-analysis from 2012 found pooled prevalence ranging from 3.0% in the Middle East to 25% in the Caribbean, with vastly increased odds of living with HIV compared to other men of reproductive age, even in countries where the HIV prevalence is high in the general population (see Fig. 7.1) (Beyrer et al., 2012a). Subsequent meta-analyses demonstrated persistently high HIV incidence among MSM (Beyrer et al., 2016).

¹Some transgender women only have sex with cisgender women, or are not sexually active at all, and are thus at low risk for sexually transmitted infections, including HIV. Sexual orientation may also be race-stratified, see Hwahng & Nuttbrock, 2007, for more information.

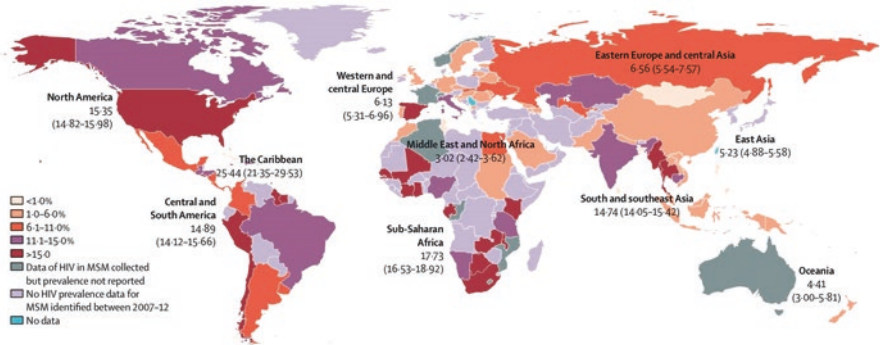


Fig. 7.1 Global HIV prevalence in MSM (2007–2011). (Beyrer et al. 2012a, b). (Reprinted from *The Lancet*, Vol 380, Beyrer, C., Baral, S.D., van Griensven, F., Goodreau, S.M., Chariyalertsak, S., Wirtz, A.L., and Brookmeyer, R. Global epidemiology of HIV infection in men who have sex with men; Figure 2, Page 370, Copyright 2012, with permission from Elsevier)

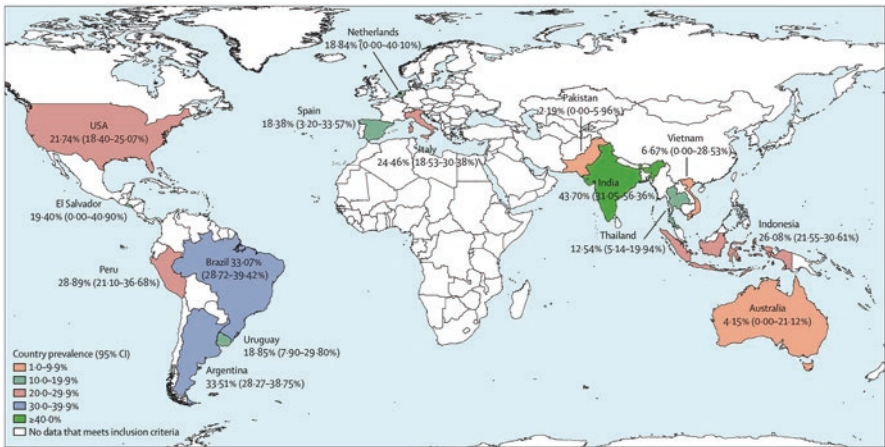


Fig. 7.2 Global prevalence of HIV in transgender women (2000–2011). (Baral et al. 2013a, b). (Reprinted from *Lancet Infectious Diseases*, Vol 13, Issue 3; Baral, S.D., Poteat, T., Strömdahl, S., Wirtz, A.L., Guadamuz, T.E., Beyrer, C. Worldwide burden of HIV in transgender women: A systematic review and meta-analysis; Figure 3, Page 219; Copyright 2013, with permission from Elsevier)

7.1.1.2 Transgender Women and Other Transfeminine People

Transgender women and other transfeminine people (e.g., nonbinary and other people who were assigned male at birth but do not identify as men) who have sex with men are consistently more greatly affected by the HIV epidemic than any other population, including cisgender MSM (Reisner et al., 2016b). In a 2013 meta-analysis, the pooled prevalence of HIV among over 11,000 transgender women was 19.1% worldwide, and 17.7% in low- and middle-income countries (LMIC). Transgender women had 49 times higher odds of having HIV than the general population (see Fig. 7.2) (Baral et al.,

2013b). However, data were limited and restricted largely to the USA and Asia-Pacific countries; few studies were in Latin America and Europe, and no studies in that review were in Africa or the Middle East. A more recent global systematic review found HIV prevalence varied by geography but reported a consistently higher prevalence among transfeminine people worldwide, ranging from 4% to 40% (Poteat et al., 2016). Again, there were geographic gaps in the systematic review, with no studies from sub-Saharan Africa nor the Eastern Europe/Central Asian region. A more recent study that included cross-sectional data from eight countries in Africa found a 25% HIV prevalence among transgender women, which was a 2.2 times greater odds ratio in adjusted analysis compared to their cisgender MSM counterparts (Poteat et al. 2017a, b).

7.1.1.3 Transgender Men and Other Transmasculine People

Other SGM people, such as transmasculine people and sexual minority women (SMW) who have sex with cisgender men or transgender women,² while not as affected by the HIV epidemic as MSM and transgender women, can also face risk of HIV, given structural factors such as violence, stigma, and discrimination. There has been little attention to transgender men and other people on the transmasculine spectrum (e.g., nonbinary and other people who were assigned female at birth and do not identify as women), but transmasculine men who have sex with cisgender men may be at risk for HIV. What little data there are (all from the United States and Canada) show elevated rates of HIV and HIV-related risk behaviors (Appenroth et al., 2021; Becasen et al., 2019; Poteat et al., 2017a; Reisner et al., 2016b; Scheim et al., 2017). In the absence of data from other locations, trans and gender-diverse advocates and activists from “Cape Town to Cologne” called for more funding and attention to transgender people at risk for HIV (Appenroth et al., 2021). Outside of North America, at the time of writing, a supplemental qualitative study of transgender men’s health was recently completed in Uganda, and one was underway in India (Mujugira, 2020; Scheim, 2021).

7.1.1.4 Sexual Minority Women

Sexual minority women (SMW, e.g., lesbians, bisexual, queer women) face increased structural and interpersonal factors that can put them at risk of HIV, such as stigma, homelessness, financial insecurity, discrimination, substance use, and violence (German & Latkin, 2015; Marshall et al., 2010; McCabe et al., 2009; Pyra et al., 2014; Weber et al., 2004). In particular, SMW who engage in sex work and transactional sex and/or inject drugs can be at increased risk for HIV and other

²Note that transgender men and other transmasculine people, like transgender women, can have any sexual orientation (gay, straight, bisexual, pansexual, asexual, etc.). Transmasculine people can be at risk of HIV, depending on their sexual practices. Some sexual minority women (lesbians, bisexuals, etc.) can also be at risk for HIV in certain circumstances.

negative health outcomes (Bell et al., 2006; German & Latkin, 2015; Glick et al., 2020; Ompad et al., 2011; Pyra et al., 2014; Tat et al., 2015; Weber et al., 2004). This speaks to the importance of examining behaviors (sexual minority women having sex with men or transgender women) in addition to identity (e.g., lesbian), as SMW are often not considered at risk and therefore overlooked in HIV interventions (German & Latkin, 2015; Glick et al., 2020). In fact, some studies show that WSW may actually be at higher HIV risk compared to heterosexual women (Bell et al., 2006; Ompad et al., 2011). While much of these data are from the US and Canada, the stigma and discrimination faced by SWM, like other SGM, is a global phenomenon. Tat, et al., conducted a systematic review on the sexual health and behaviors of SMW in low- and middle-income countries, finding HIV prevalence ranging from 0 to 2.9% (East Asia, Latin America) to 7.7% to 9.6% (sub-Saharan Africa).

7.2 Ethical and Methodological Challenges in Global HIV Research Among SGM

There are particular challenges in conducting research about HIV/AIDS among SGM populations globally. Challenges are ethical and methodological, and span the research process from enumeration and recruitment to terminology used in survey questions and how the data are presented and used. Historically, most health-related funding for SGM populations has been HIV-focused; thus, many of the methodological challenges and innovations for SGM research were developed in the context of HIV/AIDS research. Further, there are overlapping and synergistic stigmas with SGM status and HIV. For example, breaches of data confidentiality and privacy can result in unintentional disclosure of sensitive information to others, including but not limited to HIV status and sexual or gender identity, which can also lead to social harms in certain contexts. SGM people and people living with HIV are understandably cautious about sharing private information with outsiders, which may lead to research avoidance.

Importantly, too, is that the level of investment in SGM research around the world has been very limited in comparison to that focused on household-based, general population surveys. There are an increasing number of countries that regularly conduct national integrated bio-behavioral surveys inclusive of MSM, and some for transfeminine people as well, such as in Cambodia (Yi et al., 2017). However, other SGM populations remain understudied. Consequently, knowledge about SGM communities in most settings worldwide is limited, with limited investment in dedicated health services, which in turn results in limited interest in completing SGM-specific surveys. Thus, the cycle will continue until the global community comes together to break the cycle and stop assuming that there are only SGM people in some parts of the world and not others.

7.2.1 *Ethical Issues*

There are ethical concerns to consider when conducting HIV research globally among SGM groups, especially given the social stigma (AmfAR et al., 2015). Furthermore, in 71 countries SGM identities and/or homosexual practices are illegal (76 Crimes, 2021), and in several countries, homosexuality is even punishable by death³ (76 Crimes, 2019 #1283). Researchers must take extra precautions in researching in all settings, as the very act of participating in research may reveal one's SGM status, putting participants at social and/or legal risk (Baral et al., 2014a), especially in locations where SGM populations' rights are violated by the state (Amon et al., 2012); see the F&M Global Barometers (Dicklitch-Nelson et al., 2021) and the International Lesbian, Gay, Bisexual, Trans and Intersex Association (ILGA)'s reports (ILGA World, 2020) for information on specific countries. Thus, in some cases, research may be ethically impossible, and efforts would be better put toward providing safe, friendly health and social services.

Another challenge is the noted mistrust toward the medical research community, as members of some SGM groups feel extensively over-approached to join research studies, especially in urban areas. Additionally, if they join research, there is not much benefit from their participation afterward, as findings from said research are seldomly accessible to them, and subsequent programming is often not implemented (Poteat et al., 2019; Reisner et al., 2019). For example, transgender women have contributed to pre-exposure prophylaxis (PrEP) research, but still much less is known about optimal provision, acceptability, and how to sustain long-term use in this population.

Given that HIV is largely sexually transmitted, researching sexual practices and behaviors is an element of HIV research. However, sexual behavior is not usually something researchers can ethically observe. Thus, research about HIV-related sexual behaviors is often reliant on self-report of participants, and therefore subject to social desirability bias and recall bias, which can either over- or underestimate certain behaviors. This may be particularly exacerbated for SGM populations, particularly in locations where same-sex behavior is criminalized and stigmatized. Indeed, in many places in low- and middle-income countries (LMIC; and even the high-income countries), sexual and gender minorities may be so keen on repressing and/or hiding their behaviors and identities that they lead seemingly cis-heteronormative lives. That is, they compartmentalize their sexual and/or gender expressions, behaviors, and desires and live in socially acceptable, gender-conforming, opposite-sex marriages, produce children, and express their SGM behaviors and desires in only hidden, clandestine situations. These situations make them nearly invisible to

³Countries with the death penalty for homosexual acts include Yemen, Iran, Brunei, Mauritania, Nigeria, and Saudi Arabia. In Afghanistan, Somalia, Qatar, Sudan, the United Arab Emirates, and Pakistan, the courts could interpret law to impose the death penalty ILGA World, Lucas Ramon Mendos, Kellyn Botha, Rafael Carrano Lelis, Enrique López de la Peña, Iliia Savelev, and Daron Tan (2020). State-Sponsored Homophobia 2020: Global Legislation Overview Update. Geneva, ILGA.

researchers. In situations where researchers may be able to find them—such as at underground bars that cater to SGM people—they may be suspicious and too cautious to engage. Every effort should be paid to understanding the full context of these situations and not put any potential participant at risk of being outed in the name of research.

7.2.2 *Methodological Issues*

Lack of enumeration of SGM communities arises as a key challenge to sampling and recruitment, and thus, measuring HIV incidence and prevalence among them. With no enumeration, there is no denominator; thus, the affected proportion is unknown. When studying the overall population, strategies for enumeration include using households, professional societies, and general health facilities to develop sampling frames. With such sampling frames, population-level impacts of key interventions can be evaluated, and the coverage of key interventions can be determined. Moreover, these sampling frames can provide opportunities for enrollment and recruitment. In the absence of sampling frames, it is challenging to accurately enumerate populations, probability sampling cannot be conducted, and recruitment for epidemiologic and interventional studies is also challenging. Accruing stable sample sizes for HIV research among SGM groups has thus been difficult.

7.2.2.1 **Recruitment and Enrollment Issues**

Given intersecting challenges, including multiple stigmas, SGM communities can be particularly hard to enumerate, recruit, and enroll. Compared to other SGM groups, there has been more success for MSM in achieving sufficient sample sizes (e.g., iPrEx study which included cisgender men and transgender women in Peru, Ecuador, South Africa, Brazil, Thailand, and the US (Grant et al., 2010)) and estimating HIV prevalence (as seen in this review of data from multiple LMICs across four continents) (Baral et al., 2014b). However, the ability to enroll populations is related to differential economic and social marginalization, which means less data on already-marginalized minority groups. In LMIC especially, population size estimates have been difficult, but not impossible to estimate. Baral, et al., used social media platforms, for example, to estimate MSM population sizes in 13 countries (South Africa, Ghana, Nigeria, Senegal, Cote d'Ivoire, Mauritania, The Gambia, Lebanon, Thailand, Malaysia, Brazil, Ukraine, and the United States) (Baral et al., 2018). In regions such as sub-Saharan Africa, estimates in the past often only represented male sex workers but not the rest of the MSM population, leading to biased estimates of HIV risk (Muraguri et al., 2012), though more recent work has shown high HIV prevalence in the region (Poteat et al., 2017a).

7.2.2.2 Sampling Issues

In the absence of sampling frames that permit probability sampling methods, three primary non-probability sampling strategies have evolved to enroll SGM populations in HIV research. These can be classified as network-based, place-based, and online strategies. Some hybrid approaches combine these strategies to maximize reach. Network-based approaches leverage existing social networks to enroll others generally using a chain-referral strategy. The level of complexity varies greatly from ungoverned chain-referral such as snowball sampling to approaches such as peer-referrals and respondent-driven sampling (RDS). An HIV study among transfeminine people in South Africa, for example, used peer-referrals for recruitment (Poteat et al., 2017a). RDS limits the number of enrollments at each wave of recruitment, thus pushing recruitment further into networks and ultimately reducing bias associated with initial seeds. This method allows an approximation of population prevalence of key indicators, such as HIV infection (Heckathorn, 1997; Salganik & Heckathorn, 2004).

Place-based approaches focus on building an understanding of different venues from which SGM can be recruited. Specifically, time-location or venue-day time sampling includes building a universe of venues, days, and times of day as a de facto sampling frame from which SGM can be recruited. This methodology is more applicable to populations that may not be well networked, but who may frequent venues, and has been used in HIV-related studies to recruit SGM in places as disparate as the US (Hwahng, 2018; Hwahng & Nuttbrock, 2007; Wei et al., 2012), Guatemala (Paz-Bailey et al., 2014), Kenya (Geibel et al., 2012), and Thailand (Toledo et al., 2010). However, in some places, the closure of such spaces may impact the effectiveness of such approaches (Mattson, 2019).

Finally, online sampling is being increasingly used with recruitment from general social media as well as mobile applications more specifically focused on SGM. Unlike RDS and time-location or venue-day time sampling, which approximate probability samples, online recruitment methods more closely represent convenience samples. They can be nevertheless useful for reaching SGM, but their limitations need to be considered. There are selection biases associated with this method (Green et al., 2015). In the United States and Europe, online samples tend to oversample people who are white, younger, and have higher income, and marginalized groups may be less able or willing to engage in online methods. Online methods have also been combined with other recruitment and sampling methods in innovative ways, which come with their own strategies and biases to consider (Groves et al., 2019, 2020). In the LITE Study of transgender women in the U.S., online and site-based sampling were both employed. The online sample reached people who were earlier in their transition, had lower access to or use of gender-affirming services, and were more isolated than people recruited at site-based locations (Wirtz et al., 2019). Online recruitment in lower-income countries may not be as effective, depending on the context. For example, internet access in some places is less common and financially unobtainable, especially outside of cities. Internet-based research done in such contexts should take into account such biases and limits to generalizability.

Each of these sampling methods are associated with advantages and challenges in terms of implementation and analyses (Magnani et al., 2005; Malekinejad et al., 2008; Wei et al., 2012). Choosing the appropriate method necessitates characterizing the specific question, such as what population or subpopulation you want to be able to make statements about. For example, identifying if the research question is about specific groups of SGM based on overall HIV rates in those groups, or individual or network-level HIV risk behaviors. It also necessitates knowing some characteristics of the target population, such as if they are well networked, or if they are likely to be accessible in venues. Some methods that work well in some settings may not work as well in others. RDS, for example, has worked well for reaching MSM for HIV studies in many countries, but less effective in the United States, particularly for SGM youth and Black MSM, who tend to be less well-networked to other SGMs (Wei et al., 2012; Wirtz et al., 2021). Steps in the decision process include appropriate formative research, assessment of the level of resources (time and financial), and capacity of research partners (Glick & Adrinopoulous, 2019).

7.2.2.3 Cultural Conceptualizations of Gender Identity and Sexual Orientation

Should the context be safe enough to conduct research among SGM populations in a given locale, there are additional issues to consider. There are a variety of labels used among sexual and gender minority groups even within one country and culture. There are culturally specific words for various behaviors and identities that may mean slightly different things to people who use the labels to describe themselves. Additionally, these terms do not necessarily map on exactly to academic categories of “homosexual” or “transgender” and can have different nuances and historical meanings that may be lost in translation (Glick & Adrinopoulous, 2019; Hwahng, 2009, 2011). These labels are also time-bound and sometimes rapidly changing; words that were appropriate to describe SGM 20 or even 5 years ago in one context may become quickly dated and offensive but still considered appropriate in another (likely including words used in this book).

Furthermore, while some communities take pains to separate gender identity and sexual orientation as distinct concepts, many people and cultures conceptualize the two in a variety of ways. Indeed, the categories of “homosexual” and “transgender” are created and reified as social constructs (Singh et al., 2017; Valentine, 2007) and are constantly being contested and changed. This is not to call these categories unreal, but to point out that one society’s categories are not more or less “right” than another’s, and to forcibly map Western categories onto other communities’ is inappropriate and counterproductive (Glick & Adrinopoulous, 2019). For example, a list of gender identities in Thailand lists 18 genders, described as various combinations of gender expressions and sexual attractions that cannot and should not be mapped onto Western categories (Morris, 1994; Sinnott, 2004; Wilson, 2017). Effort should

be made to understand and work within these local categories, rather than to colonize them with Western concepts. Even in the United States, and especially in communities of color, there are a variety of terms used. For example, people who might be categorized as transgender for research purposes may not identify as such, and many research studies have grouped transgender women with MSM, subsuming their identities under their behaviors (e.g., receptive anal sex with men) (Baral et al., 2011; Glick et al., 2018). Care should be taken to respect local conceptualizations, labels, and meanings. All this can impact recruitment and validity of data (misclassification bias) and using terms incorrectly may further stigmatize or offend the populations being studied.

Researchers should be aware of these issues in order to thoughtfully conduct HIV research in these populations, takings pains to be gender-affirming and culturally competent (Glick & Adrinopoulous, 2019; Hwahng & Nuttbrock, 2007; Poteat et al., 2019; Reisner et al., 2016a). These challenges also mean that there remain many gaps in understanding about HIV among SGM populations across the globe. Not only are there gaps in the epidemiology of HIV in most areas of the world, but also in the knowledge base about best practices for implementing prevention and treatment programming. Furthermore, programming that may be effective in one population (e.g., white MSM in the UK) cannot be assumed to work well in other populations within that same country (e.g., Black MSM in the UK) nor in other locations (e.g., MSM in Russia, Vietnam, or South Africa), let alone among different SGM groups (e.g., transgender women of color in the United States, transgender men in Indonesia). Interventions should be adapted or created to best address the needs of the SGM in their respective local context. As an example of an appropriate adaptation, a team of local and international researchers and implementers adapted a participatory theater intervention to reduce stigma for SGM in Eswatini and Lesotho, given the impact of stigma on the HIV epidemic. They first conducted qualitative, formative research to better understand local stigma dynamics, then worked with a local SGM and theater groups to develop skits. They followed these skits with focus group discussions with audience members (nursing students, health care providers, educators, and general community members) to assess the reactions (Logie et al., 2019).

7.3 Multi-level Factors and Interventions

Keeping in mind ethical and methodological challenges and funding gaps that prevent a full global picture of HIV epidemiology, we now explore known factors that drive and predict HIV risk, as well as interventions that mitigate those risks. As a heuristic, we situate these factors and interventions into a modified social-ecological model (mSEM) (Baral et al., 2013a). This model (see Fig. 7.3), like other SEMs, organizes elements into multiple levels (individual, social, community, etc.) to aid understanding of an issue and focus interventions to at least one,

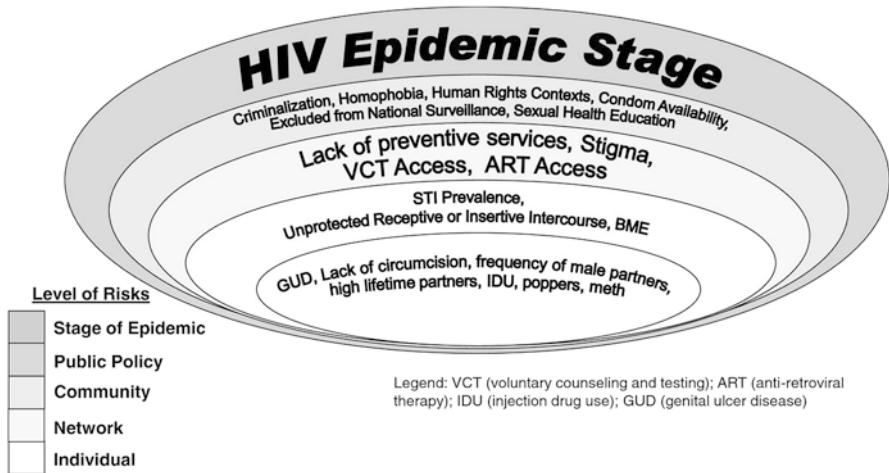


Fig. 7.3 Modified social-ecological model (Baral et al. 2013a, b). (Reprinted from Baral, S., Logie, C.H., Grosso, A. et al. (2013). Modified social ecological model: a tool to guide the assessment of the risks and risk contexts of HIV epidemics. *BMC Public Health*. 13, 482, Figure 3. <https://doi.org/10.1186/1471-2458-13-482>, licensed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>))

Legend: *BME* Black and minority ethnic populations, *STI* sexually transmitted infections

but preferably multiple, levels. Unlike other SEMs, this modified SEM specifically acknowledges the importance of the HIV epidemic stage, that is, the prevalence and incidence of HIV in a given community, since this greatly impacts the riskiness of individual condomless sexual encounters, for example. In this chapter, we discuss factors and interventions at three levels: structural, interpersonal/community, and individual.

7.3.1 Structural Level Factors

Globally, SGM communities face structural-level barriers that not only increase their risks for HIV, but also constrain their abilities to access affirming, friendly healthcare services and live fully actualized lives. These structural-level factors include criminalization and pervasive stigma and discrimination, including cis- and heteronormativity, homophobia, and transphobia, as well as intersecting stigmas such as classism, racism, nationalism, and ableism. This section focuses on criminalization, stigma, and discrimination, while acknowledging that these other factors are also at play, depending on the context.

7.3.1.1 Criminalization

One of the strongest structural forces driving risks and vulnerabilities for HIV among sexual and gender minorities is criminalization of same-sex practices and the legal and social policing of gender non-conformity.⁴ These forces, rather than stop SGM people from existing, drive them underground. Criminalization reduces access to HIV services and safer sex supplies such as condoms and water-based lubricants, and increases stigma and discrimination, while ensuring victims have little or no recourse to the justice system (Arreola et al., 2015; Beyrer, 2014). Criminalization is variously enforced in different countries, ranging from no protection but no criminalization (e.g., India, Paraguay, China) to 10-year-to-life prison sentences (Tanzania, Myanmar) to the death penalty (Sudan, Saudi Arabia) (Altman & Beyrer, 2014; ILGA World, 2020). (See Fig. 7.4). Russia presents an alarming case of the importance of state-sponsored structural violence against SGM people. Though same-sex behavior was officially decriminalized in 1993 with the fall of the Soviet Union, more recent draconian laws against “homosexual propaganda” led to increases in violence against SGM people in Russia. This has led to apparent increases in HIV transmission among MSM (Altman & Beyrer, 2014; Beyrer et al., 2013) as well as worse mental health outcomes (Hylton et al., 2017). There are also intersectional issues for SGM who are also ethnic minority groups and face xenophobia but came to Russia because it was “safer” than being gay in the neighboring countries where there were more severe penalties (Wirtz et al., 2014).

As of December 2021, there are 71 countries in the world that criminalize consenting same-sex behavior, particularly between males (76 Crimes, 2021), most of them middle- and low-income countries. The most recent countries to decriminalize homosexuality include Bhutan in Asia (February 2021) and Gabon in central Africa (July 2020). Many of the 71 countries that criminalize homosexuality are former British, French, and Portuguese colonies (76 Crimes, 2021). Indeed, it was the British colonial structure which mapped Euro-Western “values” of same-sex criminality onto places that had tolerated or even accepted it previously. Many nations’ penal codes are retained from their colonial codes, copied from the British-era Indian penal code, which criminalized “carnal knowledge against the order of nature” and “gross indecency” (Altman & Beyrer, 2014; Beyrer, 2014).

In direct contravention to these anti-homosexuality laws are international human rights covenants and bills, such as the International Bill of Human Rights, which has been signed by 172 nations worldwide, including 95% of sub-Saharan African

⁴Note that while this volume differentiates between sexual orientation and gender identity and treats them as separate constructs, this differentiation is not commonly recognized worldwide. Often, sexual orientation and gender identity are collapsed, and certain gender expressions are sometimes interpreted as homosexuality, while some gay people may be seen as crossing society’s gender boundaries. Thus, some countries that criminalize homosexuality might arrest a feminine-presenting male or transgender woman with “gross indecency” and accuse the person of homosexuality, regardless of actual sexual behavior. While sexual and gender minorities’ risks and needs overlap in many ways, there are distinct issues that need addressing legally, socially, and culturally.

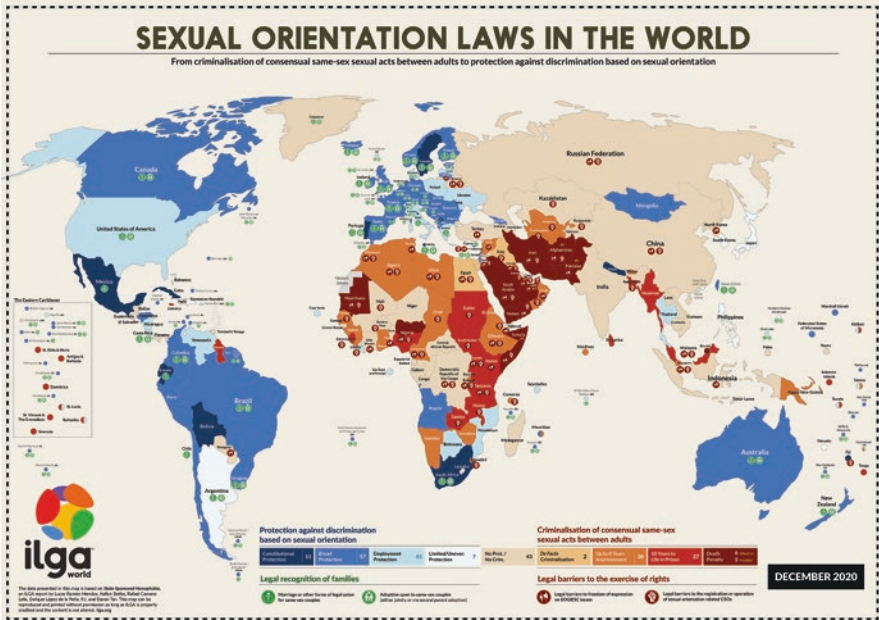


Fig. 7.4 Sexual orientation laws in the world – 2020 (ILGA World, 2020). (Reprinted from ILGA World: Lucas Ramon Mendos, Kellyn Botha, Rafael Carrano Lelis, Enrique López de la Peña, Iliia Savelev and Daron Tan. (2020 December). State-Sponsored Homophobia 2020: Global Legislation Overview Update. <https://ilga.org/maps-sexual-orientation-laws>)

countries (Abara & Garba, 2015). The International Covenant on Civil and Political Rights (ICCPR), signed in 1966, guarantees rights “without distinction of any kind, such as race, color, sex...” (United Nations, 1966). In 1994, the Human Rights Committee held that sexual orientation was a status protected from discrimination under the ICCPR, with reference to “sex,” including “sexual orientation” (Baral et al., 2011). In signing human rights conventions, countries commit to upholding the principles therein, including non-discrimination. However, as Abara and Garba (2015), stated, “it is evident that these rights are neither enforced nor protected among MSM in SSA,” and this statement applies just as well to other SGM communities and countries outside of SSA.

7.3.1.2 Stigma and Discrimination

Even in countries that permit same-sex behavior, stigma, and discrimination remain as barriers to HIV prevention and care. In South Africa, for example, where sexual orientation is constitutionally protected, MSM were more likely to disclose their sexual orientation than their counterparts in other southern African countries without protections but were just as likely to report human rights abuses (Zahn et al., 2016). Furthermore, in the United States, where SGM people have limited legal

protections, MSM bear a disproportionate burden of HIV incidence and prevalence, accounting for 67% of all new diagnoses (Centers for Disease Control and Prevention (CDC), 2018). This burden is borne particularly by men of color, who are more likely than non-Hispanic white MSM to face stigma, discrimination, lower socioeconomic status, and thus higher rates of STIs, lower rates of HIV testing, and constrained access to treatment services. In some places, up to one in two Black MSM is already living with HIV, making condomless sex within these networks particularly risky (Latkin et al., 2012).

Like same-sex behavior, alternative gender expressions and gender identities are not new nor Western, but are heavily stigmatized, resulting in many negative health outcomes, including high prevalence of HIV (Reisner et al., 2016b; White Hughto & Reisner, 2016). Cultures around the world have long traditions of recognizing more than two genders, as seen in the variety of words to describe various gender minorities, especially, but not limited to, male-to-female expressions. These include terms such as *kathoei*, *hijra*, *mahuvine*, *berdache*, *waria*, *mahu*, *bantut*, *nadleehi*, two-spirit, and *xanith* (Baral et al., 2011). While there is a lack of data on such SGM identities throughout Africa and the Middle East, this is not to say they do not exist there. Rather, the research is just beginning, and as trans-related research is moving into those locations, findings show increasing numbers of people who identify as transgender (Reisner et al., 2016b).

Like same-sex behaviors, alternative expressions of gender are often policed by the state and/or society and stigmatized. Transgender people and other gender non-conforming people, particularly transfeminine people, are actively discriminated against and their human rights violated in ways that reduce their access to services and increase their risks for HIV. For example, lack of access to correct identification and gender marker changes impacts access to employment, housing, and health care, which in turn impact access to HIV testing, prevention, and treatment services (Anderson & Kanters, 2015; Baral et al., 2011; Reisner et al., 2016b). In Thailand, where various gender identities are socially recognized and accepted, and where some of the leading surgeons for gender-affirming care are located, gender markers on national identity documents cannot be legally changed. These identity documents also grant access to healthcare in Thailand, and thus create a stigmatizing barrier for transgender people who are forced to access care under the wrong name and gender marker (Samuel, 2021).

High rates of incarceration, homelessness, racism, and low socioeconomic status also remain persistent in populations of transgender women, as many women are isolated from the workforce due to their gender minority status (Reisner et al., 2016b). Thus, transgender women who engage in sex work have much higher odds of living with HIV (Poteat et al., 2016; Reisner et al., 2016b). Gender-related stigma and discrimination in clinical settings have also hindered transgender women from utilizing the healthcare system, creating a barrier for accessing HIV prevention resources (testing, condoms, PrEP, treatment if already infected, etc.) (Poteat et al., 2019; Reisner et al., 2016b).

7.3.2 Structural Interventions

Decriminalization of homosexuality and gender non-conformity, while worthwhile and necessary for the safety, human rights, and dignity of all SGM people, also have positive impacts on HIV prevention and treatment. Thus, anti-homosexuality laws continue to be challenged in various countries, sometimes with an argument that it serves an HIV prevention purpose. Recent countries to decriminalize homosexuality span the globe and include Trinidad, India, and Angola. Not all challenges to the law have been successful, however; in 2019, Kenya's courts upheld an anti-gay law (76 Crimes, 2019). Other countries, while not decriminalizing homosexuality, have recognized the HIV prevention benefit of allowing prevention efforts to reach SGM communities without fear of legal or social repercussions.

International human rights principles can and have been interpreted to extend to gender minorities, in language that calls for non-discrimination on the basis of sex, the right to health, and the right to control one's own body (Baral et al., 2011). Courts have made legal judgments that protect gender minorities in several countries in Asia such as Pakistan, Nepal, Philippines, and Hong Kong (Baral et al., 2011). Non-discrimination of transgender people is even written in Nepal's constitution as a "third type of gender identity" (Baral et al., 2011). As more countries decriminalize, and we see more acceptance of SGM people globally, SGM communities will be able to live more fully, without fear of legal repercussions.

Racial marginalization, racism, and xenophobia have also been documented as structural factors for increased HIV risk. There is a small body of literature examining interventions addressing these structural oppressions among SGM people (see Introduction to book).

7.3.3 Interpersonal and Community-Level Factors

Sexual and gender minorities face many community- and interpersonal-level challenges that increase HIV risk. These factors are exacerbated by intersectional identities (Bowleg, 2012) that may also be stigmatized, such as racial, ethnic, and religious minorities in the United States (Hwahng & Nuttbrock, 2014; Nuttbrock & Hwahng, 2017, 2018), or other circumstances that increase vulnerabilities, such as poverty (also see Stigma chapter, Chap. 2). It is also necessary to recognize the role of syndemics (multiple epidemics that co-occur) (Singer, 2009), such as substance use (see Substance Use chapter, Chap. 8), violence victimization and abuse (see Victimization and Intentional Injury chapter, Chap. 9), and poor mental health (see Mental Health chapter, Chap. 3) in global HIV epidemics (Poteat et al., 2017b; Reisner et al., 2016b). Additionally, SGM people globally experience higher rates of physical and sexual assault, workplace discrimination, healthcare discrimination, and family rejection (Patel et al., 2020; Sekoni et al., 2020; Yi et al., 2017).

Network-level determinants have been shown to be profoundly important in explaining the disproportionate burdens of HIV and STIs among MSM and transgender women. The burden of HIV among MSM in North Africa and the Middle East, for example, is attributed to high levels of risk behaviors among them, such as having multiple partners, low condom use, high HSV-2 rates, male sex work, intersections with drug use, and bisexual practices (Abara & Garba, 2015; Mumtaz et al., 2010). However, do we know that there is more inherent HIV-related risk among MSM, or that the biology of HIV and STIs, combined with sexual networks, explains these disparities in outcomes? There are some key elements specific to networks among MSM and transgender women, including the potential dual roles of being both insertive and receptive partners during penile-anal sex, which differs from that of cisgender women. Moreover, there tends to be higher density in these networks than general heterosexual networks since the latter networks are much bigger and not stigmatized in society. For example, the increased size and lower density sexual networks among MSM have been linked to HIV in places as diverse as Australia, China, and the United Kingdom (Beyrer et al., 2012a).

There are also those individuals, including those reporting transactional sex, that create multiple points of contact within networks and have higher odds of HIV infection compared to those who do not (Oldenburg et al., 2016). Stigma against SGM can cause the size of sexual networks to increase, as individuals may have multiple concurrent or serial, short-term encounters in order to keep them secret. When there is acute infection within these networks, transmission may happen rapidly to all within the network in the absence of PrEP and early diagnosis and treatment (see below). The finding that incidence occurs in these short blips (Lewis et al., 2008) only reinforces the importance of networks in driving HIV among MSM and transgender women.

Unlike MSM, sex workers (including cisgender and transgender men, transgender women, and cisgender women who are sexual minorities) do not acquire or transmit HIV from other sex workers. It is the male partners and clients who represent key members of the sexual networks in driving risks among sex workers for transmission, yet the cisgender male partners and clients of sex workers are very rarely the focus of interventions. Moreover, sex workers have commonly reported tremendous challenges in effective condom negotiation with male clients in the absence of laws protecting sex workers either in the context of occupational health or criminal law (Baral et al. 2013a). Consequently, the overlaps between structural stigmas, network-level determinants, and individual risks become increasingly clear as fundamental drivers of ongoing HIV epidemics (Baral et al., 2013a; Beyrer et al., 2012a).

7.3.4 Interpersonal/Community-Level Interventions

Given the critical role networks and other interpersonal and community-level factors play in HIV transmission, interventions that address these factors are essential. That said, globally, network and community-level interventions are also

challenging, expensive, and less researched than individual-level interventions (Poteat et al., 2017b). Nevertheless, we discuss some examples of interventions here, though this is not an exhaustive list. For example, partner, family, and group support are potentially powerful interventions at this level (Poteat et al., 2019), especially given higher rates of family rejection and intimate-partner and non-partner violence among SGM people, as evidenced by data from Peru (Murphy et al., 2019), the United States (Brooks et al., 2021; Wirtz et al., 2020), and multiple other high- and middle-income settings in a systematic review (Peitzmeier et al., 2020). In the United States there have also been studies on couples-based intervention for transgender women and their cisgender male partners, given that cisgender male partners are often a major vector of HIV transmission to transgender women (Gamarel et al., 2016, 2020a, b; Operario et al., 2017).

Culturally competent interventions grounded in the community and that employ peer-based outreach, education, navigation, and community mobilization are promising. In all cases, community involvement or, better yet, community leadership, are keys to success (Poteat et al., 2019). By employing existing social and sexual network connections, peer-led, community-based interventions can also operate in locations with high homophobia and transphobia, and even criminalization. These can not only increase individual-level health promotion behaviors, but also decrease stigma, encourage collective activism, and empower groups to demand change that addresses their felt needs (Poteat et al., 2017b, 2019). The participatory theater intervention in Eswatini and Lesotho, mentioned above, is one good example (Logie et al., 2019). In Senegal, an integrated stigma mitigation intervention showed reductions in stigma in SGM both living with and at risk of HIV (Lyons et al., 2020). Multiple demonstration projects for transgender women of color that involved peer-led community outreach, case management, and small group sessions to improve HIV outcomes were conducted in the United States and may provide lessons learned for similar projects in other locations (Reisner et al., 2016b). Another study in a different region of the United States examined peer-led transgender support groups that were part of harm reduction programs that also resulted in improved health outcomes and decreased HIV risk for transgender women of color (Hwahng et al., 2019, 2021).

Examples outside the United States are hard to find (Poteat et al., 2017b), but one is the pilot study TransPrEP in Peru (Poteat et al., 2017b). This was a social network-based PrEP (see below) adherence intervention study for transgender women that included individual counseling, group workshop, and social media-based network interactions. Results showed a positive trend toward the intervention objectively increasing adherence to PrEP, as evidenced by drug levels in blood and hair samples. The use of technology and social media such as this is a key component of future interventions. SGM communities are already widely connected through popular apps such as Facebook and Twitter, as well as MSM-targeted apps such as Hornet and Grindr. These networks can be leveraged as strategies to support community development, estimate population sizes, and disseminate information.

Healthcare that is gender-affirming and sensitive to the needs of all SGM communities is essential not only for HIV prevention and care, but also for all health

needs. Unfortunately, this is too rare globally. Healthcare providers need sensitivity training and cultural and clinical competency in order to welcome and serve SGM people (Poteat et al., 2019) and overcome understandable medical mistrust. Furthermore, health recordkeeping systems, whether paper or electronic, should allow for specifying and changing gender markers and chosen names, even if legal changes are not allowed in a given country. Patients who cannot safely disclose their sexual orientations and/or practices and their gender identities cannot access HIV prevention and care that is appropriate to their needs. For transgender women, especially, care that does not also address housing and food insecurity, violence, racism, misogyny, transphobia, etc., will fail at meeting their individual HIV prevention and treatment needs. The Tangerine Clinic in Thailand is a great example of a community-led organization that is responsive to the needs of the SGM people it serves (amfAR, 2017). For example, they include gender-affirming care such as hormone provision as well as case management into their HIV programming. In Australia, the community health organization, Acon, started as an HIV clinic, and has expanded to serve all SGM for a variety of health needs in the HIV syndemic. This includes sexual health, substance use, violence, mental health, etc. Acon also strives to be responsive to the needs of Aboriginal and other minoritized communities (2021). Both Tangerine and Acon are examples of locally led and developed interventions that are contextually and culturally appropriate to meet the particular needs of their local communities.

Condoms and water-based lubricants, when used consistently and correctly, are highly effective at preventing HIV and a highly cost-effective intervention (Beyrer et al., 2012b), and thus should be considered essential components of HIV prevention programming. While often considered at the individual level, condoms are by their nature an interpersonal intervention, requiring discussion and negotiation between sexual partners. These negotiations often take place in contexts of power imbalances between partners, while condom promotion interventions too often target those holding the least power in sexual encounters (transgender women, cisgender, and transgender sex workers). There is a dearth of research and programming targeting cisgender men who have sex with transgender women (Poteat et al., 2021), though they are key transmission nodes in high-risk sexual networks. Condomless receptive anal sex is an especially important driver in MSM and transgender women who have sex with cisgender men, since HIV transmission through anal intercourse is a more efficient means of infection compared to vaginal intercourse, as the rectal tissue is more susceptible to tears and thus to the virus (Beyrer et al., 2012b). However, access to condoms and especially water-based lubricants is poor in some locations. In 2016 in Tanzania, for example, the Magufuli administration banned lubricants, ordered extant supplies to be destroyed, and closed drop-in-centers that served “key populations” such as MSM and female sex workers (Tanzania Ministry of Health, & Gender, Elderly and Children, 2017). Lubricants had been promoted as an HIV prevention intervention for MSM in particular, and thus were seen as “promoting homosexuality,” while homosexuality is criminalized in the country (ILGA World, 2020).

7.3.5 Individual- and Biomedical-Level Factors

Major HIV-related risk factors SGM people face at the individual level include condomless sex, untreated STIs, substance use, and lack of HIV testing and knowing one's status. Broader structural and interpersonal factors play out at and influence the individual level, driving internalized stigma, for example, and increasing substance use as a maladaptive coping mechanism. Internalized stigma (homophobia, transphobia) can increase individual risk behaviors among SGM individuals, such as not seeking healthcare and/or not disclosing important information to providers; substance use during sex; a higher number of partners; transactional sex; condomless sex, etc. However, as mentioned above, individual risk behaviors are insufficient to explain disparities in HIV rates, and structural, community, interpersonal, and network-level factors must be taken into account (Latkin et al., 2012).

Higher burdens of childhood trauma and ongoing minority stress have, in part, resulted in higher burdens of injection and non-injecting substance use among SGM people. In part, this substance use may be driven by undiagnosed and untreated mental health stressors. Some substance use is recreational in nature, and there has been an emergence of “chemsex,” which is the use of multiple amphetamine-like substances during sex to heighten the experience (see Substance Use chapter, Chap. 8) (Bourne et al., 2015). Interventions in this space often end up being punitive or risk-based in their framing. Peer-based substance use interventions likely represent a critical path forward; a trial in Thailand and the United States showed reduction in HIV-related drug use behaviors (sharing equipment) (Latkin et al., 2009).

7.3.6 Individual-Level and Biomedical Interventions

PrEP is a medication taken by HIV-negative people to prevent HIV acquisition. It is recommended by the World Health Organization for anyone at substantial risk for HIV (World Health Organization (WHO), 2017). The high efficacy of PrEP in preventing HIV acquisition and transmission among MSM has been shown through several studies. The first, which was conducted in Peru, Ecuador, Brazil, Thailand, the United States, and South Africa, showed a 44% reduction in the risk of HIV acquisition (Grant et al., 2010). In 2015, intermittent PrEP use or “on demand” use in which patients take PrEP only before and after sexual activity was shown to reduce the incidence of HIV acquisition by 97% in the IPERGAY trial in MSM in France and Canada (Molina et al., 2015, 2017). Other PrEP efficacy trials have been conducted in MSM and transgender women, including in the US, Kenya, England (Fonner et al., 2016) and Argentina, Brazil, Peru, Vietnam, Thailand, and South Africa (Landovitz et al., 2021). For PrEP, effectiveness is highly correlated with adherence (Fonner et al., 2016) so particular attention must be given to supporting uptake and sustained, correct use to see the prevention benefit. As of writing, there were multiple formulations of PrEP in various stages of the research pipeline,

including a bimonthly injectable form shown to be highly efficacious in multinational trials among cisgender MSM, transgender women, and cisgender women (HIV Prevention Trials Network (HPTN), 2020; Landovitz et al., 2021). There is hope that longer-acting formulations will overcome some of the barriers to adherence, thus ultimately reducing HIV acquisition.

Research gaps and concerns remain for PrEP for other at-risk SGM populations, however, including transgender women and transgender men who have sex with cisgender men (TMSM), as well as sexual minority women who sell sex and/or use injection drugs. Most of the research on PrEP has been focused on cisgender MSM, with the inclusion of a small minority of transgender women (Fonner et al., 2016). The recent long-acting injectable PrEP study included 12.5% transgender women (Landovitz et al., 2021). Few studies have specifically examined PrEP use among TMSM (Reisner et al., 2019, 2021), and none among SMW who are at risk, though several were conducted among cisgender women (Fonner et al., 2016). One primary concern for transgender people at risk is possible drug-drug interactions between PrEP (and other ART) and gender-affirming hormones. While there is currently no evidence that indicates clinically significant drug-drug interactions (Radix et al., 2016), there is evidence that some transgender women may avoid PrEP anyway because of these fears (Hiransuthikul et al., 2019). Similar issues and fears may also be present among TMSM, though there are limited data to date (and only from the US) on TMSM taking PrEP and potential contraindications with masculinizing hormones (testosterone), which many transgender men and other transmasculine individuals use (Reisner et al., 2019, 2021). As of writing, a small, exploratory study of PrEP for Ugandan transgender men was recently completed, but results are pending (Mujugira, 2020).

Special attention must be paid to the intersection of SGM status and various racial, ethnic, religious, and other minoritized groups, including migrants and prisoners. For example, PrEP uptake and implementation has been low in Black and Latinx communities in the US (Cahill et al., 2017; Eaton et al., 2015; Rolle et al., 2017). As PrEP availability continues to expand beyond high-income countries, careful attention must be paid to the most vulnerable sub-groups among SGM people in various country contexts. In addition, SGM members of migrant, immigrant, prison, and ethnic minority populations may be at heightened risk of being excluded from HIV prevention services, and this is likely to be replicated in PrEP programming if not given carefully tailored attention.

Another key biomedical intervention is the use of antiretroviral therapies (ART) as both treatment and prevention. While ART cannot yet cure HIV completely, people living with HIV can live long, healthy lives on treatment. Furthermore, multiple studies have shown that sufficient treatment that leads to sustained viral suppression (an undetectable viral load) stops transmission to their partners (untransmissible virus), often called treatment-as-prevention (TasP) (Cohen, 2011; Rodger et al., 2019). The US Centers for Disease Control and Prevention affirmed that “undetectable equals untransmissible” (“U=U”) after results of the PARTNER2 study in which there was no transmission among male couples where one was living with HIV and the other HIV-uninfected (Rodger et al., 2019).

Given the network-driven transmission dynamics among MSM and transgender women with multiple partners, where HIV is transmitted often before people know they are infected, TasP strategies are likely to be insufficient to control the epidemics (Van Griensven et al., 2017). Taken together, though, PrEP and TasP (U=U) hold significant promise. This is especially hopeful given alternative formulations on the horizon, such as long-acting forms of ART and PrEP, including injectables, implants, patches, and suppositories, making the future of ART and PrEP look much like family planning, with many choices for consumers to use what best fits their preferences. These have the potential to reduce some barriers to uptake and adherence (Landovitz et al., 2016). Other biomedical interventions such as HIV vaccines and broadly neutralizing antibodies to prevent HIV continue to be tested, and investment in these is essential.

However, for interventions like PrEP and U=U to reduce new HIV infections, it remains important to tailor prevention and treatment support to the specific communities at highest risk of both acquiring and transmitting HIV, including SGM communities (Baral et al., 2019; Mishra & Baral, 2019). Universal treatment and prevention programs that do not consider intersectional identities and stigmas will reinforce pre-existing power dynamics, including cis- and heteronormativity, misogyny, ableism, white supremacy, classism, etc., even within SGM communities, and further widen disparities in HIV outcomes. This reinforces the necessity of multi-level interventions that situate the individual and biomedical interventions within broader interventions that also address social, community, and structural levels.

7.4 Chronic Disease and Sexual and Gender Minorities Living with HIV

HIV chronic comorbidities are an important concern for people living with HIV, including SGM. Most of the literature on this topic, however, is from the Global North, and further work needs to be conducted to understand the needs of SGM in other locales. Though use of combination antiretroviral therapy has led to better prognosis, improved survival, and reduced HIV-related illness and death for people living with HIV (Hogg et al., 1998; Palella et al., 1998), non-HIV related comorbidities such as cardiovascular disease, non-AIDS-related cancers, and liver disease are becoming more prevalent (Goulet et al., 2007; Wong et al., 2018). In the general population, development of age-related chronic disease is associated with physiological stress (Epel et al., 2004), while HIV disease processes and some antiretroviral therapy regimens are linked to chronic inflammation and can exacerbate age-related chronic conditions for people living with HIV (Drozd et al., 2017; Onen & Turner Overton, 2011; Pathai et al., 2014). Minority stress (Brooks, 1981; Hendricks & Testa, 2012; Meyer, 2003), stigma, and discrimination may also shape chronic disease disparities for SGM (Hatzenbuehler et al., 2014), as is the case for racialized minorities (Busse et al., 2017; Gallo et al., 2014; Jackson et al., 2010;

Lucas et al., 2017). People living with HIV as well as SGM are also more likely to engage in risk behaviors (i.e., smoking) (Akhtar-Khaleel et al., 2016; Gruskin et al., 2007), and experience other socio-structural risk factors for chronic disease (see Non-Communicable Diseases chapters, Chaps. 4 and 5).

Increased chronic disease risk for people living with HIV includes non-AIDS-defining cancers, such as anal cancer. This elevated anal cancer burden is highest for MSM, with one HIV and cancer registry-linked study of 447,953 people with HIV in the United States estimating a 39-fold increased risk compared with the general population (Colón-López et al., 2018). Evidence of other chronic illness disparities for men who have sex with men living with HIV include diabetes and kidney disease, as well as higher likelihood of having multiple chronic conditions, compared to men who have sex with men living without HIV (Althoff et al., 2014). For many transgender people, gender-affirming hormone therapy is an important part of clinical care, serving as a protective factor for HIV clinical outcomes—facilitating care engagement, antiretroviral therapy adherence, and viral suppression (Wilson et al., 2015). However, exogenous hormone use may also potentiate increased chronic disease risk for transgender women in particular, both independently and through potential drug-drug interactions with antiretrovirals. Exogenous hormones use has been linked to elevated cardiovascular disease risk factors among transgender adults, with excess cardiovascular disease incidence, prevalence, and mortality for transgender women compared to cisgender counterparts, though not consistently for transgender men (Gosiker et al., 2020; Streed et al., 2017). For SGM populations, stress, antiretroviral therapy, and exogenous hormone use may also contribute to heightened risk of other HIV co-morbidities, particularly inflammation-related diseases such as cancer, diabetes, and arthritis. These risks are likely exacerbated with older age, racialization, and the multi-level determinants of health discussed elsewhere in this chapter.

While the limited previous research in this area has demonstrated evidence of HIV chronic comorbidity disparities for sexual and gender minorities, particularly for men who have sex with men and transgender women, gaps remain in our understanding. A systematic review of the global literature on transgender health published between 2008 and 2014 found less than 10% of included data comprised general health—including chronic disease (Reisner et al., 2016b). A more recent review of global transgender populations and their chronic disease burden showed a persistent focus on mental health, demonstrating an evidence gap in chronic physical health morbidity, particularly around age-related conditions and inflammation-related disease (Rich et al., 2020). As noted for the larger HIV literature, research gaps remain in understanding HIV chronic comorbidities, particularly for sexual minority women. Much of the research in HIV and chronic illness among sexual and gender minorities is from large administrative data studies in the US, and to some extent Europe, leaving global sexual and gender minority populations largely understudied. There is a need for high-quality evidence in this area. Particularly, longitudinal research studies designed to look at the development of chronic conditions over time is needed, as well as consistent measurement of sexual and gender minority status and chronic conditions, validated measures of chronic disease for these populations, and inclusion of appropriate comparison groups (Rich et al., 2020).

7.5 Conclusions

With the widespread criminalization, stigma, and discrimination to which SGM are exposed around the world, the epidemiology of HIV among SGM communities, as well as provision of culturally and clinically competent and affirming HIV prevention and care, remains elusive in much of the world. Where state-sponsored homophobia and transphobia exist, and where sexual and gender minorities face multiple, intersecting stigmas, achieving HIV prevention and treatment goals, let alone allowing people to live fully actualized lives with dignity, is challenging. Nevertheless, there has been progress, especially in the past decade, in decriminalization, reducing stigma, reaching vulnerable populations with HIV and other health care needs, as well as in enumerating SGM populations and more accurately estimating HIV across the globe.

In summary, while this chapter provides the most data on MSM, this is a reflection of the research that has been conducted, and not a statement of importance of one group over others. As shown above, it is transgender women who have sex with cisgender men who face the greatest odds of becoming infected with HIV, followed by men who have sex with men. Transgender men and sexual minority women who have sex with cisgender men are a small minority, but nevertheless face HIV risks and vulnerabilities as well. However, little research has been conducted among these groups, so their HIV risks and prevalence are not well known. Additionally, it is important to note that absence of data about HIV among SGM communities in certain locales does not equate absence of risk or of SGM people, but rather may be a reflection of state-sponsored repression related to homophobia and transphobia.

7.6 Future Directions

While there is still a lot of work to do to eliminate HIV, the future holds promise. At a basic level, we require more data about SGM people and HIV epidemiology among them, globally. Data on sexual orientation/practices and gender identity needs to be collected and disaggregated in national, demographic, and health surveys and censuses (Poteat et al., 2017b) in order to implement data-driven, evidence-based interventions tailored to SGM populations, and to implement them at scale (Schwartz et al., 2019). We have interventions that we know work at multiple social-ecological levels, including PrEP and U=U, community mobilization, and decriminalization and legal protections. These interventions need to be tailored to specific SGM populations and locations, and implementation research needs to be conducted to understand best practices. For the greatest impact, these interventions must be concentrated on hyper-epidemics where most HIV transmission occurs rapidly (Tanser et al., 2014).



Thailand map showing major cities as well as parts of surrounding countries and the Gulf of Thailand. (Source: Central Intelligence Agency, 2021)

7.7 Case Study: Thailand's HIV Epidemic

The presence of HIV in Thailand was first reported in 1984; the epidemic accelerated first among persons who inject drugs (PWID) and then among female sex workers (FSW) (Siraprapasiri et al., 2016). The country experienced its highest rates of HIV incidence in 1991 and 1992, around 150,000 new infections, and by 1993, there were about 600,000–800,000 persons living with HIV (PLWH) in the country (Analysis and Advocacy Project & Thai Working Group on HIV/AIDS Projections, 2008; Siraprapasiri et al., 2016). According to UNAIDS, in 2020, about 500,000 individuals in Thailand were living with HIV, and HIV incidence in adults per 1000 population was 0.19. The HIV epidemic in Thailand is currently a generalized epidemic, with an estimated 1% of the total population living with HIV/AIDS (UNAIDS, 2020).

Thailand has made a concerted and admirable effort to control its HIV epidemic. Early prevention efforts, like the promotion of condom use, particularly in the context of sex work, are credited with averting over two million new infections (Siraprapasiri et al., 2016; Visrutaratna et al., 1995). Because of a focus on prevention of mother-to-child transmission and providing free testing and anti-retroviral medications for HIV treatment (ARTs), incidence of HIV among Thailand's heterosexual populations has significantly declined (Seekaew et al., 2018; Siraprapasiri et al., 2016).

However, Thailand's LGBTQ community bears the burden of its HIV epidemic. In 2018, HIV prevalence among gay, bisexual, and other men who have sex with men (MSM) was 11.9%, while HIV prevalence in transgender individuals was 11% (UNAIDS, 2018). Currently, half of all new HIV infections occur in MSM, transgender women (TGW), and male sex workers (Seekaew et al., 2019). HIV incidence in MSM in Bangkok is particularly high at about 29% (Seekaew et al., 2018).

Consequently, these populations are priority populations for prevention interventions in the country's plan to end its HIV epidemic. In 2017, Thailand launched this plan, with goals to drastically reduce HIV incidence, AIDS-related deaths, and HIV-specific discrimination in healthcare settings by 2030 (UNAIDS, 2017). Furthermore, this 13-year plan accelerates the country's efforts to meet the international 90-90-90 targets – ensuring that 90% of PLWH know their status, 90% of those who know their status are on ARTs, and 90% of those on ARTs are virally suppressed (UNAIDS, 2017). By 2018, Thailand had reached 94-75-73; however, that success is not equitably distributed (Seekaew et al., 2019).

Indeed, knowledge of one's status is at about 43% and 42% for MSM and TGW, respectively (Seekaew et al., 2019). A recent sub-analysis of a prospective cohort of MSM in Thailand found that 66% had a false perception of low HIV risk, and about 59% declined an offer for HIV testing and counseling because they had been tested in the past 6 months (47%), were not ready for testing (16%), or thought they were not at risk (13%) (Khawcharoenporn et al., 2019). Furthermore, a sub-study of the MSM and TGW-led Test and Treat study in Thailand found that about 49% of individuals self-identified as having a low HIV risk, while about 81% of MSM and 82% of TGW had what researchers asserted were “actual HIV-risk characteristics” (Seekaew et al., 2019). Additional Thailand-specific barriers to HIV testing and care include a lack of

awareness about HIV, the benefits of HIV care, and where to access care; fear of unintentional HIV status disclosure; and perceptions of antagonism from healthcare providers (Sapsirisavat et al., 2016; Tam et al., 2014; UNESCO, 2012; Zhang et al., 2015). Stigma and discrimination against one's HIV status, sexual orientation, or gender identity, are also significant barriers to testing and care (Anand et al., 2017).

In its "Operational Plan Accelerating Ending AIDS by 2030," the government of Thailand acknowledges that reducing inequality and addressing key populations, including MSM and TGW, is vital to the plan's success (Thailand National AIDS Committee, 2014). The comprehensive plan implements, in collaboration with local community and health service providers, a "reach, recruit, test, treat, and retain" (RRTTTR) strategy utilizing innovative methods, along with specialized services at different levels of intensity for specific key populations. *Reaching* consists of using social media and social networks for outreach, while *recruiting* involves the appropriate branding of services, peer-led interventions, and efforts to increase ease of access. Rapid, culturally appropriate *testing* occurs at community-based organizations (CBOs), healthcare settings, and mobile sites, and innovations in *treatment* are focused on the decentralization of care and the integration of services. *Retention* utilizes mobile technology and community case management. Crucial aspects of this plan are health systems strengthening, stigma and discrimination reduction, and the empowerment of key populations to have ownership of and involvement in their health, as well as building these communities' capacity for HIV prevention and care service delivery (Thailand National AIDS Committee, 2014).

The empowerment of key populations to deliver services in partnership with community-based organizations (CBOs) and healthcare organizations is referred to as the Key Population-Led Health Services (KPLHS) model, which was developed by the Thai Red Cross Research Centre (TRCARC), funded by the U.S Agency for International Development (USAID) and the President's Emergency Plan for AIDS Relief (PEPFAR), and then locally adapted and tailored to key population's needs (Seekaew et al., 2018; TRCARC & FHI 360, 2018). The services were designed in conjunction with the key populations that they serve, and as such are client-centered (TRCARC & FHI 360, 2018).

CBOs doing this work with MSM and/or TGW are Service Workers in Group Foundation (SWING), Rainbow Sky Association of Thailand (RSAT), Sisters, Caremat, and Mplus (Seekaew et al., 2018; TRCARC & FHI 360, 2018). The increased involvement of MSM and TGW in their own HIV prevention and care, and their collaboration with Thai aid organizations, is changing the landscape of the country's HIV-related services. With this collaborative KPLHS model and its innovative service delivery, implemented from January 2015 to January 2018, coverage of these key populations increased by 319%, with referrals by peers increasing by 178% (TRCARC & FHI 360, 2018). These organizations have provided over 2000 individuals with access to PrEP, diagnosed over 3000 PLWH, and initiated almost 70% of those on ARTs (TRCARC & FHI 360, 2018). ART maintenance at these CBOs was determined to be preferable (TRCARC & FHI 360, 2018).

Thailand's prioritization of MSM and TGW in its plan to end its HIV epidemic, and the centering of MSM and TGW in their own care and service delivery, directly

addresses these key populations' substantial barriers to HIV prevention and care. The strategies employed by TRCARC and local CBOs and healthcare settings have the potential to significantly impact these individuals' rates of uptake and access to these life-saving services, and they should be scaled up accordingly. Thus, these approaches, coupled with efforts to decrease stigma and discrimination, are necessary and vital for the future of Thailand's HIV epidemic, as well as the general health and well-being of its LGBTQ community. Thailand's population-specific efforts and deliberate integration of these populations into their own care is a model that can and should be replicated and localized elsewhere.

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References

- 76 Crimes. (2019). *Tally of Nations with anti-gay laws drops to 72*. <https://76crimes.com/2019/06/12/tally-of-nations-with-anti-gay-laws-drops-to-72/>. Accessed 14 June 2019.
- 76 Crimes. (2021). *71 countries where homosexuality is illegal*. <http://76crimes.com/76-countries-where-homosexuality-is-illegal/>. Accessed 16 Mar 2021.
- Abara, W. E., & Garba, I. (2015). HIV epidemic and human rights among men who have sex with men in sub-Saharan Africa: Implications for HIV prevention, care, and surveillance. *Global Public Health*, 12(4), 469–482. <https://doi.org/10.1080/17441692.2015.1094107>
- Acon: Here for Health. (2021). *Who we are*. <https://www.acon.org.au/about-acon/who-we-are/#our-work>. Accessed 30 Nov 2021.
- Akhtar-Khaleel, W. Z., Cook, R. L., Shoptaw, S., Surkan, P., Teplin, L. A., Stall, R., et al. (2016). Trends and predictors of cigarette smoking among HIV seropositive and seronegative men: The Multicenter AIDS Cohort study. *AIDS Behavior*, 20(3), 622–632. <https://doi.org/10.1007/s10461-015-1099-6>
- Althoff, K. N., Jacobson, L. P., Cranston, R. D., Detels, R., Phair, J. P., Li, X., et al. (2014). Age, comorbidities, and AIDS predict a frailty phenotype in men who have sex with men. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 69(2), 189–198. <https://doi.org/10.1093/gerona/glt148>
- Altman, D., & Beyrer, C. (2014). The global battle for sexual rights. *Journal of the International AIDS Society*, 17(1), 19243. <https://doi.org/10.7448/IAS.17.1.19243>
- amfAR. (2017). *The Tangerine Clinic: Leading the way on transgender health care*. <https://www.amfar.org/news/the-tangerine-clinic-leading-the-way-on-transgender-health-care/>. Accessed 23 Feb 2021.
- amfAR, International AIDS Vaccine Initiative, United Nations Development Program. (2015). *Respect, protect, fulfill: Best practices guidance in conducting HIV research with gay, bisexual, and other men who have sex with men in rights-constrained environments*. AVAC: Global Advocacy for HIV Prevention. <https://www.avac.org/resource/respect-protect-fulfill-best-practices-guidance-conducting-hiv-research-gay-bisexual-and-0>. Accessed 25 Feb 2021
- Amon, J. J., Baral, S. D., Beyrer, C., & Kass, N. (2012). Human rights research and ethics review: Protecting individuals or protecting the state? *PLoS Medicine*, 9(10), e1001325. <https://doi.org/10.1371/journal.pmed.1001325>
- Analysis and Advocacy Project & Thai Working Group on HIV/AIDS Projections. (2008). *The Asian Epidemic Model (AEM) projections for HIV/AIDS in Thailand: 2005–2025*. Resource document. <https://www.aidsdatahub.org/sites/default/files/resource/aem-projections-hiv-aids-thailand-2005-2025.pdf>. Accessed 19 Jan 2021.

- Anand, T., Nitpolprasert, C., Kerr, S. J., Muessig, K. E., Promthong, S., Chomchey, N., et al. (2017). A qualitative study of Thai HIV-positive young men who have sex with men and transgender women demonstrates the need for eHealth interventions to optimize the HIV care continuum. *AIDS Care*, 29(7), 870–875. <https://doi.org/10.1080/09540121.2017.1286288>
- Anderson, J. E., & Kanters, S. (2015). Lack of sexual minorities' rights as a barrier to HIV prevention among men who have sex with men and transgender women in Asia: A systematic review. *LGBT Health*, 2(1), 16–26. <https://doi.org/10.1089/lgbt.2014.0024>
- Appenroth, M. N., Davids, J., Feuer, C., Kgositau, T., & Mugo, I. (2021). *No data no more: Manifesto to align HIV prevention research with trans and gender-diverse realities*. AVAC. Resource document. https://www.avac.org/sites/default/files/resource-files/NDNM_Manifesto.pdf. Accessed 1 Feb 2021.
- Arreola, S., Santos, G. M., Beck, J., Sundararaj, M., Wilson, P. A., Hebert, P., Makofane, K., et al. (2015). Sexual stigma, criminalization, investment, and access to HIV services among men who have sex with men worldwide. *AIDS Behavior*, 19(2), 227–234. <https://doi.org/10.1007/s10461-014-0869-x>
- Baral, S., Beyrer, C., & Poteat, T. (2011). Human rights, the law, and HIV among transgender people: Working paper. *Global Commission on HIV and the Law*. <https://hivlawcommission.org/wp-content/uploads/2017/06/Human-Rights-the-Law-and-HIV-among-Transgender-People.pdf>. Accessed 1 Feb 2021.
- Baral, S., Logie, C. H., Grosso, A., Wirtz, A. L., & Beyrer, C. (2013a). Modified social ecological model: A tool to guide the assessment of the risks and risk contexts of HIV epidemics. *BMC Public Health*, 13(1), 482. <https://doi.org/10.1186/1471-2458-13-482>
- Baral, S., Poteat, T., Stromdahl, S., Wirtz, A., Guadamuz, T., & Beyrer, C. (2013b). Worldwide burden of HIV in transgender women: A systematic review and meta-analysis. *The Lancet Infectious Diseases*, 13(3), 214–222. [https://doi.org/10.1016/S1473-3099\(12\)70315-8](https://doi.org/10.1016/S1473-3099(12)70315-8)
- Baral, S., Holland, C., Shannon, K., Logie, C., Semugoma, P., Sithole, B., et al. (2014a). Enhancing benefits or increasing harms: Community responses for HIV among men who have sex with men, transgender women, female sex workers, and people who inject drugs. *Journal of Acquired Immune Deficiency Syndrome*, 66(Suppl), S319–S328. <https://doi.org/10.1097/QAI.0000000000000233>
- Baral, S., Grosso, A., Holland, C., & Papworth, E. (2014b). The epidemiology of HIV among men who have sex with men in countries with generalized HIV epidemics. *Current Opinion in HIV and AIDS*, 9(2), 156–167. <https://doi.org/10.1097/COH.0000000000000037>
- Baral, S., Turner, R. M., Lyons, C. E., Howell, S., Honermann, B., Garner, A., et al. (2018). Population size estimation of gay and bisexual men and other men who have sex with men using social media-based platforms. *JMIR Public Health Surveillance*, 4(1), e15. <https://doi.org/10.2196/publichealth.9321>
- Baral, S., Rao, A., Sullivan, P., Phaswana-Mafuya, N., Diouf, D., Millett, G., et al. (2019). The disconnect between individual-level and population-level HIV prevention benefits of antiretroviral treatment. *The Lancet HIV*, 6(9), e632–e638. [https://doi.org/10.1016/S2352-3018\(19\)30226-7](https://doi.org/10.1016/S2352-3018(19)30226-7)
- Becasen, J. S., Denard, C. L., Mullins, M. M., Higa, D. H., & Sipe, T. A. (2019). Estimating the prevalence of HIV and sexual behaviors among the US transgender population: A systematic review and meta-analysis, 2006–2017. *American Journal of Public Health*, 109(1), e1–e8. <https://doi.org/10.2105/AJPH.2018.304727>
- Bell, A. V., Ompaad, D., & Sherman, S. G. (2006). Sexual and drug risk behaviors among women who have sex with women. *American Journal of Public Health*, 96(6), 1066–1072. <https://doi.org/10.2105/AJPH.2004.061077>
- Beyrer, C. (2014). Pushback: The current wave of anti-homosexuality laws and impacts on health. *PLoS Medicine*, 11(6), e1001658. <https://doi.org/10.1371/journal.pmed.1001658>
- Beyrer, C., Baral, S., van Griensven, F., et al. (2012a). Global epidemiology of HIV infection in men who have sex with men. *The Lancet*, 380(9839), 367–377. [https://doi.org/10.1016/S0140-6736\(12\)60821-6](https://doi.org/10.1016/S0140-6736(12)60821-6)
- Beyrer, C., Sullivan, P. S., Sanchez, J., Dowdy, D., Altman, D., Trapence, G., et al. (2012b). A call to action for comprehensive HIV services for men who have sex with men. *The Lancet*, 380(9839), 424–438. [https://doi.org/10.1016/S0140-6736\(12\)61022-8](https://doi.org/10.1016/S0140-6736(12)61022-8)

- Beyrer, C., Sullvaan, P., Sanchez, J., Baral, S. D., Collins, C., Wirtz, A. L., et al. (2013). The increase in global HIV epidemics in MSM. *AIDS*, 27(17), 2665–2678. <https://doi.org/10.1097/01.aids.0000432449.30239.fe>
- Beyrer, C., Baral, S. D., Collins, C., Richardson, E. T., Sullivan, P. S., Sanchez, S., et al. (2016). The global response to HIV in men who have sex with men. *The Lancet*, 388(10040), 198–206. [https://doi.org/10.1016/S0140-6736\(16\)30781-4](https://doi.org/10.1016/S0140-6736(16)30781-4)
- Bourne, A., Reid, D., Hickson, F., Torres-Rueda, S., Steinberg, P., & Weatherburn, P. (2015). “Chemsex” and harm reduction need among gay men in South London. *International Journal of Drug Policy*, 26(12), 1171–1176. <https://doi.org/10.1016/j.drugpo.2015.07.013>
- Bowleg, L. (2012). The problem with the phrase women and minorities: Intersectionality – An important theoretical framework for public health. *American Journal of Public Health*, 102(7), 1267–1273. <https://doi.org/10.2105/AJPH.2012.300750>
- Brooks, V. R. (1981). *Minority stress and lesbian women*. Lexington Books.
- Brooks, D., Wirtz, A. L., Celentano, D., Beyrer, C., Hailey-Fair, K., & Arrington-Sander, R. (2021). Gaps in science and evidence-based interventions to respond to intimate partner violence among Black gay and bisexual men in the U.S.: A call for an intersectional social justice approach. *Sexuality & Culture*, 25(1), 306–317. <https://doi.org/10.1007/s12119-020-09769-7>
- Busse, D., Yim, I. S., & Campos, B. (2017). Social context matters: Ethnicity, discrimination, and stress reactivity. *Psychoneuroendocrinology*, 83(Supplement C), 187–193. <https://doi.org/10.1016/j.psyneuen.2017.05.025>
- Cahill, S., Taylor, S. W., Elssesser, S. A., Mena, L., Hickson, D., & Mayer, K. H. (2017). Stigma, medical mistrust, and perceived racism may affect PrEP awareness and uptake in Black compared to white gay and bisexual men in Jackson, Mississippi and Boston, Massachusetts. *AIDS Care*, 29(11), 1351–1358. <https://doi.org/10.1080/09540121.2017.1300633>
- Centers for Disease Control and Prevention (CDC). (2018). *HIV and gay and bisexual men*. Resource document. <https://www.cdc.gov/hiv/group/msm/index.html>. Accessed 14 June 2019.
- Central Intelligence Agency. (2021). Thailand map showing major cities as well as parts of surrounding countries and the Gulf of Thailand. *The World Factbook*. Central Intelligence Agency. <https://www.cia.gov/the-world-factbook/>
- Cohen, M. S. (2011). Prevention of HIV-1 infection with early antiretroviral therapy. *New England Journal of Medicine*, 365(6), 493–505. <https://doi.org/10.1056/NEJMoa1105243>
- Colón-López, V., Shiels, M. S., Machin, M., Ortiz, A. P., Strickler, H., Castle, P. E., Pfeiffer, R. M., & Engels, E. A. (2018). Anal cancer risk among people with HIV infection in the United States. *Journal of Clinical Oncology*, 36(1), 68–75. <https://doi.org/10.1200/JCO.2017.74.9291>
- Dicklitch-Nelson, S., Rahman, I., Thompson, S., Buckland, B. Y., & Nguyen, C. (2021). *F&M global barometers: LGBTQ human rights in 2013 countries and regions, 2011–2018*. Resource document. <https://www.fandmglobalbarometers.org/wp-content/uploads/2021/01/2021-FM-Global-Barometers-Annual-Report.pdf>. Accessed 17 Oct 2022.
- Drozd, D. R., Kitahata, M. M., Althoff, K. N., Zhang, J., Gange, S. J., Napravnik, S., Burkholder, G. A., Mathews, W. C., et al. (2017). Increased risk of Myocardial Infarction in HIV-infected individuals in North America compared with the general population. *JAIDS: Journal of Acquired Immune Deficiency Syndromes*, 75(5), 568–576. <https://doi.org/10.1097/QAI.0000000000001450>
- Eaton, L. A., Driffin, D. D., Bauermeister, J., Smith, H., & Conway-Washington, C. (2015). Minimal awareness and stalled uptake of pre-exposure prophylaxis (PrEP) among at risk, HIV-negative, Black men who have sex with men. *AIDS Patient Care and STDs*, 29(8), 423–429. <https://doi.org/10.1098/apc.2014.0303>
- Epel, E. S., Blackburn, E. H., Lin, J., Dhabhar, F. S., Adler, N. E., Morrow, J. D., & Cawthon, R. M. (2004). Accelerated telomere shortening in response to live stress. *Proceedings of the National Academy of Sciences*, 101(49), 17312–18315.
- Fonner, V. A., Dalglis, S. L., Kennedy, C. E., Baggaley, R., O’Reilly, K. R., Koechlin, F. M., Rodolph, M., Hodges-Mameletzis, I., & Grant, R. M. (2016). Effectiveness and safety of oral HIV preexposure prophylaxis for all population. *AIDS*, 30(12), 1973–1983. <https://doi.org/10.1097/QAD.0000000000001145>

- Gallo, L. C., Roesch, S. C., Fortmann, A. L., Carnethon, M. R., Penedo, F. J., et al. (2014). Association of chronic stress burden, perceived stress, and traumatic stress with cardiovascular disease prevalence and risk factors in the Hispanic Community Health Study/Study of Latinos Sociocultural Ancillary Study. *Psychosomatic Medicine*, 76(6), 468–475. <https://doi.org/10.1097/PSY.000000000000069>
- Gamarel, K. E., Reisner, S. L., Darbes, L. A., Hoff, C. C., Chakravarty, D., Nemoto, T., & Operario, D. (2016). Dyadic dynamics of HIV risk among transgender women and their primary male sexual partners: The role of sexual agreement types and motivations. *AIDS Care*, 28(1), 104–111. <https://doi.org/10.1080/09540121.2015.1069788>
- Gamarel, K. E., Sevelius, J. M., Reisner, S. L., Richardson, R. L., Darbes, L. A., Nemoto, T., & Operario, D. (2020a). Relationship stigma and HIV risk behavior among cisgender men partnered with transgender women: The moderating role of sexual identity. *Archives of Sexual Behaviors*, 49(1), 175–184. <https://doi.org/10.1007/s10508-019-1446-1>
- Gamarel, K. E., Sevelius, J. M., Neilands, T. B., Kaplan, R. L., Johnson, M. O., Nemoto, T., Darbes, L. A., & Operario, D. (2020b). Couples-based approach to HIV prevention for transgender women and their partners: Study protocol for a randomized controlled trial testing the efficacy of the “It Takes Two” intervention. *BMJ Open*, 10(10), e038723. <https://doi.org/10.1136/bmjopen-2020-038723>
- Geibel, S., King’ola, N., Temmerman, M., & Luchters, S. (2012). The impact of peer outreach on HIV knowledge and prevention behaviors of male sex workers in Mombasa, Kenya. *Sexual Transmitted Infections*, 88(5), 357–362. <https://doi.org/10.1136/sextrans-2011-050224>
- German, D., & Latkin, C. A. (2015). HIV risk, health, and social characteristics of sexual minority female injection drug users in Baltimore. *AIDS Behavior*, 19(7), 1361–1365. <https://doi.org/10.1007/s10461-014-0972>
- Glick, J. L., & Adrinopoulous, K. (2019). *Sexual orientation and gender identity measures for global survey research: A primer for improving data quality*. MEASURE Evaluation, University of North Carolina.
- Glick, J. L., Theall, K., Andrinopoulos, K., & Kendall, C. (2018). For data’s sake: Dilemmas in the measurement of gender minorities. *Culture, Health & Sexuality*, 20(12), 1362–1377. <https://doi.org/10.1080/13691058.2018.1437220>
- Glick, J. L., Lim, S., Beckham, S. W., Tomko, C., Park, J. N., & Sherman, S. G. (2020). Structural vulnerabilities and HIV risk among sexual minority female sex workers (SM-FSW) by identity and behavior in Baltimore, MD. *Harm Reduction Journal*, 17(1), 43. <https://doi.org/10.1186/s12954-020-00383-2>
- Gosiker, B. J., Lesko, C. R., Rich, A. J., Crane, H. M., Kitahata, M. M., et al. (2020). Cardiovascular disease risk among transgender women living with HIV in the United States. *PLoS One*, 15(7), e0236177. <https://doi.org/10.1371/journal.pone.0236177>
- Goulet, J. L., Fultz, S. L., Rimland, D., Butt, A., Gibert, C., Rodriguez-Barradas, M., Bryant, K., & Justice, A. C. (2007). Do patterns of comorbidity vary by HIV status, age, and HIV severity? *Clinical Infectious Diseases*, 45(12), 1593–1601. <https://doi.org/10.1086/523577>
- Grant, R. M., Lama, J. R., Anderson, P. L., McMahan, V., Liu, Y., Vargas, L., Goicochea, P., Casapia, M., Guanira-Carranza, J. V., & Ramirez-Cardich, M. E. (2010). Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *New England Journal of Medicine*, 363(27), 2587–2599. <https://doi.org/10.1056/NEJMoa1011205>
- Green, C. A., Duan, N., Gibbons, R. D., Hoagwood, K. E., Palinkas, L. A., & Wisdom, J. P. (2015). Approaches to mixed methods dissemination and implementation research: Methods, strengths, caveats, and opportunities. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 508–523. [1007/s10488-014-0552-6](https://doi.org/10.1007/s10488-014-0552-6).
- Grov, C., Westmoreland, D. A., Carneiro, P. B., Stief, M., MacCrate, C., Mirzayi, C., Pantalone, D. W., Patel, V. V., & Nash, D. (2019). Recruiting vulnerable populations to participate in HIV prevention research: Findings from the Together 5000 cohort study. *Annals of Epidemiology*, 35, 4–11. <https://doi.org/10.1016/j.annepidem.2019.05.003>
- Grov, C. M., Stief, D. A., Westmoreland, D. A., MacCrate, C., Mirzayi, C., & Nash, D. (2020). Maximizing response rates to ads for free at-home HIV testing on a men-for-men geosocial

- sexual networking app: Lessons learned and implications for researchers and providers. *Health Education & Behavior*, 47(1), 5–13. <https://doi.org/10.1177/1090198119893692>
- Gruskin, E. P., Greenwood, G. L., Matevia, M., Pollack, L. M., & Bye, L. L. (2007). Disparities in smoking between the lesbian, gay, and bisexual population and the general population in California. *American Journal of Public Health*, 97(8), 1496–1502. <https://doi.org/10.2105/AJPH.2006.090258>
- Hatzenbuehler, M. L., Slopen, N., & McLaughlin, K. A. (2014). Stressful life events, sexual orientation, and cardiometabolic risk among young adults in the United States. *Health Psychology*, 33(10), 1185–1194. <https://doi.org/10.1037/hea0000126>
- Heckathorn, D. D. (1997). Respondent-driven sampling: A new approach to the study of hidden population. *Social Problems*, 44(2), 174–199. <https://doi.org/10.2307/3096941>
- Hendricks, M. L., & Testa, R. (2012). A conceptual framework for clinical work with transgender and gender nonconforming clients: An adaptation of the Minority Stress Model. *Professional Psychology: Research and Practice*, 43(5), 460–467. <https://doi.org/10.1037/a0029597>
- Hiransuthikul, A., Janamnuaysook, R., Himmad, K., Kerr, S. J., Thammajarak, N., Pankam, T., Phanjaroen, K., Mills, S., Vannakit, R., et al. (2019). Drug-drug interactions between feminizing hormone therapy and pre-exposure prophylaxis among transgender women: The iFACT study. *Journal of the International AIDS Society*, 22(7), e25338. <https://doi.org/10.1002/jia2.25338>
- HIV Prevention Trials Network (HPTN). (2020). *HPTN 084 study demonstrates superiority of CB LA to oral FTC/TDF for the prevention of HIV*. HPTN. Press release. <https://www.hptn.org/news-and-events/press-releases/hptn-084-study-demonstrates-superiority-of-cab-la-to-oral-tdf-for>. Accessed 17 Nov 2022.
- Hogg, R. S., Heath, K. V., Yip, B., Craib, K. J., O’Shaughnessy, M. V., Schechter, M. T., & Montaner, J. S. (1998). Improved survival among HIV-infected individuals following initiation of antiretroviral therapy. *Journal of the American Medical Association*, 279(6), 450–454. <https://doi.org/10.1001/jama.279.6.450>
- Hwang, S. J. (2009). The health of lesbian, gay, bisexual, transgender, queer, and questioning people. In *Asian American communities and health: Context, research, policy, and action*. Jossey-Bass Publishers.
- Hwang, S. J. (2011). The western “lesbian” agenda and the appropriation of non-western trans-masculine people. In *Gender and the science of difference: Cultural politics of contemporary science and medicine*. Rutgers University Press.
- Hwang, S. J. (2018). Qualitative description of sex work among transwomen in New York City. In *Transgender sex work and society*. Harrington Park Press.
- Hwang, S. J., & Nuttbrock, L. (2007). Sex workers, fem queens, and cross-dressers: Differential marginalizations and HIV vulnerabilities among three ethnocultural male-to-female transgender communities in New York City. *Sexuality Research & Social Policy*, 4(4), 36–59. <https://doi.org/10.1525/srsp.2007.4.4.36>
- Hwang, S. J., & Nuttbrock, L. (2014). Adolescent gender-related abuse, androphilia, and HIV risk among transfeminine people of color in New York City. *Journal of Homosexuality*, 61(5), 691–713. <https://doi.org/10.1080/00918369.2014.870439>
- Hwang, S. J., Allen, B., Zadoretzky, C., Barber, H., McKnight, C., & Des Jarlais, D. (2019). Alternative kinship structures, resilience, and social support among immigrant trans Latinas in the USA. *Culture, Health & Sexuality*, 21(1), 1–15. <https://doi.org/10.1080/13691058.2018.1440323>
- Hwang, S. J., Allen, B., Zadoretzky, C., Barber Doucet, H., McKnight, C., & Des Jarlais, D. (2021). Thick trust, thin trust, social capital, and health outcomes among trans women of color in New York City. *International Journal of Transgender Health*, 23(1–2), 214–231. <https://doi.org/10.1080/26895269.2021.1889427>
- Hylton, E., Wirtz, A. L., Zelaya, C. E., Latkin, C., Peryshkina, A., Mogilnyi, V., et al. (2017). Sexual identity, stigma, and depression: The role of the “Anti-Gay Propaganda Law” in mental health among men who have sex with men in Moscow, Russia. *Journal of Urban Health*, 94(3), 319–329. <https://doi.org/10.1007/s11524-017-0133-6>

- ILGA World. (2020). *State-sponsored homophobia 2020: Global legislation overview update*. Resource document. https://ilga.org/downloads/ILGA_World_State_Sponsored_Homophobia_report_global_legislation_overview_update_December_2020.pdf. <https://ilga.org/maps-sexual-orientation-laws>. Accessed 17 Nov 2022.
- Jackson, J. S., Knight, K. M., & Rafferty, J. A. (2010). Race and unhealthy behaviors: Chronic stress, the HPA axis, and physical and mental health disparities over the life course. *American Journal of Public Health, 100*(5), 933–939. <https://doi.org/10.2105/AJPH.2008.143446>
- Khawcharoenporn, T., et al. (2019). HIV risk, risk perception and uptake of HIV testing and counseling among youth men who have sex with men attending a gay sauna. *AIDS Research and Therapy, 16*(1), 13. <https://doi.org/10.1186/s12981-019-0229-z>
- Landovitz, R. J., Kofron, R., & McCauley, M. (2016). The promise and pitfalls of long-acting injectable agents for HIV prevention. *Current Opinions on HIV/AIDS, 11*(1), 122–128. <https://doi.org/10.1097/COH.0000000000000219>
- Landovitz, R. J., et al. (2021). Cabotegravir for HIV prevention in cisgender men and transgender women. *New England Journal of Medicine, 385*(7), 595–608. <https://doi.org/10.1056/NEJMoa2101016>
- Latkin, C. A., Donnell, D., Metzger, D., Sherman, S., Aramrattna, A., Davis-Vogel, A. A., Quan, V. M., Gandham, S., Vongchak, T., Perdue, T., & Celentano, D. D. (2009). The efficacy of a network intervention to reduce HIV risk behaviors among drug users and risk partners in Chiang Mai, Thailand and Philadelphia, USA. *Social Science & Medicine, 68*(4), 740–748. <https://doi.org/10.1016/j.socscimed.2008.11.019>
- Latkin, C., Yang, C., Tobin, K., Roebuck, G., Spikes, P., & Patterson, J. (2012). Social network predictors of disclosure of MSM behavior and HIV-positive serostatus among African American MSM in Baltimore, Maryland. *AIDS Behavior, 16*(3), 535–542. <https://doi.org/10.1007/s10461-011-0014-z>
- Lewis, F., Hughed, G. J., Rambaut, A., Pozniak, A., & Brown, A. J. (2008). Episodic sexual transmission of HIV revealed by molecular phylodynamic. *PLoS Medicine, 5*(3), e50. <https://doi.org/10.1371/journal.pmed.0050050>
- Logie, C. H., Dias, L. V., Jenkinson, J., et al. (2019). Exploring the potential of participatory theatre to reduce stigma and promote health equity for lesbian, gay, bisexual, and transgender (LGBT) people in Swaziland and Lesotho. *Health Education and Behavior, 46*(1), 146–156. <https://doi.org/10.1177/1090198118760682>
- Lucas, T., Wegner, R., Pierce, J., Lunley, M. A., Laurent, H. K., & Granger, D. A. (2017). Perceived discrimination, racial identity, and multisystem stress response to social evaluative threat among African American men and women. *Psychosomatic Medicine, 79*(3), 293–305. <https://doi.org/10.1097/PSY.0000000000000406>
- Lyons, C. E., Olawore, O., Turpin, G., Coly, K., Ketende, S., Liestman, B., Ba, I., et al. (2020). Intersectional stigmas and HIV-related outcomes among a cohort of key populations enrolled in stigma mitigation interventions in Senegal. *AIDS, 34*(1), S63–S71. <https://doi.org/10.1097/QAD.0000000000002641>
- Magnani, R., Sabin, K., Saidel, T., & Heckathorn, D. (2005). Review of sampling hard-to-reach and hidden populations for HIV surveillance. *AIDS, 19*(2), S67–S72. <https://doi.org/10.1097/01.aids.0000172879.20628.e1>
- Malekinejad, M., Johnston, L. G., Kendall, C., Kerr, L. R., Rifkin, M. R., & Rutherford, G. W. (2008). Using respondent-driven sampling methodology for HIV biological and behavioral surveillance in international settings: A systematic review. *AIDS and Behavior, 12*(1), 105–130. <https://doi.org/10.1007/s10461-008-9421-1>
- Marshall, B. D., Shannon, K., Kerr, T., Zhang, R., & Wood, E. (2010). Survival sex work and increased HIV risk among sexual minority street-involved youth. *Journal of Acquired Immune Deficiency Syndrome, 53*(5), 661–664. <https://doi.org/10.1097/QAI.0b013e3181c300d7>
- Mattson, G. (2019). Are gay bars closing? Using business listings to infer rates of gay bar closure in the United States, 1977–2019. *Socius: Sociological Research for a Dynamic World, 5*. <https://doi.org/10.1177/2378023119894832>

- McCabe, S. E., Hughes, T. L., Bostwick, W. B., West, B. T., & Boyd, C. J. (2009). Sexual orientation, substance use behaviors and substance dependence in the United States. *Addiction, 104*(8), 1333–1345. <https://doi.org/10.1111/j.1360-0443.2009.02596.x>
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129*(5), 674–697. <https://doi.org/10.1037/0033-2909.129.5.674>
- Mishra, S., & Baral, S. D. (2019). Rethinking the population attributable fraction for infectious diseases. *The Lancet Infectious Diseases, 20*(2), 155–157. [https://doi.org/10.1016/S1473-3099\(19\)3-618-8](https://doi.org/10.1016/S1473-3099(19)3-618-8)
- Molina, J., Charreau, I., Spire, B., Cotte, L., Pialoux, G., Capitant, C., Tremblay, C., Rojas-Castro, D., & Meyer, L. (2015). On demand PrEP with oral TDF-FTC in the open-label phase of the ANRS IPERGAY trial. *New England Journal of Medicine, 373*(23), 2237–2246.
- Molina, J., Charreau, I., Spire, B., Cotte, L., Chas, J., Capitant, C., Tremblay, C., Rojas-Castro, D., Cua, E., & Pasquet, A. (2017). Efficacy, safety, and effect on sexual behavior of on-demand pre-exposure prophylaxis for HIV in men who have sex with men: An observational cohort study. *The Lancet HIV, 4*(9), e402–e410. [https://doi.org/10.1016/S2352-2018\(17\)30089-9](https://doi.org/10.1016/S2352-2018(17)30089-9)
- Morris, R. C. (1994). Three sexes and four sexualities: Redressing the discourses on gender and sexuality in contemporary Thailand. *Positions-East Asia Cultures Critique, 2*, 15–43. <https://doi.org/10.1215/10579847-2-1-15>
- Mujugira, A. (2020). *Transgender men and HIV in Uganda: PrEP uptake and persistence*. https://reporter.nih.gov/search/q5KPS_7bxk-UXS_Vj3n6FQ/project-details/10092257. Accessed 23 Nov 2021.
- Mumtaz, G., Hilmi, N., McFarland, W., Kaplan, R. L., Akala, F. A., Semini, I., Riedner, G., Tawil, O., Wilson, D., & Abu-Raddad, L. J. (2010). Are HIV epidemics among men who have sex with men emerging in the Middle East and North Africa? A systematic review and data synthesis. *PLoS Medicine, 8*(8), e1000444. <https://doi.org/10.1371/journal.pmed.1000444>
- Muraguri, N., Temmermaan, M., & Geibel, S. (2012). A decade of research involving men who have sex with men in sub-Saharan Africa: Current knowledge and future directions. *SAHARA-J: Journal of Social Aspects of HIV/AIDS, 9*(3), 137–147. <https://doi.org/10.1080/017290376.2012.744176>
- Murphy, E. C., Segura, E. R., Lake, J. E., Huerta, L., Perez-Brumer, A. G., Mayer, K. H., Reisner, S. L., Lama, J. R., & Clark, J. L. (2019). Intimate partner violence against transgender women: Prevalence and correlates in Lima, Peru (2016–2018). *AIDS Behavior, 24*(6), 1743–1751. <https://doi.org/10.1007/s10461-019-02728-w>
- Nuttbrock, L. A., & Hwahng, S. J. (2017). Ethnicity, sex work, and incident HIV/STI among transgender women in New York City: A three-year prospective study. *AIDS Behavior, 21*(12), 3328–3335. <https://doi.org/10.1007/s10461-016-1509-4>
- Nuttbrock, L. A., & Hwahng, S. J. (2018). Why are so many transwomen in the sex trade, and why are so many of them ethnic minorities? In L. Nuttbrock (Ed.), *Transgender sex work and society* (pp. 34–46). Harrington Park Press.
- Oldenburg, C. E., Le, B., Huyen, H. T., Thien, D. D., Quan, N. H., Biello, K. B., Nunn, A., Chan, P. A., Mayer, K. H., Mimiaga, M. J., & Colby, D. (2016). Antiretroviral pre-exposure prophylaxis preferences among men who have sex with men in Vietnam: Results from a nationwide cross-sectional survey. *Sexual Health, 13*(5). <https://doi.org/10.1071/SH15144>
- Ompad, D. C., Friedman, S. R., Hwahng, S. J., Nandi, V., Fuller, C. M., & Vlahov, D. (2011). HIV risk behaviors among young drug using women who have sex with women (WSWs) in New York City. *Substance Use & Misuse, 46*(2–3), 274–284. <https://doi.org/10.3109/10826084.2011.523284>
- Onen, N. F., & Turner Overton, E. (2011). A review of premature frailty in HIV-infected persons: Another manifestation of HIV-related accelerated aging. *Current Aging Science, 4*(1), 33–41. <https://doi.org/10.2174/1874609811104010033>
- Operario, D., Gaamarel, K. E., Iwamoto, M., Suzuki, S., Suico, S., Darbes, L., & Nemoto, T. (2017). Couples-focused prevention program to reduce HIV risk among transgender women

- and their primary male partners: Feasibility and promise of the couples HIV intervention program. *AIDS Behavior*, 21(8), 2452–2463. <https://doi.org/10.1007/s10461-016-1462-2>
- Palella, F. J., Delaney, K. M., Moorman, A. C., Loveless, M. O., Fuhrer, J., Satten, G. A., Aschman, D. J., & Holmberg, S. D. (1998). Declining morbidity and mortality among patients with advanced human immunodeficiency virus infection. *New England Journal of Medicine*, 338(13), 853–860. <https://doi.org/10.1056/NEJM199803263381301>
- Patel, S., Cuneo, C. N., Power, J. R., & Beyrer, C. (2020). Topics in global LGBTQ health. In *The equal curriculum*. Springer. https://doi.org/10.1007/978-3-030-24025-7_14
- Pathai, S., Bajillan, H., Landay, A. L., & High, K. P. (2014). Is HIV a model of accelerated or accentuated aging? *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 69(7), 833–842. <https://doi.org/10.1093/gerona/git168>
- Paz-Bailey, G., Miller, W., Shiraiishi, R. W., Jacobson, J. O., Abimbola, T. O., & Chen, S. Y. (2014). Reaching men who have sex with men: A comparison of respondent-driven sampling and time-location sampling in Guatemala City. *AIDS and Behavior*, 17(9), 3081–3090. <https://doi.org/10.1007/s10461-013-0589-7>
- Peitzmeier, S. M., Malik, M., Kattari, S. K., Marrow, E., Stephenson, R., Agénor, M., & Reisner, S. L. (2020). Intimate partner violence in transgender populations: Systematic review and meta-analysis of prevalence and correlates. *American Journal of Public Health*, 110, e1–e14. <https://doi.org/10.2105/AJPH.2020.305774>
- Poteat, T., Scheim, A., Xavier, J., Reisner, S., & Baral, S. (2016). Global epidemiology of HIV infection and related syndemics affecting transgender people. *Journal of Acquired Immune Deficiency Syndrome*, 72(3), S210–S219. <https://doi.org/10.1097/QAI.0000000000001087>
- Poteat, T., Ackerman, B., Diouf, D., Ceesay, N., Mothopeng, T., Odette, K. Z., Kouanda, S., Ouedraogo, H. G., et al. (2017a). HIV prevalence and behavioral and psychosocial factors among transgender women and cisgender men who have sex with men in 8 African countries: A cross-sectional analysis. *PLoS Medicine*, 14(11), e1002422. <https://doi.org/10.1371/journal.pmed.1002422>
- Poteat, T., Malik, M., Scheim, A., & Elliott, A. (2017b). HIV prevention among transgender populations: Knowledge gaps and evidence for action. *Current HIV/AIDS Reports*, 14, 141–152. <https://doi.org/10.1007/s11904-017-0360-1>
- Poteat, T., Wirtz, A. L., & Reisner, S. (2019). Strategies for engaging transgender populations in HIV prevention and care. *Current Opinions on HIV/AIDS*, 14(5), 393–400. <https://doi.org/10.1097/COH.0000000000000563>
- Poteat, T., Cooney, E., Malik, M., Restar, A., Dangerfield, D. T., & White, J. (2021). HIV prevention among cisgender men who have sex with transgender women. *AIDS and Behavior*, 25(8), 2325–2335. <https://doi.org/10.1007/s10461-021-03194-z>
- Pyra, M., Weber, K., Wilson, T. E., Cohen, J., Murchison, L., Gopaaraju, L., & Cohen, M. H. (2014). Sexual minority status and violence among HIV infected and at-risk women. *Journal of General Internal Medicine*, 29(8), 1131–1138. <https://doi.org/10.1007/s11606-014-2832-y>
- Radix, A., Sevelius, J., & Deutsch, M. B. (2016). Transgender women, hormonal therapy, and HIV treatment: A comprehensive review of the literature and recommendations for best practices. *Journal of the International AIDS Society*, 19(3), 20810. <https://doi.org/10.7448/IAS.19.3.20810>
- Reisner, S., Chaudry, A., Cooney, E., Garrison-Desany, H., Juarez-Chavez, E., & Wirtz, A. (2016a). “It all dials back to safety”: A qualitative study of social and economic vulnerabilities among transgender women participating in HIV research in the USA. *BMJ Open*, 10(1), e029852. <https://doi.org/10.1136/bmjopen-2019-029852>
- Reisner, S., Poteat, T., Keatley, J., Cabral, M., Mothopeng, T., Dunham, E., Holland, C., Max, R., & Baral, S. (2016b). Global health burden and needs of transgender populations: A review. *The Lancet*, 388(10042), 412–436. [https://doi.org/10.1016/S0140-6736\(16\)00684-X](https://doi.org/10.1016/S0140-6736(16)00684-X)
- Reisner, S. L., Moore, C. S., Asquith, A., Pardee, D. J., Sarvet, A., Mayer, G., & Mayer, K. H. (2019). High risk and low uptake of pre-exposure prophylaxis to prevent HIV acquisition in a national online sample of transgender men who have sex with men in the United States. *Journal of the International AIDS Society*, 22(9), e25391. <https://doi.org/10.1002/jia2.25391>

- Reisner, S. L., Moore, C. S., Asquith, A., Pardee, D. J., & Mayer, K. H. (2021). The pre-exposure prophylaxis cascade in at-risk transgender men who have sex with men in the United States. *LGBT Health*, 8(2), 116–124. <https://doi.org/10.1089/lgbt.2020.0232>
- Rich, A. J., Scheim, A. I., Koehoorn, M., & Poteat, T. (2020). Non-HIV chronic disease burden among transgender populations globally: A systematic review and narrative synthesis. *Preventive Medicine Reports*, 20, 101259. <https://doi.org/10.1016/j.pmedr.2020.101259>
- Rodger, A. J., et al. (2019). Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (PARTNER): Final results of a multicenter, prospective, observational study. *The Lancet*, 393(10189), 2428–2438. [https://doi.org/10.1016/S0140-6736\(19\)30418-0](https://doi.org/10.1016/S0140-6736(19)30418-0)
- Rolle, C. P., Rosenberg, E. S., Siegler, A. J., Sanchez, T. H., Luisi, N., et al. (2017). Challenges in translating PrEP interest into uptake in an observational study of young Black MSM. *Journal of Acquired Immune Deficiency Syndrome*, 76(3), 250–258. <https://doi.org/10.1087/QAI.0000000000001497>
- Salganik, M. J., & Heckathorn, D. D. (2004). Sampling and estimation in hidden populations using respondent-driven sampling. *Sociological Methodology*, 34(1), 194–240. <https://doi.org/10.1111/j.0081-1750.2004.00152.x>
- Samuel, K. (2021). *Two Thai clinics provide exemplary models of trans-centered care, researchers say*. AIDS Map. <https://www.aidsmap.com/news/aug-2021/two-thai-clinics-provide-exemplary-models-trans-centred-care-researchers-say>. Accessed 30 Nov 2021.
- Sapisrisavat, V., Phanuphak, N., Sophonphan, J., Egan, J. E., Langevattana, K., et al. (2016). Differences between men who have sex with men (MSM) with low CD4 cell counts at their first HIV test and MSM with higher CD4 counts in Bangkok, Thailand. *AIDS and Behavior*, 20(3), 398–407. <https://doi.org/10.1007/s10461-016-1456-0>
- Scheim, A. (2021). *Gendered situated vulnerabilities and mental health among transgender men in India*. NIH. https://reporter.nih.gov/search/QCT_LSIT3UqjTvZzGc5bog/project-details/10108738#similar-Projects. Accessed 23 Nov 2021.
- Scheim, A. I., Bauer, G. R., & Travers, R. (2017). HIV-related sexual risk among transgender men who are gay, bisexual, or have sex with men. *Journal of Acquired Immune Deficiency Syndrome*, 74(4), e89–e96. <https://doi.org/10.1097/QAI.0000000000001222>
- Schwartz, S., Rao, A., Rucinski, K., Lyons, C. E., Viswasam, N., Comins, C., Olawore, O., & Baral, S. (2019). HIV-related implementation research for key populations: Designing for individuals, evaluating across populations, and integrating context. *Journal of Acquired Immune Deficiency Syndrome*, 82(3), S206–S216. <https://doi.org/10.1097/QAI.0000000000002191>
- Seekaew, P., Pengnonyang, S., Jantarapakde, J., Sungsing, T., et al. (2018). Characteristics and HIV epidemiologic profiles of men who have sex with men and transgender women in key population-led test and treat cohorts in Thailand. *PLoS One*, 13(8), e0203294. <https://doi.org/10.1371/journal.pone.0203294>
- Seekaew, P., et al. (2019). Discordance between self-perceived and actual risk of HIV infection among men who have sex with men and transgender women in Thailand: A cross-sectional assessment. *Journal of the International AIDS Society*, 22(12), e25430. <https://doi.org/10.1002/jia2.25430>
- Sekoni, A. O., Jolly, K., & Gale, N. K. (2020). Hidden healthcare populations: Using intersectionality to theorize the experiences of LGBT+ people in Nigeria, Africa. *Global Public Health*, 17(1), 134–149. <https://doi.org/10.1080/17441692.2020.1849351>
- Singer, M. (2009). *Introduction to syndemics: A critical systems approach to public and community health*. Jossey-Bass.
- Singh, A. A., Hwang, S., Chang, S. C., & White, B. (2017). *Affirmative counselling with trans/gender-variant people of color*. American Psychological Association.
- Sinnott, M. J. (2004). *Toms and Dees: Transgender identity and female same-sex relationships in Thailand*. University of Hawai'i Press.
- Siraprasasiri, T., Ongwangdee, S., Benjarattanaporn, P., Peerapatanapokin, W., & Sharma, M. (2016). The impact of Thailand's public health response to the HIV epidemic 1984–2015: Understanding the ingredients of success. *Journal of Virus Eradication*, 2(4), 7–14.

- Streed, C. G., Harfouch, O., Marvel, F., Blumenthal, R. S., Martin, S. S., & Mukherjee, M. (2017). Cardiovascular disease among transgender adults receiving hormone therapy: A narrative review. *Annals of Internal Medicine*, 167(4), 256–267. <https://doi.org/10.7326/M17-0577>
- Tam, A., Ho, J., & Sohn, A. H. (2014). Challenges of providing treatment and care to men who have sex with men and with HIV/AIDS in Bangkok. *Asian Biomedicine*, 8(6), 785–792. <https://doi.org/10.5372/1905-7415.0806.358>
- Tanser, F., de Oliveira, T., Maheu-Giroux, M., & Barnighausen, T. (2014). Concentrated HIV sub epidemics in generalized epidemic settings. *Current Opinions on HIV/AIDS*, 9(2), 115–125. <https://doi.org/10.1097/COH.0000000000000034>
- Tanzania Ministry of Health & Gender, Elderly and Children. (2017). Statement by the Minister for Health, Community Development, Gender, Elderly, and Children, Honorable Umy Ally Mwalinu regarding HIV and AIDS service delivery to key and vulnerable population groups and its implementation. Dar es Salaam, Tanzania; Ministry of Health, Community Development, Gender, Elderly, and Children.
- Tat, S. A., Marazzo, J. M., & Graham, S. M. (2015). Women who have sex with women living in low- and middle-income countries: A systematic review of sexual health and risk behaviors. *LGBT. Health*, 2(2), 91–104. <https://doi.org/10.1089/lgbt.2014.0124>
- Thailand National AIDS Committee. Thailand National Operational Plan Accelerating Ending AIDS, 2015–2019. (2014). Bangkok, Thailand: National AIDS Management Center, Department of Disease Control, Ministry of Public Health.
- Thai Red Cross AIDS Research Centre & FIH 360. (2018). *Differentiated HIV-service delivery along the cascade for men who have sex with men and transgender women in Thailand: Lessons learned from linkages project*. Resource document. <https://www.aidsdatahub.org/resource/differentiated-hiv-service-delivery-along-cascade-men-who-have-sex-men-and-transgender>. Accessed 17 Nov 2022.
- Toledo, C. A., Varangrat, A., Wimolsate, W., Chemnasiri, T., et al. (2010). Examining HIV infection among male sex workers in Bangkok, Thailand: A comparison of participants recruited at entertainment and street venues. *AIDS Education and Prevention*, 22(4), 299–311. <https://doi.org/10.1521/aeap.2010.22.4.229>
- UNAIDS. (2017). *Thailand launches new national strategy to end the AIDS epidemic by 2030*. Resource document. https://www.unaids.org/en/resources/presscentre/featurestories/2017/sep-tember/20170915_Thailand_NSP. Accessed 15 Sept 2017.
- UNAIDS. (2018). *Thailand*. Resource document. <https://www.unaids.org/en/regionscountries/countries/thailand>. Accessed 17 Sept 2022.
- UNAIDS. (2020). *Thailand: Country factsheet 2020*. <https://www.unaids.org/en/regionscountries/countries/thailand>. Accessed 19 Oct 2022.
- UNESCO. (2012). *Promoting health-seeking behaviors and quality of care among men who have sex with men and transgender women: Evidence from 5 provinces in Thailand*. Bangkok, Thailand. https://unesdoc.unesco.org/ark:/48223/pf0000217197_eng. Accessed 17 Nov 2022.
- United Nations. (1966). *International covenant on civil and political rights*. https://treaties.un.org/Pages/Treaties.aspx?id=4&subid=A&clang=_en. Accessed 1 Dec 2019.
- Valentine, D. (2007). *Imagining transgender: An ethnography of a category*. Duke University Press.
- Van Griensven, F., Guadamuz, T. E., de Lind van Wijngaarden, J. W., Phanuphak, N., Solomon, S. S., & Lo, Y. R. (2017). Challenges and emerging opportunities for the HIV prevention, treatment, and care cascade in men who have sex with men in Asia Pacific. *Sexually Transmitted Infections*, 93(5), 356–362. <https://doi.org/10.1136/sextrans-2016-052669>
- Visrutaratna, S., Lindan, C. P., Sirhorachai, A., & Mandel, J. S. (1995). “Superstar” and “model brothel”: Developing and evaluating a condom prevention program for sex establishments in Chiang Mai, Thailand. *AIDS*, 9(1), S69–S75.
- Weber, A. E., Boivin, J. F., Blais, L., Haley, N., & Roy, E. (2004). Predictors of initiation into prostitution among female street youths. *Journal of Urban Health*, 81(4), 584–595. <https://doi.org/10.1093/jurban/jth142>

- Wei, C., McFarland, W., Colfax, G. N., Fuqua, V., & Raymong, H. F. (2012). Reaching Black men who have sex with men: A comparison between respondent-driven sampling and time-location sampling. *Sexually Transmitted Infections*, 88(8), 622–666. <https://doi.org/10.1136/sextrans-2012-050619>
- White Hughto, J. M., & Reisner, S. L. (2016). A systematic review of the effects of hormone therapy on psychological functioning and quality of life in transgender individuals. *Transgender Health*, 1(1), 21–31. <https://doi.org/10.1089/trgh.2015.0008>
- Wilson, S. (2017). *Chart showing Thailand's 18 genders challenges the idea that there is only "male" and "female"*. <https://soraneews24.com/2017/01/27/chart-showing-thailands-18-genders-challenges-the-idea-that-there-is-only-male-and-female/>. Accessed 17 Nov 2022.
- Wilson, E. C., Chen, Y. H., Arayasirikul, S., Wenzel, C., & Raymong, H. F. (2015). Connecting the dots: Examining transgender women's utilization of transition-related medical care and associations with mental health, substance use and HIV. *Journal of Urban Health*, 92(1), 182–192. <https://doi.org/10.1007/s11524-014-9921-4>
- Wirtz, A. L., Zellaya, C. E., Peryshkina, A., Latkin, C., Mogilnyi, V., Galai, N., Dyakonov, K., & Beyrer, C. (2014). Social and structural risks for HIV among migrant and immigrant men who have sex with men in Moscow, Russia: Implications for prevention. *AIDS Care*, 26(3), 387–395. <https://doi.org/10.1080/09540121.2013.819407>
- Wirtz, A. L., Poteat, T., Radix, A., Althoff, K. N., Cannon, C. M., Wawrzyniak, A. J., Cooney, E., Mayer, K. H., Beyrer, C., Rodriguez, A. E., & Reisner, S. L. (2019). American cohort to study HIV acquisition among transgender women in high-risk areas (The LITE Study): Protocol for a multisite prospective cohort study in the eastern and southern United States. *JMIR Research Protocols*, 8(10), e14704–e14704. <https://doi.org/10.2196/14704>
- Wirtz, A. L., Poteat, T. C., Malik, M., & Glass, N. (2020). Gender-based violence against transgender people in the United States: A call for research and programming. *Trauma, Violence and Abuse*, 21(2), 227–241. <https://doi.org/10.1177/1524838018757749>
- Wirtz, A., Iyer, J., Brooks, D., Hailey-Fair, K., Galai, N., Beyrer, C., Celentano, D. D., & Arrington-Sanders, R. (2021). An evaluation of assumptions underlying respondent-driven sampling and the social contexts of sexual and gender minority youth participating in HIV clinical trials in the United States. *Journal of the International AIDS Society*, 24(5), e25694. <https://doi.org/10.1002/jia2.25694>
- Wong, C., et al. (2018). Multimorbidity among persons living with human immunodeficiency virus in the United States. *Clinical Infectious Diseases*, 66(8), 1230–1238. <https://doi.org/10.1093/cid/cix998>
- World Health Organization (WHO). (2017). *Consolidated guidelines on HIV prevention, diagnosis, treatment, and care for key population, 2016 update*. World Health Organization.
- Yi, S., Ngim, C., Tuot, S., Chhoun, P., Chhim, S., Pal, K., Mun, P., & Mburu, G. (2017). HIV prevalence, risky behaviors, and discrimination experiences among transgender women in Cambodia: Descriptive findings from a national integrated biological and behavioral survey. *BMC International Health and Human Rights*, 17(1), 14. <https://doi.org/10.1186/s12914-017-0122-6>
- Zahn, R., Grosso, A., Scheibe, A., Bekker, L. G., Ketendde, S., Dausab, F., Ipinge, S., Beyrer, C., Trapance, G., & Baral, S. (2016). Human rights violations among men who have sex with men in Southern Africa: Comparisons between legal contexts. *PLoS One*, 11(1), e0147156. <https://doi.org/10.1371/journal.pone.0147156>
- Zhang, L., Phanuphak, N., Henderson, K., Nonenoy, S., Srikaew, S., et al. (2015). Scaling up of HIV treatment for men who have sex with men in Bangkok: A modelling and costing study. *The Lancet HIV*, 2(5), e200–e207. [https://doi.org/10.1016/S2352-3018\(15\)00020-X](https://doi.org/10.1016/S2352-3018(15)00020-X)

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