HIV in the USA 3

The persistent and evolving HIV epidemic in American men who have sex with men

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Men who have sex with men (MSM) in the USA were the first population to be identified with AIDS and continue to be at very high risk of HIV acquisition. We did a systematic literature search to identify the factors that explain the reasons for the ongoing epidemic in this population, using a social-ecological perspective. Common features of the HIV epidemic in American MSM include role versatility and biological, individual, and social and structural factors. The high-prevalence networks of some racial and ethnic minority men are further concentrated because of assortative mixing, adverse life experiences (including high rates of incarceration), and avoidant behaviour because of negative interactions with the health-care system. Young MSM have additional risks for HIV because their impulse control is less developed and they are less familiar with serostatus and other risk mitigation discussions. They might benefit from prevention efforts that use digital technologies, which they often use to meet partners and obtain health-related information. Older MSM remain at risk of HIV and are the largest population of US residents with chronic HIV, requiring culturally responsive programmes that address longer-term comorbidities. Transgender MSM are an understudied population, but emerging data suggest that some are at great risk of HIV and require specifically tailored information on HIV prevention. In the current era of pre-exposure prophylaxis and the undetectable equals untransmittable campaign, training of health-care providers to create culturally competent programmes for all MSM is crucial, since the use of antiretrovirals is foundational to optimising HIV care and prevention. Effective control of the HIV epidemic among all American MSM will require scaling up programmes that address their common vulnerabilities, but are sufficiently nuanced to address the specific sociocultural, structural, and behavioural issues of diverse subgroups.

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This is the third in a **Series** of six papers about HIV in the USA

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Introduction

US gay men and other men who have sex with men (MSM) were the first population associated with what came to be known as AIDS when the epidemic was initially described in 1981.[1] Since then, close to half a million HIV-positive MSM have died in the USA, and male-to-male anal intercourse remains associated with the largest number of new HIV infections diagnosed annually in the USA.[2] Although the absolute number of incident infections among American MSM has not substantially changed over the past decade, major sociodemographic shifts have occurred. A greater proportion of new cases are detected in MSM who are younger, of colour, poorer, living often in the US South. HIV in American MSM is increasingly affecting the most disenfranchised individuals and under-resourced communities (figure 1). The reasons for the disproportionate HIV burden among MSM are heterogeneous, and include biological factors,[3] internalised stigma leading to behavioural challenges (most commonly, depression),[4] disinhibiting substance use as a means to cope with a non-affirming society,[5] as well as anticipated and experienced mistreatment by health-care providers.[6] For some racial and ethnic minority MSM, assortative mixing (an increased likelihood of choosing sex partners from one's identified subgroup) potentiates HIV risk by increasing the likelihood that any new partner will be selected from a pool with high HIV prevalence.[7] Structural factors, including poverty, racism, and segregation, and challenges in accessing health care exacerbate the disparities in HIV incidence and prevalence between MSM of colour and other MSM.

A unique confluence of biological, sociocultural, epidemiological, and behavioural determinants amplify HIV spread in diverse subgroups of MSM. This Series paper focuses on the multilevel factors that explain the disproportionate HIV epidemic among MSM in the USA. We used a social-ecological model[8] to review how the interactions of persistent and new factors have potentiated one of the most enduring and dense global HIV epidemics, and we assessed recent promising approaches to attenuate ongoing retroviral transmission in US MSM.

Biological and social amplification

The concentrated HIV epidemic among US MSM is a result of interactions of biological, structural, social, and behavioural factors that enhance the risk of HIV acquisition and transmission (panel). Anal intercourse has been particularly important in facilitating HIV spread in MSM, given that colonic mucosa are highly susceptible to HIV acquisition and transmission.[9,10] The efficiency of rectal and urethral HIV transmission is further amplified by common, frequently asymptomatic, rectal and urethral sexually transmitted infections, which can cause inflammation, microbial dysbiosis, or

Key messages

- Men who have sex with men (MSM) in the USA were the first individuals identified with AIDS in 1981, and continue to be the US population with the greatest disease burden and HIV incidence
- The drivers of HIV transmission are diverse, and include social, structural, network, biological, and individual behavioural factors, requiring multifaceted approaches to HIV prevention
- Internalisation of societal homophobia and other stressors experienced by MSM can lead to depression and other behavioural health challenges, including substance use, which are associated with increased sexual risk-taking, decreased engagement in care, and decreased medication adherence, potentiating new transmission cycles
- The demographic and gender diversity of MSM require tailored approaches; the disproportionate HIV epidemic among Black and Latino MSM is potentiated by poverty, racism, and assortative mixing, requiring culturally appropriate engagement
- Younger MSM might be more prone to engage in high-risk behaviours and more amenable to engagement with digital media; older MSM might need specific programmes as peer support could be limited, and the effects of chronic HIV infection might interact with age-associated morbidities; transgender MSM have unique health challenges, ranging from obtaining optimal gender-affirmative care to negotiating sex with cisgender MSM
- In the era of pre-exposure prophylaxis and the undetectable equals untransmittable campaign, health-care professionals can play a unique role in providing supportive and informed care and preventive services for MSM

Search strategy and selection criteria

We searched PubMed and Embase for manuscripts published in English between Jan 1, 2010, and Aug 30, 2019, focusing on the HIV epidemic among cisgender and transgender men who have sex with men in the USA. Search strategies were based on a combination of controlled vocabulary, including medical subject headings (MeSH) and related keywords. We searched for the keywords "men who have sex with men", "gay men", "bisexual men", "transgender men who have sex with men", and related commonly used terms in combination with "HIV" (MeSH), "human immunodeficiency virus" (MeSH), and "United States" or "US". We focused on publications from the past 5 years, but did not exclude commonly referenced and influential older publications. Additional references from seminal articles were reviewed to ensure that important contributions were not inadvertently excluded.

ulcerations that increase the efficiency of HIV transmission or acquisition.[11–13] MSM might engage in specific practices that further increase the risk of HIV transmission, including the use of hypertonic douches before and after intercourse, which could increase asymptomic mucosal inflammation and alter the rectal microbiome. Sexual role versatility in natal men who engage in anal sex with other men might also potentiate HIV spread, because these men can become infected through receptive intercourse (the most efficient way to acquire HIV sexually), and then transmit infection to others when being the insertive partner (the most efficient way to transmit HIV sexually).[14]

The biological amplification of HIV transmission in MSM is further intensified through limited sexual networks, because by definition MSM are having sex with other male partners—a small, concentrated subgroup of the general population.[15,16] The more constrained choice of partner can enhance the likelihood that, for any level of infection present in a community, the risk of transmission from any new sexual partner will be greater for MSM than for their demographically matched male heterosexual counterparts. Because of assortative mixing and low social mobility, the partner pool is often even more constrained for many racial and ethnic minority MSM,[7,17–19] further amplifying efficient HIV spread within these subgroups. Because of the high HIV prevalence among MSM throughout the USA, any new sexual relationship has the potential to confer a substantial risk of HIV acquisitition. In settings where knowledge of partner serostatus might be suboptimal or the couple is not monogamous, a considerable percentage of HIV transmissions occur in the context of primary partnerships.[20] This finding is a consequence of partners not disclosing their HIV status to each other and not undergoing regular HIV testing after contact with external partners (which has been described colloquially as seroguessing). Culturally tailored interventions designed to engage MSM couples to develop mutually acceptable agreements to decrease their risk of HIV transmission within and outside of the primary relationship offer another opportunity for HIV prevention. MSM have also developed venues that can uniquely serve to increase the likelihood of meeting new sexual partners, and which have been linked to HIV transmission. In the digital era, many non-monogamous MSM can meet partners through the internet,[21] although historically dedicated meeting places, such as bars, sex clubs, and bath houses, continue to provide MSM with opportunities to meet multiple partners efficiently. These venues also create opportunities for prevention interventions, including on-site health education, HIV and sexually transmitted infection screening, and triage to clinical services.[22]

Behavioural health syndemics

MSM experience substantially greater levels of substance use and adverse mental health conditions, such as anxiety and depression, than demographically matched heterosexual men.[23,24] A major underlying reason for these disparities stems from the internalisation of societal stigma as a result of growing up in non-affirming environments, leading to minority stress and suboptimal health outcomes in reaction to these adverse experiences.[25] MSM internalise stigma after exposure to culturally ingrained structural inequalities, such as discriminatory legal and social policies, negative community and familial attitudes, and hate crimes, which adversely affect their

mental health.[26] Studies have found that early childhood trauma, including childhood sexual abuse, is common in MSM and has been associated with depression, substance use, and condomless anal sex.[27,28] Day-to-day stigmatising events, ranging from overt discrimination to microaggressions, cumulatively affect mental health in American MSM in a negative way and impede HIV prevention and treatment efforts.[29] The behaviours that increase risk of HIV acquisition and transmission in MSM often occur in the context of intertwined mental health and social–structural synergistic epidemics, termed syndemics.[4,30–33] The effects of syndemic conditions are at least additive—ie, those who experience more conditions are more likely to report condomless anal sex, as well as medication non-adherence.[34] The effects of syndemics on sexual behaviours and HIV-related self-care can be direct (eg, substance use leading to poor self-care, including non-adherence), but can also disrupt psychological processes associated with the ability to enact or maintain health behaviour change (eg, by decreasing self-efficacy, the sense that one is in control of their environment).[35] Thus, prevention efforts focusing on the HIV epidemic in US MSM must address common co-prevalent mental health and structural precipitants in order to get to zero new infections, zero AIDS-related deaths, and zero discrimination.

Substance use potentiation

Multiple studies have found that MSM report higher rates of recreational drug use compared with the general population,[36] with extensive use of stimulants and other party drugs, including 3,4-methylenedioxymethamphetamine (commonly known as MDMA or ecstasy), γ-hydroxybutyric acid (commonly known as GHB), and ketamine.[37] Alcohol abuse is also more common among MSM than among the general population and is linked to condomless anal sex.[38] The high prevalence and clinical importance of drug and alcohol consumption in potentiating the HIV epidemic among US MSM cannot be overstated; substance use increases the likelihood of engaging in behaviours that increase HIV transmission (eg, serodiscordant sex) and decreases the likelihood of adherence to medications.[24] Recent studies suggest that problematic stimulant use has not declined in American MSM over the past decade and is a major driver of HIV transmission, as stimulant users report higher numbers of sexual partners and more condomless anal sex than their non-stimulant using peers.[39–41] Effective treatments for stimulant dependency have been scarce, especially those tailored for MSM. The mainstays of treatment for stimulant use disorder are behavioural modification strategies, such as cognitive behavioural therapy (CBT)[42] and contingency management designed to decrease stimulant use.[43] However, although reductions in substance use and sexual risk accrue almost immediately, these effects are generally not sustained over time. Behavioural activation therapy (BAT), developed to treat depressed mood but applied to other related mental health challenges, has shown promise for HIV risk reduction efforts for MSM with problematic stimulant use.[44] BAT is designed to help MSM learn strategies to re-engage in life by identifying and actively participating in pleasurable, goal-directed activities (eg, exercising).

Diverse pharmacotherapies for stimulant use disorders, designed to alter the effects of these stimulants on the brain's appetitive systems, are also under study. Clinical trials have assessed antidepressants, antipsychotics,

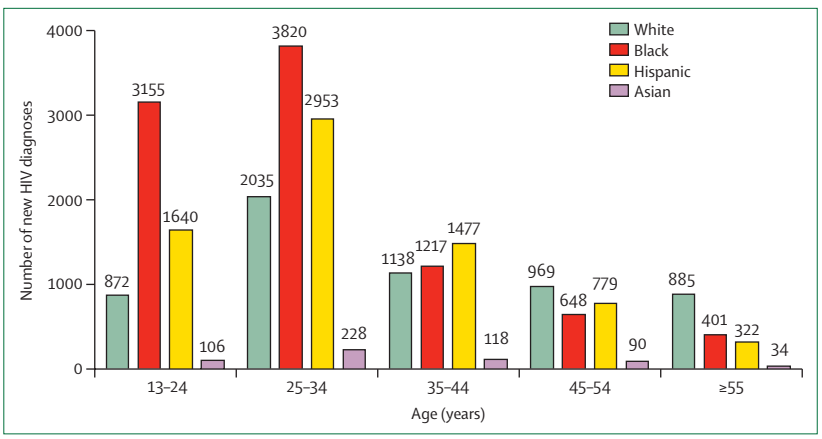

Figure 1: **New HIV diagnoses among gay and bisexual men in the USA by age and race or ethnicity, 2017**
Subpopulations representing 2% or less of HIV diagnoses among gay and bisexual men are not reflected in this chart. Source: US National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention AtlasPlus.[2]

Panel: Multilevel drivers of HIV risk in men who have sex with men in the USA

Biology
- Enhanced efficiency of anal intercourse
- Inflammation and ulceration caused by sexually transmitted infection
- Microbial dysbiosis
- Role versatility (being receptive and insertive)

Individual behaviour
- Depression and other affective disorders
- Substance use
- Avoidant health behaviour
- Condomless sex

Social networks
- Number of partners
- Assortative mixing within high-prevalence subgroups
- Sexualised venues

Structural and institutional factors
- Societal stigma and discrimination
- Health system stigma and discrimination
- Punitive laws and criminalisation
- Poverty
- Violence and victimisation

For more on the **Getting to Zero campaign** see https://www.unaids.org/sites/default/files/sub_landing/files/JC2034_UNAIDS_Strategy_en.pdf

Figure 2: **Social and structural factors that affect HIV prevention outcomes for Black and Latino men who have sex with men**

dopamine agonists, and anticonvulsants.[45–48] Currently, there are no medications approved by the US Food and Drug Administration specifically indicated for the management of stimulant use disorders. Findings from clinical studies have been mixed, although a placebo-controlled trial of mirtazapine plus substance use counselling completed in 2020 showed some efficacy in decreasing amphetamine use and HIV risk-taking behaviours among MSM.[48] However, further research is needed to develop optimally effective pharmacotherapies to address the diverse patterns of stimulant abuse in MSM. Ultimately, approaches that integrate culturally tailored behavioural interventions, such as CBT, contingency management, or BAT with pharmacotherapy, seem to offer the greatest promise. Part of the complexity of scaling up public health responses to the high rates of substance use in MSM is that polypharmacy is common, so interventions would need to be tailored to the diverse patterns of drug and alcohol abuse. Unlike opioid dependency, chronic sustained drug use among MSM might be less common than episodic use (eg, weekend binging), requiring strategies that address the precipitating factors that lead to episodic substance abuse by MSM in the USA.

The concentrated epidemic in Black and Latino MSM

Black and Latino MSM continue to have a disproportionate burden of new HIV infections in the USA.[18,19,49] While HIV incidence has declined among non-Hispanic White MSM and remained stable among non-Hispanic Black MSM, incidence has increased among Latino MSM, particularly among those younger than 35 years. Scaling up antiretroviral therapy (ART) among Black and Latino MSM can help decrease the rates of new HIV infections; however, lower percentages of Black and Latino MSM are on treatment and have achieved viral suppression compared with White MSM. There are also large racial disparities in PrEP usage, with comparatively fewer Black and Latino MSM using pre-exposure prophylaxis (PrEP) than White MSM in the first years of its availability, and continued lower use in relation to the disproportionate rate of new infections occurring among Black and Latino MSM.[50,51] In addition to individual-level motivational and behavioural factors that affect PrEP usage and HIV treatment adherence, there are structural and health system-related factors that generate racial inequities in health outcomes (figure 2). Black MSM are more likely to be poorer and have no health insurance compared with White MSM,[52] and are more likely to be incarcerated than other groups,[53] potentiating a cycle of poverty, limited social mobility, and residence in communities with high levels of undiagnosed and undertreated HIV infections. Racial biases affect clinical decision making and serve as structural barriers to prevention by self-justifying health-care providers' reduced willingness to prescribe PrEP to Black patients and intensifying the stigma experienced by minority MSM when interacting with the US health-care system.[54,55] These biases weaken the ability of PrEP to reduce racial disparities in HIV incidence among MSM.[56] For many Latino MSM, the intersection of racism, xenophobia, homophobia, and HIV stigma in health-care settings impedes full access to culturally and linguistically appropriate clinical prevention and treatment services.[57,58]

As is noted in the first paper in this Series,[59] new infections among Black and Latino men are highest in the South. These regional concentrations reflect geographical and historical sociopolitical climates that undermine access to and full engagement with HIV clinical prevention services. Most states in the South have not enacted Medicaid expansion under the Affordable Care Act, thereby restricting access to medical care for people with low incomes.[60] Communities of Black and Latino MSM have higher rates of unemployment or underemployment, and a greater proportion live in poverty, which places them at risk of financial hardships that hinder access to health insurance. Economic hardships also directly potentiate HIV spread, because they are associated with condomless sex and higher numbers of sexual partners among Black and Latino MSM.[61] The effect of economic hardships on HIV risk in racial and ethnic minority MSM is further complicated by legal hardships that result from their high vulnerability to arrest, conviction, and other adverse interactions with the federal and local correctional justice systems.[62–64] The disproportionate exposure of Black and Latino men to the criminal justice system leads to disenfranchisement that restricts post-incarceration access to resources (eg, housing, employment, food) that are key social determinants of HIV infection.[65]

Although the drivers contributing to HIV disparities in Black and Latino MSM are similar, there are also notable differences. Latino MSM engage in more disassortative partner mixing (ie, non-Latino sex partners), are more likely to report having older sex partners, and engage in condomless anal intercourse more frequently than Black MSM.[17,66] Additionally, the HIV epidemic among Latino MSM is uniquely affected by immigration and a wide

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range of cultural norms,[67] given the different patterns of Latino migration to the USA. The substantial differences in acculturation, and economic and educational status require the development of tailored approaches that address the diverse experiences of Latino MSM.

Young MSM and the next-generation epidemic

New HIV infections in the USA are increasingly concentrated in young MSM, particularly in those who are from racial and ethnic minorities and living in the South.[68] Multiple structural and psychosocial barriers affect engagement of young MSM in HIV care and prevention services, and these need to be adequately addressed to effectively halt this epidemic (figure 3). Young people often lack resources (eg, insurance, finances, transportation) to self-refer to HIV care and prevention services, and might not have disclosed their sexual orientation to parents or other adult guardians, who would become aware of any insurance charges for HIV testing or medication. These conditions limit their ability to access appropriate HIV care and prevention services. Moreover, in many states, particularly in the South, accessing specific screenings and treatment requires parental consent for individuals younger than 18 years old. Additional impediments to care include low rates of HIV testing and serostatus awareness, as well as stigma, distrust, and competing priorities. After diagnosis, many young MSM do not fully engage in medical care or achieve viral suppression.[69] Furthermore, despite the safety and acceptability of PrEP in young people,[70] its uptake in young MSM has been sparse. The success of both ART and PrEP involves sustained and consistent adherence, which poses challenges for young people.

Developmentally, young people often maintain perceptions of invulnerability, might act impulsively, and often do not consider the potential consequences of their actions, including engaging in behaviours that can contribute to HIV acquisition. Absence of support from family, peers, and other adults might compound feelings of isolation, making it harder to establish a comfortable sense of their own sexuality. Receipt of credible, relevant health information, delivered without judgement or bias, is crucial. However, despite being supported by numerous health and medical organisations and backed by scientific evidence, sex education programming varies widely across the USA.[71] As of 2020, sex education is required in less than half of all states and, even when required, it is not necessarily comprehensive or medically accurate. Although 12 states require discussion of sexual orientation, three of these states actually only require provision of negative information (eg, disapproval of same-sex behaviour) about sexual and gender minority health. These three states are all located in the South. Ironically, research supports the effectiveness of comprehensive HIV prevention interventions in improving young people's knowledge and changing attitudes, behaviours, and health-related outcomes.[72]

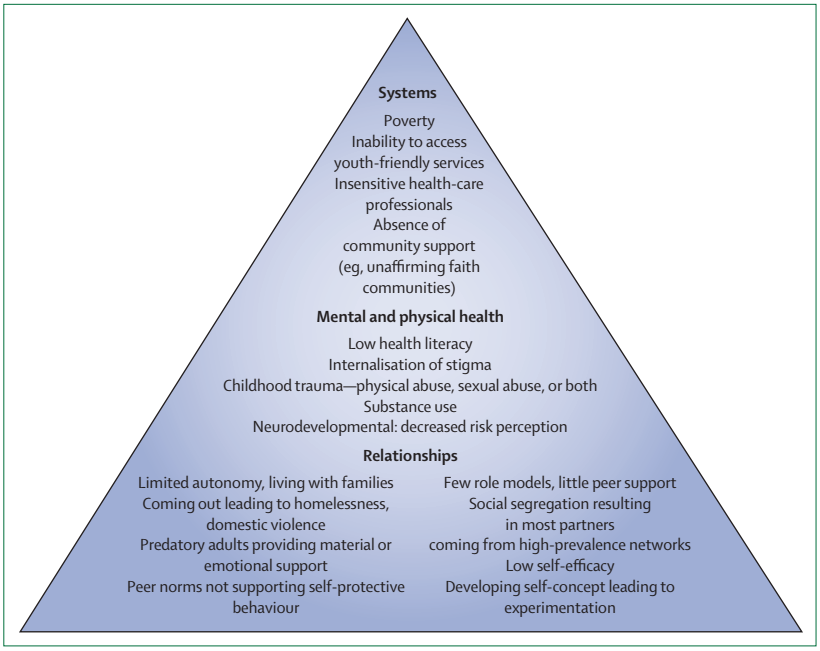

Figure 3: **Reasons for the disproportionate burden of HIV and sexually transmitted infections in young men who have sex with men**

Social and digital media are omnipresent in all aspects of adolescents' lives, from maintaining friendships, initiating dating and sexual relationships, to accessing sexual health information.[73] Thus, it is essential that digital tools to address gaps in HIV prevention and care are optimised for young MSM.[74] Strategies to engage young people in HIV prevention and care must address the structural conditions and intertwined psychosocial problems that magnify the risk of HIV acquisition. Finding the right mix of developmentally sensitive behavioural and biomedical components that address multilevel risk factors, including individual, peer, partner, family, provider, and community-level barriers to uptake and use of prevention tools, is crucial. Technology-based platforms could augment prevention services by delivering integrated strategies to young MSM in an engaging and culturally congruent way.[75,76] Optimal implementation of these tools in clinical and community-based settings will require engagement of health-care providers, educators, and parents or guardians, and could be facilitated through developing culturally tailored approaches that interface with electronic health records and patient portals. Social media offer powerful tools that can reach, engage, and retain young people in HIV prevention and care and deliver personalised interventions and health education based on up-to-date scientific theory and evidence.[77,78] Machine learning and natural language processing algorithms could be used to better understand online behaviours that foster risk (eg, by analysing sexual

networking apps or stigma-related postings on social media), and could help to understand the types of content that promote adherence to preventive behaviours.

Comorbidities and resilience of older MSM

For more on **Seniors Aging in a Gay Environment** see https://www.sageusa.org/

For more on the **LGBT Aging Project** see https://fenwayhealth.org/the-fenway-institute/lgbt-aging-project/

In 2016, nearly half of people with HIV in the USA were aged at least 50 years, two-thirds of whom were MSM. Although new HIV diagnoses are declining among older people, approximately one in six HIV diagnoses in 2017 were among people older than 55 years.[79] Older Americans are more likely to present with late-stage HIV infection than younger people at the time of diagnosis,[80] leading to worse clinical outcomes. Among people aged 55 years or older who received an HIV diagnosis in 2015, 50% had been living with HIV for 4·5 years before they were diagnosed, representing the longest delay in diagnosis for any age group. Delays in diagnoses could be caused by older people not considering themselves at risk of HIV infection, and physicians incorrectly presuming that older MSM are not sexually active or misdiagnosing HIV-related symptoms as manifestations of illnesses related to ageing.[81] Although older people with HIV tend to visit their health-care providers more frequently, they are less likely than younger people to discuss their sexual or drug use behaviours with health-care providers. Clinicians are also less likely to ask older patients about these issues, creating a so-called conspiracy of silence that delays HIV diagnoses and creates missed opportunities for discussions about PrEP and other prevention modalities for at-risk, uninfected older MSM.

Ageing with HIV infection presents other special challenges for MSM and other people with HIV, since chronic HIV increases the risks of cardiovascular and pulmonary disease, bone loss, and certain cancers,[82,83] which also tend to be more prevalent in older individuals, independent of HIV serostatus. Older patients and their health-care providers need to carefully monitor interactions between the medications used to treat HIV and those used to treat common age-related conditions such as hypertension, diabetes, high cholesterol, and obesity. Older MSM might encounter some unique challenges not experienced by demographically similar heterosexual people with HIV. They might face social isolation due to illness or loss of family and friends similar to other ageing adults, but not have optimal support systems. Unlike younger MSM, older MSM did not grow up in an era when marriage equality was sanctioned, so they might be less likely to live in long-term, stable partnerships and have children. Some older MSM might have experienced ostracism from their birth families because of their sexual orientation, further exacerbating their isolation as they age. In a society that values certain norms of physical beauty highly, ageing MSM might find meeting new partners difficult. The resultant loneliness could lead to depression and self-medication with substances, and complicate maintenance of optimal health, which is less likely to happen when sufficient social supports are present.

Ageing with HIV should not be seen as a decifit-based experience for MSM. As LGBT people and people with HIV are living longer, an increasing array of organisations, such as Seniors Aging in a Gay Environment and the LGBT Aging Project, have been developed to provide supportive services and activities that can help prevent social isolation and adverse health consequences for ageing MSM and other sexual and gender minority individuals. Older MSM living with or without HIV have experienced the brunt of the HIV epidemic, and their responses, ranging from the creation of the globally influential AIDS Coalition to Unleash Power activist group to the development of many local services, provide lessons and cautionary tales for future generations of MSM. Older MSM have grown up in a world that has experienced gay liberation and the development of highly active ART and PrEP, but remains replete with other emerging challenges.

Transgender MSM are understudied and at high risk

Transgender men or trans masculine people—who may identify as men, transgender men, trans men, trans-masculine, or another gender identity, and who were assigned a female sex at birth (hereafter referred to as trans men)—have been hidden or ignored in clinical studies until recently.[84] In the past 5 years, researchers have begun to measure partnership patterns and behaviours of trans men.[85,86] In a 2018 systematic review of US studies, prevalence of HIV infection was estimated to be 3·2% among trans men (95% CI 1·4–7·1; eight studies),[87] ten times greater than that among the general US population. Several studies have found that many trans men identify as gay, bisexual, or queer, and engage in sexual activity with cisgender males, as well as with partners of other genders. For example, of 366 sexual partnerships reported in a study of 122 trans men in San Francisco, CA, 44·8% involved cisgender women, 23·8% cisgender men, 20·8% trans men, and 10·7% trans women,[88] similar to findings noted in a Massachusetts study.[89]

Trans MSM might be at risk of HIV infection when they have condomless receptive anal sex and frontal or vaginal sex with cisgender male partners, and when they share needles for hormone or recreational drug injection. Few studies have aimed to understand and characterise HIV risks and prevention needs of trans MSM.[90] In addition to stressors associated with sexual minority stigma experienced by MSM, trans MSM might experience stigma related to having a non-binary gender identity. Trans MSM might feel pressure from cisgender male sex partners to engage in risky sexual behaviours to validate their male or MSM identity.[91–93]

Psychosocial syndemics have been associated with HIV risk among trans MSM, suggesting that multilevel

interventions for HIV prevention are required to effectively address their unique needs.[94] Evidence-based interventions for trans men have been scarce, although one behavioural health pilot (LifeSkills for Men) tailored for young trans MSM appears promising.[95] Although many trans men might benefit from PrEP, recent studies have found low levels of awareness and barriers to access.[96] In an online national sample of more than 800 HIV-negative trans MSM in the USA, 55·2% had behavioural indications for PrEP according to modified criteria from the US Centers for Disease Control and Prevention.[97] Because of the lack of attention to the unique HIV prevention needs of trans MSM, there are no specific data regarding PrEP efficacy or effectiveness for this population, but pharmacological studies in other populations would suggest that adherence to daily PrEP would protect trans men against HIV. Further research is needed to better identify trans MSM who might benefit from PrEP, educate them and the providers who care for them, and develop programmes to facilitate their access.

Professional responsibility in the era of PrEP and the U=U campaign

MSM have been the focus of public health programming designed to decrease HIV transmission and disease outcomes since the beginning of the epidemic. From early condom strategies to recent antiretroviral-based prevention interventions, public messaging has been a delicate balance of scaling personal prevention methods into viable and sustainable public health interventions, without further stigmatising an often marginalised group. Unfortunately, the right balance has not always been achieved. HIV prevention messaging during the pre-ART era, from the early 1980s to the mid-1990s, often vilified MSM as disease spreaders who introduced HIV to the general population. MSM sexuality was reframed by HIV into episodes of risk with associated odds of transmission rather than an expression of normal and healthy human desire. The divide between people with HIV and those at high risk created a level of stigma and duality that resulted in HIV-positive MSM being regarded as vectors of disease and HIV-negative MSM who were sexually active as irresponsible risk-takers. The dawn of effective antiretroviral-based HIV prevention, coupled with convincing data from well designed studies, has begun to change this serological divide. Extensive data supporting the concept of U=U (that people with HIV who take antiretrovirals and maintain an undetectable viral load cannot transmit the virus, or undetectable equals untransmittable)[98–100] and PrEP efficacy for MSM have facilitated progressive public health interventions that dismantle the duality between HIV-negative and HIV-positive individuals, to create more integrated sexual health programmes. One leading example in the USA is the so-called status-neutral framework for prevention and treatment interventions used by the New York City Department of Health and Mental Hygiene (figure 4). At the core of this strategy is the aspirational vision that services and programming must be approached in a patient-centric way that is agnostic to HIV status, dismantling the institutional silos that propagate the divide between HIV-positive and HIV-negative populations.[101] The desired result of shifting public health into a status-neutral framework is to counter institutionalised stigma, so that the person with HIV whose virus is suppressed and who therefore cannot transmit HIV, and the person without HIV who is taking PrEP, are provided with the same prevention and education programme. With an increasing number of jurisdictions expanding their focus to U=U and upscaling PrEP, strides are being made to accelerate a status-neutral approach for public health messaging and programming. Funding streams, however, have not matured to address this new framework. Governmental support is often siloed by status, creating deep administrative hurdles that often prevent programming that is truly status-neutral.

With the availability of antiretrovirals that can drastically improve individual health and curtail the epidemic, the role of clinicians has become increasingly important as part of a comprehensive strategy to get to zero new infections, zero AIDS-related deaths, and zero discrimination. Unfortunately, many clinicians remain uncomfortable eliciting a sexual history, which is foundational to assessing whether a patient is at risk of HIV and getting them tested—the first part of any effective treatment or prevention cascade. Studies have shown that heterosexual patients, as well as sexual and gender minority patients, are comfortable being asked about their sexual orientation and gender identity,[102] so the onus is on health-care professionals to understand how their own implicit biases, ranging from homophobia

For more on the **status-neutral campaign** see https://www.preventionaccess.org/

Figure 4: **Status-neutral public health campaign**
Source: New York City Department of Health and Mental Hygiene.

Figure 5: **Examples of patient and clinician resources to enhance culturally competent care**
Source: National Center for LGBTQIA+ Education.

For **web resources that enhance delivery of health services for LGBTQIA+ people** see https://www.lgbtqiahealtheducation.org/

and racism to being uncomfortable discussing sexual behaviour, impede the optimal delivery of health-care services. Fortunately, there are an increasing array of educational materials, including texts and web resources, that can enhance provider knowledge and facilitate cultural competency in the delivery of health services for MSM and other sexual and gender minority patients (figure 5). Another positive development is the commitment of professional credentialing bodies for medical education (eg, the American Association of Medical Colleges) to ensuring that sexual and gender minority health becomes a routine part of training curricula.[103] These improvements in training might lead to improved and more widely available culturally competent care that can better engage MSM in HIV treatment and preventive services.

The impact of the COVID-19 pandemic

Given the recent onset of the new pandemic, it is premature to make definitive conclusions about its impact on HIV among MSM in the USA. However, a national sample of more than 1000 MSM recruited via social media[104] noted several adverse consequences, including challenges in social interactions, difficulties in maintaining stable income and housing, and problematic substance use. Half of respondents reported having fewer sex partners, although close to 10% reported increased sexual risk-taking. Some reported challenges in accessing HIV testing, prevention, and treatment services. This report's findings were similar to those from a 2020 international sample of MSM recruited via the internet that included US respondents,[105] suggesting the COVID-19 pandemic had the potential to adversely affect HIV-related outcomes in MSM, particularly in those who are most marginalised by society (ie, poorer people, people of colour).

Conclusions

Our review has identified several common factors that potentiate the HIV epidemic among all MSM in the USA, including biological vulnerability, unique network characteristics, and internalisation of societal stigma leading to behavioural syndemics, enhanced by the disinhibiting effects of substance use. Growing up in non-affirming environments has health consequences. However, our review has also established that diverse subgroups of MSM exist, with unique racial, ethnic, age-related, and gender identities and needs. Institutional racism and cultural insensitivity will potentiate the increasing disparities in HIV incidence and access to optimal treatment and prevention services. Interventions that can leverage advances in antiretroviral-based treatment and prevention to curtail the domestic epidemic in US MSM will need to attend to the common themes (eg, by integrating behavioural health services with biomedical interventions), but culturally tailored programmes need to be developed to address the specific drivers of HIV risk in the diverse but vulnerable subpopulations. Interventions will need to attend to structural issues, including racism, poverty, homophobia, and transphobia, and understand how different age cohorts meet partners and access health information, by considering how to educate and engage MSM in the digital era. Although great progress has been made in recent years, almost half of people with HIV in the USA are not currently virally suppressed on highly active ART, and fewer than a quarter of MSM in the USA who might benefit from PrEP are using it. The disparities in accessing the benefits of therapeutic and preventive advances are particularly egregious for Black and Latino MSM, indicating that much more work remains to be done to develop effective, culturally congruent programmes to addresss these challenges. In the face of many adversities, MSM in the USA have shown resilience, but progress will not happen unless structural and societal issues (eg, racism, access to health insurance, culturally responsive care) are properly addressed.

Contributors

KHM conceptualised the manuscript, developed an outline to organise manuscript content, integrated text and comments provided by coauthors, and wrote the final draft. LN, LH-W, MJM, LM, SR, DD, SAS, CB, and PSS wrote initial drafts of sections of the paper, provided editorial comments on different iterations, and reviewed the final draft. All authors approved the final version of the manuscript for publication.

Declaration of interests

We declare no competing interests.

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