

BREAKING DOWN BARRIERS: REMOVING THE OBSTACLES THAT HOLD BACK HIV RESPONSES

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Not everyone is benefiting from progress made towards ending AIDS

Vulnerability to and risk of HIV infection vary between populations and places, as does people's access to HIV prevention and treatment services. If we identify the barriers that prevent people from protecting their health and well-being, we can act more effectively to remove those obstacles.

The gains made against HIV are a major public health achievement, particularly in the absence of a cure or a vaccine that protects against infection. But in a world marked by multiple intersecting inequalities, not everyone is benefiting from this achievement.

Vulnerability to and risk of HIV infection vary between populations and places, as does people's access to HIV prevention and treatment services. As people advance from childhood to adolescence, adulthood and advanced age, their lives and circumstances change and they are confronted with shifting health issues, including the risk of acquiring HIV. If we can identify the barriers that prevent people from protecting their health and well-being, we can act more effectively to remove those obstacles. HIV, like other viruses, can also take hold in communities where health infrastructure is weakened.

This chapter surveys the latest evidence on the constraints and HIV-related inequalities that affect people from specific populations, including adolescent girls and young women, children exposed to HIV, people from key populations of different ages, and ageing people living with HIV. It also reviews the current status of key interventions, including antiretroviral therapy, pre-exposure prophylaxis (PrEP), condom use and voluntary medical male circumcision (VMMC).



Adolescent girls and young women are at high risk of HIV

Providing women with an enabling environment, the information and services they need and social support is essential

Long-standing gender inequalities, discrimination and poverty deny many women and adolescent girls economic autonomy, deprive them of control over their sexual lives, and expose them to constant risk of emotional and bodily harm.

Fewer adolescent girls and young women (aged 15–24 years) are acquiring HIV than a decade ago, but many of them still face such high HIV risks that 210 000 [130 000–300 000] acquired HIV in 2022. Long-standing gender inequalities, discrimination and poverty deny many women and adolescent girls economic autonomy, deprive them of control over their sexual lives, and expose them to constant risk of emotional and bodily harm (1–3). All these factors can increase their risk of HIV, particularly in sub-Saharan Africa, where HIV prevalence among adolescent girls and young women is more than three times higher than among their male counterparts. For adolescent girls and young women living with HIV, programmes must do better to ensure they can access convenient HIV and sexual and reproductive health services and can live well.

Research shows that women and girls with poor school attendance (4) and lower education attainment (5–7) tend to be at higher risk of acquiring HIV, as are women and girls exposed to intimate partner violence in some settings (8) (see below), those who experience severe food insecurity (9), and those with older male partners (10, 11). A lack of basic knowledge about sex and sexuality, and limited access to sexual and reproductive health services for both boys and girls add to these vulnerabilities (12).

Programmes need to draw together biomedical tools and behavioural, cultural and structural interventions. Providing women with an enabling environment, the information and services they need and social support is essential (13). Programmes should be focused with greater precision on the settings where adolescent girls and young women are at highest risk of acquiring HIV (14, 15). Women-friendly biomedical prevention tools, such as oral PrEP and the dapivirine vaginal ring, must be easier to access and use. These prevention efforts are most likely to succeed when young women and their networks are actively engaged in shaping and implementing them.

Intensified prevention where HIV risk is highest

There are still major gaps in basic HIV prevention programmes and in supportive programmes for adolescent girls and young women in most of the countries with high HIV burdens. Analysis by the Global HIV Prevention Coalition shows that in sub-Saharan Africa, only about 42% of districts with very high HIV incidence are currently covered with dedicated prevention programmes for adolescent girls and young women in 2021 (Table 2.1). Programmes are also missing many adolescent girls who are not in school (16).

Despite progress, there are still major gaps in prevention programmes for adolescent girls and young women

Table 2.1 Scorecard for HIV prevention among adolescent girls and young women (aged 15–24 years), Global HIV Prevention Coalition countries, 2021

	Outcome									Output					
	Percentage of young women (aged 15–24 years) using a condom at last sex with non-regular partner	Percentage of young men (aged 15–24 years) using a condom at last sex with non-regular partner	Percentage of sexually active young women (aged 15–24 years) with multiple sexual partners	Percentage of sexually active men (aged 15–49 years) with multiple sexual partners	Percentage of ever-married or partnered women (aged 15–49 years) who experienced physical or sexual violence from a male intimate partner in the past 12 months	Percentage of ever-married or partnered women (aged 15–19 years) who experienced physical or sexual violence from a male intimate partner in the past 12 months	Percentage of adolescent girls who completed lower secondary education	Percentage of young women (aged 15–24 years) who know a formal source of condoms	Percentage of young men (aged 15–24 years) who know a formal source of condoms	Percentage of priority districts (administrative areas) with dedicated programmes for young women (aged 15–24 years) and male partners (full package)	Percentage of adolescent girls and young women (aged 15–24 years) in high-HIV incidence districts reached with a comprehensive package of prevention interventions	Educational policies on HIV and sexuality education (secondary school)	Laws requiring parental consent for adolescents to access HIV testing services	Provider-initiated condom promotion integrated with sexual and reproductive health services	HIV testing services integrated with sexual and reproductive health services
Angola	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Botswana	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Cameroon	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Côte d'Ivoire	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Democratic Republic of the Congo	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Eswatini	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Ethiopia	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Ghana	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Kenya	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Lesotho	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Malawi	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Mozambique	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Namibia	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Nigeria	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
South Africa	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Uganda	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
United Republic of Tanzania	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Zambia	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Zimbabwe	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low

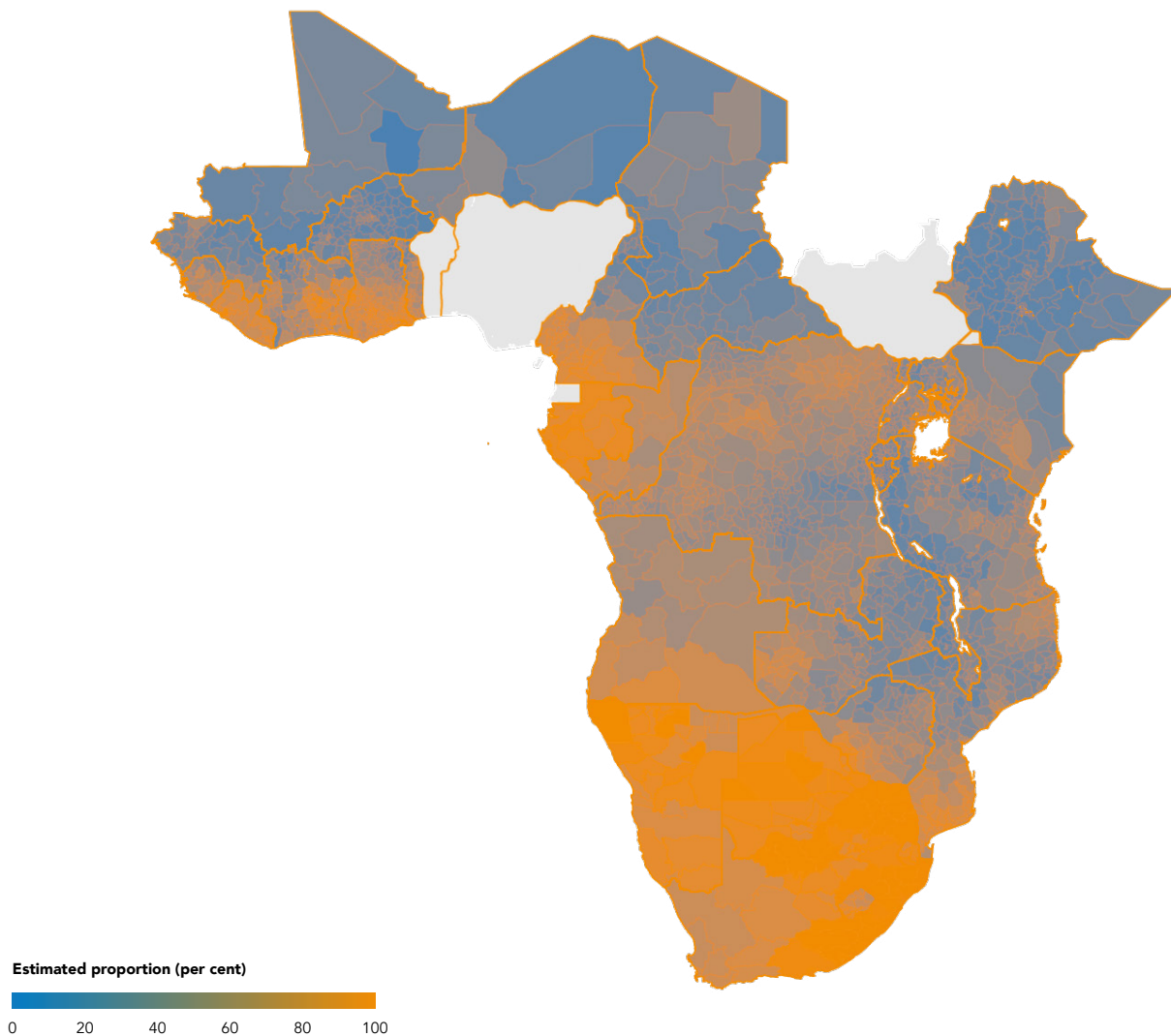
Very good Good Medium Low Very low Insufficient data Not applicable

Source: Global HIV Prevention Coalition country scorecards, 2022; Population-based surveys 2017–2021; UNAIDS Global AIDS Monitoring, 2022; National Commitments and Policy Instrument, 2017–2022.

There is great variation in HIV incidence among adolescent girls and young women in sub-Saharan Africa. Subnational-level data show that estimated HIV incidence is moderately high (0.3–1.0 infections per 100 person-years) in 15% of the subnational areas in sub-Saharan Africa, and high (1.0–3.0 infections per 100 person-years) in 4% of the subnational areas in sub-Saharan Africa. In 81% of the subnational areas in sub-Saharan Africa, and in most countries in the world, HIV incidence among adolescents and young women (aged 15–24 years) is estimated to be below 0.3 infections per 100 person-years. Analysis of HIV and household survey data from 30 countries in sub-Saharan Africa indicates that prioritizing HIV prevention according to risk, age and location would significantly boost the effectiveness of programmes at preventing new HIV infections (Figure 2.1) (17).

HIV prevention programmes must be tailored to local patterns of relationships, which vary substantially by age and between places

Figure 2.1 Spatial distribution of women (aged 20–24 years) with non-regular or multiple partners, 30 sub-Saharan African countries, 2022



Source: updated from Howes A, Risher KA, Nguyen VK, et al. Spatio-temporal estimates of HIV risk group proportions for adolescent girls and young women across 13 priority countries in sub-Saharan Africa. PLOS Glob Public Health. 2023;3(4):e0001731.

Women and adolescent girls still lack basic information and services to protect their sexual well-being

Many women and adolescent girls lack sufficient decision-making power about their sexual relations, contraceptive use and health care. According to data from 68 countries, in 2023 a median of only 56% of women (aged 15–49 years) who were married or in a union reported making their own informed decisions regarding sexual relations, contraceptive use and their own health (18). That power tends to be most compromised among women and girls with lower education levels and in the lowest wealth quintile.¹ Girls often do not have control over their first sexual experiences. In surveys conducted in nine sub-Saharan Africa countries in 2007–2018, the prevalence of forced sexual initiation among girls and young women aged 13–24 years ranged from 15% in Zimbabwe to 39% in Malawi (19).

These experiences are related to HIV and other sexually transmitted infections and unintended pregnancy among adolescent girls and young women in many countries, especially in sub-Saharan Africa. The United Nations Population Fund (UNFPA) estimates that nearly half of all pregnancies—totalling 121 million each year across the world—are unintended (20). Rates of unintended pregnancy tend to be highest among the poorest and most marginalized women and girls (21).

Comprehensive sexuality education, both in and out of school, and sexual and reproductive health services must do better at reaching women and girls and men and boys. These programmes are gateways to the information and support adolescent girls and young women need to make their own decisions about their bodies and to protect their health, regardless of whether or not they are living with HIV (22). When comprehensive sexuality education was linked to access to sexual and reproductive health services (e.g. in a randomized control trial in Zambia), there were significantly fewer adolescent pregnancies, compared with in schools that offered only comprehensive sexuality education (23). Expanding and improving integrated programmes can also foster more positive gender relations, help reduce stigma and discrimination, and contribute to reducing unintended pregnancy for all women (24). United Nations Educational, Scientific and Cultural Organization (UNESCO) data indicate that at least 85% of 155 reporting countries have policies or laws that cater for the provision of comprehensive sexuality education in schools (25).

¹ Based on 17 Demographic and Health Surveys, 2018–2022.

Gender-based violence: an epidemic within a pandemic

An estimated 16% of adolescent girls and young women (aged 15–24 years) who were ever married or partnered have experienced physical or sexual violence by an intimate partner at least once in their lifetime (based on data from 156 countries) (2). Transgender people are also disproportionately affected by gender-based violence (27). A median of 29% of transgender people had experienced physical or sexual violence in the past 12 months (11 reporting countries). A median of 8.2% of gay men and other men who have sex with men had experienced physical or sexual violence in the past 12 months (19 reporting countries).

In addition to the trauma and other harm done, this gender-based violence is an impediment to ending AIDS. It has been shown to increase the risk of acquiring HIV in countries with high HIV prevalence, impede use of HIV services and prevention tools (such as condoms and PrEP) (28), and worsen treatment outcomes. Across six high-burden countries in sub-Saharan Africa, women exposed to physical or sexual intimate partner violence in the previous year were 3.2 times more likely to have acquired HIV recently, compared with those who had not experienced such violence (8). Similar aggravating effects have been observed among transgender women and gay men and other men who have sex with men (29).

Women living with HIV who had experienced such violence are less likely to achieve viral suppression than other women living with HIV, according to analysis of data from seven surveys in sub-Saharan African countries (8). A study among women living with HIV at a clinic in Zambia found that having experienced intimate partner violence was associated with decreased odds of adherence to prevention of vertical HIV transmission during and after pregnancy (30). In a study from South Africa, adolescent girls who had experienced sexual intimate partner violence were about half as likely to adhere to HIV treatment than girls without such experiences (31). Another study from Zambia also found lower odds of engagement in care and antiretroviral therapy initiation among sex workers who had experienced intimate partner violence, compared with sex workers who had not experienced such violence (32).

ACCORDING TO A RECENT ESTIMATE, THE GLOBAL SCALE-UP OF PROGRAMMES TO PREVENT INTIMATE PARTNER VIOLENCE COULD AVERT ABOUT 5% OF NEW HIV INFECTIONS BY 2030

Interventions that reduce gender-based violence, including parenting and school- and community-based programmes, can have an impact (33). According to a recent estimate, the global scale-up of programmes to prevent intimate partner violence could avert about 5% of new HIV infections by 2030 (34). Good practices for changing gender norms and harmful forms of masculinity and for reducing violence against women and HIV must become more commonplace. A World Health Organization (WHO) study found that less than half of the countries surveyed globally (42%) were allocating funding for implementing policies that address violence against women (35).

**TRANSGENDER PEOPLE
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More needs to be done to protect people against high rates of sexual and gender-based violence in prisons and other closed settings and to provide survivors and witnesses with the support they need (36). People in prisons, particularly people from key populations that are criminalized, are disproportionately affected by HIV. For example, transgender people in prisons are estimated to be up to 13 times more likely to be sexually assaulted than cisgender people in prisons. Transgender people also have a higher prevalence of HIV and other sexually transmitted infections but often lack or are denied access to HIV and other necessary medical treatment (37).

In the closed environments of prisons, women are especially vulnerable to sexual abuse by male staff and male prisoners. They are susceptible to sexual exploitation and may engage in sex for exchange of goods (38). Although data are limited due to underreporting, sexual violence against men and boys in closed settings is believed to be common. All survivors of sexual violence—women and girls, men and boys, and people from key populations—require a multisectoral survivor-centred response, with access to medical, psychosocial and counselling services that respond to trauma, including mental health, sexual and reproductive health services (39).

States have an obligation to protect against violence, including in prisons (40). Prison authorities are responsible for combating gender-based sexual violence, the exploitation of vulnerable people in prisons, and all forms of victimization in prisons. An increasing number of countries provide some HIV-related services in prisons and other closed settings, but much stronger action is needed to protect against sexual violence in prisons and other closed settings. Discriminatory and harmful criminal laws that lead to the over-incarceration of people living with or at risk of HIV should also be reformed or removed.

An overlooked group in the pandemic: women from key populations

The importance of HIV prevention and treatment for women from key populations is sometimes overshadowed by other priorities, even though HIV infection rates among them tend to be much higher than among women and girls overall.

Even in countries with a high burden of HIV, significant proportions of new HIV infections are among female sex workers—many of whom are young—and their clients (41). Extremely high prevalence of HIV has been reported among female sex workers: as high as 62% across a wide range of ages in a study from South Africa (42), 50% across several surveys in Zimbabwe (43), and 16% in Nigeria. HIV prevalence is very high among sex workers' clients, many of whom also have regular or other casual sex partners. Data from population-based surveys in 35 countries in sub-Saharan Africa indicate that at least one in 10 sexually active men have paid for sex at some point and they are 50% more likely to be living with HIV than their peers who have not paid for sex (44).

New analysis of data from 13 sub-Saharan African countries suggests that prevention interventions can be made even more effective if they prioritize reaching young adult sex workers (17). But female, transgender, male and gender-diverse sex workers—especially those who are young—face many constraints when trying to access HIV and related health services. Limitations include criminalizing laws, harassment and violence from the police and clients, harmful gender norms that perpetuate gender-based discrimination and violence, severe social stigma, and discrimination by health-care staff. Supportive legal and policy changes can reduce some of these barriers, as can interventions that protect sex workers against violence and promote safer behaviours among their clients (42).

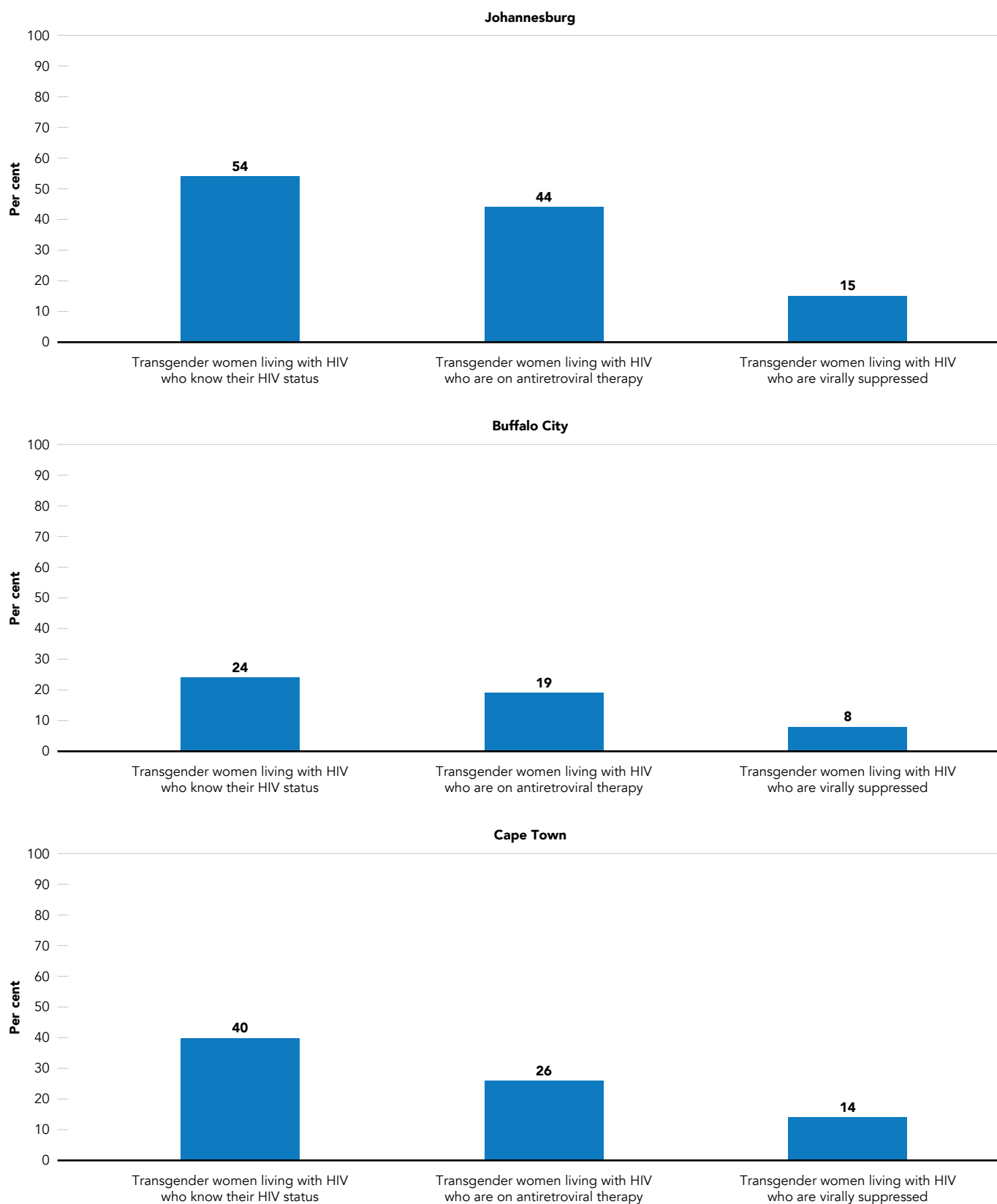
Community-led or -based interventions among female sex workers have been shown to increase access to and use of services, including HIV testing and use of antiretroviral therapy, and to reduce HIV infection rates. Among young sex workers (aged under 25 years) using HIV and other services at sex worker outreach clinics in Nairobi, for example, HIV prevalence fell from 17.5% in 2008–2009 to 4.8% in 2016–2017. The women reported increased condom use and more frequent HIV testing across the period (45). In South Africa, several nongovernmental organizations are running district-level sex worker projects, broadly in line with the National Sex Worker HIV Plan. A review of 12 such project sites reported that 92% of female sex workers living with HIV stated that they knew their HIV status, 87% of the participants living with HIV and with available treatment history said they were on antiretroviral therapy, and 74% of those on antiretroviral therapy were virally suppressed (46).

Women who inject drugs experience many of the same service barriers as other women from key populations. Programmes for people who use drugs, however, seldom deal with these constraints because the vast majority of people who inject drugs globally are men (47). Fear of having their children removed from their care is an additional barrier for women who use drugs to accessing HIV and sexual and reproductive health services (48).

The small proportions of transgender women on HIV treatment with suppressed viral loads are of particular concern given the high prevalence of HIV in this population. According to data reported in recent years by 16 countries, antiretroviral therapy coverage was a median 44%. Data from three cities in South Africa show poor rates of retention in HIV treatment and especially poor rates of viral suppression among transgender women living with HIV (Figure 2.2).

Rates of retention in antiretroviral therapy and viral suppression tend to be poor among transgender women

Figure 2.2 Testing and treatment cascade for transgender women living with HIV in three metropolitan areas in South Africa, 2018–2019



Source: Cloete A, Mabaso M, Savva H, et al. The HIV care continuum for sexually active transgender women in three metropolitan municipalities in South Africa: findings from a biobehavioural survey 2018–19. *Lancet HIV*. 2023;10(6):e375–e384.

New insights can help unlock HIV prevention in high-burden settings

The increased use of phylogenetic analysis is greatly enriching our understanding of why so many adolescent girls and young women are still acquiring HIV, particularly in eastern and southern Africa (50–52).²

Deep-sequence phylogenetic analysis can be used to reconstruct HIV-1 transmission networks and infer the direction of transmission in those networks. This allows researchers to picture in detail the patterns and the demographic and geographical history of HIV transmission in a given setting (52). Error rates are maintained to protect confidentiality and ensure that the phylogenetics cannot be used against individuals in legal contexts, while being kept sufficiently low to achieve population-level analysis of HIV spread.

These phylogenetic studies are yielding new insights that may be crucial for achieving more drastic reductions of HIV infections, including among women and girls.

First, they suggest that targeting small demographic groups with prevention services may not be a very efficient strategy in generalized epidemics with high rates of HIV infection. In two recent studies from Botswana and Zambia (50, 51), there was little to no evidence of HIV transmission being driven by small clusters of people: many individuals were transmitting HIV to a few people, rather than the other way around. This means that instead of small “hubs” of people who transmit HIV to many others (e.g. small groups of people with multiple partners), in these settings HIV is transmitted from many people to the smaller numbers of people who eventually acquire it. Focusing intensified prevention on settings where HIV incidence is high seems the more rewarding approach.

Second, the studies indicate that in places with high HIV prevalence in sub-Saharan Africa, the heterosexual HIV epidemic is sustained by transmission of HIV from young and middle-aged men to slightly (but not dramatically) younger women. The Zambia study, one of the largest phylogenetic studies yet, confirmed that men were much more likely than women to be the source of HIV transmission: twice as many instances of HIV transmission were attributable to men than to women. Most instances of HIV transmission involved men in their thirties and women in their twenties, with the age gaps often narrower than previously thought (50). Phylogenetic analysis of data from the 30-community BCPP/Ya Tsie trial in Botswana arrived at similar findings (51). The findings confirm the importance of intensified combination prevention for women and girls, including access to PrEP, along with efforts to enhance their economic independence and bodily autonomy, and reduce the gender inequalities, stigma and discrimination that constrain their ability to avoid acquiring HIV.

² Caution is required with respect to rights and ethical issues when using phylogenetics, which must be addressed if it is to be used. Communities of people living with HIV and people from key populations should be involved in the development of the studies or systems, including in terms of confidentiality and privacy of data. The limits of phylogenetics must be recognized. It should not, for example, be used to determine sources of transmission on an individualized basis (49).

Third, the analysis shows that the prevention successes in eastern and southern Africa hinge on improving coverage and outcomes of antiretroviral therapy among men, especially those in their twenties and thirties (50, 51). Analysis of 15 years of HIV surveillance and phylogenetic data from Uganda (2003–2018) shows that gender disparity in HIV transmission is increasing, and the growing contribution of men to HIV transmission is associated with lower antiretroviral therapy coverage and lower rates of viral load suppression in men than with women. Men were much less likely (1.5–2.0 times) than women to be virally suppressed, which increased the odds of men transmitting HIV to their partners (53).

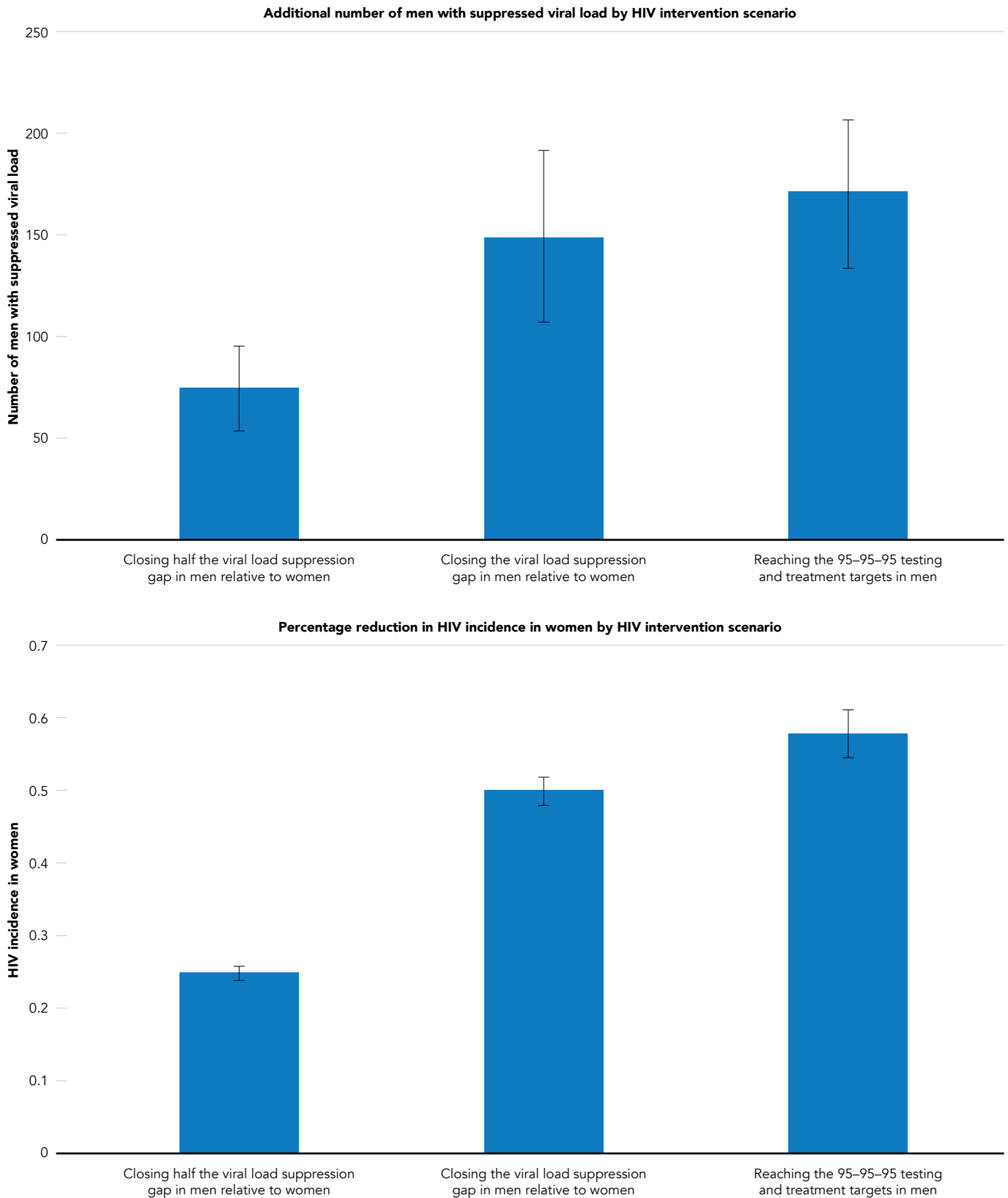
The authors of the Uganda study estimate that interventions that bring viral suppression rates among men on a par with those among women could improve men's health outcomes and reduce HIV incidence in women by half, closing the gender disparities in new infections (see Figure 2.3). Overall, this analysis emphasizes that achieving and sustaining very high levels of antiretroviral therapy coverage and sustained viral load suppression among people of all genders is an ongoing priority if the cycles of HIV transmission are to be broken (53).

Modelling of the AIDS pandemic suggests that progress across four societal enablers—reducing stigma and discrimination, reducing gender inequality, removing obstructive policies and laws, and improving overall socioeconomic development—can enhance HIV programmes and their outcomes (54). This underscores the need to change unfavourable societal environments, alongside strengthened efforts to promote condom use and increase access to PrEP, diagnose and rapidly link people living with HIV to antiretroviral therapy, and enable them to suppress their HIV viral loads to undetectable levels.

Addressing these enablers also means investing in programmes that reduce gender inequality and harmful gender norms, reduce violence against women and girls, and empower women and girls to control their own sexual lives, access sexual and reproductive health services, and access respectful maternity care.

Closing the treatment gap among men to match viral suppression among women can have multiple benefits

Figure 2.3 Modelling scenarios predicting the impact on HIV incidence in women of improved treatment coverage and outcomes in men, Rakai, Uganda



Source: Monod M, Brizzi A, Galiwango RM, et al. Growing gender disparity in HIV infection in Africa: sources and policy implications. medRxiv. 2023; preprint. doi: 10.1101/2023.03.16.23287351.

Mothers and children are being left behind

The means for eliminating new HIV infections in children (aged 0–14 years) exist, but gaps in services to prevent vertical transmission of HIV still leave hundreds of thousands of children at high risk of HIV each year. Children who do acquire HIV—130 000 [90 000–210 000] in 2022—are also much less likely than adults living with HIV to be treated successfully.

Targeted efforts are needed to reduce vertical HIV transmission

Since peaking in the early 2000s, annual numbers of new HIV infections in children (aged 0–14 years) have fallen markedly—but that decline has almost stalled in recent years. Reviving the earlier momentum requires an understanding of why so many children are still acquiring HIV.

The overarching reason is that coverage of antiretroviral therapy among pregnant or breastfeeding women living with HIV has levelled off at a little over 80%. This means that about 220 000 pregnant or breastfeeding women living with HIV were not receiving antiretroviral therapy in 2022, which endangers their own health and prevents them from protecting their children against HIV.



Over 1.2 million newborns are exposed to HIV each year

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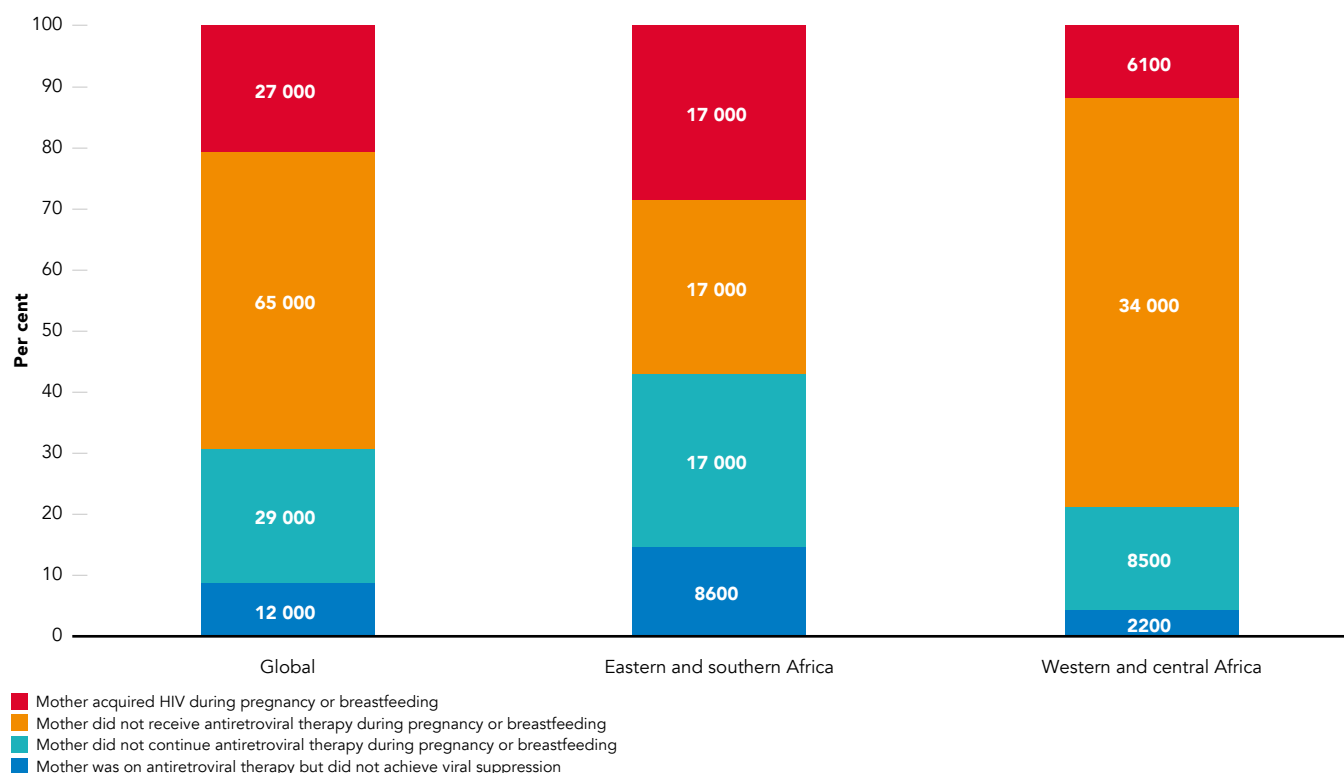
Closer analysis reveals several main causes of new HIV infections in children (Figure 2.4); their respective contributions to new infections in children have changed little in recent years. In western and central Africa in 2022, almost two-thirds of new infections in children were due to their mothers not receiving antiretroviral therapy, including during the pregnancy or breastfeeding periods.

In eastern and southern Africa, no single factor dominates, although a substantial share of new infections in children are attributable to their mothers not being able to avoid acquiring HIV during pregnancy or breastfeeding. More effective combination prevention services should be reaching these women, including condom promotion, HIV screening and self-testing for their partners, and greater access to PrEP (55). Services should also offer trauma-aware care and referrals to gender-based violence services to ensure a positive HIV test does not leave women or children at risk of intimate or familial violence.

Recovering momentum also requires reducing HIV-related stigma and making it easier for women to have safer sex. Several studies have demonstrated the prevention potential of the monthly dapivirine vaginal ring, with the MTN-025/HOPE trial showing high uptake and adherence and with HIV incidence among users of the ring about half the expected rate (56). Adverse pregnancy outcomes appear to be uncommon during the third trimester among people who use the ring, and studies are under way to investigate safety of its use earlier in pregnancy (57).

The main causes of new HIV infections in children vary between regions

Figure 2.4 Percentage of new vertical HIV infections by cause of transmission, global and selected regions, 2022



Source: UNAIDS epidemiological estimates, 2023 (<https://aidsinfo.unaids.org/>).

Reaching all women with services

Botswana's success in reducing vertical transmission of HIV stems from achieving very high coverage of HIV testing and treatment among women overall, as part of its drive to "treat all". This is enabling women living with HIV to start antiretroviral therapy well before becoming pregnant and to achieve and sustain viral load suppression. However, staying on antiretroviral therapy during the pregnancy and breastfeeding period can be challenging. Mothers and pregnant women must be able to access HIV and other health services safely and conveniently, and they have to be protected against intimate partner violence, which is especially common among women who are living with HIV (30). Further integration of HIV and antenatal care services and respectful experiences at health-care facilities could make it easier for women to remain in care and adhere to treatment (58).

Also needed are other shifts in service delivery, including making integrated antenatal care and HIV services—and sexual and reproductive health services generally—more accessible and convenient, especially for adolescent girls and women who are stigmatized and marginalized. Programmes can become smarter at finding the "missing" women who are living with HIV but not receiving antiretroviral therapy.



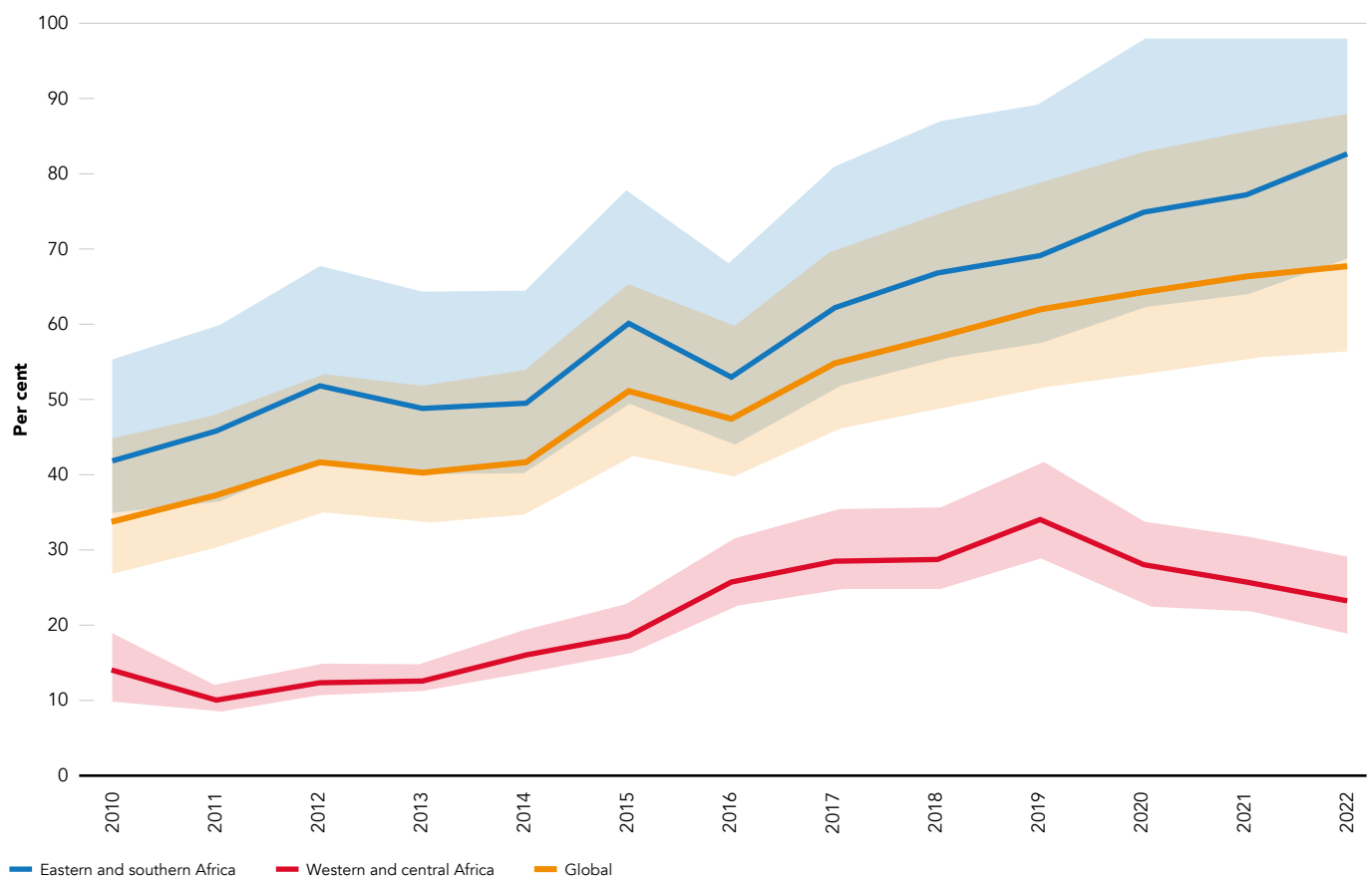
For children living with HIV, the treatment gaps are still wide

Children (aged 0–14 years) are still much less likely than adults to receive antiretroviral therapy. Coverage among children living with HIV was 57% [44–78%] in 2022, compared with 77% [65–89%] among adults—and that gap is widening. Approximately 660 000 children living with HIV were not receiving antiretroviral therapy in 2022. As a result, children accounted for 13% of AIDS-related deaths in 2022, even though they comprise only about 4% of people living with HIV.

Wider adoption of point-of-care early infant diagnosis will help close that gap. WHO recommends that all infants exposed to HIV receive a virological HIV test within two months of birth. In a randomized study ($n=6605$) in Mozambique and the United Republic of Tanzania, AIDS-related deaths among infants in their first six months of life were reduced by 73% when point-of-care diagnosis was provided and rapid linkage to antiretroviral therapy was achieved (59). Early infant diagnosis coverage has risen in eastern and southern Africa to 83% [69–98%], but it remains very low in western and central Africa at 23% [19–29%] (Figure 2.5).

Early infant diagnosis within the first two months of life has to increase further, especially in western and central Africa

Figure 2.5 Percentage of children exposed to HIV who were tested for HIV by two months of age, global and selected regions, 2010–2022



Source: UNAIDS epidemiological estimates, 2023 (<https://aidsinfo.unaids.org/>).

Even when infants exposed to HIV are tested for HIV in the first two months of life, many caregivers do not receive their test results. This can be changed with integrated person-centred procedures that track mother–infant pairs and ensure mothers receive the test results. Testing strategies that go beyond early infant diagnosis are also essential: 62% of children living with HIV but not on treatment are estimated to be aged between five and 14 years. If outpatient testing and family index testing increase, more undiagnosed children and adolescents living with HIV can be linked to treatment and care.

The health outcomes of children who do receive HIV treatment remain worse than for adults. Approximately 81% [63–>98%] of children living with HIV had a suppressed viral load in 2022, compared with 93% [79–>98%] of adults (aged 15+ years). This is partly due to suboptimal paediatric HIV medicines and challenges in retaining children in care. The situation is likely to improve if more countries use dolutegravir-based regimens, an optimal treatment protocol for children. In 2022, 73 countries were using those regimens, up from 33 at the end of 2021.

New commitments to end AIDS in children

Twelve African countries have set out fresh plans to end AIDS in children by 2030.³ The first ministerial meeting of the Global Alliance to End AIDS in Children in early 2023 issued the Dar es Salaam Declaration,⁴ which focuses on both the parental and childhood factors that contribute to HIV transmission, missed diagnoses, and morbidity and mortality.

The declaration sets out 10 commitments that can clear the way towards ending AIDS in children:

- Provide access to universal testing and treatment for all children and adolescents living with HIV and support them to remain virally suppressed.
- Ensure access to treatment and care for all pregnant and breastfeeding women and support them to stay in care.
- Harness digital technologies to reach adolescents and young people.
- Implement comprehensive, integrated HIV services.
- Work with and for men, women and adolescent girls to ensure mothers are protected from acquiring HIV during pregnancy and breastfeeding.
- End the stigma, discrimination and gender inequities experienced by women, children and adolescents affected by HIV.
- Work with communities, including men, to prevent gender-based violence and counter harmful gender norms.
- Ringfence budgets for ending AIDS in children.
- Partner with people living with HIV and communities in all this work.
- Monitor and share progress and learning for joint accountability and for the benefit of all.

³ Angola, Cameroon, Côte d'Ivoire, Democratic Republic of the Congo, Kenya, Mozambique, Nigeria, South Africa, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

⁴ The Dar es Salaam Declaration for Action to End AIDS in Children. Geneva: Joint United Nations Programme on HIV/AIDS; 2023 (<https://www.unaids.org/en/topic/alliance-children/dar-es-salaam-declaration>, accessed 5 July 2023).

Prevention and treatment services are missing millions of people

HIV risk and incidence vary substantially by population, risk behaviours, age and place. HIV responses, especially prevention programmes, have to be much better at combining and focusing proven interventions where rates of HIV infection are especially high, and at fostering social and legal environments that will make it easier for people to use and benefit from those services.

Similarly, for all the remarkable gains made over the past two decades, testing and treatment services are still missing millions of people, many of whom belong to marginalized key populations.

The full potential of PrEP is not being realized

PrEP is a potentially crucial tool for HIV prevention for people who are at high risk of acquiring HIV, including people from key populations, and women and adolescent girls in eastern and southern Africa.

The total number of people using oral PrEP globally has risen from a little over 233 000 in 2019 to over 2.5 million in 2022, with the steepest increases occurring in eastern and southern Africa (Figure 2.6). Overall, however, the expanded provision of PrEP is limited to a small number of countries. The biggest gaps are among people from key populations in low- and middle-income countries, especially in Asia and the Pacific, where almost a quarter of new HIV infections occurred in 2022. Data reported through the Global AIDS Monitoring system indicate that women slightly outnumbered men among people who use PrEP.

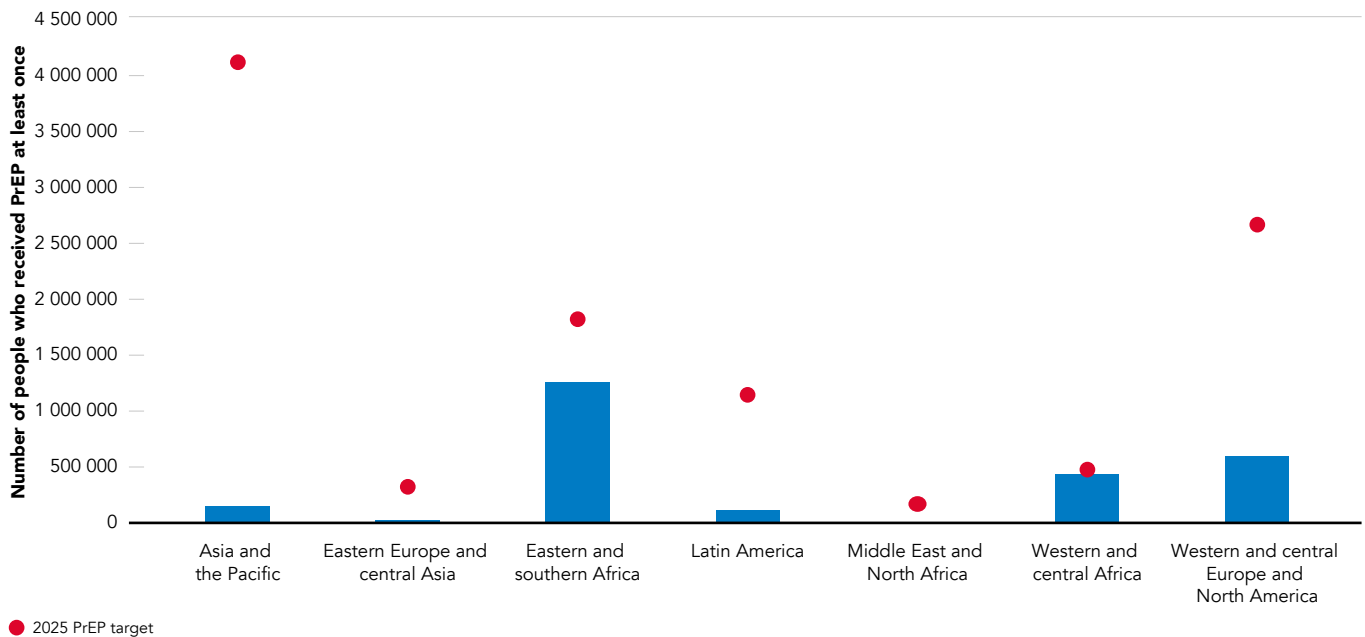


HIV risk and incidence vary substantially by population, risk behaviours, age and place

HIV responses have to be much better at combining and focusing proven interventions where rates of HIV infection are especially high, and at fostering social and legal environments that will make it easier for people to use and benefit from those services.

Except for one region, PrEP use trails very far behind the estimated need

Figure 2.6 Number of people who received PrEP at least once during the reporting period, by region, 2022, and 2025 target



Source: UNAIDS Global AIDS Monitoring, 2023 (<https://aidsinfo.unaids.org/>); Stover J, Glaubius R, Teng Y, et al. Modeling the epidemiological impact of the UNAIDS 2025 targets to end AIDS as a public health threat by 2030. *PLoS Med.* 2021;18(10):e1003831.

It is vital to increase awareness of PrEP and normalize it as a prevention option among potential users, including through social media and outreach programmes (60, 61). PrEP can be made available in more flexible and convenient ways (e.g. via community drop-in centres, mobile clinics and pharmacies) (62). Removing or reducing associated out-of-pocket costs could also increase uptake (63). Multimonth dispensing, use of virtual service platforms, removal of parental consent and encouraging larger roles for community-led organizations can further increase use of this powerful prevention tool.

Effective use of PrEP is a challenge in some respects. Evidence from the HPTN 084 trial indicated that taking two oral PrEP tablets a week provides almost complete protection against HIV acquisition (64). For cisgender women, similar levels of protection require taking PrEP tablets at least four to six times a week (65). In studies and demonstration projects, adherence to oral PrEP tends to be low. For example, only 18% of women participating in the HPTN 084 trial took four or more doses per week (64), and a study from Kenya reported that less than 10% of people who started taking PrEP returned for a refill three months later (66). Fear of stigma, a low sense of HIV risk, incomplete knowledge about PrEP, and concerns about side-effects are among the reasons cited for interrupting or halting its use (67–69). In a study from Seattle in the United States of America, a substantial proportion of gay men and other men who have sex with men began and then stopped using oral PrEP, with affordability, side-effects and perceived low risk being the main reasons cited for stopping (70). This highlights the need for additional prevention options, including long-acting PrEP (see Chapter 3) and vaginal rings.

Increasing knowledge and acceptance of PrEP through awareness campaigns could foster a more supportive social environment for effective use of PrEP (71). The prevention successes achieved in Australia with PrEP have relied on concerted efforts by clinics and community organizations to increase awareness and make services more accessible and convenient. The lack of discriminatory laws and the presence of a mature and well-resourced LGBTIQ+ movement have underpinned this work (72). It is also important to share detailed information about side-effects with people who use PrEP and to offer strategies for shifting from daily use to event-based PrEP.

The dapivirine vaginal ring is a promising option. Although high, the current effectiveness of the ring in preventing HIV infection does not yet match that of optimal use of oral PrEP (73). Studies show, however, that women tend to favour this discreet and long-lasting prevention tool (as do male partners) (74), and both retention and adherence levels are high (75). Currently, the ring has been licensed for use only in Africa, with Kenya, South Africa, Uganda, Zambia and Zimbabwe having approved its rollout (76).



Antiretroviral medicines for HIV prevention

In most cases, when effective HIV treatment is taken regularly and consistently, it leads to suppression of the virus to a point where it becomes undetectable. The evidence shows that there is zero risk for people living with HIV with an undetectable viral load to transmit HIV sexually.

Findings from the 2011 HPTN 052 clinical trial, which tracked more than 1600 heterosexual couples over 10 years, showed that consistent suppression of HIV with antiretroviral therapy prevents sexual transmission of the virus (77, 78). Two additional studies—PARTNER 1&2 (79) and Opposites Attract (80)—extended those findings to male–male couples and provided conclusive evidence that these findings are as applicable to gay, bisexual and other men who have sex with men as they are to male–female couples.



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IN 2022, 21 MILLION PEOPLE WERE TESTED FOR ROUTINE VIRAL LOAD, COMPARED WITH ONLY SIX MILLION PEOPLE IN 2015

In 2022, 93% [79–100%] of people living with HIV on antiretroviral therapy were virally suppressed globally. This is an estimated 71% [60–83%] of the 39.0 million [33.1 million–45.7 million] people living with HIV. There has been significant progress—in 2022, 21 million people were tested for routine viral load, compared with only six million people in 2015. Today, the majority of people living with HIV who are aware of their HIV-positive status and are taking their treatment as prescribed are not at risk of transmitting HIV sexually.

Effective scale-up of the use of antiretroviral medicines for HIV prevention requires that differentiated people-centred approaches and systems are in place to provide an enabling environment for people living with HIV. This means ensuring that medicines can be taken freely and on time without exposure to stigma and discrimination, that treatment literacy is prioritized, and that health systems are both robust (no stockouts of effective medications) and people-centred, so that viral load can be monitored for all. Strong community engagement and well-established networks are essential to ensure full access to viral load testing and sharing of results so there is knowledge of viral load status. Barriers hindering access to affordable HIV services for people from key and vulnerable populations, including migrants and refugees, need to be removed.

Estimated rates of viral suppression globally are lower among children living with HIV (46% in 2022) and men living with HIV (67% in 2022), compared with women living with HIV (76% in 2022). Antiretroviral therapy coverage is lower among people from key populations than among the general population, with an estimated global median of 44% among transgender people (16 reporting countries), 65% among sex workers (33 reporting countries), 69% among people who inject drugs (22 reporting countries), and 78% among gay men and other men who have sex with men (44 reporting countries). Inequalities in treatment outcomes arise when services are inaccessible and do not meet the needs of underserved populations that are not well served by mainstream health services (81).

The findings on the efficacy of antiretroviral medicines for HIV prevention have given rise to the uptake of the community slogan Undetectable = Untransmissible, or U = U. This is an important public health message for the HIV response. A range of barriers must still be lifted to make U = U a reality for all people living with HIV, but the message is gaining appeal across the world as a rallying call for increased access to HIV treatment, better services for people living with or affected by HIV, and less stigma and discrimination.

Condom programmes are falling off the agenda

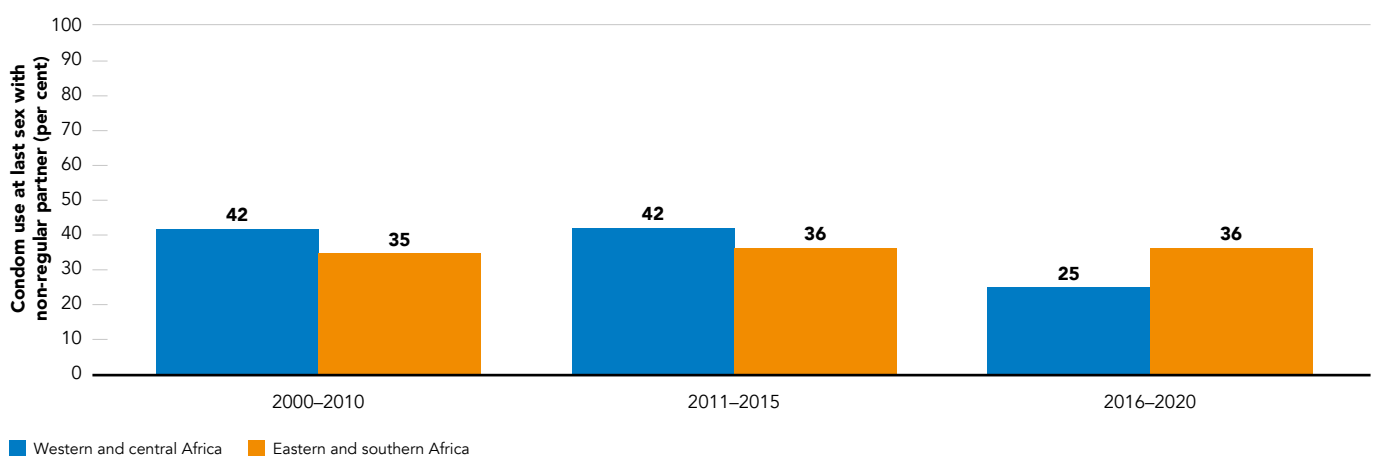
Inexpensive and familiar to most people, condoms remain an integral part of a comprehensive prevention package and are important for triple protection. They are the only method for simultaneously preventing HIV, other sexually transmitted infections, and unintended pregnancy. By combining various prevention methods, such as condoms alongside PrEP or antiretroviral therapy, people can achieve added protection against HIV and sexually transmitted infections. Gaps persist, however, in both the availability and use of condoms, against a background of reduced investments in social marketing programmes.

The Global Fund to Fight, AIDS, Tuberculosis and Malaria, UNFPA and the United States Agency for International Development (USAID) continue to play major roles in the supply of male and female condoms and lubricants to low- and middle-income countries. Five billion male and female condoms were procured by UNFPA and partners from 2018 through 2022, most of which were provided to countries in sub-Saharan Africa. It has been estimated that condoms had the potential to avert 24.9 million sexually transmitted infections, 570 000 HIV infections and 16.3 million unintended pregnancies (82).

Recent years, however, have seen the defunding of condom programmes and reduced emphasis on demand-generation activities in some countries (83). As a result, new generations of young people are lacking adequate information about and access to condoms. A 2020 systematic review reported that condom promotion programmes were generally effective in changing attitudes, social norms and beliefs in favour of condom use (84). Low levels of consistent condom use during risky sex point to a need to revive sustained demand generation (Figure 2.7).

Condom use during risky sex remains low in sub-Saharan Africa

Figure 2.7 Consistent condom use by adolescent girls and young women (aged 15–24 years) at last sex with non-regular partner, eastern and southern Africa and western and central Africa, 2000–2020



Source: Demographic and Health Surveys, 2000–2020.

Note: data are based on countries with available data during the time period and do not necessarily reflect trends.

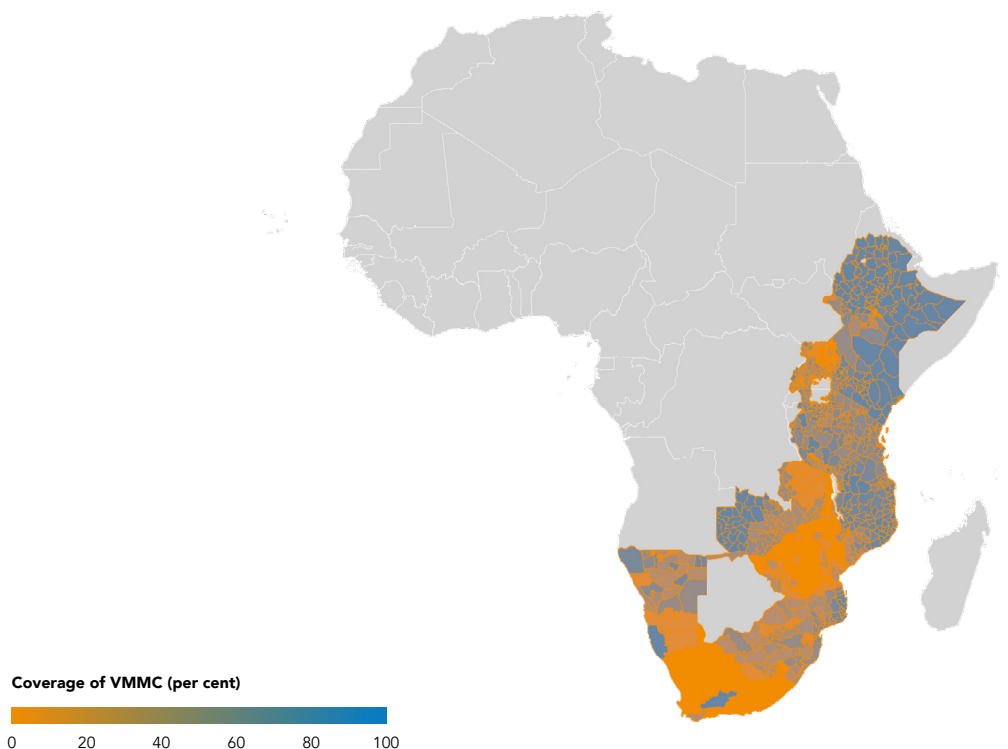
Voluntary medical male circumcision (VMMC) can make an even bigger contribution in eastern and southern Africa

VMMC is contributing significantly to reducing numbers of new HIV infections in the 15 priority countries in eastern and southern Africa where the service is recommended as a core element of HIV prevention. VMMC reduces a man's risk of heterosexual HIV acquisition by up to 60% and is an evidence-based, cost-effective, once-off intervention that provides lifelong individual benefit without requiring any subsequent behaviour or action on the part of the person or the health-care system.

By the end of 2022, almost 35 million men and boys had opted for VMMC in the priority countries since 2008. The potential of this cost-effective prevention tool is not yet fully realized, however. Coverage differed markedly between countries and at subnational levels and was below the targeted 90% in almost two-thirds of districts in those 15 countries (Figure 2.8). Uptake of VMMC has generally not returned to pre-COVID-19 levels.

VMMC coverage is still well below the 90% target in most provinces and districts in the 15 priority countries

Figure 2.8 Coverage of VMMC among boys and men (aged 15–49 years), subnational level (administrative level 2), eastern and southern Africa, 2022



Source: special analysis by Avenir Health using the DMPPT2 tool and by Imperial College London using the 3MC tool; UNAIDS Global AIDS Monitoring, 2023 (<https://aidsinfo.unaids.org/>).
Note: VMMC priority countries with available data: Eswatini, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, South Africa, United Republic of Tanzania, Uganda, Zambia, Zimbabwe. Data were not available for Botswana, Rwanda and South Sudan.
Note: VMMC coverage was determined using a geospatial model incorporating self-reported household survey data and national programme data on VMMC. For more information see the VMMC Implementation Planning Toolkit <http://www.vmmcpt.org/>.

VMMC programmes face two major challenges—a funding squeeze, and the need to reach more men in their twenties and older (services have focused especially on adolescents so far). A few countries, Malawi among them, are having some success in focusing their VMMC programmes on younger men. Funding for VMMC has diminished, however. The United States President’s Emergency Plan for AIDS Relief (PEPFAR) funding for VMMC programmes in the 15 priority countries has declined by almost half since 2020 (from about US\$ 285 million to US\$ 147 million).

VMMC services have tended to miss men with lower incomes and men living in rural areas. Data from Population-based HIV Impact Assessments from 2015 to 2019 indicate that uptake of VMMC tends to be poorer among men in lower wealth quintiles. Services at schools and in workplace settings are not ideal for reaching those men, while services at health facilities can involve high transport expenses (85). Programmes can also do better at convincingly addressing men’s concerns about possible adverse effects and community stigma, and at highlighting the broad HIV and other health benefits of VMMC (86, 87).

A road map towards boosted HIV prevention

The HIV 2025 Prevention Road Map, developed by the Global HIV Prevention Coalition, sets out 10 key actions that can lay the basis for high-impact prevention programmes for people from key and priority populations that ensure wide availability of proven HIV prevention tools (such as condoms, VMMC in eastern and southern Africa, harm reduction services and antiretroviral therapy) alongside new tools (such as vaginal and oral or long-acting injectable PrEP) (88). The road map stresses that HIV prevention services should be delivered alongside stepped-up efforts to deliver rights-based sexual and reproductive health services, provide good-quality secondary education that includes comprehensive sexuality education, eliminate gender-based violence and harmful gender norms, and empower women and girls.

People-centred approaches can close many of the treatment gaps

The reach of HIV testing and treatment services must increase, and barriers blocking access to them—such as user fees, stigma, discrimination and criminalization—must be removed. The aim is to ensure that everyone living with HIV is diagnosed, rapidly linked to life-saving antiretroviral therapy, and able to achieve the sustained viral suppression that will protect their health and remove the risk of transmitting HIV to their sex partners.

Children and adolescents with HIV are losing out

Even though numbers of AIDS-related deaths among children (aged 0–14 years) were reduced by 64% in 2010–2022, the pandemic still claimed the lives of an estimated 84 000 [56 000–120 000] children in 2022. This was due largely to the failure to diagnose and provide life-saving treatment to some 660 000 children living with HIV—close to half of the 1.5 million children living with HIV.

It is estimated that only about 65% of adolescents (aged 10–19 years) living with HIV were receiving antiretroviral therapy in 2022—much lower than the 77% antiretroviral therapy coverage among adults (aged 15+ years) overall. HIV-related stigma, including from health-care providers, unsupportive school environments (89), and the emotional and behavioural challenges associated with adolescence make it difficult for many adolescents living with HIV to remain in care and adhere to treatment.

Age-of-consent laws for HIV testing, poverty and lack of financial autonomy are additional barriers. Stronger social support (including via digital platforms) (90) and legal, health facility- and school-based interventions can improve treatment outcomes for adolescents. Adolescent girls living with HIV may face the additional challenge of pregnancy, which also calls for peer and other tailored support (91).

Treatment gaps between men and women are wide

Along the HIV testing and treatment cascade, adult men are significantly less likely than women to be receiving treatment in sub-Saharan Africa, the Caribbean, and eastern Europe and central Asia. Analysis of population-based surveys from 16 sub-Saharan Africa countries, for example, found that over time, men became less likely than women to take an HIV test (92). It is estimated that in 2022, 89% of adult men living with HIV in that region knew their HIV-positive status, 78% were accessing treatment and 73% were virally suppressed. Among women, the corresponding coverage levels were 93%, 86% and 80%.

When men living with HIV are diagnosed and start antiretroviral therapy, however, they tend to be as successful as women in suppressing their viral loads. Globally, about 93% of women and men on treatment had suppressed viral loads in 2022, although men fared considerably worse than women in eastern Europe and central Asia and in western and central Africa. Closing the treatment gap is vital for protecting people's health and for breaking cycles of HIV transmission. If more people living with HIV know their HIV-positive status, start and stay on antiretroviral therapy, and reach sustained viral suppression, then fewer of their sex partners will acquire HIV.

**IN 2022 IN
SUB-SAHARAN AFRICA,
78% OF ADULT MEN
LIVING WITH HIV WERE
ACCESSING TREATMENT
COMPARED WITH 86%
OF ADULT WOMEN**

The causes of these treatment disparities are complex. They include gender norms that emphasize male fortitude and resilience, as well as financial and other costs that can deter people from seeking health care, confidentiality concerns and fear of stigma, inconvenient opening hours and long waiting times at clinics, and the design of health systems themselves (93–97). A review of 56 studies noted that many health facilities in sub-Saharan Africa have been geared for easing access and use for women, especially mothers, and that this may contribute to men's generally poor engagement with health services, including HIV services (98).

Many of the changes that can improve the coverage and outcomes of HIV treatment among men would make it easier and more convenient for everyone to use HIV testing and treatment services. These include greater use of HIV self-testing (99), partner-engagement approaches for testing, workplace-based interventions, social network strategies, provision of convenient HIV services at outpatient departments, and targeting of venues frequented by people who are more likely to be exposed to HIV (100–103). As of July 2022, 52 countries were implementing self-testing policies, mostly in eastern and southern Africa and western and central Europe (104).

Ridding health-care facilities of stigma and discrimination is crucial, along with reducing cost and other financial barriers and removing laws that make people, including members of key populations, distrustful or fearful of health services. When client-centred training and mentoring were introduced at 24 clinics in Lusaka, Zambia, retention rates improved, especially among younger people (aged <25 years) (105). Flexible opening hours and shorter waiting times at clinics, reliable supplies of medicines and fewer routine clinic visits can make it easier for people to start and stay on treatment. Digital platforms and virtual meeting spaces offer new ways to access counselling and support.

Tailored support at health facilities and from community-led organizations would enable people of all genders, ages and populations to remain in HIV care. A large study from South Africa found good long-term clinical outcomes in adults who remain in community antiretroviral therapy programmes. They were more likely to be retained in care and achieve viral suppression than those who moved to clinic-based care (106).

A variety of differentiated service delivery approaches are being used for HIV treatment, many of them combining clinic-based and community-based services (107). Community-led interventions are especially crucial for ensuring people from key populations can access and fully benefit from HIV treatment, and they can have the added benefit of reducing the burden on clinics (106). Community-led monitoring has also been shown to be a valuable source of information for improving HIV services (108).

Experiences during the COVID-19 pandemic have dispelled concerns about entrusting people with greater responsibility for managing the routine aspects of their own HIV care. There continues to be strong evidence to support such approaches. Studies from Kenya, Nigeria, South Africa and Uganda have confirmed the benefits of multimonth dispensing (106, 109). Analysis of data from observational studies and randomized controlled trials found that retention in HIV care was similar when the number of routine clinical consultations was reduced (from twice to once a year) and antiretroviral medicine refills were dispensed for longer periods (six rather than three months) (110).

WHEN CLIENT-CENTRED TRAINING AND MENTORING WERE INTRODUCED AT 24 CLINICS IN LUSAKA, ZAMBIA, RETENTION RATES IMPROVED, ESPECIALLY AMONG YOUNGER PEOPLE

Advanced HIV disease is posing new challenges

Despite successes in expanding the availability of HIV testing and treatment worldwide, advanced HIV disease remains a major reason for the continuing high numbers of AIDS-related deaths.⁵ People who present with advanced HIV disease are especially susceptible to severe illness and death, even after starting antiretroviral therapy (111). The most common causes of death among adults with advanced HIV disease are tuberculosis (TB), cryptococcal meningitis and severe bacterial infections (112–115).

The proportion of people who start antiretroviral therapy with advanced HIV disease has been diminishing. Recent estimates suggest that 30–40% of people starting antiretroviral therapy in low- and middle-income settings have advanced HIV disease (116), but up to half of people in some settings still present to care with advanced HIV disease (117).

The profile of people with advanced HIV disease is changing, however. Previously, most cases of advanced HIV disease were seen among people starting antiretroviral therapy for the first time. There is now growing concern about the prevalence of advanced HIV disease and mortality among people who started and then stopped HIV treatment but are now returning to HIV care.

Overall, it has been estimated that about a quarter of people interrupt treatment at some point after starting antiretroviral therapy, for periods that range from a few days to more than six months (118). A study from South Africa found that about one in five people admitted to hospital with advanced HIV disease had previously initiated and interrupted their antiretroviral therapy, and a further 21% of people admitted to hospital were on antiretroviral therapy but with an unsuppressed viral load (119). The underlying reasons are likely to include stigma and discrimination, side-effects of the medicines, affordability issues and unreliable service provision (114).

There are several ways to deal with these troubling developments. A first priority is to reduce late HIV diagnosis with more efficient HIV testing strategies and ensure that people who test positive for HIV are rapidly initiated on treatment and able to remain in care. More effective support, including social and mental health support from health-care providers and community organizations, would make it easier for people to remain in HIV care and achieve sustained viral load suppression (120). That includes strengthening referral systems so people can continue to receive and fill their antiretroviral medicine prescriptions if they change residence. Also needed is the removal of factors that make it more difficult to stay in care, such as stigma and discrimination, especially at health-care facilities, distant facilities, transport and opportunity costs, and long waiting times. Further increasing the use of dolutegravir-based first-line antiretroviral therapy regimens should also improve treatment adherence.

⁵ Advanced HIV disease is defined by WHO as having a CD4 cell count below 200 cells/mm³ or symptomatic HIV disease (112).

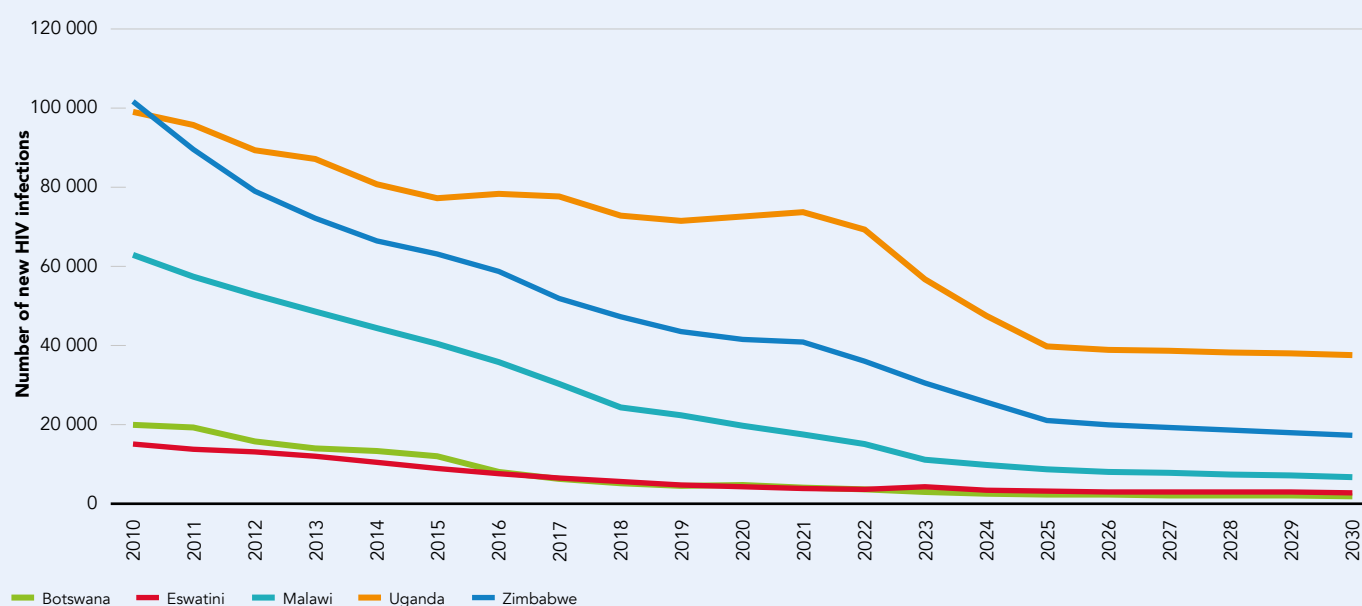
Effective procedures to re-engage people who drop out of care are needed. People who re-engage with care after treatment interruption and who have advanced HIV disease should be offered a comprehensive clinical assessment. WHO recommends that a package of screening, prophylaxis, rapid antiretroviral therapy initiation and intensified adherence interventions should be offered to everyone living with HIV who presents with advanced disease. The package includes interventions for preventing, diagnosing and treating common opportunistic infections, including TB, cryptococcal meningitis and severe bacterial infections, and for ensuring rapid initiation on antiretroviral therapy and intensified adherence support (111). There is also a need to improve HIV literacy at the community level so that people living with HIV are aware of the services and support that could help them adhere to treatment.

A long tail of new HIV infections

New modelling points to a sobering outlook for countries with large numbers of people living with HIV. In Uganda, for example, even if the 2025 targets for testing and treatment (95–95–95) are met, almost 40 000 people would still acquire HIV each year (Figure 2.9). Although this is considerably fewer than the number of new infections in 2015, these new infections will steadily add to the ranks of people who require lifelong HIV treatment and, if not virally suppressed, are at risk of transmitting HIV to others. It is imperative to intensify combination prevention and put in place enabling factors that boost prevention and treatment effectiveness. As clearly stated in the Global AIDS Strategy 2021–2026: End Inequalities, End AIDS, the full set of targets, including the 95–95–95 testing and treatment targets, are required to end AIDS as a public health threat by 2030.

In the absence of constant improvements, even steep reductions in new HIV infections can leave countries with ongoing lingering epidemics

Figure 2.9 Number of new HIV infections, selected countries, eastern and southern Africa, 2010–2022 and projected number of new HIV infections without scale-up of HIV prevention efforts, 2023–2030



Source: UNAIDS special analysis of epidemiological estimates, 2023.

As people with HIV grow older, new challenges are emerging

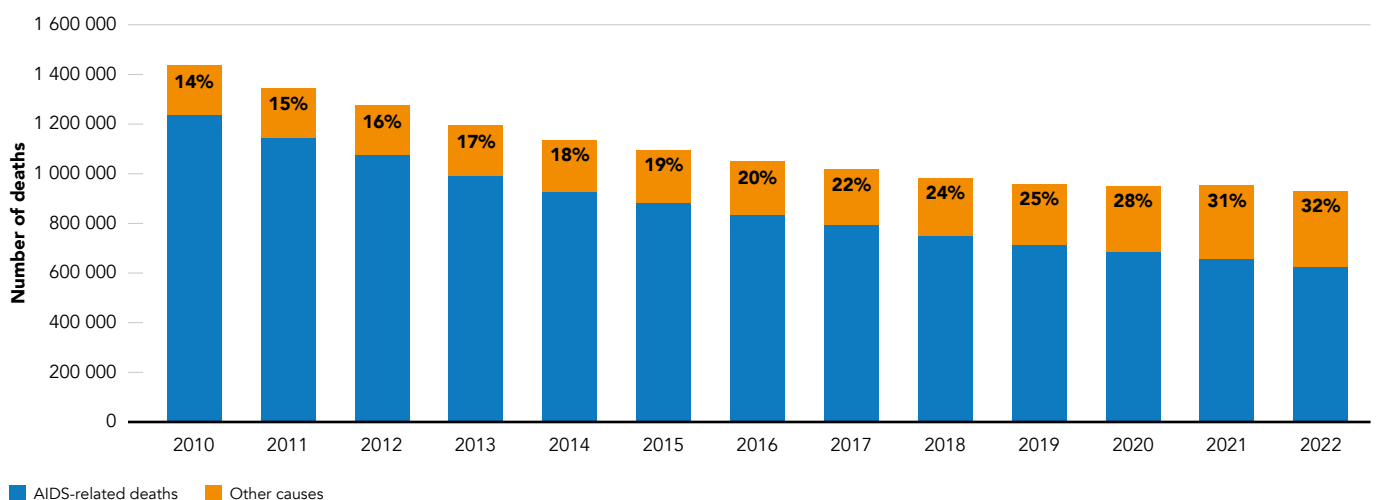
As the provision of life-saving HIV treatment continues, people are living longer with HIV. In 2022, an estimated 24% of people living with HIV globally were aged 50 years and older. In western and central Europe and North America, almost half of adults living with HIV are at least 50 years old. A recent study in Europe and North America concluded that for people with HIV who were on treatment and had high CD4 cell counts, life expectancy was only a few years less than for people in the general population, irrespective of when antiretroviral therapy was started (121).

As people living with HIV live longer, they also contend with other health complications, in particular noncommunicable diseases, such as heart disease, cancer and diabetes. Women ageing with HIV experience menopause and may struggle to access appropriate information and care for these combined conditions (122, 123). Noncommunicable diseases can complicate HIV treatment and threaten people's health and lives (124). HIV also increases some of the risks associated with ageing. Some studies have reported a higher prevalence of comorbidities in people living with HIV than in people without HIV (125). Among people living with HIV, deaths are increasingly due to causes other than AIDS (Figure 2.10).

Systems in some countries are evolving to meet the complicated and shifting needs of ageing people living with HIV, but the adjustments tend to be piecemeal and are undermined by a lack of integration between ageing-related and HIV-related services and support (126). Differentiated service approaches might have to adapt—for example, by shifting antiretroviral therapy outside of clinical settings, because many settings are not ideal for older adults with comorbidities and who require different types of clinical monitoring and support (125).

People with HIV are increasingly likely to die of causes that are not AIDS-related

Figure 2.10 Deaths among people living with HIV, by cause, 2010–2022



Source: UNAIDS epidemiological estimates, 2023 (<https://aidsinfo.unaids.org/>).

HIV responses still neglect people from key populations

Globally, the HIV response among people from key populations has stalled. In many places it never really got off the ground, and in some places it is regressing. Weak political will, social conservatism, insufficient funding, rampant stigma and discrimination, and the ongoing use of punitive laws and policies that restrict access to HIV and other health-care services are blocking progress.

Preliminary UNAIDS analysis based on countries with available trend estimates suggest that sex workers and clients experienced decreases in new infections from 2010 to 2022, often in line with overall national trends, whereas gay men and other men who have sex with men, transgender people and, in some regions, people who inject drugs have not benefited equally from HIV prevention and treatment services. Failure to protect people from key populations against HIV will prolong the pandemic indefinitely, at great cost to the affected communities and societies.

In addition to wilful neglect, denial and apparent ignorance about the epidemiological situation are major obstacles to effective prevention and treatment for people from key populations. A surprising number of countries lack programmes, size estimates and HIV data for key populations. In some cases, this absence of data serves as an alibi for inaction.

UNAIDS analysis shows there are many millions more people from key populations globally than indicated in country-reported size estimates. Countries are either undercounting key populations or, in many cases, providing no data for them. In the Middle East and North Africa, for example, many countries have collected barely any data for key populations that can be used for HIV responses. The biggest size estimate gaps overall are for people who inject drugs and transgender women.

FAILURE TO PROTECT PEOPLE FROM KEY POPULATIONS AGAINST HIV COMES AT GREAT COST TO THE AFFECTED COMMUNITIES AND SOCIETIES



There has been little progress in reducing numbers of new HIV infections among key populations over the past decade

Weak political will, social conservatism, insufficient funding, rampant stigma and discrimination, and the ongoing use of punitive laws and policies that restrict access to HIV and other health-care services are blocking progress.

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Higher risk, less protection, more HIV infections

People from key populations face much higher risks of acquiring HIV than other members of society, including in regions where HIV prevalence is also high in the general population. In 2022, compared with adults in the general population (aged 15–49 years), HIV prevalence was 11 times higher among gay men and other men who have sex with men, four times higher among sex workers, seven times higher among people who inject drugs, and 14 times higher among transgender people.

Large prevention gaps remain the norm in most regions, often in the context of punitive laws, police harassment, and harsh stigma and discrimination. In sub-Saharan Africa, HIV incidence among gay men and other men who have sex with men was estimated to be almost five per 100 person-years in 2020, which is 27–150 times higher (depending on the country) than among adult men (aged 15+ years) overall in the region (127).

Young people from key populations are highly vulnerable and struggle to stay healthy and safe in contexts marked by stigma, discrimination and harassment, punitive laws and social taboos (128). In Asia and the Pacific, HIV prevalence among young gay men and other men who have sex with men more than doubled in Indonesia (from 6% to 13% between 2011 and 2019) and almost tripled in Malaysia (from 6% to 15% between 2012 and 2022) and in Viet Nam (from 3% to 11% between 2011 and 2022) (129).

Chemsex is a growing phenomenon in which people engage in sexual activity while taking primarily stimulant drugs, typically involving multiple participants and over a prolonged time (130). There have been increasing reports of chemsex in some communities of gay men and other men who have sex with men—most often in high-income settings in Europe and North America, although a recent qualitative scoping review of sexualized drug use and chemsex among gay men and other men who have sex with men and transgender women found it to be increasingly common in Asia (131, 132). Addressing chemsex, especially for people from key populations and their sexual partners, requires a comprehensive, nonjudgemental, person-centred approach. This can include integrated sexual and reproductive health, mental health services, needle–syringe programmes and opioid agonist maintenance treatment services, with linkages to other evidence-based prevention, diagnosis and treatment interventions (132).

Intersecting discrimination and vulnerability lead to certain groups within key populations facing even higher levels of exclusion. According to a systematic review, the estimated prevalence of HIV among people who inject drugs ranged from about 5% in western Europe and North America, to 15–17% in Asia, to over 30% in eastern Europe and Latin America (133). HIV prevalence is especially high among women who inject drugs, due in part to gender norms and inequalities, the added vulnerability to sexual violence and other violence (134), and engagement in unsafe sex work. The median HIV prevalence among men who inject drugs was 9%, while it was nearly double (15%) among women who inject drugs (16 reporting

countries). Data for Europe show HIV prevalence is much higher among sex workers who inject drugs and among transgender sex workers than among non-injecting and cisgender female sex workers (135). Global median HIV prevalence among sex workers is about 2.5% (85 reporting countries), but prevalence is close to 30% in eastern and southern Africa (13 reporting countries).

Depending on the key population, programmes to prevent HIV among people from key populations tend to be piecemeal and too far away, too inconvenient, or too small to shift HIV trends in these populations. Often, programmes are entirely absent. Income poverty further limits access (136). In some cases, countries focus programmes on certain key populations but ignore others. Very often, young people from key populations, especially adolescents, have great difficulty accessing HIV and related services.

PrEP coverage among people from key populations is very low, typically under 5%, including among sex workers and gay men and other men who have sex with men. Studies show a high willingness to use HIV prevention, including PrEP, among gay men and other men who have sex with men (137). In the absence of PrEP or sustained viral load suppression, condoms remain a vital prevention tool. Condom use at last sex among gay men and other men who have sex with men varies widely, ranging from more than 70% (25 of 73 reporting countries) to less than 50% (16 countries of 73 reporting countries). Among transgender people, it varies from more than 70% (14 of 33 reporting countries) to less than 50% (8 of 33 reporting countries). Only 39 countries reported providing condoms and lubricants to at least some people in prisons and other closed settings.

Among people from key populations, condom use at last sex tends to be most common among sex workers (more than 90% in 24 of 74 reporting countries), but it remains infrequent in some places (less than 50% in 10 of 74 reporting countries). A recent meta-analysis of survey data from sub-Saharan Africa among men who reported paying for sex in the past year reported that a little over 60% said they had used a condom the last time they had paid for sex. Encouragingly, condom use at last paid sex was higher in surveys done after 2010 (68%) than in those done earlier (47%) (44).

In 2022, HIV programmes were further challenged by the mpox outbreak, which disproportionately affected gay men and other men who have sex with men, many of whom sought care in sexual health clinics. WHO reported over 87 000 confirmed cases of mpox between January 2022 and May 2023 (138). It is estimated that 38–50% of those affected by the mpox outbreak in 2022 were people living with HIV, who in many communities face stigma and discrimination (139). Current evidence indicates that mpox-related deaths during that period occurred only in people living with HIV (140). Researchers continue to investigate the links between HIV and mpox and their potential implications for HIV services, and governments and vaccine manufacturers have been urged to ensure wide and equitable access to available vaccines.

HIV programmes that adopt non-dogmatic approaches and put people first are having an impact, especially when they engage people from

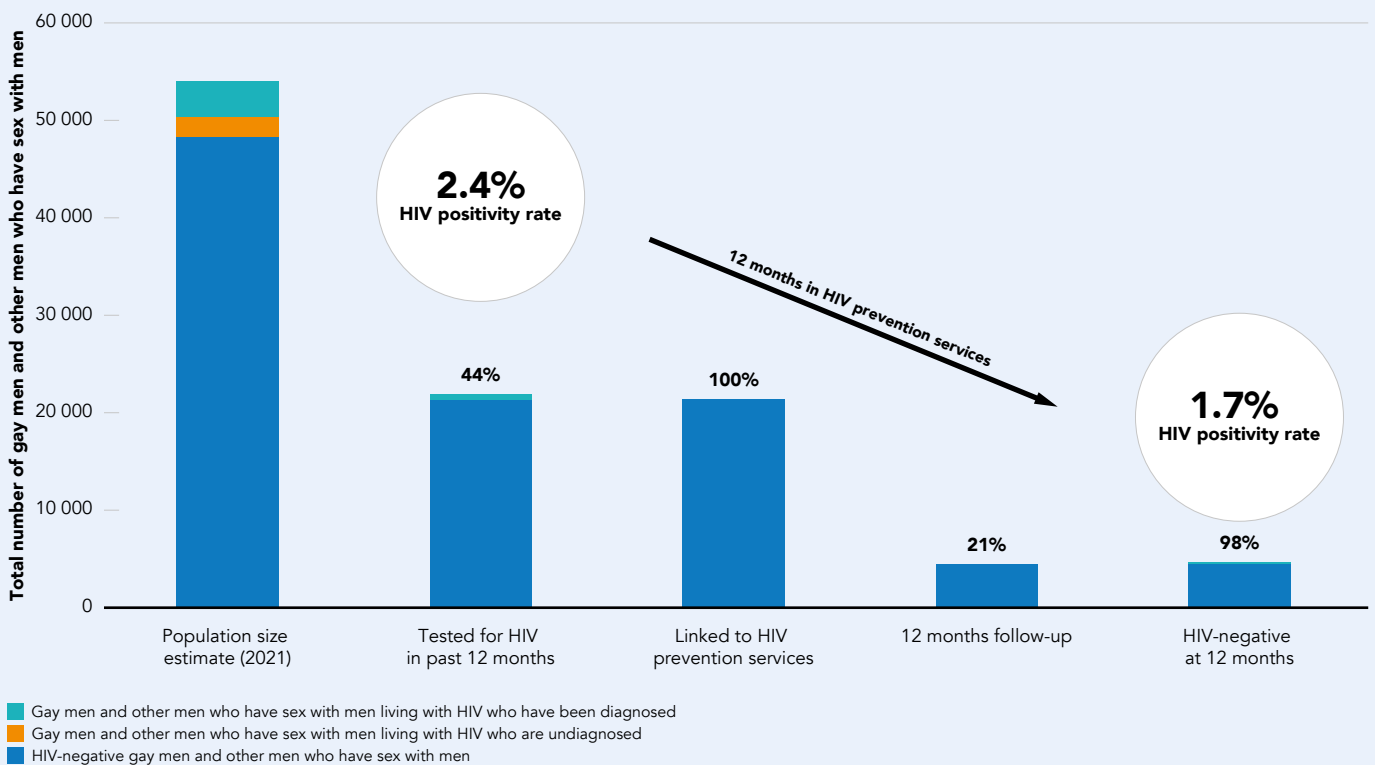
key populations and their organizations in crafting and carrying out effective interventions. Programmes that favour public health priorities over punitive and discriminatory approaches are making progress in different aspects of their HIV response (e.g. in Australia with PrEP rollout, Cambodia with prevention services for sex workers, Estonia and Portugal with services for people who inject drugs, and Thailand and the United Kingdom of Great Britain and Northern Ireland with inclusive policies for gay men and other men who have sex with men)—but those success stories are far from being the norm.

Prevention gains in a challenging context

When reliable data are available and appropriate prevention services are provided, gains can be made, even in a challenging context—as seen in El Salvador (Figure 2.11). Using a robust size estimate for gay men and other men who have sex with men, the Ministry of Health developed a nationwide programme that provided HIV testing to almost half of that key population. The men were linked to appropriate HIV services and asked to take another test after a year—one in five of the HIV-negative men returned for that test, and 98% of them had remained HIV-negative. The HIV-positivity rate among the men who stayed in contact with prevention services fell from 2.4% to 1.7%. This suggests the prevention services had an effect, even though there is much room for further improvement.

Prevention services work when they are accessible and convenient

Figure 2.11 HIV prevention cascade for gay men and other men who have sex with men, El Salvador, 2021



Source: Ministry of Health, Spectrum Estimates of El Salvador, 2021; and Single System for Monitoring, Evaluation and Epidemiological Surveillance of HIV-AIDS (SUMEVE) Cascade at the closing of 31 January 2023.

Harm reduction services are too scattered and too small

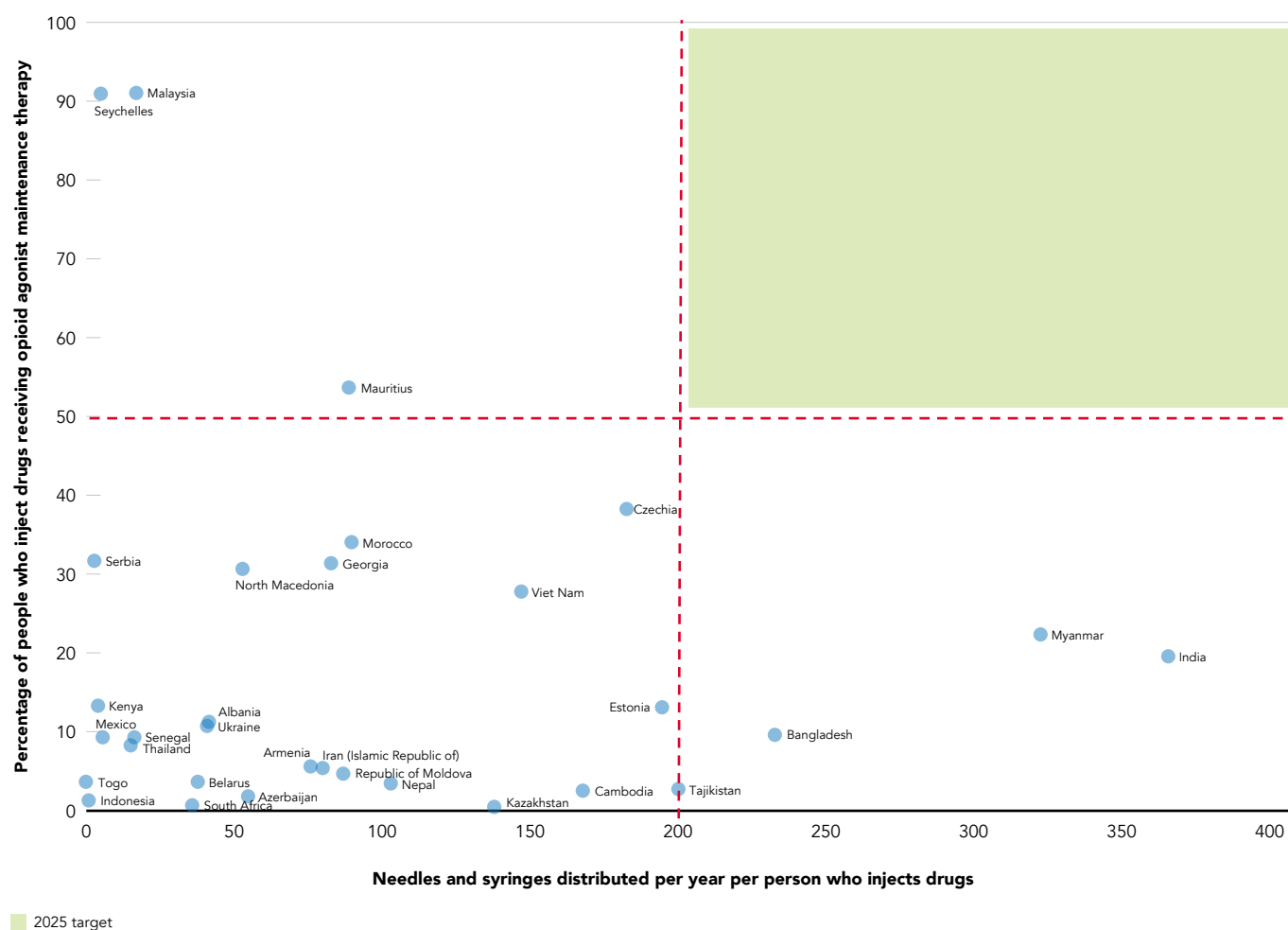
The positive public health impact of comprehensive harm reduction—including needle–syringe programmes, opioid agonist therapy and overdose treatment—is well established in the scientific literature (141, 142). Opioid agonist maintenance therapy was reported to be operational in 87 countries in 2022, but mostly on a small scale and often in the context of counterproductive law enforcement practices. Data reported to UNAIDS show that since 2018, only 12 of the 28 reporting countries have achieved the 90% target for coverage of safe injecting practices.

Some countries are showing that prevention targets can be achieved if appropriate harm reduction policies are adopted and sufficient funding is provided. Malaysia, Mauritius and Seychelles have achieved the 2025 target of reaching at least half of people who inject drugs with opioid agonist maintenance therapy. At the global level, however, there has been little change in the availability of opioid agonist maintenance therapy, with coverage still extremely low in all but a few countries. With some important exceptions, opioid agonist maintenance therapy reached less than 10% of people who inject drugs in six of 11 reporting countries in Asia and the Pacific and in seven of 11 reporting countries in eastern Europe and central Asia, regions where injecting drug use is an important driver of national HIV epidemics (see Figure 2.12). Seventy per cent of the estimated global need for opioid agonist maintenance therapy is in Asia and the Pacific.

The HIV-related needs of people in prisons and other closed settings continue to be neglected. Between 2018 and 2022, only seven countries had needle–syringe programmes for people in prisons and 27 countries provided opioid agonist therapy to people in prisons. These programmes are mostly small, with very limited coverage. Much stronger political will is needed to apply a public health approach to drug use and dependence.

Very few countries are on track to reach the 2025 needle–syringe and opioid agonist maintenance therapy targets

Figure 2.12 Coverage of needle–syringe programmes and opioid agonist maintenance treatment among people who inject drugs, and targets, countries with available data, 2018–2022



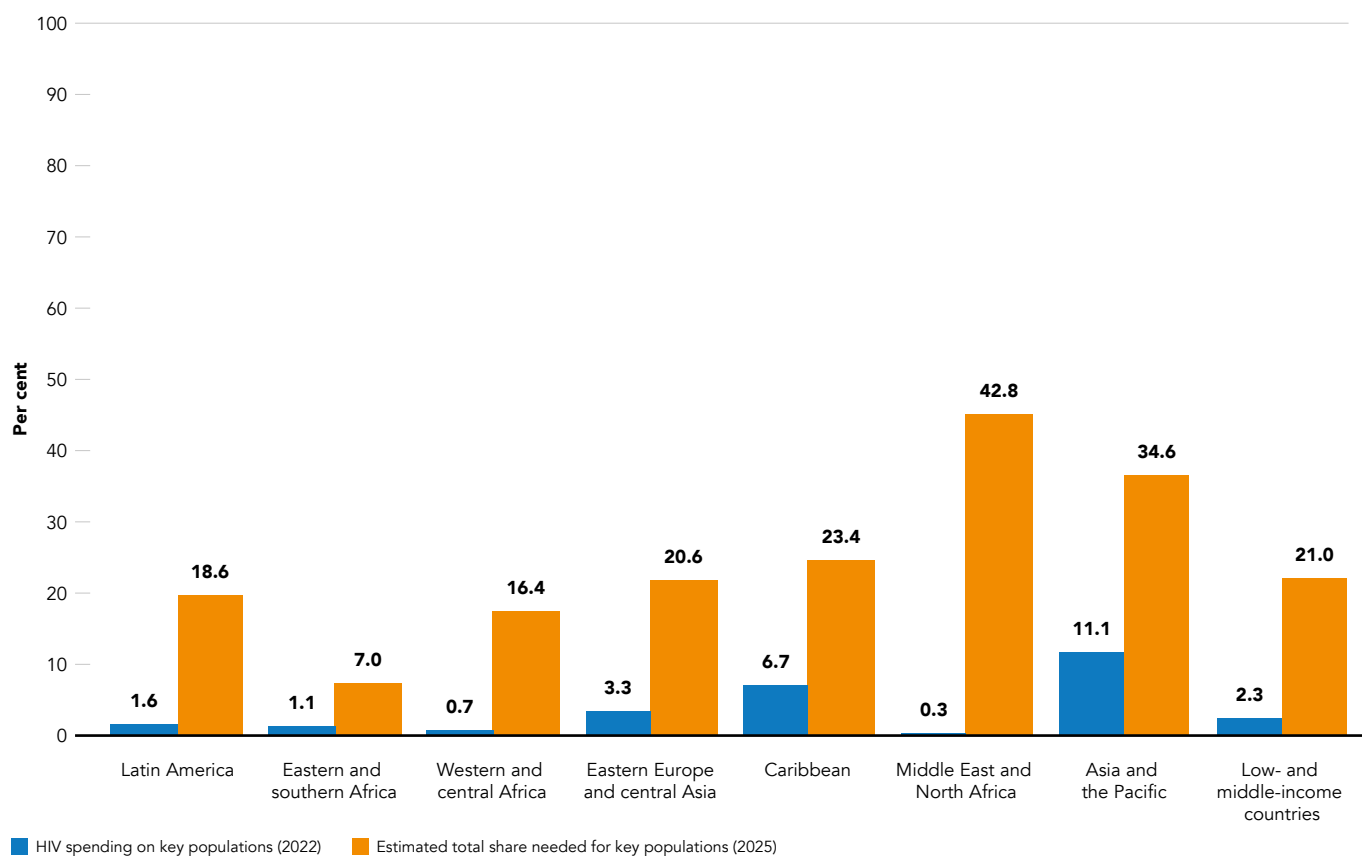
Source: UNAIDS Global AIDS Monitoring, 2023 (<https://aidsinfo.unaids.org/>).

Funding increases will make a big difference

Stronger political will and greater domestic funding for key population-focused programmes, including for key population-based organizations, should be core priorities, but few countries are heeding this advice. Financial investments in key population programmes lag far behind needs. In 2022, there was an estimated 90% funding gap for prevention programmes among people from key populations, compared with the funding needed by 2025 in low- and middle-income countries (Figure 2.13). The biggest gaps were in western and central Africa and in the Middle East and North Africa.

Key population programmes are underfunded in all regions

Figure 2.13 Percentage of total HIV spending spent on prevention and societal enablers for key populations, 2022, and projected share needed, 2025, low- and middle-income countries, by region



Source: UNAIDS financial estimates and projections, 2023; UNAIDS Global AIDS Monitoring, 2023; Stover J, Glabius R, Teng Y, et al. Modeling the epidemiological impact of the UNAIDS 2025 targets to end AIDS as a public health threat by 2030. *PLoS Med.* 2021;18(10):e1003831.

Note: data are from 80 countries that reported their latest expenditures on prevention and societal enabler interventions for key population interventions. Testing and treatment services are not included.

Laws that put people in harm's way

Punitive laws and policies, human rights violations and discrimination continue to greatly increase the risk of HIV transmission, limit access to services, and sabotage efforts to decrease the impact of the epidemic among people from key populations (143).

A 10-country study in sub-Saharan Africa showed that HIV prevalence among gay men and other men who have sex with men was five times higher in countries that criminalized same-sex relationships than in non-criminalized settings. Where there were recent prosecutions based on those laws, HIV prevalence in this key population was 12 times greater than in countries without prosecutions. Where civil society organizations faced barriers to operating, prevalence was more than nine times higher than in countries without such obstacles (144). Other research has shown that repressive policing of sex workers almost doubled their risk of HIV or other sexually transmitted infections (145), and there is strong evidence linking the criminalization of drug use with negative effects on HIV prevention and treatment among people who inject drugs (146).

**THE EVIDENCE IS CLEAR:
ENDING MISGUIDED
AND UNJUST
CRIMINALIZATION IS
GOOD FOR PUBLIC
HEALTH AND REQUIRED
AS A MATTER OF
HUMAN RIGHTS
OBLIGATION (142)**

Laws that criminalize people from key populations or their behaviours remain on statute books across much of the world. The vast majority of countries in 2023 still criminalized the use or possession of small amounts of drugs, 168 countries criminalized some aspect of sex work, 67 countries criminalized consensual same-sex sexual intercourse, 20 countries criminalized transgender people, and 143 countries criminalized or otherwise prosecuted HIV exposure, non-disclosure or transmission (see Figure A1.4 in Annex 1).

There have been some positive changes (see Chapter 1). Fewer countries now criminalize consensual same-sex relations than a decade ago (147). Some countries have restricted the scope of or removed laws criminalizing HIV transmission, exposure or non-disclosure and drug use. A few jurisdictions have decriminalized sex work. An alarming shift in the opposite direction is also under way, however. Uganda's new Anti-Homosexuality Act (2023), signed into law in May 2023, provides for severe punishments against LGBTQI+ people and organizations (148), and Indonesia's new criminal code contains articles that violate the rights of women and people from sexual minorities (149, 150). In Pakistan, a federal court has struck down parts of the Transgender Persons (Protection of Rights) Act (151). Harmful policies limiting freedom of association, including for LGBTQI+ organizations, have been passed in Niger and Zimbabwe; anti-transgender legislation was introduced in the United States of America; and attempts are under way in the Russian Federation to expand laws banning so-called "LGBTI propaganda" (152). If allowed to proceed, this turn towards criminalization and punishment will set back the HIV response badly.

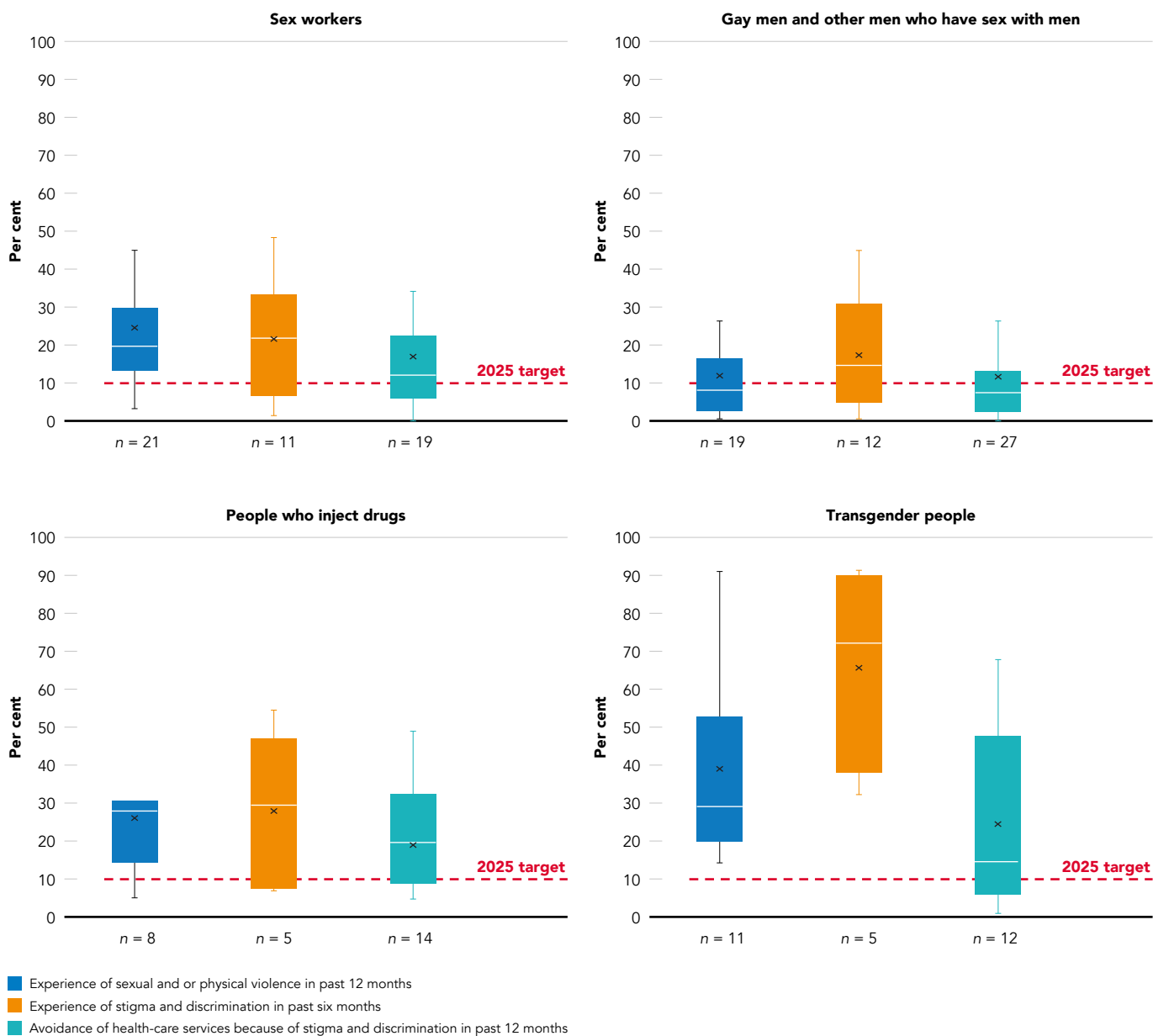
Stigma and discrimination still block progress

Discriminatory attitudes towards people living with HIV remain alarmingly common in all regions, and stigma is discouraging people from seeking HIV prevention services, testing for HIV, and starting and staying on HIV treatment (153, 154). Across 54 countries with recent survey data, a median of 59% of people reported discriminatory attitudes towards people living with HIV—a level that is nearly six times higher than the 2025 global target. In 13 countries, more than 75% of those surveyed reported holding discriminatory attitudes.

It is especially important for health-care services to be free of stigma and discrimination. There is a wealth of evidence describing the extent to which stigma and discrimination undermine HIV prevention and treatment programmes (see Figures 2.15 and 2.16). Survey data show that more than 10% of people living with HIV experienced stigma and discrimination in health-care settings in 10 of 12 countries. People from key populations are especially affected, with survey data reporting that more than 10% of respondents avoided accessing health-care services due to stigma and discrimination in nine of 27 reporting countries for gay men and other men who have sex with men, 16 of 29 countries for sex workers, eight of 14 countries for people who inject drugs, and seven of 12 countries for transgender people (Figure 2.14).

People from key populations continue to face pervasive violence, stigma and discrimination

Figure 2.14 Experience of sexual and or physical violence, stigma and discrimination and avoidance of health-care services among key populations, countries with available data, 2018–2022

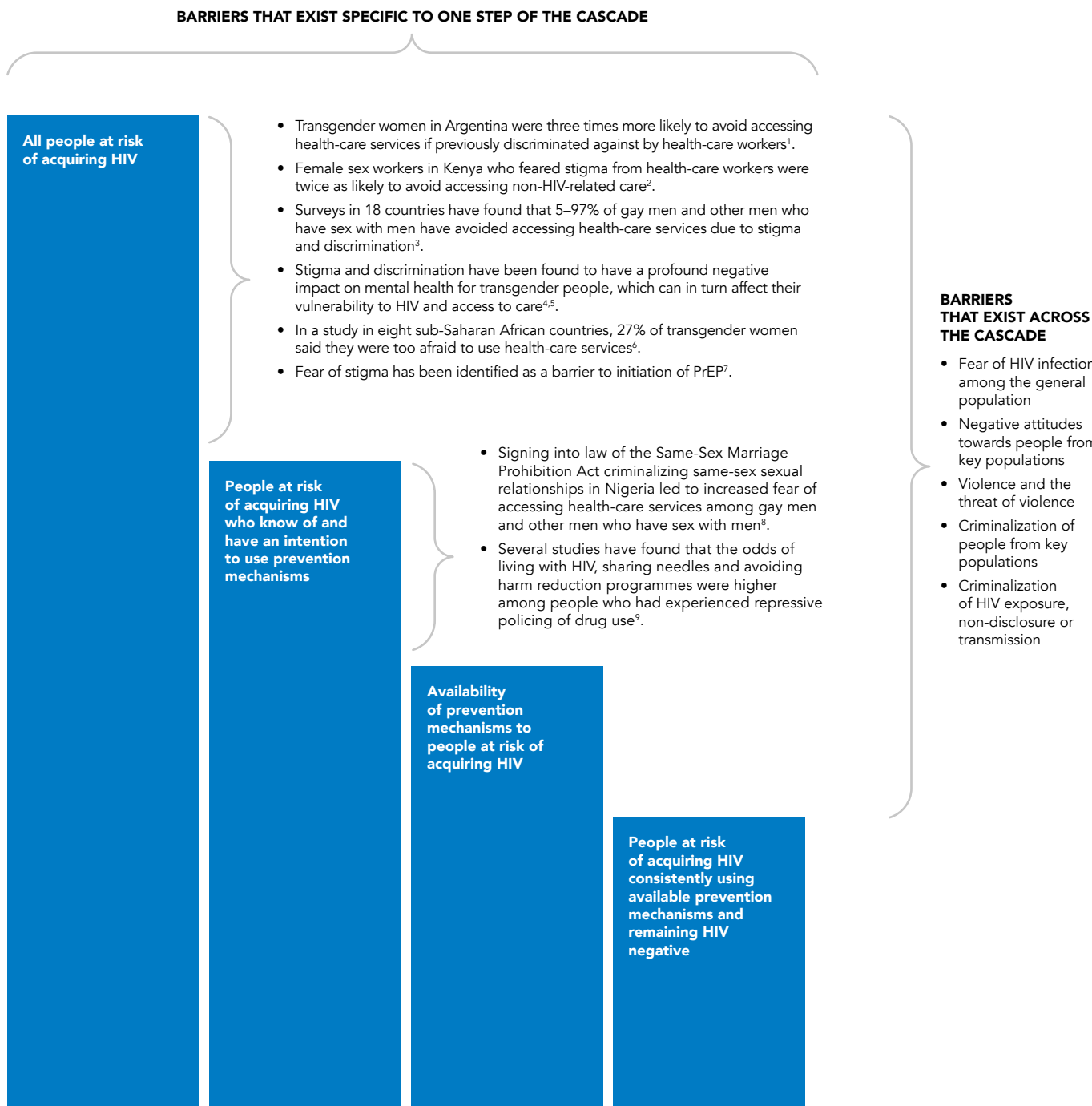


Source: UNAIDS Global AIDS Monitoring, 2023 (<https://aidsinfo.unaids.org/>).
 Note: n refers to the number of reporting countries.

Hard-won advances for LGBT communities are increasingly under threat. In 2022, a record number of countries overturned laws that criminalize same-sex relationships, while other countries have removed laws that criminalize gender expression, or have introduced laws protecting gender diversity. At the same time, however, homophobia and transphobia remain a constant threat, with continuing reports of violence towards LGBT people and the introduction or strengthening of legislation restricting the rights of LGBT people, as seen in Hungary, Peru, the Russian Federation, the United Kingdom and the United States—and remain well-entrenched in many other countries (155, 156).

Stigma and discrimination continue to be major barriers for HIV prevention and treatment

Figure 2.15 Evidence of the effects of stigma and discrimination on people's ability to avoid acquiring HIV infection

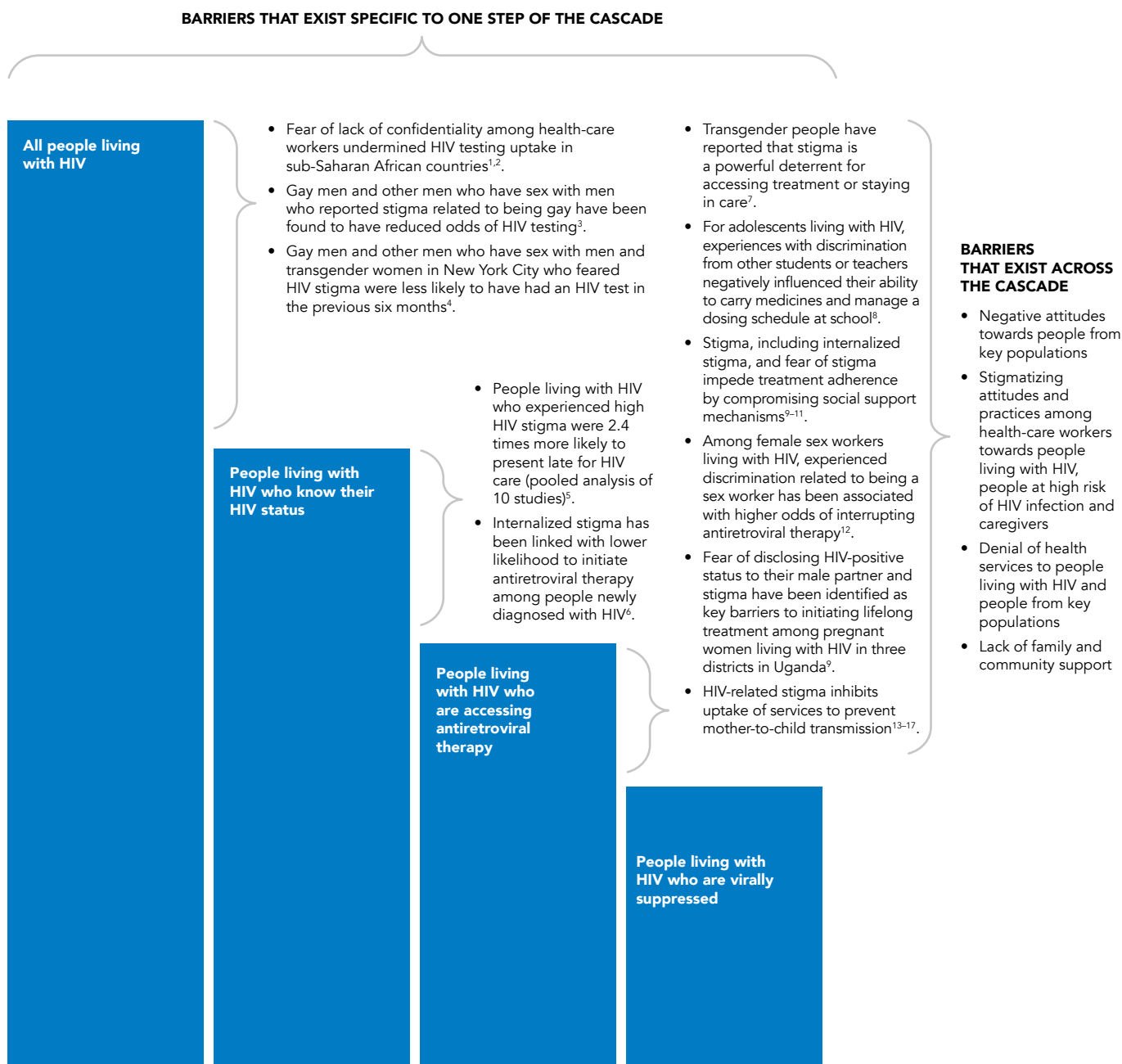


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Stigma and discrimination are major barriers for HIV testing and treatment

Figure 2.16 Evidence of the effects of stigma and discrimination on people's ability to access and benefit from HIV testing and treatment services



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