

THEMATIC SEGMENT BACKGROUND NOTE

What do the regional and country-level data tell us, are we listening and how can we leverage those data and related technology to meet our 2025 and 2030 goals?

TABLE OF CONTENTS

SUMMARY	4
INTRODUCTION	4
WHAT DO THE DATA TELL US? ARE WE LISTENING?	5
COLLECTING AND LEVERAGING DATA TO MAXIMIZE SERVICE COVERAGE AND IMPROVE SERVICE QUALITY	10
COLLECTING AND LEVERAGING DATA ON LEGAL AND POLICY BARRIERS AND SOCIAL ENABLERS	21
GLOBAL MONITORING OF PROGRESS TOWARDS THE 2025 TARGETS	25
WAY FORWARD	27

DISCLAIMER

The case studies featured in text boxes in this background note have been summarized but are otherwise presented as submitted. They do not, implied or otherwise, express or suggest endorsement, a relationship with or support by UNAIDS and its mandate and/or any of its Cosponsors, Member States and civil society. The content of the case studies has not been independently verified. UNAIDS makes no claims, promises or guarantees about the completeness and accuracy of the content of the case studies and it expressly disclaims any liability for errors and omissions in the content. The designations employed and the presentation of the case studies do not imply the expression of any opinion whatsoever on the part of UNAIDS concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Nor does the content of the case studies necessarily represent the views of Member States, civil society, the UNAIDS Secretariat or the UNAIDS Cosponsors.

All case studies have been compiled as a Conference Room Paper (UNAIDS/PCB (49)/CRP2), which is available on the PCB website

SUMMARY

1. This note provides background information for the thematic segment of the 49th meeting of the Programme Coordinating Board, titled, “What does the regional and country data tell us, are we listening, and how can we better leverage that data and related technology to meet our 2025 and 2030 goals?”
2. Data have been the bedrock for progress against the AIDS pandemic over the last two decades. However, effective collection and use of HIV-related data have been uneven.
3. Sustainable, routine national health information systems should be the foundation for the effective use of data to improve health outcomes. These systems compile diverse, high-quality data that build the information necessary to understand and respond to the epidemic. Both the HIV and COVID-19 responses have demonstrated the value of granular, disease-specific data for adapting health and other critical services to respond to emergency situations or other shocks.
4. The groups most affected by HIV are often marginalized and are not equitably represented in national information systems, in large part due to the effects of stigma and discrimination. Therefore, routine national information systems need to be complemented by special, focused surveys that help close data gaps and enable data triangulation to develop and implement strategies to reach those being left behind.
5. Community-generated data are an additional pillar of HIV response information systems that monitor the affordability, availability, acceptability and quality of services, especially for the most marginalized populations. Community-led monitoring addresses issues that can be overlooked by other data systems or methods, such as the prevalence, nature and impact of human rights-related barriers to service uptake and can work with populations that are more easily reached by community-led efforts.
6. Inclusive efforts to set national targets for HIV responses also promote broad ownership and accountability for achieving those targets. Agreed targets help unite diverse actors and stakeholders in achieving high service coverage and positive impacts for all populations.
7. UNAIDS support to country monitoring and reporting is critical for global progress and accountability in the HIV response and for maintaining momentum towards global HIV targets and commitments. This support advances global solidarity in using data to identify and address inequalities, and to accelerate progress towards the end of the AIDS pandemic.

INTRODUCTION

8. The Programme Coordinating Board (PCB), at its virtual 47th session in December 2020, agreed that the focus of the thematic segment at the 49th meeting would be, “What does the regional and country data tell us, are we listening, and how can we better leverage that data and related technology to meet our 2025 and 2030 goals?” This note provides background information for this thematic discussion.
9. The HIV response has given rise to one of the most comprehensive, granular and timely data systems in global health and development. Quantifiable, time-bound targets have driven progress and enhanced the accountability and transparency of the HIV response. Rich programme, survey, modelled and policy data have contributed to continuous improvement of HIV services.

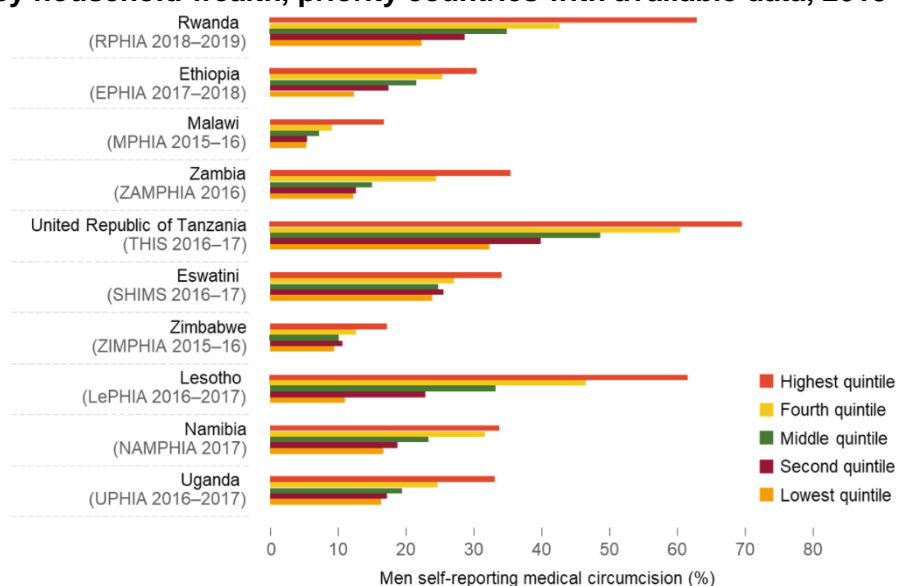
10. While data have served as a bedrock of the response, the effective collection and use of HIV-related data have been uneven. Some countries and programmes have prioritized the collection and use of diverse, disaggregated, detailed data to shape national responses and drive progress against AIDS. By contrast, others have lacked the resources, systems or expertise to collect and effectively use data. Some countries do not collect sufficient data on key populations, leaving them largely unaware of the drivers of HIV infections and AIDS-related deaths and other essential information needed to guide an effective response.¹ These challenges underscore the importance of engaging communities as essential partners in the planning, implementation and monitoring of strategic data efforts.
11. Global analysis of country data reported to UNAIDS show that the global AIDS response has lost momentum in recent years, primarily due to the persistence of inequalities. Efforts to reduce HIV-related inequalities are being guided by the 2021 Political Declaration on HIV and AIDS: Ending Inequalities and Getting on Track to End AIDS by 2030² and the Global AIDS Strategy 2021–2026.³ The declaration and the strategy call on countries to improve the collection and use of data, to guide national target-setting, planning, resource allocation, service delivery and the removal of legal and policy barriers, in line with global targets for 2025. Both documents reinforce efforts to achieve country-owned targets across at least 10 Sustainable Development Goals,⁴ including the target to end the AIDS epidemic by 2030 (target 3.3), and they also create synergies on data collection within the broader health ecosystem and within the UNAIDS Joint Programme.
12. This background note explores how and why the collection and use of data will be central to monitor and drive progress towards the 2025 targets, with particular attention to the role of the UNAIDS Joint Programme in strengthening data for impact. The note explicitly addresses each of the three questions posed for this thematic segment.
13. To answer the first two questions (What do the data tell us? Are we listening?), the note summarizes available data on the HIV response, describes how the collection and strategic use of those data have yielded transformative results and notes where our failure to heed data have contributed to gaps and inequalities in the response.
14. Reflections on the third question (How can we better leverage that data and related technology to meet our 2025 and 2030 goals?) are provided in thematic sections on: (i) target-setting, planning and resource allocation; (ii) efforts to maximize service coverage and optimize service outcomes; and (iii) societal enablers, including the removal of legal and policy barriers. Throughout these sections, the background note documents examples from diverse countries and regions of the effective use of data to drive progress.

WHAT DO THE DATA TELL US? ARE WE LISTENING?

15. Country data reported to UNAIDS highlight both the history-making successes of the HIV response as well as persistent gaps, inequalities and shortcomings. These data clearly demonstrate that ending AIDS as a public health threat is feasible: at least 44 countries are on-track to achieve at least a 90% reduction in AIDS-related deaths by 2030 and 35 are on track to reduce new HIV infections by at least 90%.^{5 6} Eight countries achieved the 90–90–90 targets,⁷ 19 reached the 90–90–90 goal of viral suppression among at least 73% of all people living with HIV, and the number of AIDS-related deaths globally has declined by 47% since 2010 (and by 64% since peak mortality in 2004).⁸

16. However, none of the Fast-Track 2020 targets set by the United Nations General Assembly in 2016⁹ were achieved globally, and no region met the Fast-Track target of reducing new HIV infections by at least 75%. Between 2010 and 2020, annual HIV infections have increased by 43% in eastern Europe and central Asia and by 7% in the Middle East and North Africa, and in Latin America no progress has been made over the last decade in the reduction of annual new infections.¹⁰ Uptake of combination HIV prevention remains wholly inadequate. Coverage of prevention services for key populations varies considerably among countries and regions and is insufficient in all regions.
17. Data from population-based surveys conducted after 2015 suggest that condom use has declined among young people in several countries in sub-Saharan Africa, while only 44% of priority districts in 19 countries in sub-Saharan Africa¹¹ had dedicated programmes for young women and their male partners.¹² Use of pre-exposure prophylaxis (PrEP) is increasing, but the number of people receiving PrEP as of December 2020 (845 000) was far below the Fast-Track target of 3 million.¹³ The number of men in 15 priority countries who received voluntary medical male circumcision in 2016–2020 (nearly 18 million) was over 7 million circumcisions short of the Fast-Track target.¹⁴ Across all regions, harm reduction services for people who inject drugs are seldom provided on a meaningful scale.
18. Social and structural barriers continue to impede service uptake and increase HIV vulnerability. In 36 of 58 countries surveyed in 2015–2020, more than 50% of adults (aged 15-49 years) reported having discriminatory attitudes towards people living with HIV.¹⁵ Laws and policies that criminalize and discriminate against key populations and people living with HIV remain common, despite strong evidence that these laws and policies have a negative impact on HIV service uptake and health outcomes (see Section V). In 13 countries with recent surveys, as many as one in five people living with HIV report having been denied health services due to their HIV status in the previous 12 months.¹⁶ Violence against women has been linked to higher risk of HIV infection in high HIV prevalence settings, and to delays in HIV treatment initiation and worse treatment outcomes among women living with HIV.¹⁷ ¹⁸ Only 7 of 43 countries reporting data had met the 2020 target of less than 10% of women reporting having experienced physical and/or sexual violence by an intimate partner in the previous 12 months and most of the world's people lack any social protection benefits.

Figure 1. Self-reported medical circumcision among men aged 15 years and older, by household wealth, priority countries with available data, 2015–2019



Source: Population-based HIV Impact Assessments, 2015–2019

19. Poverty, lack of schooling and discrimination increase HIV vulnerability and impede access to health and HIV services. In some countries poverty is strongly associated with increased HIV prevalence, and in 11 of 12 countries with recent survey data men in lower wealth quintiles are less likely than wealthier men to access services for voluntary medical male circumcision (Figure 1).¹⁹ Women are less likely to have their demand for family planning satisfied by modern methods if they live in rural areas, have not attained a secondary or higher level of education, and/or are in the lowest wealth index quintile.²⁰ In the United States of America, black Americans are eight times more likely than white Americans to be newly diagnosed with HIV,²¹ but PrEP coverage in 2019 was nearly 8 times greater among whites than among blacks.²²
20. Growing recognition of the multiple inequalities that are prolonging the pandemic motivated diverse stakeholders to unite in the development of the new Global AIDS Strategy for 2021–2026, which focuses on ending inequalities and getting the response on track to end AIDS as a public health threat.²³

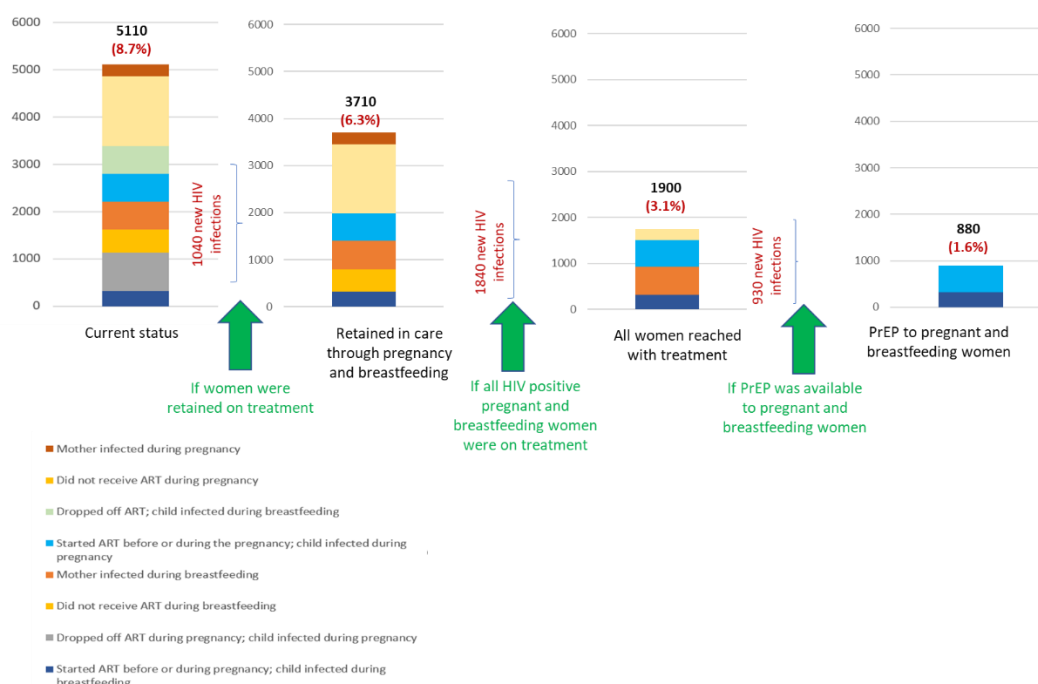
Examples of progress achieved by listening to the data

21. Where countries and programmes have listened carefully to what the data are saying, rapid gains in the response have been achieved. For example, the results of the PopART, SEARCH and other Universal Test and Treat trials have showed that diversified HIV testing and the immediate start of HIV treatment upon diagnosis is feasible and leads to population-level increases in viral suppression among people living with HIV.²⁴ WHO testing and treatment guidelines and many national treatment programmes reflect the results of this research.
22. Data visualization innovations have aided countries in seizing opportunities for programmatic intervention that had previously been missed.²⁵ An example is the “stacked bar” visualization that enables countries to quantify the reasons why children continue to acquire HIV vertically in settings with high antiretroviral therapy coverage among adult women living with HIV. Zimbabwe leveraged findings from the country’s stacked bar analysis (Figure 2) to develop a costed plan to increase coverage of early

infant diagnosis, to improve efforts to locate patients lost to follow-up and re-engage them in care, and to strengthen the quality of data used for programme management.

23. In Uganda, the stacked bar’s visualization of the substantial number of women who become infected during pregnancy and breastfeeding encouraged the country to adopt PrEP for pregnant and breastfeeding women. The stacked bar analysis also informed the country’s prioritization of key interventions in its plan to eliminate vertical transmission of HIV, syphilis, and hepatitis B.²⁶ However, not all countries are effectively using these data to drive progress. New HIV infections among children globally declined by only 20% from 2015 to 2020, well short of recent elimination targets.²⁷

Figure 2. Modelled scenarios for reducing vertical transmission of HIV using the “stacked bar” tool, Zimbabwe, 2020



Source: UNAIDS special analysis, 2021

24. Data regarding the epidemic’s disproportionate impact on adolescent girls and young women has spurred increased action, including creation and roll-out of the United States-funded DREAMS initiative and the joint United Nations Education Plus initiative. Data demonstrating that men living with HIV have consistently poorer outcomes across the HIV testing and treatment continuum compared to women living with HIV has led to focused efforts to engage men more effectively in HIV services, including the multipartner MenStar Coalition, which as of September 2021 had used client-centred initiatives to link nearly 1.3 million men to HIV treatment initiation and achieve a 91% level of viral suppression, and the Coach Mpilo peer support model in South Africa.^{28 29}
25. The HIV response’s investments in systems that generate strategic, granular information on HIV have also strengthened broader health information systems, with benefits that have become especially evident during the COVID-19 pandemic. The world’s largest health information management system, DHIS2, largely funded through HIV investments, collects and analyses health data for 2.4 billion people, informing and guiding planning and service delivery improvement in 73 countries on COVID-19 and other health issues.³⁰ UNAIDS, the World Health Organization (WHO) and the UN

Children's Fund (UNICEF) repurposed the Global AIDS Monitoring system to capture data on the disruptions to HIV services cause by COVID-19 mitigation efforts.³¹ The United States President's Emergency Plan for AIDS Relief (PEPFAR) has reported that its investments in health information systems have helped countries monitor COVID-19 cases, deaths and vaccinations.³² During COVID-19 movement restrictions and full-scale lockdowns, countries and communities heeded data regarding the benefits of multimonth dispensing of antiretroviral therapy to rapidly scale up an approach that has been recommended by the WHO since 2016.³³

Failing to listen to data leads to persistent gaps in HIV responses

26. Meeting children's HIV treatment needs is an example of where many HIV responses are failing to respond to what the data are saying. Antiretroviral therapy coverage among children living with HIV (54% in 2020) remains markedly lower than among adults (74%),³⁴ notwithstanding notable improvements in our understanding of the population of children living with HIV. For example, modelled estimates indicate that two thirds of children who are living with HIV but not receiving antiretroviral therapy are over the age of five years, underscoring both the need to adapt and effectively focus programmes to reach older children as well as the strategic value of age-disaggregated data. These data point towards the urgent need for differentiated testing approaches that better reach older children with testing and treatment services, greater efforts to scale up child-appropriate treatment regimens and formulations, more rigorous monitoring of mother-child pairs and more thorough integration of HIV in children's health services.³⁵
27. HIV prevention among key populations is another example of failing to listen to available data. Although key populations account for a small fraction of the world's population, they (and their partners) comprised 65% of new HIV infections in 2020, including a majority of new infections in every region except eastern and southern Africa.³⁶ Current trends suggest that transmission among key populations will increasingly drive the epidemic in sub-Saharan Africa in the coming years.³⁷ Although the data have intensified the focus on key populations in the broader HIV discourse, this has frequently failed to translate into sufficient shifts of resources towards programming focused on these populations.³⁸ HIV expenditure data reported by 61 low- and middle-income countries indicate that only 2.6% of total HIV spending in these countries goes to programmes specifically designed for key populations.³⁹
28. The multisectoral nature of HIV responses requires resource tracking to go beyond the health financing data collected through National Health Accounts. National AIDS Spending Assessments track expenditure on the full continuum of HIV-related activities, including in such sectors as education, social development and human welfare. This assessment framework provides information on amounts and patterns of spending in countries, informing decisions regarding resource mobilization and allocation.
29. Available data underscore the need to sustain and further strengthen HIV investments to address persistent inequalities and to get the response on track. Although data convincingly demonstrate the profound human and economic benefits of investments in HIV programmes, funding has stagnated. Resources available for HIV responses in low- and middle-income countries in 2020 was 29% less (in constant US dollars) than the US\$ 26 billion the world committed to mobilize annually to support the Fast-Track agenda.

Country: Central African Republic

Leveraging resource tracking to strengthen the HIV response

To develop its national HIV strategy for 2021–2025, the Central African Republic undertook a comprehensive review of its national HIV epidemic and response. With a generalized epidemic (3.6% national HIV prevalence, with prevalence as high as 11.9% in Haut Mbomou province) and inadequate outcomes across the HIV testing and treatment cascade (33% of people living with HIV have viral suppression), national partners confronted an urgent need to strengthen and accelerate the country's response to HIV. As a key element of this comprehensive review, with support from UNAIDS, the country conducted a National AIDS Spending Assessment, its first in a decade due to the persistence of conflict.

The assessment found that treatment and care consume more than half of HIV-related spending. Only about 7% of spending in 2016–2018 focused on HIV prevention—with prevention spending declining by 25% over the three years—and only 6% addressed societal enablers. Among prevention spending, less than 1% supported programmes for key populations, although the country significantly increased spending on prevention interventions for adolescent girls and young women. The country remains heavily dependent on international assistance, with donor funding accounting for well over 90% of HIV-related spending. The Global Fund alone contributes roughly 80% of all HIV funding. Altogether, available funding in 2018 was roughly 80% short of amounts needed to fully fund the previous national strategic plan.

The new strategic plan for 2021–2025 took these gaps and trends into account. The findings of the assessment were and are being used to advocate for increased domestic HIV funding, in particular for prevention spending, paediatric care and budget monitoring, stronger accountability and a more efficient and effective programme implementation. The findings of the spending assessment were leveraged to obtain a nearly three-fold increase in funding from the Global Fund.

(UNAIDS/PCB (49)/CRP2)

COLLECTING AND LEVERAGING DATA TO MAXIMIZE SERVICE COVERAGE AND IMPROVE SERVICE QUALITY

Sustainable, routine national health information systems

30. Sustainable data systems that rely on routinely collected programme data serve multiple purposes. For example, HIV testing data are a critical input for modelled estimates of HIV infections, while routine viral load monitoring improves treatment outcomes while also generating strategic information on the effectiveness of HIV treatment programmes.⁴⁰
31. WHO has been guiding a progressive shift in the emphasis of health monitoring systems from measuring services (e.g. the number of tests performed or people on treatment) to placing people and their access to linked HIV and health services (prevention, testing, treatment, and chronic care) at the centre of monitoring the health sector response to HIV. WHO's recommendations for person-centred HIV patient monitoring and case surveillance provide guidance to countries on how to achieve these multiple aims, by linking key data sources to track outcomes across service cascades, improve patient care and report on programme-specific indicators as well as national and global indicators.⁴¹

32. Electronic medical records that enable the automated exchange of de-identified data between clinical sites and national health information systems are an avenue to better leverage data to improve patients' health outcomes. PEPFAR, WHO and other partners provide technical and financial support for implementation of integrated data exchange systems.⁴² Cameroon has an electronic health information system in place, collecting both clinical and programmatic data, that is periodically reviewed and adapted to address the needs of service providers and clients.⁴³ Haiti has implemented an electronic platform to improve the engagement and treatment of people living with HIV and to support regular reporting of HIV surveillance data.⁴⁴

Country: Nigeria

Nigeria's National Data Repository: use case for efficient programme and patient monitoring

The National Data Repository (NDR) is a central data warehouse that collects, stores, and manages anonymized patient-level data from site-level electronic medical record (EMR) systems at HIV treatment sites in Nigeria. The data are collected based on patient management, monitoring tools and registers approved by the Government of Nigeria. All the 36+1 States currently report HIV programme data routinely from 1658 health facilities to the NDR which is designed to receive patient level data from any EMR platform that meets its requirements. Currently, data from 80% of HIV treatment facilities in the country, including PEPFAR (100% of PEPFAR supported facilities) and non-PEPFAR supported facilities, are in NDR. These data provides key variables to generate indicators for programme monitoring and evaluation.

The NDR provides patient appointment line lists to help facility teams send appointment reminders and improve patient show rate. It also generates lists of clients who have missed appointments for tracking within 24 hours. When a client interrupts treatment (Figure 3), the NDR alerts the facility. The Kaplan-Meier analysis on patient retention predicts loss to follow-up time and distribution of treatment interruption over time and is also used for regimen analysis to track transition to tenofovir, lamivudine, and dolutegravir treatment, as well as paediatric regimen optimization. Other functionalities of the NDR include treatment analysis, finance output indicators, tracking of sample collection as well as viral load coverage and suppression. HIV recent-infection data are also available as recency surveillance is being scaled up.

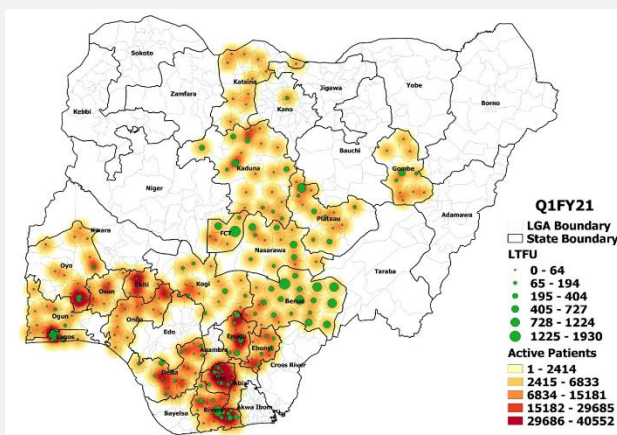


Figure 3. Interruption in treatment by site volume across local government areas, Fiscal Year 2020

Source: Nigeria National Data Repository, 2021.

NDR is at the heart of the rapid scale-up of an antiretroviral therapy programme, known as ART SURGE, in 11 Nigerian states to rapidly increase the number of persons with HIV infection receiving antiretroviral therapy. Programmatic data gathered from 31 March 2019 to 30 September 2020 are used to report on progress on case-finding, treatment initiation, patient retention, and the ART Surge Program growth. Reported weekly numbers of newly identified persons living with HIV who initiated ART increased from 587 to 5329 in just over four months. The use of NDR is evolving to cover integration into data-to-care activities, support HIV surveillance for monitoring epidemic control/HIV case-based surveillance, and mortality surveillance, and is being expanded to more states across the country.

33. Integrated, sustainable health information systems that collect a range of physical and mental health data for the benefit of individuals and management of health systems are essential. In addition, the HIV response as well as the COVID-19 response highlight the importance of granular, disease-specific indicators in addition to broader health reporting.

Household and key population surveys complement routine data

34. General population surveys complement routinely collected data by obtaining information on key gaps or identifying discrepancies that warrant more focused examination. Survey data are also used in epidemiological models that produce estimates that help countries monitor trends in HIV incidence and AIDS-related mortality—impact-level indicators that are not easily measured through other systems.
35. Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS) and AIDS Indicator Surveys have generated nationally representative biological and behavioural data for more than two decades. DHS has been collecting behavioural data on HIV since 1998 and HIV biological data since 2001. In the last five years, DHS surveys have expanded to incorporate mobile testing services along with the survey interviewers to ensure the respondents are able to learn their HIV status. Since 2018, the DHS has also included questions on experiences of stigma and discrimination among people living with HIV. MICS surveys have collected knowledge and behaviour data since 2004.
36. Since 2014, Population-based HIV Impact Assessment (PHIA) studies have provided detailed assessments of the state of the HIV epidemic and response in 13 countries, helping governments monitor the effectiveness of programmes and informing strategies and programmatic targeting.⁴⁵ PHIA surveys collect sociodemographic, clinical and behavioural data; measure HIV prevalence, HIV incidence and coverage of antiretroviral treatment and viral load suppression as outcomes across the testing and treatment cascade; as well as generate data on CD4 counts and HIV drug resistance. All PHIA participants who test positive for HIV are provided a referral form for use in seeking treatment at a health facility. By serving as an additional source of strategic data, at national and subnational level, complementing routinely collected epidemiological and programme utilization data, surveys enable countries to obtain a more granular and nuanced understanding of their epidemic and response.
37. In the Copperbelt region of Zambia, for example, discrepancies between PHIA findings and routinely collected data prompted quality assessments on programmatic data that identified previously unknown treatment gaps and improved programme management.⁴⁶ PHIA studies have also documented treatment barriers experienced by migrant populations in Namibia;⁴⁷ highlighted the need for testing initiatives for older adolescents in southern Africa by demonstrating high levels of undiagnosed HIV infection in this age cohort;⁴⁸ and validated innovative strategies for successfully surging HIV treatment uptake in the Zambian capital, Lusaka.⁴⁹ PHIA surveys also validated the modelled estimates showing the considerable treatment gap for children living with HIV.⁵⁰
38. There are challenges in the routine collection of behavioural data from key populations, in part because in many settings key populations would fear providing such information due to the intersection of criminalization, stigma, discrimination and fear of violence. In

these contexts, bio-behavioural surveillance (BBS) surveys are an important source of locally or nationally representative data.⁵¹ BBS surveys use innovative methods such as respondent-driven sampling and time-location sampling of key venues to mitigate gaps in strategic data on key populations.⁵²

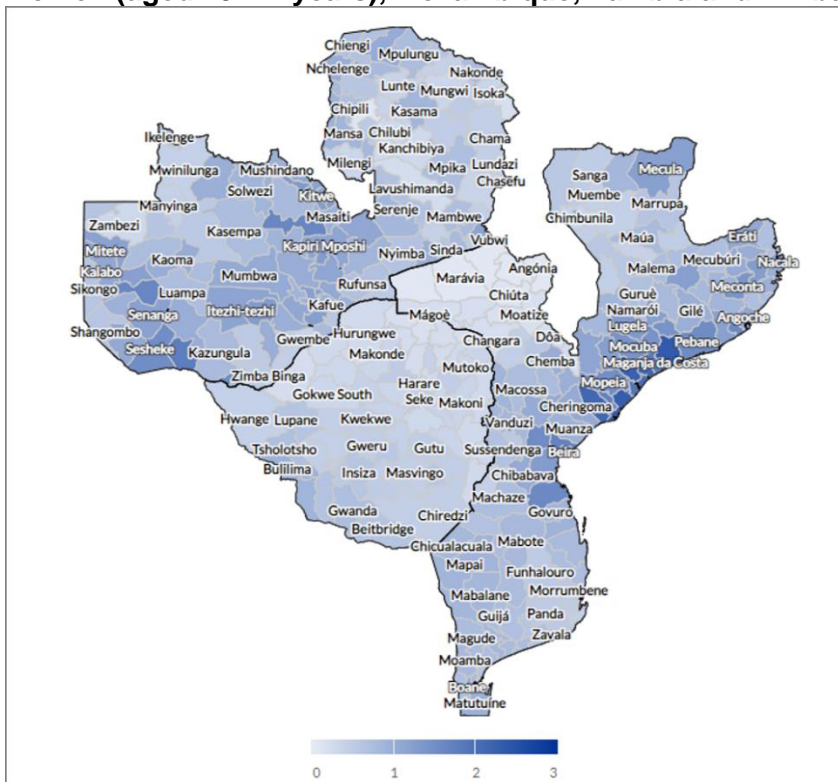
39. In addition to informing strategic planning, resource allocation and programmatic targeting, BBS surveys increase the visibility of key populations, inform advocacy for actions to address their needs and build institutional capacity in these communities.⁵³ In the Caribbean, BBS surveys that were planned and implemented in collaboration with community-led organizations have contributed to estimating the size and HIV prevalence of key populations.⁵⁴ Engagement of communities in all aspects of survey design and implementation ensures recruitment of sufficient survey respondents, accurate analysis of data and the ultimate success of BBS surveys.⁵⁵ BBS surveys are the source of much of the data in the UNAIDS Key Populations Atlas.⁵⁶ Unfortunately, the results of many such surveys have not been published or broadly disseminated, diminishing the ability of stakeholders to use these data to inform policy and programme development.

Triangulating data for effective target-setting, planning and resource allocation

40. The triangulation of good-quality, comparable and diverse data inform national dialogues on the state of the HIV response and drive meaningful target setting, planning, resource mobilization and allocation and performance monitoring. Triangulation of data using mathematical models allows countries to estimate new HIV infections and AIDS-related deaths, important indicators and targets that are not easily measured directly. By monitoring and transparently reporting on progress, HIV responses build broad ownership of and accountability in the fight against HIV.
41. South Africa provides an example of how a national commitment to using data can strengthen the national HIV response. Collection and analysis of subnational trends enabled South Africa to identify 27 high-priority districts for intensified support.⁵⁷ Periodic cross-sectional surveys have generated longitudinal, disaggregated data on HIV prevalence, incidence, behaviours and communications, charting progress in the response while identifying key gaps or challenges.⁵⁸ Data regarding the extremely high HIV risk faced by sex workers in South Africa have contributed to a robust national dialogue on multisectoral strategies for reducing the epidemic's burden in this heavily affected population.⁵⁹
42. Data triangulation also aid national responses in ensuring that investments in validated approaches are having the desired effects. In Estonia, the use of data triangulation showed that an expansion of harm reduction services had been associated with a 61% reduction in new HIV infections in 2007–2016, including a 97% reduction among people who inject drugs.⁶⁰ Solid evidence of the effectiveness of harm reduction played an important role in decisions by China and Viet Nam to expand these services.^{61 62}
43. Triangulation of diverse data sources also supports efforts to mobilize sustainable resources for national responses. HIV investment cases are multidimensional modelling exercises that draw on multiple data sources to guide and inform national prioritization and sustainability planning. Similar exercises are undertaken in the course of UNAIDS' extensive data analytical support to countries in the development of national strategic plans. For example, Zimbabwe's strategy used targets based on formative technical support from UNAIDS and data-based HIV prevention cascades at national, provincial and district levels. These various data-driven activities resulted in a full award to Zimbabwe from the Global Fund of US\$ 448.9 million for 2021–2023, and also fed

directly into planning exercises by the government, PEPFAR and other partners. To help Jamaica develop its latest HIV strategic plan, UNAIDS-assisted equity analyses were conducted across populations, settings and sociodemographic categories, with the goal of supporting the country in applying an inequalities lens across all aspects of the response.

Figure 4. Subnational estimates of HIV incidence, adolescent girls and young women (aged 15–24 years), Mozambique, Zambia and Zimbabwe, December 2020



Source: UNAIDS epidemiological estimates, 2021

Subnational data guide services to the locations in greatest need

44. There is often considerable variation in HIV incidence and prevalence within countries, provinces and districts. More countries are collecting and analysing geolocated programme data to guide resource allocation and service provision. In the 2021 round of UNAIDS-supported HIV epidemiological estimates, 38 countries used the Naomi modelling tool to generate subnational HIV estimates (Figure 4). Both the Global Fund and PEPFAR use subnational HIV estimates in their planning processes, incentivizing work to collect and use location-specific data.⁶³ As the extent of subnational HIV data increases, countries, cities and their partners are increasingly using these more-granular data to monitor subnational progress in their HIV responses.⁶⁴

Country: Pakistan

HIV response scenarios and impact analysis supporting Pakistan's new HIV strategy

Pakistan is one of the countries in the Asia and the Pacific region with significant increases in HIV infections, particularly among key populations. Challenges remain in scaling up services, introducing innovative tools and re-energizing the existing HIV programmes that call for a comprehensive National AIDS Strategy with clear target setting. The UNAIDS HIV and AIDS

Data Hub for Asia-Pacific (the Data Hub)⁶⁵ is a regional entity that responds specifically to the strategic information needs of country and regional partners, community and civil society through its web portal and direct technical support. Working hand in hand with national and provincial AIDS authorities and relevant stakeholders, the Data Hub provided a wide array of technical support that was key in the development of the Pakistan AIDS Strategy 2021–2025 (PAS IV).

The Data Hub supported the review of key population size estimates, prevention, testing, treatment coverage analyses, identifying critical issues to formulate 2025 national and provincial targets aligned with the AIDS strategy. Sub-national level in-depth analyses were carried out to highlight the inequalities in service provision, leading not only to ambitious targets but also to the endorsement of high-impact service delivery models including age-group tailored HIV prevention services for key populations. The PAS IV was also informed by national and provincial AIDS response scenarios and an epidemiological impact analysis. Evidence from the impact analysis was used to formulate the monitoring framework of provincial and national AIDS strategies, which endorsed the introduction and scale up of innovative interventions, such as HIV self-testing and PrEP.

Provincial and national AIDS strategies were used for resource mobilization efforts from the Global Fund grant, which allocated over US\$ 71 million for a three-year grant period (2021–2023), and for the allocation of increased domestic resources. Overall, the PAS IV greatly benefitted from extensive consultations and an inclusive bottom-up approach which used subnational data to construct provincial scenarios, targets and strategies that fed into the final national strategy.

(UNAIDS/PCB (49)/CRP2)

Community-led monitoring as an essential complement to routine data systems

45. Community-led monitoring complements routine health information systems and provides a stronger evidence base for HIV response decision-making by generating quantitative and qualitative data that identify service gaps and barriers to existing services (such as human rights violations) and addressing issues that can be overlooked by other data systems or methods.^{66 67}
46. The Global Fund, PEPFAR and UNAIDS support community-led monitoring as a critical source of data and insights on HIV programmes. In 2020, the Global Fund launched a Community-led Monitoring Strategic Initiative to provide long-term support to five countries and one regional grant to accelerate uptake of community-led monitoring for HIV, tuberculosis and malaria.⁶⁸
47. The Global Fund-supported community-led monitoring project in Nigeria illustrates the broad range of strategic data that can be generated by communities. In the first quarter of 2021, in the midst of the COVID-19 pandemic, community-led monitoring generated trend data on HIV commodity stock-outs, identified the most prominent barriers to service access (including distance to health services and excessive time for processing of viral load tests), and documented the role of user fees and concerns about confidentiality in deterring health service utilization.⁶⁹
48. Ritshidze, a community-led monitoring system which collects data at 400 clinics and community health-care centres in South Africa, shows how monitoring from a community perspective generates strategically vital insights on HIV programmes.⁷⁰ In Free State Province, Ritshidze documented in April-June 2021 frequent staff shortages in health facilities, long wait times (with average waiting time of more than five and a half hours), poor conditions at many health facilities, unavailability of multimonth

prescriptions of antiretroviral medicines at some facilities and inadequate steps in many facilities to provide informed consent to newly diagnosed people living with HIV or guard against intimate partner violence while conducting index-based testing.

49. Community-led monitoring yields data that can inform concrete improvements in service delivery and outcomes. Data generated by the regional Community Treatment Observatory in 11 countries in western Africa aided in reducing commodity stockouts, improving service access for key populations, increasing demand for services and strengthening viral load testing and other laboratory services.⁷¹ The Observatory also contributed to health systems strengthening by driving the development of policies on differentiated service delivery and increasing the range of free HIV services.⁷² In Uganda, community-generated report cards on health facility staff performance led to significant, short- and longer-term improvements in health-care delivery and outcomes.⁷³
50. The UNAIDS-supported Five Cities Project, implemented in China, Guatemala, India, Nepal and Sierra Leone by the International Treatment Preparedness Coalition and other partners, documented the negative effects of successive waves of COVID-19 on HIV services, while also identifying and disseminating effective strategies to maintain and enhance services during the pandemic, such as use of digital tools, differentiated services, multimonth dispensing of antiretroviral medicines and home delivery of HIV treatment. The Five Cities Project has also highlighted how community-led monitoring inspires data-driven advocacy, such as real-time community advocacy to address the HIV treatment needs of Myanmar refugees stranded outside their home country during the pandemic.

Ethical collection and use of data

51. Public health data are collected to improve people's health outcomes. WHO's 2017 consolidated guidelines on person-centred HIV patient monitoring and case surveillance stress that:
 - The use of individual patient data for public health purposes should always be based on strict protocols and procedures to ensure data security and protect patient privacy and confidentiality. All persons accessing HIV services should be assured that information about risk behaviour, comorbidities or other medications dispensed will be kept confidential;
 - Use of health data for other purposes, such as law enforcement, undermines confidence in services and data systems and reduces the likelihood that comprehensive, accurate data can be collected. Individual information related to key populations and criminalized behaviours should not be included in HIV service registers or reported to subnational or national data management units;
 - National databases should use unique identifiers generally rather than names to strengthen the confidentiality and security of the data.⁷⁴

Country: Morocco

Unique identification codes for real-time community monitoring of prevention programmes

Key populations are often hidden and mobile due to stigma and discrimination and have difficulty accessing health and social services. Confidentiality is critical for retaining these groups in care. As part of the capacity building of nongovernmental organizations who offer combination prevention services to key populations in Morocco, with the support of UNAIDS and the Global Fund, the National AIDS Control Programme introduced unique identification

codes. Since 2014, the introduced data system, composed of a set of modules using web technology and geographic information systems, helps community actors and decision-makers analyse real-time data for monitoring the cascade of coverage of combination prevention programmes for key populations. The unique identifiers allow for the tracking of any beneficiary accessing a service within the framework of the combined prevention services offered by 11 nongovernmental organizations which hold more than 40 operational sections in the different regions of Morocco and mobile units, reaching over 100 000 people.

(UNAIDS/PCB (49)/CRP2)

52. UNAIDS and WHO have also issued detailed guidance on ethical considerations in biomedical HIV prevention trials that call for transparent and meaningful consultation with communities in an early and sustained manner in the design, development, implementation, monitoring, and distribution of results of biomedical HIV prevention trials.⁷⁵
53. Global networks of people living with and affected by HIV have expressed concern regarding molecular HIV surveillance conducted in countries that actively criminalise HIV nondisclosure, exposure and/or transmission. These surveys genetically sequence samples of HIV from respondents and track the genetic mutations of HIV, revealing patterns of HIV transmission. The network HIV Justice Worldwide has called on researchers and other stakeholders to respect the bodily autonomy and integrity of people living with HIV, to ensure that these surveys demonstrate a clear public health benefit that outweighs potential harms, to ensure that informed consent is given by all study participants, and that participants can withdraw consent without fear of negative consequences to their HIV treatment and care, and to publicly advocate against punitive or coercive laws and policies aimed at people living with HIV, and to ensure that molecular HIV surveillance is never used in criminal, civil, or immigration investigations or prosecutions.⁷⁶

Country: Russian Federation

National register for uninterrupted care to people living with HIV in Russia

Since 2017, the Russian Federation, where all HIV diagnostic, follow up and treatment services are under the responsibility of governments and fully funded from the national budget, has been using a protected federal information resource, The Federal Register of Persons Infected with HIV, to collect data on HIV at the national level. Currently, the Federal Register brings together a network of 965 medical organizations providing medical care to people living with HIV. Organizations enter epidemiological, clinical, laboratory and therapeutic data into the online tool for both new and existing patients. This tool collates the most updated data, at national and subnational levels, on several indicators, including AIDS-related morbidity, movement of patient population, clinical forms of HIV, and HIV transmission routes, allowing to track changing dynamics and trends. Information on antiretroviral therapy is entered into the Federal Register to inform planning of medicines purchasing distribution and provision on a personalized basis to ensure patients experience no interruptions in access to their prescribed treatment regimens.

Uninterrupted medicines supply is guaranteed when the patient changes place of residence, as information is transferred between medical centres. The adoption of the Federal Register and its multiple functionalities helped the government to fulfil its obligation in combatting HIV in Russia through allowing for timely identification of issues in specific regions and territories and the collected data are regularly analysed to respond to the epidemic evolution, or development, and, ultimately, guide decision-making towards achieving a steady reduction of HIV infections in the country.

Data for impact: HIV testing and treatment

54. Prior to 2015, global monitoring of the HIV treatment agenda focused primarily on antiretroviral treatment coverage. Although valuable, this measure provided little information on the factors affecting patient and epidemic outcomes (such as lack of knowledge of HIV status, suboptimal linkage to care or discontinuity of care). The development of the 90–90–90 targets accelerated efforts to analyse outcomes at each stage of the testing and treatment cascade in order to address specific gaps, bottlenecks and inequalities that stand in the way of durable viral suppression, HIV prevention and strong health outcomes for people living with HIV.
55. Leveraging disaggregated data from cascade monitoring, the CQUIN network uses learning networks to accelerate uptake of differentiated HIV testing and treatment service delivery in 19 countries in sub-Saharan Africa.⁷⁷ Responding to data documenting suboptimal service coverage among key populations, the FIKIA Project in the United Republic of Tanzania has supported key population communities to scale up tailored, differentiated services for HIV testing and treatment.⁷⁸ Granular data identifying retention in care as a major impediment to maximizing viral suppression prompted WHO to revise its HIV service guidelines to emphasize the importance of linkage to care, ongoing patient monitoring and re-engagement of people who have fallen out of care.⁷⁹
56. Diverse data beyond service coverage and outcomes are needed to reach HIV testing and treatment objectives. Monitoring of policies and laws related to HIV testing and treatment—such as adoption by countries of the WHO-recommended treat-all approach or transition to recommended adult and paediatric treatment regimens—has encouraged rapid alignment of most national responses with international guidance and also highlighted where intensified technical support is needed to make important programmatic changes. Ongoing monitoring of antiretroviral therapy costs has facilitated declines in per-patient treatment costs as countries use strategic data on optimal pricing to maximize HIV programme efficiencies.⁸⁰ Monitoring market conditions associated with viral load testing has demonstrated the continued expansion of access to this essential diagnostic tool.⁸¹
57. The 95–95–95 targets set out in the 2021 Political Declaration take this cascade approach to the next level. As well as increased ambition on the aggregate coverage of services and service outcomes, these 2025 targets stress the need to achieve high knowledge of HIV status, treatment coverage and viral suppression across all settings and subpopulations. This emphasis reflects the current heterogeneity of testing and treatment coverage. For example, longitudinal studies have demonstrated how lower treatment coverage and viral suppression rates among men in high-HIV-prevalence settings threaten their own health and also put women, especially adolescent girls and younger women, at greater risk of HIV infection.^{82 83}

Data for impact: voluntary medical male circumcision

58. Since scale-up of voluntary medical male circumcision (VMMC) for HIV prevention began in 2008, nearly 30 million men and adolescent boys have undergone this procedure in 15 priority countries.⁸⁴ The uptake of VMMC, as a component of combination HIV prevention, is contributing to reductions in new HIV infections in high-burden settings.⁸⁵

59. The collection and use of disaggregated data have helped drive VMMC service uptake and influenced service delivery strategies. Data-based estimations of unmet need have highlighted the factors that may encourage or impede individuals from accessing the service and informed the development of diverse demand creation initiatives.^{86 87 88} Monitoring has documented the low rate of adverse events associated with VMMC, which in turn has increased confidence in the procedure.^{89 90} The collection of age-disaggregated data has revealed the heavy concentration of VMMC procedures among young adolescent males (at least 30% of such procedures in Eswatini, Lesotho, Mozambique and Zimbabwe were younger than 15 years old in 2020), underscoring the importance of increasing uptake among older adolescent males and adult men. Data correlating greater uptake of VMMC among men with higher incomes have highlighted the need to focus services and demand creation efforts among men with lower socioeconomic status, including men working in informal sectors.

Data for impact: pre-exposure prophylaxis

60. The strategic use of data to increase uptake and impact of HIV treatment and voluntary medical male circumcision need to inform efforts to expand access to other priority interventions, such as PrEP. The most successful PrEP programmes—such as in New South Wales (Australia) and San Francisco (USA)—are leveraging data to guide service provision and track the impact of scale-up. Although use of PrEP is on the rise globally, PrEP usage remains heavily concentrated in several countries (such as USA, Kenya and South Africa), underscoring the need to leverage data more effectively to expand service access in other countries. Challenges in the scale up of PrEP for women and adolescent girls in high prevalence settings also need to be overcome. While trends are encouraging, as PrEP utilization globally rose by 43% in 2020 compared to 2019, even in the face of the COVID-19 pandemic, the total number of people using this prevention option in 2020 was only 8% of the new 2025 global target.⁹¹

Country: Australia

New South Wales: using data to drive geotargeting of prevention responses

New South Wales, the most populous state of Australia, has an HIV epidemic that is concentrated mainly in gay, bisexual and other men who have sex with men. To inform this states' new HIV Strategy 2021–2025,⁹² the Kirby Institute, University of New South Wales, reported on trends in HIV diagnoses and prevention indicators among this population during the previous strategy (2016–2020).⁹³ Kirby Institute researchers and the New South Wales Ministry of Health, with community based and clinical organizations, led a research programme to develop prevention indicators for monitoring and evaluation during the 2016–2020 Strategy.

Results were published⁹⁴ and used to develop a new data-driven strategy, with an ambitious target for a 90% reduction in the rate of preventable HIV infections, focusing on subpopulations who have experienced less HIV prevention success. The report reviewed the highly successful HIV prevention response, but also highlighted disparities in HIV notifications and the uptake and impact of HIV testing and PrEP among subpopulations of gay, bisexual and other men who have sex with men in New South Wales, revealing previously unrecognized disparities in HIV notifications and prevention indicators by geography, enabling geotargeting of prevention responses. The identified gaps were addressed in the targets and priorities of the 2021–2025 Strategy. The concentration of HIV in more marginalized groups provided important impetus to include a major focus on stigma reduction in the new strategy. Many of the programme's data analyses are now incorporated into routine HIV surveillance in New South Wales.⁹⁵

(UNAIDS/PCB (49)/CRP2)

Persistent data gaps and opportunities to close these gaps

61. Optimizing the use of data for target setting, planning and resource allocation requires action to close key data gaps. For example, few countries regularly collect and use data on societal enablers, human rights, stigma and discrimination, impeding efforts to address social and structural issues or to monitor the effectiveness of interventions to enhance societal enablers. In some countries, efforts are underway to try to close these data gaps, including in Jamaica, where stakeholders are collaborating to develop and launch a data dashboard on the 10–10–10 targets.⁹⁶

Country: Jamaica

Generating strategic data on societal enablers

Through the Ministry of Health & Wellness, the government of Jamaica worked with UNAIDS to undertake a range of interventions to help reduce stigma and discrimination faced by key and vulnerable populations and enable greater access to health services toward ending the AIDS epidemic in Jamaica. Stemming from the enabling environment and human rights component in the new HIV National Strategic Plan,⁹⁷ a five-year operational plan was developed in consultation with civil society organizations, government and other stakeholders, using the Global Fund Baseline Assessment and UNAIDS Guidance for Addressing Stigma and Discrimination. A capacity assessment, conducted in November 2020, highlighted several gaps around funding, communications, recruitment and monitoring and evaluation for which support is a need to strengthen civil society organizations working in the HIV response. Aligned to the operational plan, UNAIDS indicators on societal enablers and the Global Fund Baseline Assessment, a scorecard, featuring 138 interventions across 10 entities, was disseminated among stakeholders to ensure greater coordination of activities.

The Jamaica Partnership for Action to Eliminate all Forms of HIV-related Stigma and Discrimination focuses on ensuring coordination, coherence, and accountability among stakeholders to bolster efforts to end HIV-related stigma and discrimination. As part of the process of ensuring greater efficiency and better decision-making by strengthening monitoring, evaluation and learning, an online reporting dashboard will be launched by the end of 2021. The dashboard is aligned to Jamaica's operational plan and allows stakeholders to utilize a user-friendly platform to report on activities and obtain information. A number of indicators for the monitoring, evaluation and learning framework for the operational plan were developed using the UNAIDS Global AIDS Monitoring framework and 10–10–10 targets. Partners have been trained to use the dashboard and complete data entry starting in January 2022, in partnership with the Ministry.

The Partnership has already provided support to the Jamaica Country Coordinating Mechanism to convene consultations for the Global Fund Country Dialogue. A consultation guide and tool were created to facilitate consultations around the five-year operational plan as well as other areas of the HIV response and the Global Fund Concept Note development. In collaboration with NGOs, 16 consultations were scheduled and more than ten completed.

(UNAIDS/PCB (49)/CRP2)

62. The granularity of the 2025 targets, which demand equitable progress across sub-populations and settings, highlight key gaps in many data systems that need to be addressed. To plan, implement and monitor people-centred services for key populations, countries and communities require accurate size estimates of these populations. Currently, there is no agreed gold standard for accurately estimating the

size of key populations, but strategies exist to improve the quality and reliability of such national and sub-national estimates, including using empirical methods such as scientific, systematic observation or measurement, use of multiple data sources and sound statistical data analysis methods.⁹⁸

63. Few national HIV responses collect meaningful data on service coverage and health outcomes of key populations, particularly for transgender persons and prisoners, and very few key population data are disaggregated by sex or age. These gaps undermine the ability to plan and implement tailored, well-focused initiatives to address the needs of the groups that together with their sexual partners account for nearly two thirds of new HIV infections globally. Current trends suggest these data shortages could soon worsen, as there has been a reduction in the number of planned BBS surveys that have historically supplied the bulk of data regarding key populations. Instead of BBS surveys, donors and countries are relying more on routine programme data. However, this approach misses people who are not receiving care and is thus insufficient as a basis for resource and service planning or identifying gaps and barriers to service provision. One option for closing this gap is to implement less resource-intensive types of BBS surveys, which shorten the turnaround time for data.
64. Countries also face challenges in the collection and use of data on adolescent girls and young women. Representing only 10% of the population, adolescent girls and young women (aged 15–24 years) accounted for 25% of new HIV infections in sub-Saharan Africa in 2020.⁹⁹ However, risk and vulnerability to HIV varies widely among adolescent girls and young women who live in high-HIV-prevalence settings. Identifying those at greatest risk is essential to effective targeting of prevention and treatment services. Some progress is being made in overcoming this challenge, including a methodology developed by UNAIDS to generate sound, location-specific estimates of high-risk adolescent girls and young women for use in the development of Global Fund grants.
65. Sex-disaggregated data help differentiate the unique needs and service barriers experienced by women (including adolescent girls and young women), men, transgender and nonbinary persons. Age-disaggregated data show the high burden of HIV among older adults and the gaps in knowledge of status among young people and in treatment coverage for children. These age- and sex-related data are often available but not used in summarizing or interpreting the data.
66. While data are available separately on HIV and on mobility patterns, little evidence is available on the linkages between the two. As countries strive to advance towards universal health coverage, the lack of reliable evidence on health-care access to all categories of migrants to guide decision-making remains a major challenge, given the magnitude and complexity of migrant flows.¹⁰⁰ Data are not routinely collected on HIV among mobile populations, often making these groups invisible to HIV responses in transit and destination countries.
67. The lack of reliable, up-to-date data on the unit costs of services impedes sound HIV budgeting and financial planning.¹⁰¹ There is a clear need for additional investments in HIV costing studies, including for societal enablers, to provide a reliable basis for budgeting and planning.

COLLECTING AND LEVERAGING DATA ON LEGAL AND POLICY BARRIERS AND SOCIAL ENABLERS

68. Data demonstrate that law and policy environments have a major effect on overall progress in the HIV response and on the persistence of HIV-related inequalities and

disparities. Policies can have widely divergent effects. Some may facilitate access, for example by removing the requirements for parental consent to access services or by ensuring that HIV services are affordable and provided to all who need them without discrimination. Others, however, may block service access by disempowering women and girls, criminalizing key populations, or restricting the ability of communities to deliver HIV services.

Criminalization of key populations

69. Data clearly show that laws that discriminate against or criminalize key populations increases these populations' vulnerability to HIV, deters them from seeking services and prevents countries from responding to HIV effectively. Data also demonstrate the removal of these discriminatory laws markedly strengthen national responses and prevent new HIV infections.
70. Aggressive policing of sex work has been found to be associated with an 87% increase in risk for HIV and sexually transmitted infections among sex workers, and also with a nearly three-fold increase in the risk of sexual or physical violence.¹⁰² Evidence-based modelling indicates that decriminalization of all aspects of sex work would avert 33-46% of new HIV infections among female sex workers and their clients over ten years.¹⁰³
71. According to an analysis of data in 75 countries, the existence of anti-LGBTI laws is associated with substantially lower uptake of HIV testing services.¹⁰⁴ Gay men and other men who have sex with men living in 10 sub-Saharan African countries that criminalize same-sex relations are 2.2 times more likely to acquire HIV than those who live in sub-Saharan African countries without such restrictions.¹⁰⁵ In countries with especially severe criminal penalties, the comparative risk of acquiring HIV is 4.7 times higher.¹⁰⁶
72. A systematic data review found that more than 80% of pertinent studies correlated criminalization of drug users with an increased risk of HIV.¹⁰⁷ Repressive policing of drug use is linked with increased risk of HIV infection, needle sharing and avoidance of harm reduction programmes.¹⁰⁸
73. The large and still growing body of evidence that links criminalization of key populations with increased HIV risk and poorer health outcomes led WHO to formally recommend decriminalization as a key component of effective HIV prevention, treatment and care.¹⁰⁹

Case study: Portugal

The Portuguese model: the impact of decriminalizing drug use

The Portuguese Law 30/2000 defines “the legal framework applicable to the consumption of narcotics and psychotropic substances ...” and is part of a set of policies and measures that characterize the “Portuguese model”, one that favours a public health and social approach to addictive behaviours and dependencies. The law decriminalizes the use and possession of quantities up to the limit considered necessary for the average individual consumption during a ten-day period (quantities defined for each substance). Following its implementation, seeking access to health care and information about safe practices ceased to be a problem among drug users and families feel safer to help and to be helped.

Ahead of the new decriminalization law, the available data pointed to a critical situation regarding HIV infections among drug users which supported the decision to adopt national harm-reduction and treatment measures.¹¹⁰ The paradigm of the Portuguese drug policy is not

solely defined by decriminalization of drug use but is founded on the concern for drug user citizens as patients and not criminals. The positive trends observed on all available indicators regarding drug use and AIDS comorbidity in the country can be attributed to the multiplication of accessible responses for citizens using drugs and to a set of coherent and consistent measures that are integrated within the legal framework of decriminalization.

The collection and use of data have been central to the development and implementation of the model. Through the Portuguese national information system, managed by the General-Directorate for Intervention on Addictive Behaviours and Dependencies (SICAD), quality data on drug use and other issues, namely infectious diseases, is collected from various sources, including the National Program for HIV/AIDS and the National Institute of Health. SICAD's data analysis informs the prioritization of research lines, the development of processes that support evidence-based decisions and, finally, the sharing of best practices.

(UNAIDS/PCB (49)/CRP2)

Socioeconomic inequalities

74. Data are helping drive policy change to address socioeconomic inequalities that increase HIV vulnerability and diminish service access. A literature review of the impact of user fees on health service access and utilization, commissioned by UNAIDS, played a role in the decision by Cameroon to change its national policy on user fees for HIV services.
75. Substantial evidence demonstrates that empowering young people—and in particular adolescent girls and young women—can not only reduce their HIV risk but also confer a broad array of lifelong health and social benefits. Education, in particular, reduces HIV vulnerability while helping build strong, resilient societies, underscoring the importance of national investments in education systems generally and specifically in measures to help keep girls in school. Data from several sub-Saharan African countries clearly show that staying in school longer reduces the risk of HIV infection.^{111 112 113} Increased educational attainment among women is also linked with women's increased control over their sexual and reproductive health and rights.

Country: Eswatini

Keeping adolescent girls and young women in school to reduce HIV risk and vulnerability

Results of an important trial have shown that keeping adolescent girls and young women in some form of education significantly reduces HIV incidence—by a size comparable to biomedical interventions. In 2015–2016, working with partners across the country and the World Bank, and support from the Global Fund, UK AID, the Government of the Kingdom of Eswatini and UNAIDS, the Sitakhela Likusasa Impact Evaluation, a three-year randomized control trial involving almost 4400 adolescent girls, assessed the impact on HIV incidence of two types of conditional financial incentives paid to the girls.¹¹⁴ The results were clear and significant: girls who received the education incentive had 23% lower odds of acquiring HIV, while girls receiving both incentives were 37% less likely to become infected. These findings have since had an impact on planning, led to further analytical work in Eswatini and other countries in the region to build the understanding and boost data systems, and spurred follow-on projects to improve outcomes in areas that have proven critical in strengthening the resilience of adolescent girls and young women.^{115 116}

(UNAIDS/PCB (49)/CRP2)

76. Cash transfer programmes, including those that condition cash support on specific achievements (such as staying in school), reduce poverty, promote school attendance, improve academic outcomes, health and nutrition (especially for children), increase use of health services, delay sexual debut, reduce early marriage and teen pregnancy, promote safer sexual behaviours and reduce the risk of HIV acquisition.^{117 118}
77. Restrictive laws and policies can diminish the ability of adolescent girls to access the services they need. Lowering the age of consent for HIV services below 16 years is associated with a 74% higher HIV testing rate than in countries where parental consent is still required.¹¹⁹ Removing laws that require parental consent to access services for sexual and reproductive health and HIV prevention, testing and treatment empowers adolescent girls, increases their health-seeking behaviours and strengthens efforts to prevent new HIV infections.

Stigma and discrimination

78. Data conclusively demonstrate the persistent, pernicious effects of stigma and discrimination on the ability of individuals to protect their health and well-being and access the services they need. At the same time, data are also driving efforts to eliminate stigma and discrimination.
79. The People Living with HIV Stigma Index is a country survey led by people living with HIV to track experiences of HIV-related stigma and discrimination. Since 2008, more than 100 Stigma Index surveys have interviewed more than 100 000 people living with HIV. In countries where multiple Stigma Index surveys have been undertaken, these surveys provide insights on trends in the incidence of stigma and discrimination.
80. In 2009, the Stigma Index documented widespread stigma in Thailand¹²⁰ and spurred the government to systematically scale up a response to stigma and discrimination as part of the national HIV response, focusing on a health-facility stigma reduction package. Results from two rounds of surveys in Thailand (in 2014–2015 and 2017) indicate there has been progress made in reducing the HIV-related stigma and discrimination that is experienced by people living with HIV in health-care settings.¹²¹
81. In 2020, a “2.0” standardized methodology for Stigma Index surveys was rolled out. The new methodology aims to ensure comparability across time and settings to better assess key trends as well as the effectiveness of efforts to end stigma and discrimination. The new methodology also focuses on enabling the inclusion in Stigma Index processes of key populations living with HIV, with the goal of generating strategic information on intersectional stigma experienced by people living with HIV, such as stigma and discrimination towards women living with HIV.
82. Data generated by the Stigma Index have led to actions to address discriminatory practices. In South Africa, findings from the Stigma Index survey documenting instances of forced sterilization of women living with HIV, along with other documentation, resulted in the launch of a national investigation.¹²²

Marshalling evidence to create an enabling environment

83. As the evidence on societal enablers increases, advocates are leveraging this evidence to influence laws and policies. In litigation that ultimately resulted in the invalidation of Botswana’s law criminalizing same-sex relations, the civil society organization LeGaBiBo intervened as a friend of the court (*amicus curiae*) in a brief that cited data

from the country's BBS survey as well as UNAIDS data on the disproportionate impact of HIV among gay men and other men who have sex with men.¹²³

84. The Global Commission on HIV and the Law, a high-level global panel convened by UNDP on behalf of the UNAIDS Joint Programme, interviewed more than 700 key informants and reviewed available data to develop concrete recommendations for promoting an enabling legal and policy environment for a sound HIV response.^{124 125} An external evaluation found that the Commission had influenced other global processes, advanced substantive discussions relating to HIV and the law, and promoted collaborative learning and action for an enabling environment.¹²⁶ In its decision invalidating the country's longstanding law criminalizing same-sex relations, the Supreme Court of India cited the findings of the Global Commission on HIV and the Law as well as UNAIDS statistics on the disproportionate risk of HIV among men who have sex with men.¹²⁷
85. Scientific evidence that antiretroviral therapy effectively blocks HIV transmission is buttressing advocacy and strategic litigation to roll back laws criminalizing HIV exposure, transmission or nondisclosure. The HIV Justice Initiative is supporting global efforts to end HIV criminalization by serving as a repository and disseminator of strategic evidence that advocates can use to drive legal and policy change.¹²⁸ In the United States of America, the Williams Institute at the University of California Los Angeles undertook comprehensive research that documented the scientific groundlessness of 800 criminal cases under the state's HIV-specific criminal law, ultimately leading to the state legislature's passage of a new statute barring felony convictions of people living with HIV for potential HIV exposure or for soliciting sex from others.¹²⁹ To support the work of legal advocacy to prevent use of discriminatory and groundless prosecutions of people living with HIV, the Canadian HIV/AIDS Legal Network has assembled a kit of scientific studies and scientific consensus statements.¹³⁰

GLOBAL MONITORING OF PROGRESS TOWARDS THE 2025 TARGETS

86. The UNAIDS Joint Programme plays a key role in the generation and use of data to achieve 2025 and 2030 targets. It serves as the repository for the most comprehensive and up-to-date strategic information on the epidemic and response, builds national capacity to collect and use data and leverages data to develop normative guidance to strengthen national responses.

Building national capacity for data collection, reporting and use

87. The UNAIDS Joint Programme provides extensive, tailored technical support to countries to ensure timely, accurate generation and use of national and subnational programme data and modelled HIV epidemiological estimates. These estimates provide annual data on the progress toward testing and treatment targets and an understanding of trends in new HIV infections and AIDS related mortality—data that are not easily available from directly measured sources. The epidemiological estimates allow countries to measure the impact of their HIV response and produce scenarios of potential impact assuming different programmatic scale up.
88. Countries are supported to pair these models with costing information to create modelled scenarios to optimize the efficiency of HIV responses in countries. The process of developing and signing off on these estimates by countries ensures that national authorities and development partners agree on one set of data to describe the epidemic and take ownership of those results. Through broader use of the UNAIDS-

supported Naomi tool, more countries are now producing subnational HIV estimates. These estimates help provinces, districts and cities tailor HIV programmes to local needs and ensure local accountability for results. The UNAIDS-led process also ensures there is a robust set of comparable data at global and regional levels to measure success of the HIV response and to identify countries and regions that are falling behind.

89. Countries annually report progress of their HIV response to UNAIDS using a standard set of indicators through the Global AIDS Monitoring platform. These data and national and subnational HIV estimates are made publicly available on the AIDSinfo website (<https://aidsinfo.unaids.org/>). Extensive analyses and recommendations are presented to the world via the United Nations Secretary-General's annual report to the General Assembly and via the annual UNAIDS global AIDS update report.
90. To help close data gaps with respect to key populations, UNAIDS maintains the Key Populations Atlas and provides advocacy and technical support to collect data regarding HIV risk and vulnerability, service access and HIV outcomes for key populations. UNAIDS is currently piloting the use of less resource-intensive BBS methods in Georgia and Uganda to obtain strategic information regarding key populations. The Joint Programme is also helping close data gaps with respect to adolescent girls and young women, through development of new methodology to aid in estimating the number and geographic distribution of adolescent girls and young women who are at high risk of HIV. Community-led monitoring is being supported by UNAIDS through the Five Cities Project and the roll-out of the Stigma Index 2.0.

Building analytic capacity to use data to maximize the impact of HIV responses

91. In addition to helping countries and communities collect and report data, UNAIDS supports national partners in effectively using this data to enhance the reach and impact of efforts. In particular, the Joint Programme supports national analytical capacity to use routinely collected data, including through data triangulation.
92. A core function of the Joint Programme is to aid countries in developing evidence-informed, multisectoral HIV response plans that include clear targets and budgets. In addition to guiding and harmonizing efforts to respond to HIV, these national strategic plans (NSPs) are increasingly used to mobilize resources. In 2019–2020, UNAIDS supported 11 NSP-tailored applications to the Global Fund.
93. Innovative data visualization methods help national decision-makers more strategically target resources and tailor responses for specific populations, settings and programmatic gaps. The Health Situation Room is a digital platform that displays data visually to support decision-making in countries. In Malawi, for example, the Situation Room has helped overcome frustrations regarding the proliferation of management information systems, producing an accessible, harmonized source of data for advocacy, performance improvement, resource mobilization, budgeting and collaboration with partners.¹³¹

Leveraging data to create an enabling environment

94. Through the National Commitments and Policy Instrument component of Global AIDS Monitoring, UNAIDS collects data on the establishment and implementation of enabling laws and policies. The Laws and Policies Analytics web portal (<https://lawsandpolicies.unaids.org/>) allows countries, communities and other stakeholders to track policy trends at global and country levels. The Laws and Policies

Analytics website tracks a broad array of policy indicators, such as the alignment of national policies with international recommendations (such as implementation of the recommend treat-all approach or the transition to recommended treatment regimens), alignment of national laws and policies with principles of human rights and gender equality (e.g. discriminatory laws regarding key populations, policies regarding prevention and mitigation of gender-based violence), national approval of recommended technologies and approaches (e.g. HIV self-testing and PrEP), the prevalence of national legal frameworks that inhibit access to key services (e.g. restrictions on access to harm reduction, parental consent, policies regarding service access in prisons), and policies to support and enable community-led responses.

95. The Joint Programme gathers and deploys evidence to support the advocacy efforts of others to create an enabling environment. In some cases, this requires support for strategic litigation to remove social and structural barriers to a sound, human rights-based response. UNAIDS intervened as an amicus in a case that resulted in ending forced sterilization of women living with HIV in Chile.¹³² UNAIDS also intervened in a case before the Colombia Constitutional Court, which held that HIV criminalization was impermissible, in large measure because it is not grounded in sound science.
96. Focused assessments by the Joint Programme of key aspects of national responses, such as equity, gender equality and social protection, provide data-based information on which national decision-makers can adapt and enhance their response to HIV. In Cambodia in 2020, a social protection assessment documented improvements in the access of people living with HIV and key populations to social protection but also highlighted the need to remove impediments that vulnerable groups face to registering for national social protection programmes.

Monitoring the financing of the HIV response

97. The Global AIDS Strategy recognizes that closing gaps in the response, addressing inequalities and renewing momentum to end AIDS will require additional, more sustainable financing. One of the unique roles of the Joint Programme is its monitoring of HIV-related expenditure indicators in 118 low- and middle-income countries, providing the investment landscape to help donors and other stakeholders fill key gaps. HIV financing data reported through Global AIDS Monitoring and other sources are made publicly available on the UNAIDS HIV financial dashboard in order to provide strategic information on HIV resources for policy-makers, programme directors, and researchers.
98. UNAIDS has initiated a study in 25 countries that collectively account for 80% of all people receiving HIV treatment to assess the impact of COVID-19 on spending for antiretroviral therapy, with the aim of understanding and mitigating possible cuts to domestic HIV funding.

WAY FORWARD

99. The HIV response has given rise to one of the most comprehensive, granular and timely data systems in global health and development. However, effective collection and use of HIV-related data has been uneven. Some countries and programmes have prioritized the collection and use of diverse, disaggregated, detailed data to shape national responses and drive progress against AIDS. By contrast, others have lacked the resources, systems or expertise to collect and effectively use data.

100. The 2021 Political Declaration on HIV and AIDS contains a set of detailed targets for 2025 that aim to address persistent inequalities that stand in the way of ending AIDS by 2030. The Declaration includes a commitment for countries to improve the collection of data, and the use of those data to guide national target-setting, planning, resource allocation, service delivery and the removal of legal and policy barriers, in line with global targets. Making good on this commitment requires all countries to:

- a) establish modern national patient monitoring and case surveillance systems that place people and their access to HIV and health services at the centre of monitoring the response to HIV in order to more precisely and sustainably guide programmes, improve health outcomes and report on programme-specific as well as standardized national and global indicators over time;
- b) periodically conduct surveys that complement routinely collected data by identifying gaps and discrepancies that warrant more focused examination. In high-HIV-prevalence settings, population-based surveys such as DHSs and PHAs monitor the effectiveness of programmes and inform strategic planning, target-setting and programme management. Biobehavioural surveys of key populations provide critical information for the development and management of programmes to reach these priority populations with HIV and health services. Yet other surveys can specifically inform about other groups of interest, for example, people with disabilities, migrants, internally displaced people.
- c) ensure that routine data systems and surveys collect data that are geolocated and includes age, sex and other relevant metrics in order to produce analyses that identify location- and population-based gaps in services, while taking care to maintain the confidentiality of individuals' patient data, risk behaviours and other private information through the use of unique identifiers and other means;
- d) collaborate with affected communities, strengthen their capacity and dedicate sufficient financial resources for robust community-led monitoring of the affordability, availability, acceptability and quality of services, with particular attention to outcomes in marginalized, heavily affected populations, and to ensure the use of these complementary data in national and subnational programme planning, management and evaluation;
- e) develop and implement plans for the collection of data on societal enablers that generate national understanding of legal, policy and social barriers faced by people living with HIV and other people in need of HIV services, and guide efforts to remove such barriers, and to establish enabling legal and policy environments for rights-based HIV services that address entrenched inequalities;
- f) ensure that national HIV response plans include clear and evidence-informed national targets for 2025 that reflect the spectrum and granularity of global 2025 targets in the 2021 Political Declaration and the Global AIDS Strategy for HIV service coverage, societal enablers, integration, financing and impact;
- g) develop HIV investment cases that take into account each country's unique circumstances, and draw upon multiple sources and kinds of data to help countries identify how best to allocate finite resources to maximize impact, to optimize the efficiency and effectiveness of national responses and to identify strategies for financing sustainable national responses;
- h) ensure that UNAIDS has sufficient capacity to support countries to develop and implement robust systems for the monitoring and evaluation of national HIV responses, including epidemiological estimates, and to regularly collect data from countries, make those data available to stakeholders and produce detailed reports to the international community on global progress towards 2025 and 2030 targets;

- i) report to UNAIDS on an annual basis on all relevant indicators within the Global AIDS Monitoring system, in line with the 2021 Political Declaration.

[References follow]

REFERENCES

¹ Key populations are groups of people who are more likely to be exposed to HIV or to transmit it, and whose engagement is critical to a successful HIV response. In all countries, key populations include people living with HIV. In most settings, men who have sex with men, transgender people, people who inject drugs and sex workers and their clients are at higher risk of exposure to HIV than other groups. However, each country should define the specific populations that are key to their epidemic and response based on the epidemiological and social context.

² Political Declaration on HIV and AIDS: Ending Inequalities and Getting on Track to End AIDS by 2030. New York: United Nations General Assembly; 2021 (https://www.unaids.org/sites/default/files/media_asset/2021_political-declaration-on-hiv-and-aids_en.pdf, accessed on 29 September 2021).

³ Global AIDS Strategy 2021–2026: End Inequalities. End AIDS. 2021; Geneva: Joint United Nations Programme on HIV/AIDS; 2021 (https://www.unaids.org/sites/default/files/media_asset/global-AIDS-strategy-2021-2026_en.pdf, accessed on 29 September 2021).

⁴ The 10 Sustainable Development Goals which are explicitly linked to this Strategy are SDG 1 No Poverty; SDG 2 Zero Hunger; SDG 3 Good Health and Well-Being; SDG 4 Quality Education; SDG 5 Gender Equality; SDG 8 Decent Work and Economic Growth; SDG 10 Reduced Inequalities; SDG 11 Sustainable Cities and Communities; SDG 16 Peace, Justice and Strong Institutions; and SDG 17 Partnerships for the Goals.

⁵ UNAIDS deems countries to be on track to achieve these 2030 benchmarks if they had achieved reductions of at least 49.5% as of December 2020.

⁶ UNAIDS epidemiological estimates, 2021 (<https://aidsinfo.unaids.org/>).

⁷ By 2020, 90% of all people living with HIV know their HIV status, 90% of all people with an HIV diagnosis receive antiretroviral therapy and 90% of all people receiving antiretroviral therapy achieve HIV viral suppression. Achievement of the 90–90–90 targets means that at least 73% of all people living with HIV are virally suppressed.

⁸ UNAIDS epidemiological estimates, 2021 (<https://aidsinfo.unaids.org/>).

⁹ Political Declaration on HIV and AIDS: On the Fast Track to Accelerating the Fight against HIV and to Ending the AIDS Epidemic by 2030. New York: United Nations General Assembly; 2016.

¹⁰ UNAIDS epidemiological estimates, 2021 (<https://aidsinfo.unaids.org/>).

¹¹ Angola, Botswana, Cameroon, Côte d'Ivoire, Democratic Republic of Congo, Eswatini, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, South Africa, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

¹² UNAIDS Global AIDS Monitoring, 2021 (<https://aidsinfo.unaids.org/>).

¹³ UNAIDS Global AIDS Monitoring, 2021 (<https://aidsinfo.unaids.org/>).

¹⁴ UNAIDS Global AIDS Monitoring, 2021 (<https://aidsinfo.unaids.org/>).

¹⁵ Population-based surveys, 2015–2020.

¹⁶ People Living with HIV Stigma Index surveys, 13 countries, 2013–2018.

¹⁷ Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence. Geneva: WHO; 2013.

¹⁸ Hatcher AM, Smout EM, Turan JM, Christofides N, Stöckl H. Intimate partner violence and engagement in HIV care and treatment among women: a systematic review and meta-analysis. *AIDS*. 2015;29(16):2183-94.

¹⁹ Population-based HIV Impact Assessments, 2015–2019.

²⁰ Demographic and Health Surveys, 2015–2020.

²¹ HIV Surveillance Report 2019, Vol. 32. Atlanta: Centers for Disease Control and Prevention; 2021

²² 2019 national HIV surveillance system reports, CDC, 2021 (<https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2018-updated-vol-32.pdf>, accessed on 1 October 2021).

²³ Global AIDS Strategy 2021-2026: End Inequalities. End AIDS. 2021; Geneva: Joint United Nations Programme on HIV/AIDS; 2021 (https://www.unaids.org/sites/default/files/media_asset/global-AIDS-strategy-2021-2026_en.pdf, accessed on 29 September 2021).

²⁴ <https://www.state.gov/wp-content/uploads/2020/07/UTT-discussion-slides.pdf>.

²⁵ Start Free, Stay Free, AIDS Free: Final report on 2020 targets. Geneva: Joint United Nations Programme on HIV/AIDS; 2021 (https://www.unaids.org/sites/default/files/media_asset/2021_start-free-stay-free-aids-free-final-report-on-2020-targets_en.pdf, accessed on 30 September 2020).

-
- ²⁶ National Plan for Elimination of Mother-to-Child Transmission of HIV, Syphilis and Hepatitis B, 2020, Kampala: Uganda Ministry of Health.
- ²⁷ UNAIDS epidemiological estimates, 2021 (<https://aidsinfo.unaids.org/>).
- ²⁸ About MenStar, <https://menstarcoalition.org/about-menstar/> (accessed on 1 October 2021).
- ²⁹ Malone ST, Hlongwa M, Little K, Levy M, Clutton L et al. Coach Mpilo: a peer-support intervention to improve men's ART linkage & retention. Abstract 756. Conference on Retroviruses and Opportunistic Infections, 6–10 March 2021 [Virtual].
- ³⁰ DHIS2, <https://dhis2.org>, Oslo: University of Oslo (accessed on 29 September 2021).
- ³¹ HIV Services Tracking Tool, <https://hivservicestracking.unaids.org/>, Geneva: UNAIDS (accessed 01 November 2021).
- ³² Achrekar A. Our global plan to fight HIV has been a strategic weapon against COVID. The Hill, 20 September 2021 (<https://thehill.com/opinion/healthcare/573056-our-global-plan-to-fight-hiv-has-been-a-strategic-weapon-against-covid>, accessed on 29 September 2021).
- ³³ Prevailing against pandemics by putting people at the centre. Geneva: Joint United Nations Programme on HIV/AIDS; 2020 (https://www.unaids.org/sites/default/files/media_asset/prevailing-against-pandemics_en.pdf, accessed on 30 September 2020).
- ³⁴ UNAIDS epidemiological estimates, 2021 (<https://aidsinfo.unaids.org/>).
- ³⁵ Start Free, Stay Free, AIDS Free: Final report on 2020 targets. Geneva: Joint United Nations Programme on HIV/AIDS; 2021 (https://www.unaids.org/sites/default/files/media_asset/2021_start-free-stay-free-aids-free-final-report-on-2020-targets_en.pdf, accessed on 30 September 2020).
- ³⁶ UNAIDS special analysis, 2021 (See Annex on Methods of the UNAIDS 2021 global AIDS update report, Confronting Inequalities).
- ³⁷ Barr D, Garnett GP, Mayer KH, Morrison M, Key populations are the future of the African HIV/AIDS pandemic, *J Int AIDS Soc* 2021;24(Supp. 3):e25750.
- ³⁸ Jones A, Honermann B, Lankiewicz E, Sherwood J, Millett G, Current allocations and target apportionment for HIV testing and treatment services for marginalized populations: characterizing PEPFAR investment and strategy, *J Int AIDS Soc* 2021;24(Supp. 3):e25750.
- ³⁹ UNAIDS financial estimates and projections, 2021 (<http://hivfinancial.unaids.org/hivfinancialdashboards.html>).
- ⁴⁰ El-Sadr WM, Rabkin M, Nkengasong J, Bix DL. Realizing the potential of routine viral load testing in sub-Saharan Africa. *J Int AIDS Soc*. 2017;20(Supp. 7):e20510.
- ⁴¹ Consolidated guidelines on person-centred HIV patient monitoring and case surveillance. Geneva: World Health Organization; 2017.
- ⁴² Health informatics, data management and statistics: Automated PEPFAR and Ministry of Health indicators. Atlanta: US Centers for Disease Control (<https://www.cdc.gov/globalhivtb/who-we-are/resources/keyareafactsheets/health-informatics-data-management-and-statistics-automating-pepfar-and-ministry-of-health-indicators.pdf>, accessed on 4 October 2021).
- ⁴³ OpenMRS Cameroon, Cape Town: Jembi (<https://www.jembi.org/Project/OpenMRS-Cameroonhttps://www.cdc.gov/globalhivtb/who-we-are/resources/keyareafactsheets/health-informatics-data-management-and-statistics-automating-pepfar-and-ministry-of-health-indicators.pdf>, accessed on 4 October 2021).
- ⁴⁴ PEPFAR, HIV Case-Based Surveillance System with Biometric Code and Patient Linkage and Retention Tool, 2019 (<https://www.pepfarsolutions.org/resourcesandtools-2/2019/8/5/hiv-case-based-surveillance-system-with-biometric-code-and-patient-linkage-and-retention-tool>, accessed on 28 October 2021).
- ⁴⁵ What is the PHIA Project? New York: ICAP at Columbia University, <https://phia.icap.columbia.edu/about/> (accessed on 1 October 2020).
- ⁴⁶ PEPFAR 2018 Country Operational Plan Guidance for Standard Process Countries (https://na.usembassy.gov/wp-content/uploads/sites/132/PEPFAR-COP18-Guidance_FINAL-1.pdf, accessed on 1 October 2021).
- ⁴⁷ Low A, Sachathep K, Rutherford G, Nitschke A, Wolkon A, Banda K et al. Migration in Namibia and its association with HIV acquisition and treatment outcome. *PLoS ONE*. 2021;16:e0256865.
- ⁴⁸ Low A, Teasdale C, Brown K, Barradas DT, Mugurungi O, Sachathep K et al. Human Immunodeficiency Virus Infection in Adolescents and Mode of Transmission in Southern Africa: A Multinational Analysis of Population-Based Survey Data. *Clin Infect Dis*. 2021;73:594-604.

-
- ⁴⁹ Boyd MA, Shah M, Barradas DT, Herce M, Kulenga LB, Lumpa M et al. Increase in antiretroviral therapy enrollment among persons with HIV infection during the Lusaka HIV treatment surge—Lusaka Province, Zambia, January 2018 –June 2019. *MMWR* 2020;69:1039-1043.
- ⁵⁰ Saito S et al. Pediatric HIV treatment gaps in 7 East and Southern African countries: examination of modeled, survey, and routine program data. *J Acquired Immune Def Syndr*. 2018;78:S134-S141.
- ⁵¹ Biobehavioural survey guidelines for populations at risk for HIV, 2017. Geneva: World Health Organization; 2017 (<https://apps.who.int/iris/bitstream/handle/10665/258924/9789241513012-eng.pdf>, accessed on 1 October 2021).
- ⁵² Okal J, Raymond HF, Tun W, Musyoki H, Dadabhai S, Broz D et al. Lessons learned from respondent-driven sampling recruitment in Nairobi: experiences from the field. *BMC Res Notes*. 2016;9:158.
- ⁵³ Baltazar CS, Boothe M, Langa DC, Sathane I, Horth R et al. Recognizing the hidden: strengthening the HIV surveillance system among key and priority populations in Mozambique. *BMC Pub Health*. 2021;21:91.
- ⁵⁴ Volkman T, Chase M, Lockard AM, Henningham D, Albalak R. Lessons learned from the implementation of biological-behavioural surveys of key populations in the Caribbean. *AIDS Educ Prev*. 2019;30:528–541.
- ⁵⁵ Davis SLM. *The uncountried: Politics of data in global health*. Cambridge: Cambridge University Press; 2020.
- ⁵⁶ <https://apps.who.int/iris/bitstream/handle/10665/258924/9789241513012-eng.pdf>.
- ⁵⁷ South Africa's National Strategic Plan for HIV, TB and STIs 2017–2022. Pretoria: South African National AIDS Council; 2017 (https://www.gov.za/sites/default/files/gcis_document/201705/nsp-hiv-tb-stia.pdf, accessed on 1 October 2021).
- ⁵⁸ South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017, Pretoria: Human Sciences Research Council; 2019 (http://www.hsrc.ac.za/en/departments/hsc/National_HIV_Survey, accessed on 1 October 2021).
- ⁵⁹ South African National Sex Worker HIV Plan 2016–2019, 2016. Pretoria: South African National AIDS Council (<https://southafrica.unfpa.org/sites/default/files/pub-pdf/South%20African%20National%20Sex%20Worker%20HIV%20Plan%202016%20-%202019%20FINAL%20Launch%20Copy...%20%282%29%20%281%29.pdf>, accessed on 1 October 2021).
- ⁶⁰ Marty L, Lemsalu L, Kivite-Urtāne, Costagliola D, Kaupe R, Linina I et al. Revealing HIV epidemic dynamics and contrasting responses in two WHO Eastern European countries: insights from modeling and data triangulation *AIDS*. 2021;35:675–680.
- ⁶¹ Hammett TM, Wu Z, Duc TT, Stephens D, Sullivan S, Liu W et al. "Social evils" and harm reduction: the evolving policy environment for human immunodeficiency virus prevention among injection drug users in China and Vietnam. *Addiction*. 2008;103:137-145.
- ⁶² Li J, Ha, TH, Zhang C, Liu H. The Chinese government's response to drug use and HIV/AIDS: A review of policies and programs. *Harm Reduction Journal*. 2010;7:4.
- ⁶³ PEPFAR 2021 Country and Regional Operational Plan (COP/ROP) Guidance for all PEPFAR Countries, Washington D.C.: U.S. Department of State (<https://www.state.gov/wp-content/uploads/2020/12/PEPFAR-COP21-Guidance-Final.pdf>, accessed on 2 October 2021).
- ⁶⁴ Van Schalkwyk C, Dorrington RE, Seatlhodi T, Velasquez C, Feizadeh A, Johnson LF, Modelling of HIV prevention and treatment progress in five South African metropolitan districts, *Scientific Reports* 2021;11:5652.
- ⁶⁵ HIV and AIDS Data Hub for Asia and the Pacific: Evidence to Action. <https://www.aidsdatahub.org/country-profiles/pakistan> (accessed 27 October 2021).
- ⁶⁶ Baptiste S, Manouan A, Garcia P, Etya'ale H, Swan T, Jallow W, Community-led monitoring: When community data drives implementation strategies, *Curr HIV/AIDS Rep* 2020;17:415-421.
- ⁶⁷ PEPFAR, Community-led Monitoring, 2020, Washington D.C.: U.S. Department of State (https://www.state.gov/wp-content/uploads/2020/07/PEPFAR_Community-Led-Monitoring_Fact-Sheet_2020.pdf, accessed on 3 October 2021).
- ⁶⁸ Results Report 2021, Geneva: Global Fund to Fight AIDS, Tuberculosis and Malaria (https://www.theglobalfund.org/media/11304/corporate_2021resultsreport_report_en.pdf, accessed on 3 October 2021).
- ⁶⁹ Community-led monitoring (CLM) initiative on COVID-19 and HIV in Nigeria, first phase report.

-
- ⁷⁰ Ritshidze, Free State of Health, 2021 (<https://ritshidze.org.za/wp-content/uploads/2021/09/Ritshidze-State-of-Health-Free-State-2021.pdf>, accessed on 3 October 2021).
- ⁷¹ “They Keep Us on Our Toes”: How the Regional Community Treatment Observatory in West Africa improved HIV service delivery, strengthened systems for health, and institutionalized community-led monitoring, 2020, International Treatment Preparedness Coalition (<https://itpcglobal.org/wp-content/uploads/2020/10/ITPC-2020-They-Keep-Us-On-Our-Toes.pdf>, accessed on 3 October 2020).
- ⁷² “They Keep Us on Our Toes”: How the Regional Community Treatment Observatory in West Africa improved HIV service delivery, strengthened systems for health, and institutionalized community-led monitoring, 2020, International Treatment Preparedness Coalition (<https://itpcglobal.org/wp-content/uploads/2020/10/ITPC-2020-They-Keep-Us-On-Our-Toes.pdf>, accessed on 3 October 2020).
- ⁷³ Nyqvist MB, de Walque D, Svensson J. Information is power: experimental evidence on the long-run impact of community-based monitoring. Washington D.C.: World Bank; 2014 (<https://documents1.worldbank.org/curated/en/739811468318587268/pdf/WPS7015.pdf>, accessed on 3 October 2021).
- ⁷⁴ Consolidated guidelines on person-centred HIV patient monitoring and case surveillance. Geneva: World Health Organization; June 2017.
- ⁷⁵ Ethical considerations in biomedical HIV prevention trials [Additional guidance point added in 2012]. UNAIDS/WHO guidance document. (https://files.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2012/jc1399_ethical_considerations_en.pdf).
- ⁷⁶ Trejo A, McClelland A. Molecular HIV surveillance: a global review of human rights implication. HIV Justice Worldwide; October 2021 (<https://www.hivjusticeworldwide.org/wp-content/uploads/2021/10/HJWW-MHS-Paper-English-Final.pdf>).
- ⁷⁷ CQUIN Learning Network: Shaping the future of HIV service delivery, New York: ICAP at Columbia University (<https://cquin.icap.columbia.edu>, accessed on 3 October 2021).
- ⁷⁸ Maruyama H, Franks J, Laki D, Msumi O, Makyao N, Rwabiyago OE et al., Bringing HIV services to key populations and their communities in Tanzania: from pilot to scal. *J Int AIDS Soc.* 2021;24:e25718.
- ⁷⁹ Consolidated guidelines on HIV prevention, testing, treatment, service delivery and monitoring: recommendations for a public health approach. Geneva: World Health Organization: 2021 (<https://www.who.int/publications/i/item/9789240031593>, accessed on 3 October 2021).
- ⁸⁰ HIV Market Report: The state of HIV treatment, testing, and prevention in low- and middle-income countries. Clinton Health Access Initiative,; 2020 (<https://3cdmh310dov3470e6x160esb-wpengine.netdna-ssl.com/wp-content/uploads/2020/09/2020-CHAI-HIV-Market-Report.pdf>, accessed on 3 October 2020).
- ⁸¹ HIV Market Report: The state of HIV treatment, testing, and prevention in low- and middle-income countries, 2020, Clinton Health Access Initiative (<https://3cdmh310dov3470e6x160esb-wpengine.netdna-ssl.com/wp-content/uploads/2020/09/2020-CHAI-HIV-Market-Report.pdf>, accessed on 3 October 2020).
- ⁸² Vandormael A, Akullian A, Siedner M, deOliveira T, Bärnighausen T, Tanser F. Declines in HIV incidence among men and women in a South African population-based cohort. *Nat Commun.* 2019;10:5482.
- ⁸³ Nakigozi G, Chang LW, Reynolds SJ, Nalugoda F, Kigozi G, Quinn TC et al. Rapidly declining HIV incidence among men and women in Rakai, Uganda. Conference on Retroviruses and Opportunistic Infections (CROI), 8–11 March 2020. Abstract 150.
- ⁸⁴ UNAIDS Global AIDS Monitoring, 2021 (<https://aidsinfo.unaids.org/>).
- ⁸⁵ Vandormael A, Akullian A, Siedner M, de Oliveira T, Bärnighausen T, Tanser F. Declines in HIV incidence among men and women in a South African population-based cohort. *Nature Communications.* 2019;10:5482.
- ⁸⁶ Njeuhmeli E, Forsythe S, Reed J, Opuni M, Bollinger L, Heard N et al. Voluntary medical male circumcision: modeling the impact and cost of expanding male circumcision for HIV prevention in eastern and southern Africa. *PLoS Med.* 2011;8:e1001132.
- ⁸⁷ Cork MA, Wilson KF, Perkins, S, Collison ML, Deshpande A, Eaton JW, Earl L et al., Mapping male circumcision for HIV prevention efforts in sub-Saharan Africa, *BMC Med* 2020;18:189.

-
- ⁸⁸ Ensor S, Davies B, Rai T, Ward H, The effectiveness of demand creation interventions for voluntary male medical circumcision for HIV prevention in sub-Saharan Africa: a mixed methods systematic review. *J. Int AIDS Soc.* 2019;22:e25299.
- ⁸⁹ Hellar A, Plotkin M, Lija, G, Mwanamsangu A, Mkungume S, Christensen A et al., Adverse events in a large-scale VMMC programme in Tanzania: findings from a case series analysis. *J Int AIDS Soc.* 2019;22:e25369.
- ⁹⁰ Adverse event monitoring yielded benefits beyond HIV prevention, as the identification of tetanus cases among recipients of voluntary medical male circumcision highlighted gaps in uptake of tetanus vaccination. See: Dalasl S, Samuelson J, Reed J, Yakubu A, Ncube B, Baggaley R. Tetanus disease and deaths in men reveal need for vaccination. *Bulletin World Health Organ.* 2016;94:613-621.
- ⁹¹ UNAIDS Global AIDS Monitoring, 2021 (<https://aidsinfo.unaids.org/>).
- ⁹² New South Wales HIV Strategy 2021–2025. Sydney: New South Wales Ministry of Health; 2021 (<https://www.health.nsw.gov.au/endinghiv/Publications/nsw-hiv-strategy-2021–2025.pdf>).
- ⁹³ New South Wales HIV Strategy 2016–2020. Sydney: New South Wales Ministry of Health; 2016 (<https://www.health.nsw.gov.au/endinghiv/Publications/nsw-hiv-strategy-2016-2020.PDF>).
- ⁹⁴ Grulich AE, Nigro S, Chan C, Patel P, Bavinton BR, Holt M et al on behalf of the New South Wales HIV Prevention Partnership Project. Trends in HIV and HIV prevention indicators in gay, bisexual and other men who have sex with men in NSW, 2015–2019: implications for new interventions and for monitoring and evaluation in a new NSW HIV strategy. Sydney: Kirby Institute; 2020 (<https://kirby.unsw.edu.au/report/trends-in-hiv-in-nsw-2015-2019>).
- ⁹⁵ NSW HIV Strategy Quarterly and Annual Surveillance Reports (<https://www.health.nsw.gov.au/endinghiv/Pages/tools-and-data.aspx>).
- ⁹⁶ The 10–10–10 targets for 2025 provide that: less than 10% of countries have punitive laws and policies, less than 10% of people living with HIV and key populations experience stigma and discrimination and less than 10% of women, girls, people living with HIV and key populations experience gender inequality and violence.
- ⁹⁷ Towards an Enabling Social, Policy and Legal Environment for Eliminating HIV-related Stigma and Discrimination: Operational Plan for the National Strategic Plan, 2020.
- ⁹⁸ Neal JJ, Prybylski D, Sanchez T, Hladick W. Population size estimation methods: searching for the Holy Grail. *JMIR Pub Health Surveill.* 2020;6:e25076.
- ⁹⁹ UNAIDS epidemiological estimates, 2021 (<https://aidsinfo.unaids.org/>).
- ¹⁰⁰ Migration health 2020 impact overview. Geneva: International Organization for Migration; 2021.
- ¹⁰¹ Meyer-Rath G, van Rensburg C, Chiu C, Leuner R, Jamieson L, Cohen S. The per-patient costs of HIV services in South Africa: Systematic review and application in the South African HIV Investment Case. *PLoS ONE.* 2019;14:e0210497.
- ¹⁰² Platt L, Grenfell P, Meiksin R, Elmes J, Sherman SG, Sanders T et al. Associations between sex work laws and sex workers' health: A systematic review and meta-analysis of quantitative and qualitative studies. *PLoS Med.* 2018;15:e1002680.
- ¹⁰³ Shannon K, Strathdee SA, Goldenberg, SM, Duff P, Mwangi P, Rusakova M et al. Global epidemiology of HIV among female sex workers: influence of structural determinants. *Lancet.* 2015;385:55-71.
- ¹⁰⁴ Stannah J, Dale E, Elmes J, Staunton R, Beyrer C, Mitchell KM et al. HIV testing and engagement with the HIV treatment cascade among men who have sex with men in Africa: a systematic review and meta-analysis. *Lancet HIV.* 2019;6:e769-e787.
- ¹⁰⁵ Lyons C. Utilizing individual level data to assess the relationship between prevalence HIV infection and punitive same sex policies and legal barriers across 10 countries in sub-Saharan Africa, 23rd International AIDS Conference. Abstract OAF0403, 2020.
- ¹⁰⁶ Lyons C. Utilizing individual level data to assess the relationship between prevalence HIV infection and punitive same sex policies and legal barriers across 10 countries in sub-Saharan Africa, 23rd International AIDS Conference. Abstract OAF0403, 2020.
- ¹⁰⁷ DeBeck K, Cheng T, Montaner JS, Beyrer C, Elliott R, Sherman S et al. HIV and the criminalization of drug use among people who inject drugs: a systematic review. *Lancet HIV.* 2017;4:e357-e374.
- ¹⁰⁸ Baker P, Beletsky L, Avalos L, Venegas C, Rivera C, Strathdee SA et al. Policing practices and risk of HIV infection among people who inject drugs. *Epidemiologic Reviews.* 2020;42:27-40.
- ¹⁰⁹ Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations, 2016, Geneva: World Health Organization; 2016 (<https://www.who.int/publications/i/item/9789241511124>, accessed on 4 October 2021).

-
- ¹¹⁰ Ministério da Saúde. Direção-Geral da Saúde/Instituto Nacional de Saúde Doutor Ricardo Jorge. Infeção VIH e SIDA em Portugal – 2020. Lisboa: DGS/INSA; 2020.
- ¹¹¹ Behman JA. The effect of increased primary schooling on adult women's HIV status in Malawi and Uganda: universal primary education as a natural experiment. *Soc Sci Med.* 2015;127:108-115.
- ¹¹² Pettifor AE, Levandowski BA, MacPhail C, Padian NS, Cohen MS, Rees HV. Keep them in school: the importance of education as a protective factor against HIV infection among young South African women. *Int J Epidemiol.* 2008;37:1266-1273.
- ¹¹³ Santelli JS, Mathur S, Song Z, Huang TJ, Wei Y, Lutalo T et al. Rising school and enrollment and declining HIV and pregnancy risk among adolescents in Rakai District, Uganda, 1994-2013. *Global Soc Welfare.* 2015;2:87–103.
- ¹¹⁴ Gorgens M, Ketende S, Tsododo V, Heard W, Mabuza M, Longosz A et al. Sitakhela Likusasa Impact Evaluation: results of a cluster randomized control trial (cRCT) of financial incentives for HIV prevention among adolescent girls and young women (AGYW) in Eswatini. International AIDS Society Conference 2019. Abstract No. TUAC0205LB (<https://programme.ias2019.org/Abstract/Abstract/4943>, accessed on 5 October 2021).
- ¹¹⁵ Health system strengthening for human capital development in Eswatini – P168564. Washington DC: World Bank; 2019 (<https://projects.worldbank.org/en/projects-operations/project-detail/P168564>, accessed on 27 October 2021).
- ¹¹⁶ Strengthening early childhood development and basic education systems to support human capital development in Eswatini – P173151. Washington DC: World Bank; 2019 (<https://projects.worldbank.org/en/projects-operations/project-detail/P173151>, accessed on 27 October 2021).
- ¹¹⁷ Bastagli F, Hagen-Zanker J, Surge G, Cash transfers: what does the evidence say? London: Overseas Development Institute; 2016 (<https://odi.org/en/publications/cash-transfers-what-does-the-evidence-say-a-rigorous-review-of-impacts-and-the-role-of-design-and-implementation-features/>, accessed on 4 October 2021).
- ¹¹⁸ Owusu-Addo E, Cross R. The impact of conditional cash transfers on child health in low- and middle-income countries: a systematic review. *Int J Public Health.* 2014;59:609-618.
- ¹¹⁹ McKinnon B, Vander Morris A. National age-of-consent laws and adolescent HIV testing in sub-Saharan Africa: a propensity-scored matched study. *Bull World Health Organ.* 2019;97:42-50.
- ¹²⁰ Thai Network of People Living with HIV/AIDS. Index of stigma and discrimination against people living with HIV/AIDS in Thailand. Bangkok, Thailand: UNAIDS, Ubon Ratchathani University; 2009.
- ¹²¹ Stigma and discrimination among health care providers and people living with HIV in health-care setting in Thailand: Comparison of findings from 2014–2015 and 2017. Bangkok: Department of Disease Control, Ministry of Public Health; 2018 (https://hivhub.ddc.moph.go.th/Download/Report/S_D/2_UNAIDS_Final_S_D_Final_Health_care_settings_Comparison_a5.pdf, accessed 01 November 2021).
- ¹²² Investigation report of the forced sterilisation of women with HIV/AIDS in South Africa. Johannesburg: Commission on Gender Equality; 2021 (<http://cge.org.za/wp-content/uploads/2021/01/forced-sterilisation-of-women-living-with-hiv-and-aids-in-south-africa.pdf>, accessed on 5 October 2021).
- ¹²³ LM v ATTORNEY GENERAL OF BOTSWANA: Challenging Criminalisation of Same-sex Sexual Relationships Fact Sheet (<https://www.southernafricalitigationcentre.org/wp-content/uploads/2018/05/Fact-Sheet-1.pdf>).
- ¹²⁴ Global Commission HIV and the Law. Risks, Rights & Health, 2012. New York: United Nations Development Programme; 2012 (<https://hivlawcommission.org/wp-content/uploads/2017/06/FinalReport-RisksRightsHealth-EN.pdf>, accessed on 5 October 2021).
- ¹²⁵ Global Commission HIV and the Law. Risks, Rights & Health, Supplement. New York: United Nations Development Programme; 2018 (https://hivlawcommission.org/wp-content/uploads/2020/06/Hiv-and-the-Law-supplement_EN_2020.pdf, accessed on 5 October 2021).
- ¹²⁶ Evaluation of the Global Commission on HIV and the Law. Los Angeles: Program on Global Health & Human Rights, University of Southern California; 2021 (<https://hivlawcommission.org/wp-content/uploads/2021/06/Final-Report-Independent-Evaluation-Global-Commission-HIV-and-the-Law.pdf>, accessed on 5 October 2021).
- ¹²⁷ Johar v. Union of India, Supreme Court of India, 2018 (<https://www.thehindu.com/news/national/article24880700.ece/binary/Sec377judgment.pdf>, accessed on 5 October 2021).

¹²⁸ HIV Justice Institute, Advancing Justice 3: Growing the global movement against HIV criminalization, 2019 (<https://www.hivjustice.net/wp-content/uploads/2019/05/AHJ3-Full-Report-English-Final.pdf>, accessed on 5 October 2021).

¹²⁹ HIV Justice Institute, Advancing Justice 3: Growing the global movement against HIV criminalization, 2019 (<https://www.hivjustice.net/wp-content/uploads/2019/05/AHJ3-Full-Report-English-Final.pdf>, accessed on 5 October 2021).

¹³⁰ Resources for Lawyers and Advocates, 2020, Canadian HIV/AIDS Legal Network (<https://www.hivlegalnetwork.ca/site/responding-to-the-criminalization-of-hiv-transmission-or-exposure-resources-for-lawyers-and-advocates-2/?lang=en>, accessed on 5 October 2021).

¹³¹ Health Situation Room Evaluation, 2020, Geneva: Joint United Nations Programme on HIV/AIDS (https://www.unaids.org/sites/default/files/media_asset/HSR%20Evaluation.pdf, accessed on 5 October 2021).

¹³² Chile Agrees to End Forced Sterilization Practices and Provide Reparations in Case at the IACHR, (August 2021, Center for Reproductive Rights, <https://reproductiverights.org/case-iachr-chile-forced-sterilization-francisca/>, accessed on 5 October 2021).

[End of document]