Agenda item 12

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THEMATIC SEGMENT

REDUCING THE IMPACT OF AIDS ON CHILDREN AND YOUTH

BACKGROUND NOTE

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All case studies have been compiled as a Conference Room Paper (UNAIDS/PCB (45)/CRP3), which is available on the PCB website.

Key messages

The world is not on-track to achieve its ambitious HIV targets for children and youth. Progress continues in reducing new HIV infections among children, adolescents and young people, but at a pace that is far too slow. Overall progress in coverage of antiretroviral therapy among pregnant women, children and young people has stalled.

Infants and younger children (aged 0–4 years). The annual number of new HIV infections among children (0-–14 years) is declining far too slowly; it totalled 160 000 in 2018, four times more than the global target of 40 000. The vast majority of those children acquired HIV during the first two years of life during pregnancy or breastfeeding. Disappointing progress in reducing new infections among children stems from three main causes:

- inadequate coverage of antenatal care and services to prevent mother-to-child HIV transmission, with antiretroviral coverage among pregnant women stalling in recent years;
- poor retention in services, with many pregnant women who begin antiretroviral therapy not remaining in care; and
- mothers newly infected with HIV during pregnancy or breastfeeding.

If infants who have acquired HIV in the womb or at birth are not linked to effective treatment and care, 50% will die before their second birthday. The estimated number of children (0-14) receiving antiretroviral therapy in 2018 (937 000 [824 000 – 974 000]) was well short of the global target (1.6 million). An estimated 530 000 [410 000-680 000] children aged 0–4 years were living with HIV in 2018. 250 000 of them were not receiving HIV treatment. A key reason for such poor treatment coverage is the failure to promptly diagnose HIV in children. About half the children living with HIV are diagnosed through prevention of mother-to-child transmission services. Few opportunities exist to provide HIV testing for children who are missed by those services or who acquire HIV during breastfeeding more than six weeks after birth.

“Game-changers” for infants and younger children include:

- urgently identifying where new infections among children are occurring and optimizing prevention of mother-to-child transmission and maternal and child health service delivery and diagnosis accordingly;
- undertaking proactive, multi-faceted case-finding activities to identify children who are living with HIV, including strengthened early infant diagnosis, scale-up of point-of-care testing technologies, family or index testing, and effectively integrating HIV testing in diverse health and social service settings;
- rapidly transitioning to optimal treatment regimens, as they become available, along with a comprehensive package of care for this age group (e.g. immunizations, TB screening and prevention, co-trimoxazole prophylaxis, early childhood development interventions, etc.); and
- implementing community-centred, decentralized, differentiated service delivery models to reach and retain children in care.

School-age children (aged 5–9 years). An estimated 590 000 [460 000-770 000] children aged 5–9 were living with HIV in 2018. 210 000 were not receiving HIV treatment and are assumed to be undiagnosed.

“Game-changers” for school-age children (5–9 years) include:

- implementing and scaling up family or index testing;

- strengthening treatment services for school-age children by ensuring age-appropriate regimens, incorporating a holistic package of care (e.g. immunizations, TB screening and prevention, early childhood development interventions) and differentiated family support to address growth and neurodevelopment delays, and enabling age-appropriate HIV disclosure to the child; and
- implementing community-centred, differentiated service delivery models to reach and retain children in care.

Adolescents and young people (10–24 years). This age group includes young adolescents (aged 10–14), older adolescents (aged 15–19), and young adults (aged 20–24).

10–14 year olds. In 2018, an estimated 610 000 [470 000-790 000] children aged 10–14 years were living with HIV. An estimated 270 000 of them were not receiving HIV treatment and were probably undiagnosed. There is an urgent need to find and diagnose these children. Young adolescents, most of whom are approaching sexual debut, also have an urgent need for comprehensive sexuality and skills education.

15–19 year olds. Older adolescence is a time when sexual activity often begins, highlighting the importance of age-focused comprehensive sexuality education and access to prevention tools. An estimated one million [610 000-1 500 000] adolescents aged 15–19 were living with HIV in 2018. Girls in this age group are much more likely to be living with HIV (and at higher risk of HIV infection), compared with their male peers. Compared to adults, adolescents living with HIV are less likely to know their HIV status, to receive antiretroviral therapy and to achieve viral suppression, due to a range of legal, socioeconomic and psychosocial obstacles. Age of consent laws which require parental consent for adolescents to access HIV services are a significant barrier.

20–24 year olds: Young adulthood is a time of substantial risk of HIV infection, especially for women. It is also a time when many women conceive, which underscores the need for comprehensive access to prevention, family planning and comprehensive health services. Among young women living with HIV, intimate partner violence can reduce uptake and adherence to treatment. An estimated 2 400 000 [1 400 000-3 500 000] young adults aged 20–24 were living with HIV in 2018.

The number of adolescent girls and young women who acquired HIV in 2018 (an estimated 310 000 [190 000 – 460 000]) was more than three times higher than the global target for that year. Young people also account for a sizable share (20–40%) of HIV new infections among key populations.

“Game-changers” for adolescents and youth include:

- investing in expanded, tailored testing approaches at diverse sites for adolescents and young people, including focused investments for young key populations;
- adapting HIV prevention, treatment and broader health services to the needs and preferences of adolescents and young people, and complementing those with peer-driven models and the sensitization of health-care workers to minimize deterrents to service utilization, including stigma and discrimination;
- empowering adolescents and young people, including those living with HIV, with a focus on the most marginalized, through:
  - investments in youth-led organizations and networks;
  - implementation of community-centred service delivery models that empower and support young people;
  - provision of comprehensive sexuality education in schools; and

- concerted efforts to address the structural factors that increase young people's vulnerability, including programmes to prevent and address gender-based violence, and social protection measures;

- removing barriers that impede access to information and health services for adolescents and young people (including requirements for parental consent for adolescents to access HIV services, comprehensive sexual and reproductive health services, information and contraceptives), and undertaking additional policy action to promote school enrolment, healthy school environments and healthier behaviours; and
- encouraging the adoption of interventions such as pre-exposure prophylaxis and HIV self-testing for adolescents and young adults at risk of HIV.

For children and youth of all ages, whether living with HIV or not, a cross-cutting "game-changer" is to link the HIV response to broader efforts to reach the Sustainable Development Goals. By reducing poverty, averting hunger and poor nutrition, preventing violence, promoting gender equality and grounding responses in human rights, we can reduce the vulnerability of children and youth to HIV, increase their access to essential health and other services, and achieve better health outcomes.

Introduction

1. The world is not on-track to achieve its ambitious HIV targets for children and youth. Progress in preventing new HIV infections among children, adolescents and young people remains too slow, and progress in increasing antiretroviral treatment coverage for pregnant women, children and young people has stalled.

2. People under the age of 25 are diverse, with different needs at different stages of development. Efforts to address the HIV-related needs of children and young people must take a lifecycle approach that recognizes both the unique circumstances of young people at different stages of development and the importance of family and caregivers.
   - *Infants and younger children* (aged 0–4 years) are at a key period for human development, have urgent need for ongoing health services and are completely dependent on their caregivers. Half of infants who acquire HIV during pregnancy or delivery will die before their second birthday unless they receive antiretroviral therapy,[1] [2] and many of them will die as young as 2–3 months,[3]
   - *School-age children* (aged 5–9 years) are also in a pivotal phase of human development. In addition to the family setting, schools and non-formal learning platforms help shape social norms and also serve as important venues for service delivery. Disclosure to the child of their HIV status often occurs during these early school-age years. Tragically, childhood is also a source of trauma and violence for far too many children. Half of all children in the world, approximately 1 billion, experience violence.[4] Experience of violence during childhood is often associated with early, often forced, sexual debut[5] and with increased sexual risk taking in later years;[6]
   - *Adolescents and young adults* (aged 10–24 years) experience a unique set of challenges as they transition from dependence on caretakers to the emerging agency of adolescence and eventually young adulthood.
     - Younger adolescents (aged 10–14 years) are in a phase of sexual development and maturation, underscoring their need for information and life skills education. In addition, this age group includes children living with HIV who are yet to be diagnosed.

    - Older adolescence (aged 15–19 years) is typically a time of heightened sexual interest, with median sexual debut among unmarried young people in sub-Saharan Africa, for example, occurring at 16 years for females and 17 for males.[7]
  - Many adolescents and young people become young parents. It has been projected that 62 million adolescent girls (aged 15–19 years) and 195 million young women (aged 20–24 years) will give birth during 2016–2020.[8] Adolescence and young adulthood is also a time when young people are frequently exposed to violence (including but not limited to gender-based and intimate-partner violence) and abuse, power imbalances, and alcohol and substance use. Adolescents and young adults account for a substantial proportion of key populations, with young members of key populations experiencing HIV prevalence and incidence higher than among young people as a whole.[9]

3. For each of these age groups, key gaps undermine efforts to meet their HIV prevention and treatment needs. Across all age groups, stigma, violence and discrimination serve as important barriers to a more effective response. Especially as children living with HIV age into adolescence, the HIV-related stigma they experience frequently intersects with racism, gender discrimination, homophobia, transphobia, discrimination towards migrants and other forms of discrimination.

4. Another theme that cuts across the full age spectrum for children, adolescents and youth is the close relationship between the paediatric and youth HIV agenda and the 2030 Agenda for Sustainable Development.[10] [11] Only by addressing the social and structural factors that increase the vulnerability of children and youth and that diminish their ability to access essential services will it be possible to achieve the global HIV targets for children and youth.

5. Since poverty is a key driver of vulnerability for children and youth, poverty reduction efforts are a central pillar of efforts to reduce vulnerability and to improve the overall wellbeing of children and young people living with and affected by HIV. The implementation and scale-up of proven structural approaches to reduce violence against adolescent girls and young women should be priorities, as should efforts to maximize synergies between HIV and the broader development agenda.[12] Initiatives to prevent both household and community violence against children, avoiding unintended pregnancy, reducing harmful alcohol and drug use, implementing pre-school enrichment programmes, and life-skills training are key elements of a comprehensive effort to reduce the vulnerability of children and youth.[13]

6. Particular care is needed to address the needs of the estimated 14.9 million [11.3–19.1 million] children who had lost one or both parents to AIDS as of 2018,[14] as these children face considerable challenges in accessing essential education and nutrition services. Social protection is a core component of an effective strategy to accelerate progress towards global HIV targets.

7. Launched in 2016 by UNAIDS and the United States President's Emergency Plan for AIDS Relief (PEPFAR), the Start Free Stay Free AIDS Free (Three Frees) framework outlines a set of approaches to end AIDS as a public health threat among children and adolescents. The framework seeks to catalyse markedly stronger, focused action in 23 priority countries[*] with high numbers of children, adolescents and young people living with HIV.

[*] Angola, Botswana, Burundi, Cameroon, Chad, Côte d'Ivoire, Democratic Republic of the Congo, Eswatini, Ethiopia, Ghana, India, Indonesia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, South Africa, Uganda, the United Republic of Tanzania, Zambia and Zimbabwe

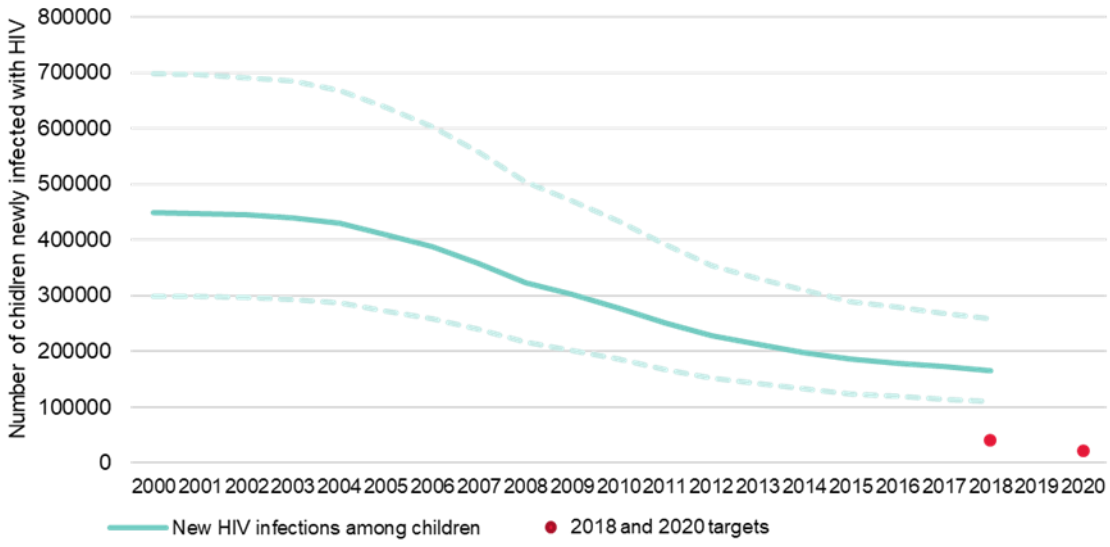
8. Although the Three Frees framework has helped substantially increase the political and programmatic attention devoted to HIV among children and youth, the 2018 targets were missed. Some progress is evident but results overall are mixed and the gains remain too meagre and uneven. If the world hopes to get on-track to end the epidemic among children and youth by 2020, marked increases in access to comprehensive and good-quality prevention and treatment services will be needed.

9. Recognizing the need to close the gaps in the HIV response for children and young people, the UNAIDS Programme Coordinating Board (PCB) decided at its 43rd meeting that the topic of the thematic segment of the 45th PCB meeting would be "Reducing the impact of AIDS on children and youth". This background note informs that discussion. While the note describes the gaps that persist for each age group, it also identifies "game-changers" that have the potential to place the world on-track to end the AIDS epidemic among children and youth.

Very young children (aged 0–4 years): challenges, opportunities and "game changers"

10. Although the reduction of new HIV infections among children is one of the most important achievements of the AIDS response—with an estimated 200 000 new infections averted due to prevention of mother-to-child transmission (PMTCT) programmes in 2018 alone[14]—the current pace of progress remains far too slow to reach the global goal of eliminating new HIV infections among children (Figure 1).

Figure 1. Number of new child HIV infections, globally, 2000-2018



Note: The vast majority of children aged 0–14 years who acquire HIV infection will have acquired it during the first two years of life.

11. Recognizing that every child deserves an HIV-free beginning, Start Free aimed to reduce the number of new HIV infections among children to fewer than 40 000 annually by 2018 and to fewer than 20 000 by 2020 and to reach 95% of pregnant women with antiretroviral therapy. To date, the World Health Organization (WHO) has validated the elimination of mother-to-child HIV transmission in 12 countries or territories, although none of them are in sub-Saharan Africa which in 2018 accounted for 86% of all children newly infected with HIV.[14]

Antigua and Barbuda: Elimination of mother-to-child transmission of HIV

Antigua and Barbuda was certified by WHO as having eliminated mother-to-child transmission of HIV and syphilis in 2017.

The country has used a community nursing model to ensure access for all women to antenatal care and to increase retention in such care. The country also provides healthcare services to Spanish-speaking migrants by employing a cadre of Spanish-speaking health-care providers. In addition, special care is given to ensuring confidentiality and to addressing stigma and discrimination in health-care settings.

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12. The annual number of children (aged 0–4 years) acquiring HIV declined between 2010 and 2018, but not by enough to reach the 2018 target. In 2018, 160 000 children acquired HIV, four times more than the 2018 Stay Free target.[15] Rate of mother-to-child transmission continues to be unacceptably high (12.7% [10.6 – 16.0%] globally, and 11.8% [9.8 – 15.2%] in Three Frees focus countries in 2018).[15]
Eleven of the countries with available data (Botswana, Cambodia, Malawi, Malaysia, Namibia, Nicaragua, Portugal, Rwanda, Thailand, Uganda and Zimbabwe) have seen declines in new HIV infections among children of at least 65% from 2010 to 2018[15]. However, gains have been disappointing in countries such as Angola, Indonesia, Madagascar and Pakistan, where the annual number of children newly infected with HIV has risen since 2010.[15] In Pakistan, a recent outbreak of nosocomial infections has occurred due to unsafe injection practices.[16] Increases in new infections in children in Angola and Indonesia can be traced to very low antiretroviral coverage among pregnant women living with HIV (15% and 3%, respectively, in 2018).[14]

13. The uneven efforts to avert new infections in children is evident in a comparison of the response in eastern and southern Africa (where antiretroviral coverage among pregnant women living with HIV was 92% in 2018 and rising) and the response in Nigeria (where treatment coverage was 44% in 2018 and had declined in the previous two years).[14]

14. Since a large proportion of new infections in children occurs in a small number of countries, focused and effective efforts in those places could achieve major gains. Globally, seven countries (Democratic Republic of the Congo, Kenya, Mozambique, Nigeria, South Africa, Uganda and the United Republic of Tanzania) account for a little more than half of all children who acquired HIV in 2018.[15]

15. For the 530 000 [410 000 – 680 000] children under age five living with HIV[†], progress in linking children with lifesaving antiretroviral therapy remains inadequate. Urgent attention is also needed to test all HIV-exposed children for HIV infection as early as possible and to link those living with HIV rapidly to treatment services within the context of comprehensive, child-centred care.

Eliminating new HIV infections among children

16. UNAIDS has developed an analytical tool that enables countries to acquire a more detailed and precise understanding of programme gaps that are contributing to new HIV infections among children. Figure 2 shows an example of those data. They highlight key determinants of new HIV infections among children, e.g. the lack of access for pregnant and breastfeeding women to PMTCT services, lack of retention among those women

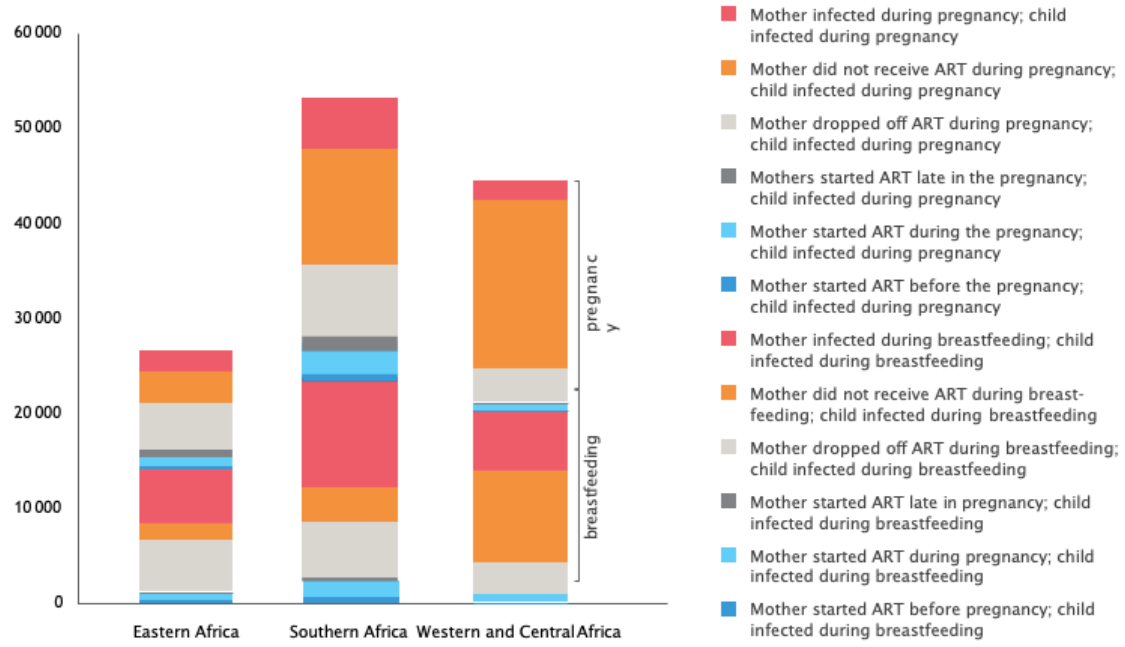
[†] UNAIDS 2019 estimates.

who initiate antiretroviral therapy, and acquisition of new HIV infection during pregnancy or breastfeeding.

17. The comparative contributions of those factors to new infections varies in the different locations. For example, an analysis of the Three Frees focus countries found that in the western and central African countries, the primary driver of new HIV infections among children was the failure to provide pregnant women living with HIV with antiretroviral therapy, while in the southern African focus countries, 17 000 of the 53 000 new infections among children were linked to recent HIV acquisition during pregnancy or breastfeeding.[15] Country-level analyses that identify when and why vertical transmission occurs provide critical information to enable decision-makers and programme implementers to close key service gaps with proven interventions. Across those programmatic gaps, various social and structural factors, including stigma and poverty, play important roles.

Figure 2. Gaps in prevention and treatment services for women explain the causes of new HIV infections in children, by region

Distribution of new HIV infections in children by service for preventing vertical transmission of HIV by region in 21 African focus countries, 2018



Eastern Africa: Ethiopia, Kenya, Uganda, United Republic of Tanzania.
Southern Africa: Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia, Zimbabwe.
Western and central Africa: Burundi, Cameroon, Chad, Côte d'Ivoire, Democratic Republic of the Congo, Ghana, Nigeria.

Source: UNAIDS 2019 estimates.

18. Strong and effective primary HIV prevention for women is crucial for eliminating new HIV infections among children yet remains under-prioritized. Consequently, the annual number of HIV infections among reproductive-age women (15–49 years) remains high: approximately 700 000 [540 000 – 930 000] in 2018 among women aged 15–49 years).

19. In sub-Saharan Africa, the percentage of women reporting condom use at the last episode of high-risk sex ranged from 5% in Madagascar and 6.8% in Sierra Leone to 67% in Zimbabwe.[14] Effective prevention counselling and access are especially important for women who are pregnant or breastfeeding, given growing evidence of their

heightened vulnerability for HIV acquisition during these periods.[15] HIV acquisition by women during pregnancy and breastfeeding is another important factor, with as many as 30% of new infections in children in some settings attributable to maternal acquisition of HIV during pregnancy or breastfeeding.[15]

20. In addition to women's inadequate access to primary HIV prevention services, women often also have insufficient access to contraception and family planning services. For example, in a recent study in an HIV care and treatment centre in Addis Ababa, Ethiopia, one in four women attending the clinic were found to have an unmet need for contraception.[17] The recently completed ECHO trial in four eastern and southern African countries (Eswatini, Kenya, South Africa and Zambia) documented not only strong demand for contraception services, but also wide variations in contraception access in the study settings.[18]

21. Inadequate access to antenatal care also impedes uptake of prevention services among pregnant women living with HIV. Globally, about 60% of pregnant women receive the recommended level of antenatal care services,[19] and many of them initiate antenatal care late. Legal and policy frameworks—such as the imposition of user fees for health services—add to the health-care barriers that pregnant women often face. For example, in western and central African countries which impose fees for the use of antenatal care (Cameroon, Central African Republic, Democratic Republic of Congo, Mali and Nigeria), 49% of pregnant women received antiretroviral therapy in 2018, compared to 74% in countries in the same region but which did not charge user fees.[15] The emphasis on minimizing out-of-pocket costs, as part of moves towards Universal Health Coverage, offers a potential avenue to reduce financial barriers to health service utilization. Once pregnant women access antenatal care, they require person-centred counselling to enable them to make informed decisions regarding treatment, delivery methods and breastfeeding.

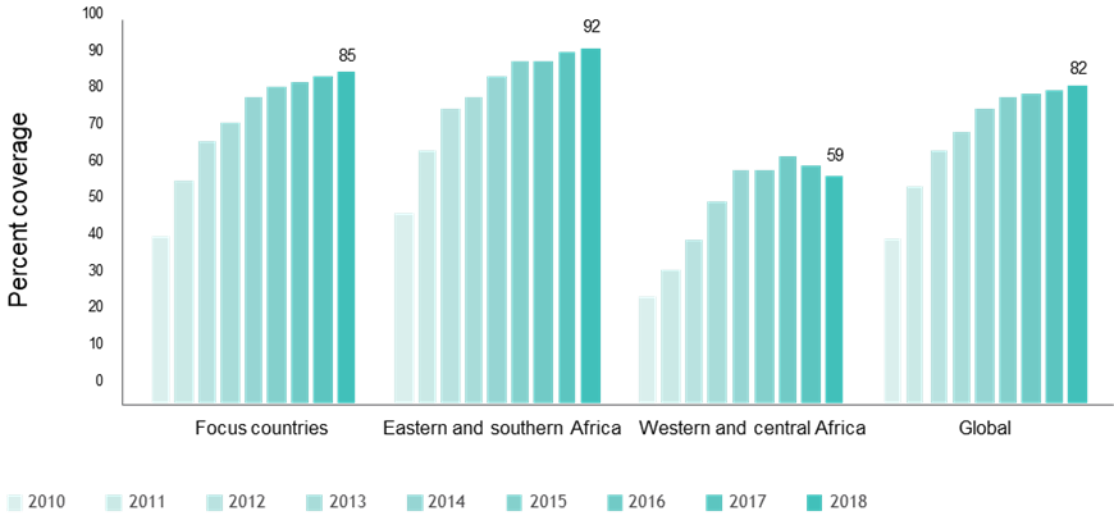
22. Antiretroviral treatment coverage among pregnant women globally rose from 44% [33–54%] in 2010 to 82% [62 – >95%] in 2018.[20] Although impressive, the improvement left the world short of the 95% coverage target for 2018. Moreover, the progress has slowed in recent years, with antiretroviral coverage among pregnant women increasing from 80% in 2015 to 82% in 2017 and holding steady in 2018) (Figure 3).[14]

23. While countries in eastern and southern Africa almost achieved the global target in 2018 (providing 92% [69 – >95%] of pregnant women with antiretroviral therapy), treatment coverage among pregnant women was much lower in some other regions, including the Middle East and North Africa (28% [16–46%]), Asia and the Pacific (56% [47–71%]) and western and central Africa (59% [42–78%]).[14]

24. Trends in western and central Africa are especially concerning, as treatment coverage among pregnant women has actually declined in the region since 2014, when 61% [43–80%]) of pregnant women were reached with antiretroviral therapy.[14] Factors contributing to that worrying trend include weak health systems, an over-reliance on facility-based services, inadequate decentralization and differentiation of services, stigma and discrimination, and a reliance in many countries on user fees, which deter service utilization.[21] [15]The decline in pregnant women reached with prevention services in Nigeria is especially alarming, with the number of pregnant women receiving any HIV treatment declining from 62 000 in 2014 to 44 000 in 2018.[15]

25. Adolescent pregnant women experience distinctive barriers to service access. Adolescents living with HIV are less likely than older women living with HIV to have been diagnosed, and they are also less likely to receive antiretroviral therapy.[22]

Figure 3. Percentage of pregnant women with HIV receiving antiretroviral medicines in 23 Three Frees focus countries, in eastern and southern Africa, western and central Africa, and globally, 2010–2018



Source: UNAIDS 2019 estimates.

26. Many pregnant women who initiate antiretroviral therapy—during or before pregnancy or breastfeeding—do not remain engaged in HIV care. According to one recent analysis, 1 in 5 pregnant women who started treatment during pregnancy stopped within 12 months, and 1 in 4 who began treatment before becoming pregnant were no longer taking antiretroviral medicines nine months later.[23]

27. Among the focus countries in eastern Africa, the failure to retain women on treatment throughout pregnancy and breastfeeding accounted for an estimated 10 000 of the 26 000 new HIV infections among children in 2018 [15]. Many of the barriers to retention in care experienced by pregnant women living with HIV stem from social, economic and structural factors, including clinic-level issues (e.g. long waiting times, discriminatory provider attitudes, inconvenient clinic scheduling),[24] stigma,[25] transport costs or difficulties,[25] and lack of food or money.[26] Improved treatment outcomes are therefore closely linked also with progress in relation to the broader Agenda for Sustainable Development.

28. In addition to adhering to antiretroviral therapy, breastfeeding women should be counselled about other steps to reduce the risks of vertical transmission. For mothers living with HIV, WHO recommends exclusive breastfeeding for the first six months of life and continued breastfeeding, with the addition of complementary foods, for at least 12 months.

The paediatric HIV treatment agenda

29. In the 2016 Political Declaration on Ending AIDS, countries agreed to reach 1.6 million children living with HIV (aged 0–14) with antiretroviral therapy by 2018. The estimated number of children who received antiretroviral therapy in (937 000 [830 000 – 980 000]) in 2018, however, was substantially less than the global target.[15]

30. Instead of accelerating, progress is slowing down. While paediatric treatment coverage among children aged 0–14 years more than doubled globally from 20% to 54% between 2010 and 2018, the gains in the recent past have been modest. In 2017–2018, treatment coverage increased from 52% to 54%.

31. In the Three Frees focus countries, the treatment coverage gap between children and pregnant women exceeds 50% in Botswana, Cameroon and Ghana[15]. Paediatric treatment coverage is an especially major concern in western and central Africa, where only 28% [18-–39%] of children were receiving antiretroviral therapy in 2018—roughly half the global coverage[15]. Achieving much higher treatment coverage is feasible in high-burden countries, as Eswatini, Namibia, Zambia and Zimbabwe have demonstrated: each was providing treatment to more than 75% of children living with HIV in 2018.[15]

32. Prompt diagnosis is the gateway to effective HIV care and treatment, but currently far too few children living with HIV are diagnosed in a timely manner. In 2018, while 80% [67–92%] of adults living with HIV knew their HIV status,[20] only 52% [43–70%] of infants exposed to HIV received HIV testing services within their first two months of life.[15] Present testing approaches miss almost 50% of children exposed to HIV. As a result, 47% of the estimated 530 000 young children living with HIV (aged 0–4 years) in 2018 did not receive HIV treatment, primarily because they were not diagnosed.

33. Currently, the primary strategy for reaching children with HIV testing is through the cascade of services offered for PMTCT, which ends with a final diagnosis of an HIV exposed child. However, many HIV–exposed children are missed by early infant diagnosis services. Indeed, only about half of infants born to mothers living with HIV globally were tested within the first two months of life in 2018.[15]

34. Children who are missed by early infant diagnosis services or those infected during the breastfeeding period often have few other opportunities to access HIV testing services. While numerous entry points for HIV testing services ostensibly exist (e.g. immunization clinics, sick child clinics and wards, adult antiretroviral treatment services, school health services and the like) testing services are not consistently implemented in potential high-yield settings. Moreover, for children who are identified outside the PMTCT service cascade (such as in primary care settings), systems are often not in place to effectively link them to antiretroviral therapy. Effective care and treatment for children living with HIV can be especially challenging in fragile and conflict-affected settings, including risks of violence and sexual assault, inadequate access to care, and discontinuity of medication access.

35. Even children who are identified in a timely manner face important barriers to care and treatment. In many settings, service providers have inadequate knowledge and capacity to meet the needs of children living with HIV.[27] Whereas task shifting has had a transformative effect on treatment service delivery for adults, this approach is used less frequently for paediatric HIV treatment services.

36. Once children are diagnosed with HIV, their health outcomes tend to be poorer than those of adults. Whereas about 86% [72–92%] of all adults receiving antiretroviral therapy achieved viral suppression in 2018[20], suppression rates were markedly lower among children (75% [57–84%] globally).[15] In 10 high-burden countries‡ in which population-based HIV impact assessments (PHIA) surveys have recently been done, only 37% of children living with HIV were virally suppressed, compared to 57% of adults living with HIV.[28] There are variety of reasons for those low levels of viral load

‡ Cameroon, Ethiopia, Lesotho, Malawi, Namibia, Swaziland, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

suppression, including suboptimal drug regimens which lead to poor adherence, inappropriate prescriptions, lack of support to care givers to manage treatment among young children, and stockouts for paediatric regimens, including 2nd and 3rd line regimen options.

37. Strong treatment adherence among young children requires the involvement of caregivers, which underscores the importance of mechanisms to support parents or guardians of children living with HIV.

38. Although AIDS-related deaths overall have declined, substantial numbers of children continue to be orphaned by AIDS. In South Africa and Mozambique, for example, an estimated 1.2 million and 1.1 million children, respectively, have lost one or both of their parents to AIDS.[14] Orphanhood is one of several risk factors among children and it should be taken into account along with other relevant risk factors, including parental HIV status and poverty, when designing national support programmes for children.[29]

Eswatini and Kenya: Providing social protection to orphans and vulnerable children

In Eswatini, the World Food Programme worked with the Ministry of Tinkhundla & Administration (MTAD) to provide nutritious meals and basic social services, such as early childhood education, psychosocial support and basic health services to orphans and vulnerable children of pre-school age who attend community-led day-care centres. The project improved food security and alleviated poverty nationwide, while providing protection of children orphaned or made vulnerable by the AIDS epidemic.

In Kenya, the Cash Transfer for Orphans and Vulnerable Children Programme combines cash transfers with a service package which includes behaviour change communication, access to healthcare and education, mentoring on skilful parenting and financial literacy to support households that are taking care of orphans and vulnerable children.

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39. Compared to adults living with HIV, children living with HIV have a more limited array of antiretroviral regimens available for use. This is especially true for young children. One in two newly diagnosed children living with HIV have pre-treatment resistance to non-nucleoside reverse transcriptase inhibitors (NNRTIs),[30] underscoring the urgent need to rapidly implement WHO's recommendations to transition from NNRTI-based to dolutegravir-based regimens as a first-line treatment option.[31] Evidence that children whose HIV-positive caregivers are not virally suppressed are more likely to be unsuppressed as well highlights the importance of interventions to support households and communities.[32] However, many countries have slow to transition away from NNRTI-based regimens for infants. A substantial share of children who initiate antiretroviral therapy are not retained in care, further contributing to sub-optimal rates of viral suppression.[33] [34]

"Game changer": Use strategic data to identify and address existing gaps in programmes to eliminate new infections among infants

40. Countries should fully leverage existing monitoring and evaluation systems and new analytic tools to determine where and why new HIV infections among children are occurring and to urgently address gaps in programming. International partners should intensify their support to countries to assist in those analytical exercises.

41. The stacked bar analysis shown above in Figure 2 should be used extensively to guide strategy improvements. For example, in settings where HIV acquisition during breastfeeding accounts for a disproportionate share of new infections in children, responses should prioritize post-birth retention in care for mothers on antiretroviral therapy, along with tracking and support systems to engage mothers after they have given birth. Or, if a child acquired HIV infection because of mother being newly infected during pregnancy or breastfeeding, "game-changing" approaches may include partner testing (including through use of self-testing), treatment for HIV-positive partners in combination with PrEP for the HIV-negative woman, and repeat HIV testing close to delivery and during lactation for previously HIV-negative mothers.

"Game changer": Undertake proactive, multifaceted case-finding to identify children living with HIV

42. The current early infant diagnosis approach relies primarily on PMTCT programmes and includes relatively few measures to identify children who are missed along the PMTCT cascade of services. What is needed in addition is a much more tailored and intensive, multicomponent approach that can identify previously undiagnosed children who are living with HIV. Infant diagnosis must also be understood as an iterative process rather than a one-time event, especially in breastfeeding populations.

43. More intensive, proactive efforts are needed to identify both newborns and older children who may be living with HIV. A key first step is to strengthen traditional early infant diagnosis programmes, which use centralized laboratories to test dried blood specimens from HIV-exposed children at peripheral health sites.

44. WHO recommends that every infant exposed to HIV be tested at six weeks after birth or at the earliest opportunity thereafter.[35] Currently, early infant diagnosis involves substantial turnaround time for test results, widespread failure to caregivers receive the test results, and inadequate mechanisms to ensure that infants who test HIV-positive initiate antiretroviral therapy.[36] [37] [38]

45. Urgent action is needed to increase laboratory capacity and systems to enable rapid processing of dried blood specimens, enhance specimen transport systems, and improve the tracking of mother-infant pairs to ensure receipt of test results and initiation of HIV treatment.[39] By using text messaging and other innovations, Zambia has shown it is feasible to improve early infant diagnostic outcomes: infants born in 2015 were more than four times more likely to be tested within the first two months of life than those born in 2006, and the mean time from diagnosis to treatment initiation decreased from 220 days to 9 days.[40] In 2018 in Zambia, 71% of HIV-exposed children were tested during the first two months of life 8, markedly higher than the average 52% coverage for Three Frees focus countries.[15]

46. Immediate efforts are needed to accelerate the scale-up of point-of-care early infant diagnostic testing, which has emerged as an important alternative to traditional early infant diagnostic methods. Both caregivers and health-care providers prefer point-of-care platforms,[41] which have substantial advantages over laboratory-based early infant diagnosis.

47. A study done in eight sub-Saharan African countries, for example, found that 98% of point-of-care testing results were returned to caregivers (compared to 19% of laboratory-based results).[42] While median time from sample collection to return of results to caregivers was 55 days for traditional, laboratory-based early infant diagnosis, results were received on the same day for point-of-care testing.[42] Infants diagnosed through

point-of-care technologies were more than twice as likely to initiate treatment within 60 days of sample collection as infants diagnosed through laboratory-based testing, with point-of-care testing enabling initiation of treatment on the same day as blood was drawn for HIV testing.[42]

Point-of-case early infant diagnosis of HIV

Since 2015, Unitaid has committed over US $150 million to catalyse the introduction and integration of affordable point-of-care early infant diagnosis (POC EID) technologies into national diagnostic programmes. In collaboration with implementing partners – African Society for Laboratory Medicine (ASLM), Clinton Health Access Initiative (CHAI), Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), and United Nations Children's Fund (UNICEF) – POC EID is being introduced and scaled up across 15 early adopter countries.

Early pilots and implementation research have already demonstrated striking results. EGPAF POC EID implementation data from 8 countries (Cameroon, Côte d'Ivoire, Kenya, Lesotho, Mozambique, Rwanda, Eswatini, Zimbabwe) have shown to dramatically reduce the turnaround time for test results to a median of zero days and significantly improve ART initiation rates (92%).In Mozambique, POC EID increased the proportion of infants initiating ART within two months by seven-fold.[43] In Malawi the same day results returned improved the rate of initiation to 91%.[44]

48. Although use of point-of-care platforms for early infant diagnosis has increased, point-of-care technologies account for only about 5% of early infant diagnostic tests. This is partly due to the costs associated with the platform. Nevertheless, several high-burden countries are working to bring point-of-care early infant diagnosis to scale. In Rwanda, for example, 141 health-care facilities enrolled in the national programme of point-of-care early infant diagnosis, with health-care workers trained to use the platforms. At facilities using the point-of-care platforms, 98% of HIV-infected infants were initiated on antiretroviral therapy within a median two days of sample collection.[45]

49. Family or index testing[§] (i.e. testing family and household members of an adult or child living with HIV) has been shown to be effective for identifying undiagnosed children who are living with HIV.
    - In Malawi, almost half of people living with HIV had household members who had never been tested for HIV, including many children and young people.[46]
    - In Uganda, implementation of a family-centred model was associated with a 40-fold increase in the number of children enrolled in HIV care over seven years.[47]
    - In the Democratic Republic of Congo, systematic index testing increased four-fold the rate at which previously undiagnosed children living with HIV were identified over six months.[48]
    - In Cameroon, testing the children of HIV-positive adults was found to be the most effective means of identifying children living with HIV.[49]

Central African Republic, Cote d'Ivoire, Ghana, Kenya and Sierra Leone: finding missing children through index testing and family testing

[§] Index testing refers to the testing of all biological children of the person living with HIV, whereas family testing involves the testing of everyone in the household of a person living with HIV, including but not limited to biological children.

Index testing and family testing has been implemented in several African countries through partnerships between national governments, civil society organizations, UN agencies and communities.

In Central African Republic, the Ministry of Public Health and the National AIDS Commission launched a family testing campaign in the capital, Bangui, in 2017. The First Lady then launched a national campaign in 2018. More than 17 300 children with unknown HIV status were identified, 74% of whom were tested for HIV. Among the children tested, 1.6% were HIV-positive (60% of them older than 10 years of age) and 87% of them were initiated on ART.

In Cote d'Ivoire, active identification and testing of children born to mothers living with HIV increased testing uptake for children aged 0–14 years. 5.6% of the children who took an HIV test were HIV-positive, and 73% of them were initiated on treatment.

In Ghana, index testing of partners and children of a person already diagnosed as HIV-positive was done in areas with high HIV prevalence. This led to the identification of additional children and partners of pregnant women who were living with HIV and increased treatment uptake.

In Kenya, deceased individuals with known or suspected HIV infection were identified as index clients. Health-care workers contacted their family members to offer home-based HIV testing. This approach proved to be particularly effective for diagnosing children aged 5–14 years, who are often missed in facility-based PMTCT and early childhood health services.

In Sierra Leone, community-based HIV testing was offered to children and adolescents who had been missed by facility-based testing, often due to high HIV-related stigma and discrimination. Community health workers reached 20413 family members, of whom 93% were young than 19-years-old. All children and adolescents who tested HIV-positive were referred to treatment, care and support.

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50. Another "game-changing" approach is to actively look for HIV-exposed children in diverse health and social service settings.[50] [51] [52] In Togo, a provider-initiated counselling and testing initiative that used multiple entry points to test children resulted in a three-fold increase in HIV testing uptake among children. Testing at TB clinics, out-patient departments, in-patient wards and immunization services accounted for nearly half of tests among children.[53] High HIV prevalence has also been found among children attending malnutrition units, making that another likely entry point for HIV testing services.[54] Supporting and incentivizing caregivers to ensure testing uptake among children should also be prioritized.

"Game changer": Optimize antiretroviral regimens for children

51. Multiple actions are needed to ensure that children who are diagnosed with HIV receive timely, high-quality, client-centred care and treatment services. Since HIV treatment regimens for children remain limited, further efforts are needed to facilitate the development of additional antiretroviral treatment options for children. However, the market for paediatric HIV treatment is much smaller than the adult market and it is projected to decline in coming years. Therefore, innovative approaches are needed to incentivize private industry, public sector research agencies and other stakeholders to develop and make available regimens that will meet the needs of children living with HIV.

Initiatives such as the Global Accelerator for Paediatric Formulations and the ARV Procurement Working Group are working to catalyse the efficient, accelerated development of improved paediatric formulations and to ensure competitive pricing and consolidated demand for those formulations.

52. Immediate steps are needed to ensure rapid introduction of better formulations and transitioning to optimal regimens for children, with particular attention to the rapid transition to dolutegravir-based regimens for children weighing 20 kg or more for first- and second-line regimens and lopinavir for children under 20 kg.[55]

53. In December 2018, 43% of children receiving antiretroviral therapy were still on nevirapine-based regimens, despite high levels of resistance to nevirapine.[56] Rapid transition to improved regimens will require speeding up the registration and distribution of preferred medicines, accurate forecasting of demand and training, mentorship and support for health-care workers. As countries work towards implementing WHO's latest recommendations on the transition to more effective regimens, they also need to bolster their monitoring and evaluation systems to track the move away from nevirapine-based regimens.

Uganda: paediatric antiretroviral therapy optimization

In Uganda, antiretroviral therapy coverage for children living with HIV increased to 64% by mid-2019, but 36% of newly diagnosed infants have pre-treatment drug resistance to non-nucleoside reverse transcriptase inhibitors. In line with WHO guidelines, a policy decision was taken to immediately switch all non-suppressed children receiving nevirapine or efavirenz for their first-line antiretroviral therapy to second-line antiretroviral therapy (lopinavir and ritonavir or dolutegravir containing regimen), after discussion with the caregiver and on-going intensified adherence counselling. National guidelines and training materials and tools were developed. Training was provided to health-care providers to identify children living with HIV in need of treatment optimization. "National Quality Improvement Collaborative" was implemented to improve viral load suppression, retention, tuberculosis preventive therapy and psychosocial support.

Lessons learned include:

- continuous support to health-care workers is needed to operationalize changes in guidelines;
- caregiver literacy in antiretroviral therapy and drug administration is needed to achieve good health outcomes for children;
- drug stockouts hinder the implementation of revised guidelines, but can be avoided through careful stock management during the optimization process and by tracking facility-level stocks; and
- it is possible to implement a decentralized, national third-line antiretroviral therapy programme, but continuous capacity building is key.

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"Game-changer": Re-strategize treatment service delivery for children

54. Differentiated family-centred service delivery models can help reach children who are not currently in HIV care and can improve their retention in care. Useful innovations include coordinating family members' clinic visits to reduce travel expenses and waiting times, and using a "one-stop-shop" model for pharmacy refills, treatment follow-up, immunizations etc.

55. Caregivers can also be trained to identify the symptoms of opportunistic infections and take swift, appropriate action. Community and civil society engagement and participation in service delivery should be prioritized. For example, community dispensing of medications has been shown to reduce burdens associated with paediatric HIV treatment and to achieve good treatment outcomes.[57] [58] [59] Nurse-led prescribing should be enabled through strengthened task shifting, training and mentorship.

56. Protocols should accelerate the management of children with elevated viral loads—including age-appropriate, individualized, enhanced adherence counselling and focused support to empower caregivers to ensure strong adherence. The expansion of active case management for children, especially those who have not achieved viral suppression, should be explored. “Quick-response” protocols should be implemented to expedite enhanced adherence assessments and provide support to the family to assist transition to appropriate regimens for children who are failing on their current regimens.

57. Care and treatment services for children should be comprehensive, including early child development interventions, immunizations and screening and prevention of opportunistic infections, including providing access to the advanced HIV package of care to reduce morbidity and mortality. Moves towards Universal Health Coverage should be leveraged to ensure comprehensive service packages for children are available.

58. Data systems should be bolstered to enable voluntary patient-tracking, to minimize loss to follow-up. Stronger, more comprehensive, age-disaggregated data systems (including the use of unique identifiers, where acceptable to the community) can help promote treatment continuity when families move to different locations. They can also improve mothers' retention in care and help ensure that HIV-exposed infants are identified, tested, and, when appropriate, linked to care.

59. As with PMTCT, barriers in access to other health services should be eliminated. For example, countries should commit to eliminate direct and indirect costs associated with health service utilization. Some countries have committed to eliminate user fees associated with HIV service delivery (see above). Follow-up will be needed to ensure that everyone in need of services benefits from those changes.

School-age children (aged 5–9 years): Challenges, opportunities and game changers

60. An important demographic shift is occurring in the paediatric HIV population. The population of children aged 0–4 years in need of HIV treatment is declining. Meanwhile, children aged 5–14 years and who are living with HIV now form a larger proportion of all children living with HIV (Figure 3).

61. In 2018, there were an estimated 590 000 [460 000 – 770 000] children aged 5–9 years living with HIV. A major challenge for those children is the fact that so many of them are undiagnosed. An estimated 210 000 children aged 5–9 years and living with HIV were not receiving treatment in 2018, most likely because they were undiagnosed. Unless those undiagnosed children living with HIV are reached with testing services and linked to care, they will experience high rates of morbidity and mortality as they age into adolescence and beyond.

Figure 4. Number of children living with HIV by age group, globally 2000-2018

62. Stigma and discrimination, as well as violence, remain major barriers for school-age children. There continue to be reports of schools expelling children living with HIV and with surveys reveal that many people do not want their children to attend school with children who are living with HIV. To prevent violence against children, efforts should focus on interventions to reduce the risk of violence in households and communities. Approaches include the prevention of unintended pregnancies, reduction of harmful drug and alcohol use, and training to increase parental skills on non-violent strategies for discipline and child development.[13] Community-level violence prevention involves life skills training, keeping adolescents in school, and prevention of harmful alcohol and drug use.[60 13]

"Game changer": Implement and scale up diverse, proactive testing approaches

63. As noted above, testing everyone in households where someone is HIV-positive assists in identifying previously undiagnosed individuals and linking them to HIV care and treatment services. This approach should be complemented with other proactive methods, such as integrating HIV testing into school feeding programmes and other activities that reach school-age children. In high-burden settings, intensive, multidisease screening programmes have been shown to reach undiagnosed people of all ages, including school-age children.[61]

"Game changer": Strengthen treatment service delivery for children living with HIV, especially in primary care clinics

64. Updated WHO guidelines issued in 2019 clarify the latest available scientific evidence on optimal antiretroviral regimens for children living with HIV.[55] The guidance calls for rapid transition to more suitable, fixed-dose regimens in age-appropriate formulations for children as they age. It identifies optimal regimens across the age and weight spectrum.[55] Effective treatment services during childhood have the potential to establish lifelong treatment adherence as a personal norm.

65. Treatment services for children should be holistic and should incorporate screening for, and the management of HIV-related disabilities and stunted growth. Because HIV in childhood is often associated with deficits in neurocognitive development,[62] neurocognitive monitoring and peer support should also be integrated in treatment services for children. Screening and treatment for HIV-associated infections remains very important, including cotrimoxazole prophylaxis and tuberculosis preventive therapy.

66. Differentiated service delivery models should be implemented for children. Those approaches should be integrated with broader maternal and child health service delivery and should be family- and client-centred. Clinics should provide child-friendly spaces and operating hours that suit the needs of children who attend school. School-community-facility linkages should be strengthened.

67. Age-appropriate disclosure to children of their HIV status is recommended, ideally before the age of 10 years.[63] As stigma often impedes regular clinic attendance and treatment adherence,[64] [65] treatment services for children should incorporate psychosocial support regarding disclosure, resilience, adherence and coping with the social aspects of living with HIV as a child. Schools should be engaged as partners in supporting children affected by HIV. Community- and school-level stigma reduction efforts are essential complements for effective care and treatment programmes for children.

Adolescents and young people (aged 10–24 years): challenges, opportunities and "game changers"

68. Globally, an estimated 3.5 million [2.0–5.0 million] young people aged 15–24 years were living with HIV, of whom 1.6 million [1.1–1.3 million] were adolescents aged 10–19 years. The number of adolescents living with HIV increased by 4% between 2010 and 2018, double the growth in the overall population of 10–19-year olds. However, it is projected that the number of adolescents living with HIV will decline in the coming years. Roughly 70% of adolescents aged 10–19 years living with HIV acquired HIV through mother-to-child transmission, although that proportion is expected to decline as a result of PMTCT programmes.

69. Adolescents and young people are diverse, and they face distinctive developmental and HIV-related challenges as they mature.
    - Younger adolescents (aged 10–14 years) are maturing sexually and a considerable number of them have sex before their 15th birthday[66] (as many as two-thirds of those surveyed in Nigeria, for example).[67] Many younger adolescents' first sexual experience is the result of coercion.[68]
    - Due to age-of-consent laws, younger adolescents typically lack independent access to health services and depend on their caregivers to ensure that they receive the services they need.[69] In 2018, 610 000 [470 000– 790 000] children aged 10–14 years were living with HIV. An estimated 270 000 children in this age group were not receiving HIV treatment and therefore were probably undiagnosed.
    - Sexual debut typically occurs during older adolescence (aged 15–19 years)[7], highlighting the importance of access to combination primary HIV prevention, including pre-exposure prophylaxis for adolescents at high risk of HIV infection.[66] In many sub-Saharan Africa countries, large proportions of women give birth before their 20th birthday.
    - Young adults (aged 20–24 years) often embark on long-term relationships (including marriage) and have children. For women, the risks of HIV infection are often greatest during adulthood, emphasizing the importance of access to effective prevention options, including pre-exposure prophylaxis. Among young women living with HIV, intimate partner violence can reduce uptake and adherence to treatment.

- Across all of these age groups, HIV testing and treatment are priorities, since each group can include substantial numbers of people living with HIV.

70. It is important to bear in mind that, although children and young people in these different age groups face many distinct challenges, they also experience many common issues. For example, while sexual debut typically occurs during older adolescence (15–19 years), up to 1 in 4 adolescents have their first sexual experience before age 15, often as a result of forced or coerced sex.[66] Similarly, conception and childbirth occur across all age categories of the broader 10–24-year-old population.

HIV prevention among adolescents and young adults

71. Consistent with the lifecycle approach, HIV prevention needs among 10–24-year-olds differ by age. As the vast majority of 10–14-year-olds are yet to begin their sexual lives, that period is an important opportunity to provide young people with the knowledge, skills and motivation they need to protect themselves once they become sexually active.

72. Since sexual debut typically occurs during the 15–19-year-old period, late adolescence is a critical time for instilling safer sex norms and for ensuring access to condoms and other essential prevention tools. In addition to needing ready access to prevention tools and messages, many (although not all) young people aged 20–24 years conceive and have children, which highlights the importance of ready access to family planning services, antenatal care and PMTCT services.

73. In 2018, 310 000 [59 000–380 000] adolescent girls and young women (15-24) acquired HIV, a 21% decline since 2010 but more than three times higher than the global target of fewer than 100 000 new infections by 2020.[14] In the 23 Three Frees focus countries, where an estimated 270 000 [150 000–400 000] adolescent girls and young women acquired HIV in 2018, a decline of 26% since 2010 has been reported.[15]

74. Our ability to achieve marked reductions in new HIV infections among adolescent girls and young women is apparent from the progress achieved in several countries, including South Africa (a 43% decline in 2010–2018), Lesotho and Botswana (41% declines). By contrast, disappointing reductions in new infections were reported in countries, including Mozambique (0% decline in 2010–20018), Chad (2%), Ghana (4%) and Zambia (10%).[15] The number of adolescent girls and young women newly infected with HIV increased in Angola (by 8% in the same period) and by 7% in Nigeria.[14] Translating good practices and lessons in high-performing countries into concrete gains for young people worldwide is a pressing global priority.

Figure 5. Among the African focus countries women have a higher risk of being newly infected while in Indonesia young men have a higher risk of HIV infection.

Distribution of new HIV infections among young people ages 15-24 years by sex, 22 focus countries, 2018

75. Adolescent and young key populations also face substantial risks of HIV acquisition which are not being addressed adequately. Globally in 2018, key populations (e.g. gay men and other men who have sex with men, people who inject drugs, sex workers and transgender women) and their sex partners accounted for an estimated 54% of new HIV infections.[20] A recent analysis by UNAIDS, UNICEF and WHO indicates that young people (15–24 years) account for a sizable share (20–40%) of these key populations across regions.[**]

76. Young key populations encounter substantial obstacles, including stigma, social exclusion, violence and abuse, and very low prevention programme coverage in many settings.[20] Although the number of countries criminalizing same-sex relations has declined in recent decades, a majority of countries in Asia, Africa and the Caribbean retain such laws, and national policy frameworks continue to discriminate against people with diverse gender identities.[20] Persistent gaps in access to harm reduction services for people who inject drugs[††], often encouraged by national legal and policy frameworks and by the continued criminalization of personal drug use and possession, undermine efforts to prevent new HIV infections in this population.[20] Young people engaged in sex work continue to face stigma and discrimination and high levels of violence, all of which is exacerbated by the criminalization of sex work.

77. Preventing HIV infections in young men is important for breaking the HIV transmission cycle and thereby also preventing adolescent girls and young women from acquiring HIV infection.[70]

[**] UNAIDS data analysis of available published data.

[††] A comprehensive approach to HIV and other harms associated with drug use consists of activities with scientific evidence supporting their efficacy and cost-effectiveness, including: (1) needle-syringe programmes; (2) drug dependence treatment, including opioid substitution therapy; (3) HIV testing and counseling; (4) antiretroviral therapy; (5) prevention and treatment of sexually transmitted infections; (6) condom programmes for people who inject drugs and their sexual partners; (7) targeted information, education and communication for people who inject drugs and their sexual partners; (8) diagnosis, treatment and vaccination of viral hepatitis; and (9) prevention, diagnosis and treatment of tuberculosis. WHO has also recommended opioid overdose management with community distribution of naloxone for overdose prevention. PrEP should be available.

78. The global community has pledged to provide voluntary medical male circumcision for HIV prevention to 25 million additional men by 2020, with a focus on boys and young men aged 10–29 years. Favourable momentum is apparent in the scale-up of voluntary medical male circumcision, although gains are uneven and the pace is too slow to achieve the global target. Achieving high coverage (80% saturation) in settings with high HIV incidence should be prioritized.

79. In 2018, 4.1 million voluntary medical male circumcisions were performed (all ages), the highest annual number yet and an increase of 1.3 million over 2015 and 2016[15]. In 12 countries in eastern and southern Africa with age-disaggregated data on utilization of voluntary medical male circumcision, 44% of procedures were performed on adolescent boys aged 10–14 years, affording them valuable protection as they age and become sexually active. However, those data suggest that programmes may be missing men older than 15 years.[15]

80. Putting the world on-track to reach the global target for voluntary medical male circumcision will require quickened efforts in settings where circumcision scale-up lags at the moment. According to population-based surveys conducted between 2013 and 2016, less than one-third of adult men in Botswana, Eswatini, Rwanda, Zambia and Zimbabwe were circumcised.[15] Recent studies suggest that reliance on health facilities for circumcision delivery (as opposed to mobile clinics), long distances to circumcision services and lack of knowledge about HIV status can contribute to sub-optimal uptake of circumcision services in traditionally non-circumcising communities.[71] As countries achieve saturation coverage of voluntary medical male circumcision, continued robust uptake among adolescents will be key to sustaining voluntary medical male circumcision gains.

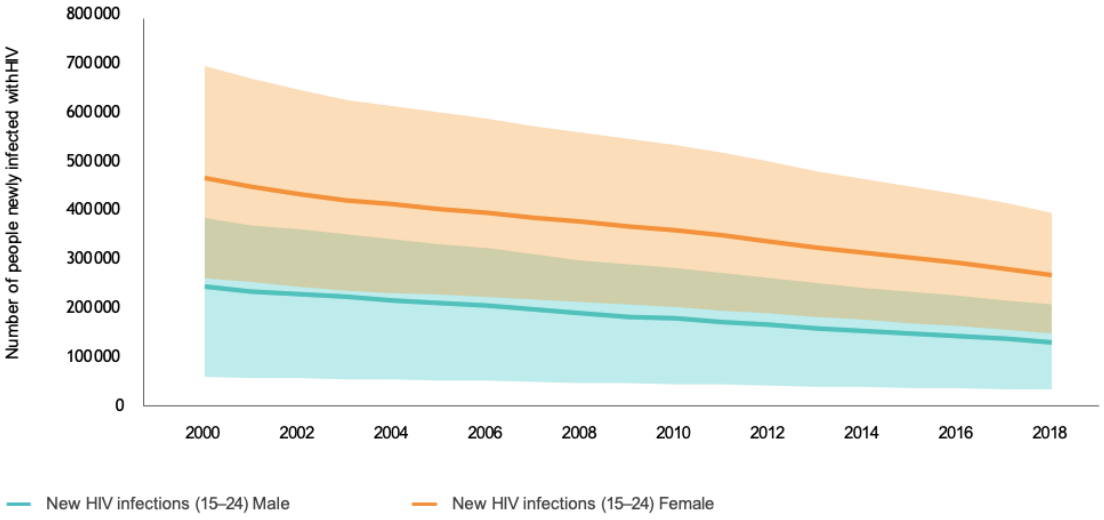
81. Effective HIV prevention for adolescents and young adults requires a combination approach that addresses biomedical, behavioural and structural issues.[72] [11] It promotes healthy sexual behaviours, through universal access to:

- comprehensive and inclusive sexuality education, with a gender-transformative component;
- innovative use of digital technologies;
- youth-tailored condom programming;
- access to condoms and pre-exposure prophylaxis;
- appropriate cash incentives;
- interventions to prevent gender-based violence; and
- ready availability of youth drop-in centres and other youth-friendly health services that incorporate peer involvement, including access to sexual and reproductive health services.

82. Few of those approaches have been brought to scale. According to national Demographic and Health Surveys, condom use among young women (aged 15–24 years) who had sex with a non-marital, non-cohabitating partner has declined in Benin, Ethiopia, Ghana and Madagascar, for example. Among countries reporting data to UNAIDS, 40% had no policy in place to guide the delivery of skills-based HIV and sexuality education in primary schools, while 16% reported not having such a policy for secondary schools.[20] Although most of the Three Free focus countries report having policies that support life-skills education for young people, accurate and comprehensive knowledge of HIV prevention is below 50% for one or both sexes in all but 3 (Burundi, Kenya and Namibia) of those 23 countries.[15]

Figure 6. The number of young people acquiring HIV is declining, but slowly

New HIV infections among young men and women aged 15–24 years in 23 focus countries, 2010–2018



Source: UNAIDS 2019 estimates.

China: improving uptake and retention in services through comprehensive innovative measures in college and university settings

In China, collaboration has been established between different sectors including health, education, finance, civil affairs and civil society, to respond to HIV among young people. Several innovative measures have been adopted in college and university settings. For example, Guangzhou city with a population of 14.9 million has adopted innovative models and worked with community-based organizations to expand student-led peer education.

Students and student associations have participated in AIDS publicity and education, peer educators have been trained, tailored HIV education courses and films have been developed, and peer counselling and support groups have been formed to provide HIV testing and counselling services to students.

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DREAM partnership: Combination HIV prevention for adolescent girls and young women

To control the epidemic among adolescent girls and young women, PEPFAR in 2014 partnered with the Bill & Melinda Gates Foundation, Girl Effect, Johnson & Johnson, Gilead Sciences, and ViiV Healthcare to launch the DREAMS public-private partnership.

DREAMS is a comprehensive prevention programme to address the multidimensional circumstances that place young women at increased risk of contracting HIV. DREAMS aims to reduce new HIV infections among adolescent girls and young women in the highest HIV burdened geographic areas of 15 countries.

To respond to the realities of the lives of adolescent girls and young women, the DREAMS Partnership requires a multi-faceted, integrated response from the health, education, psychosocial, economic and civil society/community sectors. In addition to reducing new HIV infections, DREAMS aims to reduce other critical vulnerabilities such as lack of school completion, early pregnancy and gender-based violence.

The DREAMS core package[73] includes interventions that:

* empower adolescent girls and young women and reduce their risk (economic strengthening, safe spaces, and HIV-related health services such as HIV testing services, condoms, pre-exposure prophylaxis, and voluntary family planning);
* strengthen the families of adolescent girls and young women (parenting/caregiver programmes);
* mobilize communities for change (community mobilization and norms change programmes, school and community-based HIV and violence prevention); and
* reduce the risk of men who are likely to be male sex partners of adolescent girls and young women (linkages to HIV testing services and voluntary medical male circumcision).

DREAMS operates in 15 countries: Botswana, Côte d'Ivoire, Eswatini, Haiti, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

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83. Adolescence and young adulthood is a period when many women either conceive or begin planning for conception. However, concerns regarding reported links between the use of long-acting contraceptives and HIV acquisition risk have complicated decision-making for women and providers' efforts to provide useful clinical information to their patients.

84. The recently-completed, large-scale ECHO trial, which enrolled 7800 women aged 15–35 years who desired to prevent pregnancy, found no substantial difference in HIV acquisition risk based on the type of contraceptive method used (e.g., intramuscular depot medroxyprogesterone acetate, a copper intrauterine device, or a levonorgestrel implant).[18] While the study findings may ease decision-making regarding contraceptive use, they nevertheless were worrying: the study population experienced annualized HIV incidence of 3.8%, and there was considerable variation in access to contraception outside the study sites.

Treatment and support for adolescents and young adults

85. The Three Frees framework targeted the provision of antiretroviral therapy to 1.2 million adolescents (aged 15–19 years) globally in 2018. However, very few countries report the data on antiretroviral therapy coverage in that age group.

86. Compared to adults, adolescents (aged 10–19 years) and young adults (aged 20–24 years) living with HIV are less likely to know their HIV status, more likely to initiate antiretroviral therapy late in the course of infection, and less likely to achieve viral suppression.[74] [75] [76] Studies indicate that sub-optimal adherence and non-disclosure of HIV status are often the most prominent barriers to effective care and treatment for adolescents living with HIV.[77] Young adults living with HIV also commonly experience adherence challenges.[78]

87. Other impediments to effective care and treatment for adolescents and young adults living with HIV include intersectional stigma, judgmental attitudes and discriminatory treatment by health workers, and age-of-consent laws and other laws and policies that discourage service utilization.[20] [79] In 2018, 106 of 142 countries reporting to UNAIDS had laws in place requiring parental consent for adolescents to access HIV testing[80]. Most adolescents do not regularly attend health services, and relatively few health services are designed with adolescents' needs in mind.[81]

88. Addressing social and structural barriers can improve adolescents' treatment adherence and retention in care. For example, as emotional and physical abuse of adolescents is associated with non-adherence,[82] [83] strategies to protect adolescents from such abuse have the potential to improve adolescents' treatment outcomes. Support for caregivers can also improve adolescents' adherence, by improving parenting and ensuring that young people have sufficient food and money to travel to the clinic.[84] [85]

89. Older adolescents and young adults experience challenges as they transition from paediatric HIV care to adult self-care, sometimes discontinuing care altogether.[86] A recent systematic review of the scientific literature found that barriers to a successful transition to adult self-care include emotional and interpersonal issues (e.g. a sense of loss in leaving one's paediatric HIV treatment "home"), logistical and systemic difficulties in navigating adult treatment settings, and fears regarding involuntary or accidental HIV status disclosure in adult settings.[87] Factors that contribute to a successful transition include social support, transition readiness for both the young person and the adult treatment team, a multidisciplinary approach to service delivery and focused coordination of the transition.[87]

90. Effective health services for adolescents must take account of the reality that many adolescents are sexually active. Health services must also recognize and address experiences of coercive early sex (which occurs all too frequently, especially for adolescent girls)[60] and provide them with appropriate choices for preventing HIV and other sexually-transmitted infections, such as post- and pre-exposure prophylaxis and condoms, as well as contraception to prevent unintended pregnancy.

91. An estimated 16 million adolescents give birth every year, with 95% of those births occurring in low- and middle-income countries.[88] In resource-limited settings, complications from pregnancy and childbirth are a leading cause of mortality among girls aged 15–19 years.[88] As previously noted, prevention of unintended pregnancies among women living with HIV is an important component of prevention of new infections among children. The intersection of HIV and sexual and reproductive health underscores yet

again the close linkages between HIV and the broader Agenda for Sustainable Development.

"Game changer": Invest in expanded, tailored testing approaches for adolescents and youth (including focused investments for young key populations)

92. To close the gaps in HIV testing for adolescents, voluntary testing and prevention services need to be optimized and fully integrated in places where adolescents are served, including community centres, schools and health services (such as family planning, antenatal care, tuberculosis services, STI clinics, services for survivors of gender-based violence and nutrition services), as well as through outreach services in geographic areas with high HIV transmission. Integrated services for adolescents should be offered at community service points, such as in teen clubs or in safe spaces specifically designed for adolescents. Index testing should be scaled up, and efforts should be made to simplify the process of learning one's HIV status, including through the promotion and ready availability of HIV self-testing.[89]

93. Community networks should be fully leveraged and supported to reach hard-to-reach adolescents and youth, including young key populations. Emphasis should be placed on increasing use of the digital technologies to prioritize high-incidence populations, as well as efforts (in partnership with the private sector) to enhance service access and retention in care. Layering multiple interventions can improve HIV-specific and other health and well-being outcomes for adolescents and youth.[84] Adolescents and youth need to be engaged as champion change agents and as partners in the planning, implementation, delivery and monitoring of youth-focused testing services.

Indonesia: linkages to care for young key populations

LOLIPOP (Linkage of Quality Care for Young Key Population) is a programme designed to increase testing, treatment, and adherence, and prevent new HIV infections among young key populations in Indonesia. The programme focuses on four areas: an enabling legal and policy environment; providing HIV service supplies, commodities and health workers; increasing demand through communication strategies that appeal to young people; and generating scientific strategic information to inform decision-making.

The programme brought together government structures, UN agencies, academia, health workers and young key populations to prioritize the needs of key populations in Indonesia's national AIDS plan. A toolkit has been developed and can be used to scale-up the programme.

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94. Young key populations require focused testing efforts. Surveys have found HIV self-testing to be broadly acceptable among key populations,[90] and monitoring by WHO has found substantial uptake of HIV self-testing in those populations.[91] Given societal stigma and the disproportionate vulnerability of young key populations, partner services for young key populations need to be delivered with particular sensitivity.[91] Since young key populations are often heavy users of social media and digital communications, new media can be helpful to increase demand for testing and to link young key populations with diverse testing and prevention options.[92]

"Game changer": Adapt health services to the needs and preferences of adolescents (including particular attention to the needs of adolescents living with HIV)

95. Adolescents face unique obstacles to health care access. This warrants focused efforts to provide financial, technical and human resource support to adolescent-friendly services that are tailored to the contexts and needs of adolescents. Services are deemed adolescent-friendly if they are equitable (i.e. open to all adolescents), accessible, acceptable (i.e. provided in ways that meet the expectations of adolescents), appropriate (i.e. services which adolescents need) and effective (i.e. they contribute positively to the health of adolescents).[93]

96. A systematic review found that young people who receive services at adolescent-friendly service sites were significantly more likely to utilize health services, have good health outcomes (e.g. lower pregnancy rates), be knowledgeable about health issues, and have reduced sexual health risks.[94] Efforts to ensure ready access to adolescent-friendly health services should extend beyond existing health facilities by creating a range of differentiated service delivery options, including non-facility-based community-centred options which meet the diverse needs and preferences of adolescents.

97. To be adolescent-friendly, services should respond to the needs and preferences of adolescents,[95, 96] who should be meaningful participants in the design of those services. For example, clinic visits may need to be arranged to align with the school/university calendar or working hours of youth. Adolescent-friendly services should be provided close to the adolescent's home, if feasible, or in an environment that is safe and free of discrimination. Psychosocial support should be integrated across health services.

98. Sensitizing health-care workers to provide non-judgmental, high-quality services for adolescents, especially adolescent key populations, is a priority. In 2016–2018, CHIVA South Africa sensitized health workers at 30 health facilities in KwaZulu-Natal province to deliver adolescent-friendly health services, in part by promoting cooperation between facility staff, adolescents and young people living with HIV and civil society.[97]

99. HIV treatment services for adolescents living with HIV should ensure the provision of the most effective treatment options, dolutegravir, to address poor viral suppression and prevent drug resistance due to poor treatment adherence.[98] Screening and management of HIV-related disabilities and poor growth should also be included, along with screening and treatment for HIV-associated infections, including cotrimoxazole prophylaxis and tuberculosis preventive therapy.[99]

100. A growing array of programme models shows that it is feasible to adapt health services to improve HIV outcomes for adolescents:
- in Zimbabwe, the Zvandiri model is a differentiated service delivery model for adolescents which incorporates community adolescent treatment supporters. It was found to significantly improve viral suppression rates among adolescents living with HIV, compared with a non-intervention control group[100] (see box below);
- in Lesotho, monthly teen club gatherings provide counselling, leadership and skills development, peer education and mentorship to empower young people living with HIV;
- in the United Republic of Tanzania, Ariel Adherence Clubs prioritize the integration of intensive psychosocial support services in HIV care. They have achieved viral suppression rates among participating children and adolescents that are substantially higher than those at non-participating clinical sites[101] (see box below; and
- in Ecuador, local authorities in the capital, Quito, have implemented multiservice programmes for sexual and reproductive health for adolescents, including HIV.

Tanzania and Zimbabwe: service delivery models tailored to children and youth

In Tanzania, Ariel Adherence Clubs (AACs) provide psychosocial support for children and adolescents living with HIV aged 5-19. AACs provide integrated clinical service delivery, psychosocial support and group/peer health education in safe spaces as well as caregiver counselling.

In Zimbabwe, Zvandiri (meaning "as I am") is a model of differentiated service delivery for children, adolescents and young people. Community adolescent treatment supporters, or "CATS", identify and refer undiagnosed children, adolescents and young people CAYP through index case finding and support pre- and post-test HIV counselling and disclosure. The CATS are adolescents and young people living with HIV aged 18–24, trained and mentored by Ministry of Health and Child Care and Africaid. They support the linkage of HIV-negative clients to HIV prevention services while those confirmed as HIV-positive are registered with Zvandiri.

Both Zvandiri and AACs have significantly improved treatment adherence and rates of viral suppression among adolescents living with HIV compared to control groups of adolescents receiving standard care.

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101. Simplified, streamlined services can improve HIV outcomes for adolescents living with HIV. In Kenya, the Red Carpet Programme, a fast-track, peer-designed approach to HIV treatment services for newly diagnosed individuals, increased linkage to care among adolescents and young people from 57% to 97% and improved retention in care from 66% to 90%.[102]

102. Across diverse programmes, a recent multicomponent research project (which included a desk review and engagement of 87 stakeholders) found that peer-based group interventions improved adolescents' treatment retention and viral suppression rates, especially when combined with antiretroviral and clinical services. However, it also found that such approaches were yet to be brought to scale in most settings. The same analysis found that community-based services (e.g. community adherence clubs for young people), social protection and investments in youth engagement and advocacy also improved HIV outcomes for adolescents.

103. Services for adolescents should be comprehensive, including HIV/STI care, sexual and reproductive health services, mental health services and psychosocial support. For example, mental health care is a priority not only for the general health and wellbeing of adolescents, but also to optimize the impact of antiretroviral therapy (since depression has been shown to reduce treatment adherence among adolescents living with HIV).[103] Age-appropriate treatment literacy programming should be provided to facilitate a smooth and effective transition from paediatric to adult self-care. To support good treatment outcomes, investments are needed in HIV-sensitive social protection schemes, programmes and interventions.

The Netherlands: multidisciplinary transition clinic for adolescents living with HIV

The transition from paediatric to adult HIV care can be challenging for adolescents and young adults and may lead to loss to follow-up and adherence problems. A 2016 study in the Netherlands on virological outcomes of perinatally infected adolescents and young adults found that they were vulnerable to virological failure due to non-adherence during the transition period. The transition protocol was then revised and a multidisciplinary transition clinic for perinatally HIV-positive adolescents in Amsterdam was established. The transition clinic includes health-care providers for both paediatric

and adult care (paediatric and adult HIV-treating physicians, HIV specialist nurses, psychologists and social workers). Adolescents aged 16-18 years meet every 3–6 months with the entire multidisciplinary transition team. The main aims are to offer medical as well as social and psychological care, achieve early detection of psychological difficulties, and improve clinical outcomes and retention in care.

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"Game changer": Empower adolescents and young people, including those living with HIV and key populations

104. Action is needed to strengthen the communities of adolescents and young people, including those living with HIV and those at high risk of HIV infection. Empowered adolescents, young adults and their allies should advocate for meaningful access to optimal prevention, treatment and care at all levels of the HIV response. Young people should participate and be included in policy and programme design, development, implementation, fundraising, planning, delivery, and the monitoring and evaluation of policies, programmes and services.

105. New investments are needed to build the capacity of networks and organizations of young people living with HIV, and all stakeholders in the HIV response should prioritize the active and comprehensive engagement of young people as key partners in the response, especially as it pertains to their own needs. These investments should specifically endeavour to implement the recommendations in the 2019 UNAIDS report on young people's participation in community-based HIV responses.[104]

106. Well-resourced, organized networks of adolescents and young people can increase demand for prevention services, support adherence to pre-exposure prophylaxis and other prevention interventions, advocate for attention to the broader social and structural factors that increase adolescents' and young people's vulnerability to HIV, and advocate for safe spaces where adolescents can deliver peer-based support and interventions.

107. Empowerment and peer-based models exist to improve HIV outcomes for adolescents and young people living with HIV. For example, the Operation Triple Zero model in Kenya engages adolescents and young people by providing a treatment literacy package that aims to achieve zero missed appointments, zero missed medication doses and zero viral load. Enrolment in Operation Triple Zero is associated with substantial improvements in self-reported adherence and in viral suppression.[105] Support should be provided for adolescents' and young people's serostatus disclosure, engaging parents or primary care givers, health workers and adolescent peers.

108. The #UPROOT youth-led scorecard is an example of a youth-led community monitoring and advocacy process to hold governments accountable for commitments made on sexual and reproductive health rights, HIV and gender equality. The youth-led scorecard tool has been developed by young people for young people. It includes sections for assessing the progress made by countries in achieving an enabling environment, including protective laws and policies that guarantee young people's access to HIV and sexual and reproductive health services.

109. Supporting pregnant adolescent and young adult women living with HIV to remain engaged in care and achieve and sustain viral suppression is a priority. In Kenya, the AIDSFree Jielimishe Uzazi na Afya programme uses home visit teams that include a peer mentor, a supervisor and a household facilitator to visit and counsel pregnant adolescents and young mothers. All pregnant and breastfeeding women who participated in the programme received HIV testing, 94% of participants delivered their

babies with the support a skilled birth attendant (a much higher rate than the national average of 61%), and all pregnant women who tested HIV-positive were linked to antiretroviral therapy.[20]

110. Meaningful empowerment of adolescents also requires appropriate changes to obstructive laws and policies. Age-of-consent laws and other policies that restrict adolescents' access to prevention, testing and treatment services must be removed. Similarly, the removal of laws that criminalize or otherwise burden young members of key populations is also essential for effective empowerment of adolescents to serve as agents of change in the HIV response.

Angola, Madagascar, Mozambique, Zambia and Zimbabwe: strengthening legal and policy environments to reduce HIV risk and improve the sexual and reproductive health of young key populations

The Linking Policy to Programmes initiative aims to improve sexual and reproductive health outcomes for young key populations by strengthening the relevant rights of young key populations in laws, policies and strategies in five Southern African Development Community (SADC) countries.

The project supports the capacities of national governments, civil society organizations and SADC to advocate and implement strengthened HIV- and sexual and reproductive health-related legal and policy environments that respect the rights of young key populations and improve those services for young key populations. The project also seeks to strengthen appropriate indicators and monitoring and evaluation processes to ensure accountability.

The project is the first to open spaces for young key populations to voice their concerns. A major achievement was the development of the SADC key population strategy, which Member States' Ministers of Health approved in November 2017. In Angola, young key populations participated in the project and contributed to discussions which led to the decriminalization of same-sex relationships. In Zimbabwe, young key populations are interacting with parliamentarians around the revision of age of consent for marriage and access to health services.

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Conclusion: way forward

111. Although substantial gains have been made towards reducing the AIDS epidemic's toll among children and youth, the world is far from reaching global HIV targets and laying a solid foundation for ending the epidemic among children and young people.

112. "Business as usual" is a recipe for failure. We must focus on rapidly and effectively implementing "game-changing" solutions that achieve concrete results for children, adolescents and youth affected by HIV and that put the world on-track to end the epidemic. Countries need to implement and bring to scale a set of priority actions that:

a. urgently identify the causes of new HIV infections among infants and use evidence-based interventions to optimize the delivery of PMTCT and maternal and child health services. Countries should use analytical tools, such as the UNAIDS-supported Spectrum model which enables countries to pinpoint gaps in PMTCT programming with increased precision and to analyse whether new infections among infants are occurring because of:

- acquisition of new HIV infection by the mother during pregnancy or breastfeeding and onward transmission to baby;
- lack of access for pregnant and breastfeeding women to antenatal or PMTCT services, with mother living with HIV not receiving ART during pregnancy and breastfeeding; and
- mother dropping off HIV treatment during pregnancy or breastfeeding;

b. effectively introduce and scale up point-of-care early infant diagnosis to address the testing gap among infants and actively look for children missed along PMTCT cascade through scale-up of family index testing and targeted HIV testing in high-yield entry points (e.g. antiretroviral treatment, tuberculosis, malnutrition, inpatient wards, adolescent programmes, STI, family planning, and outpatient well-child settings);

c. adopt improved treatment regimens in appropriate formulations for HIV and HIV-associated infections across the lifecycle, ensuring equitable access of children, adolescents and youth to appropriate treatment monitoring and adherence support.

d. introduce differentiated models for identifying and linking children, adolescents and young people (including young key populations) to prevention, treatment and care, and retaining them in care—by strengthening community-facility linkages, investing in digital solutions and ensuring young people's access to a comprehensive package of health and wellbeing services;

e. invest in HIV primary prevention packages, with an optimal mix and intensity of biomedical, behavioural and structural interventions. Those interventions should include comprehensive sexuality education, keeping girls in school through secondary education, economic empowerment for adolescent girls and young women, voluntary medical male circumcision for adolescent boys and young men, condom programming, pre-exposure prophylaxis, effective use of strategic communications, elimination of stigma and discrimination, and effective targeting of at-risk groups; and

f. address structural factors that increase the vulnerability of young key populations as well as of adolescent girls and young women to HIV (e.g. gender inequality, early marriage, gender-based violence, age of consent laws, criminalization of key populations and legal impediments to access to harm reduction).

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